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Base Realignment and Closure
Program Management Office West
33000 Nixie Way, Building 50
San Diego, California 92147

CONTRACT NO. N62473-10-D-0809
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FINAL

TECHNICAL MEMORANDUM OPERABLE UNIT 2C DRAIN LINES STORM DRAIN LINES A, B, G AND INDUSTRIAL WASTE LINE

January 2016

DCN: RMAC-0809-0005-0006

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ABBREVIATIONS AND ACRONYMS

ARAR	applicable or relevant and appropriate requirement
BCT	Base Realignment and Closure Cleanup Team
cm^2	square centimeter
DON	Department of the Navy
dpm	disintegrations per minute
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
IC	institutional control
IR	Installation Restoration
IWTP	industrial waste treatment plant
m^2	square meter
mg/kg	milligrams per kilogram
mrem/y	millirem per year
NAS	Naval Air Station
OU	Operable Unit
pCi/g	picocurie(s) per gram
Ra-226	radium-226
RCRA	Resource Conservation and Recovery Act
RESRAD	Residual Radioactivity (Model)
RG	remediation goal
ROC	radionuclide of concern
ROD	Record of Decision
RSL	regional screening level
RWQCB	(California) Regional Water Quality Control Board
SAP	Sampling and Analysis Plan
SVOC	semivolatile organic compound
TCRA	time-critical removal action

ABBREVIATIONS AND ACRONYMS
(Continued)

TtEC	Tetra Tech EC, Inc.
VOC	volatile organic compound

1.0 INTRODUCTION

Tetra Tech EC, Inc. (TtEC) prepared this Technical Memorandum to document the results of an investigation of drain lines associated with Operable Unit (OU)-2C Installation Restoration (IR) Sites 5 and 10 at Alameda Point in Alameda, California (Figure 1-1). The investigation supplements a number of previous investigations and remedial actions associated with OU-2C IR Sites 5 and 10. The work reported herein is focused on Storm Drain Lines A, B, and G, and the industrial waste line that originate within OU-2C and are located outside Buildings 5/5A and 400/400A. To simplify reference to these buildings, they will be referred to in this Technical Memorandum as Building 5 and Building 400, respectively. This Technical Memorandum was prepared at the direction of the Department of the Navy (DON) under Contract No. N62473-10-D-0809, Contract Task Order No. 0005.

The 2014 Record of Decision (ROD) for OU-2C (DON 2014) addresses the drain lines beneath Buildings 5 and 400 and specifically excludes the drain lines located outside the buildings that were evaluated in the Feasibility Study Addendum (TtEC 2012); these lines are shown on Figure 1-2. Drain Lines F and FF, the storm drain lines historically identified as radiologically impacted, were removed and replaced with new lines; these lines are addressed in the 2014 ROD. The reason Storm Drain Lines A, B, and G and the industrial waste line were excluded from the 2014 ROD was that additional data were needed to enable a decision regarding potential actions for these lines. The investigation undertaken for this Technical Memorandum is consistent with the OU-2C Proposed Plan (DON 2012) issued in September 2012, which stated: "Continuing evaluation of the storm drain lines may be conducted prior to the ROD to support future remedial activities." In coordination with the regulatory agency members of the Base Realignment and Closure Cleanup Team (BCT), it was decided that the industrial waste line also required further characterization.

1.1 PURPOSE OF THE INVESTIGATION

The purpose of the investigation described in this Technical Memorandum was to provide characterization data to support the future drain line ROD for lines outside Buildings 5 and 400. The Technical Memorandum documents the field investigation that was conducted to provide characterization data for Storm Drain Lines A, B, and G and the industrial waste line associated with OU-2C, which are shown on Figure 1-2. In addition to investigation results, this Technical Memorandum presents modified alternatives to support the decision-making process for the future selection of the remedy for the OU-2C drain lines not included in the 2014 ROD. This investigation was conducted in accordance with input and approval from the BCT.

The investigation included:

- Collection of data from Storm Drain Lines A, B, and G to characterize the lines and support a determination of the radiological status of those lines.
- Collection of data from the industrial waste lines to determine whether the institutional controls (ICs) presented as the preferred alternative in the Proposed Plan (DON 2012) would be sufficiently protective of human health.

1.2 REPORT ORGANIZATION

This report is organized into the following sections:

- **Section 1.0: Introduction** – Describes the purpose, field activities, and organization of the report.
- **Section 2.0: Background** – Presents information on the site characteristics, history, and previous documents.
- **Section 3.0: Field Activities and Investigation Results** – Summarizes the field activities associated with the additional investigations of the storm drain lines and the industrial waste line.
- **Section 4.0: Conclusions** – Draws conclusions from the investigation of Storm Drain Lines A, B, and G and the industrial waste line located outside Buildings 5 and 400.
- **Section 5.0: References** – Provides references used to prepare this report.

Tables and figures are provided after Section 5.0 and before the appendices.

Supporting data are presented (primarily as digital files on CD only) in the appendices to this Technical Memorandum, including:

- **Appendix A:** Final Field Summary Report (July 2013)
- **Appendix B :** Surveys of Excavated Pipe
- **Appendix C:** Focused Storm Drain Line Investigations Sample Data
  - **Subappendix C1:** Focused Storm Drain Line Investigations Sediment and Core Sample Analyses
  - **Subappendix C2:** Focused Storm Drain Line Investigations Waste Characterization Data for Excavated Soil and Water
- **Appendix D:** Industrial Waste Line Sample Data
  - **Subappendix D1:** Chemical Constituent Results
  - **Subappendix D2:** Radiological Results
  - **Subappendix D3:** Waste Characterization Data for Sediment Removed from Manholes

- **Subappendix D4:** Waste Characterization Data for Excavated Soil Above Former Building 29 Pump Station

- **Appendix E:** Photographs
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- **Appendix F:** Work Plan Field Change Request Forms
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2.0 SITE BACKGROUND

Alameda Point is located on the western end of Alameda Island, which lies on the eastern side of San Francisco Bay, adjacent to the City of Oakland. Alameda Point encompasses roughly 1,700 acres of land, including the former Naval Air Station (NAS) Alameda. OU-2C consists of IR Sites 5, 10, and 12 (see Figure 1-1). The 2014 OU-2C ROD documents that no action is necessary for IR Site 12. A description of site characteristics and history of IR Sites 5 and 10 is provided below, along with a summary of the results of the OU-2C Feasibility Study (FS) Addendum (TtEC 2012) and the Proposed Plan (DON 2012) related to the lines addressed in this Technical Memorandum.

2.1 SITE CHARACTERISTICS AND HISTORY

Most of former NAS Alameda was built over an area that was previously shallow open water, tidelands, marshlands, and sloughs of San Francisco Bay. This transition resulted from several rounds of dredging sediments from the bay and Oakland Inner Harbor, and using them as fill on what is now Alameda Point. The average elevation of Alameda Point is 15 feet above mean sea level.

The DON acquired the Alameda Point property in 1936. IR Site 5 (approximately 47 acres in size, see Figure 1-1) was the former Naval Air Rework Facility and contains Building 5 (approximately 20.9 acres). The Naval Air Rework Facility was a major component of NAS Alameda and is located in central Alameda Point, to the north of Seaplane Lagoon. Past uses of Building 5 include, but are not limited to, cleaning, reworking, and manufacturing of metal parts; plating, painting, and tool maintenance operations; and specialty operations, including the application of radioluminescent paint to aircraft dial faces and refurbishment of aircraft instruments. From the early 1940s through the early 1960s, radioluminescent painting operations were conducted on the second floor of Building 5. Radiological operations within Building 5 included disposing of radioluminescent paint via Storm Drain Line F, which discharged into Seaplane Lagoon. The radium paint shop facilities for painting radioluminescent aircraft instrument dials were moved from Building 5 to Building 400 (IR Site 10) in the late 1950s.

Storm drain lines, industrial waste lines, and an industrial waste treatment plant were historically identified at IR Site 5. All activities ceased in Building 5 in 1993. The industrial waste treatment plant (IWTP) was closed in accordance with Resource Conservation and Recovery Act (RCRA) requirements.

IR Site 10 is approximately 4 acres in size and was the former missile rework facility. It is bounded to the north by IR Site 5, and the southern boundary is approximately 600 feet north of Seaplane Lagoon. Building 400 occupies approximately 85 percent of IR Site 10; the remaining portions consist of paved open space, parking lots, and roads. Past uses of IR Site 10 included

similar industrial activities and operations as conducted in Building 5, including painting radioluminescent aircraft instrument dials. Radium-226 (Ra-226) paint wastes were discharged to the industrial waste line. Storm Drain Line FF, which exits in Building 400, to the south of Building 5, was removed and replaced.

The site conceptual models for Storm Drain Lines A, B, and G and the industrial waste line are different due to the purpose and history of these lines. Storm Drain Lines F and FF (removed) are known to have been connected historically to the radium paint room drains and were known to be radiologically impacted. During the removal of Storm Drain Lines F and FF, it was discovered that the lines may have been connected to other drain lines, namely Storm Drain Lines A, B, and G, but information regarding this connection is limited. The purpose of Storm Drain Lines A, B, and G is to collect stormwater and discharge it to prevent flooding. Thus, although these stormwater drain lines may have carried contaminants occasionally, these lines have a much higher drainage flow rate.

The purpose of the industrial waste line was to transport industrial wastes, thus, this line carried a much higher percentage of industrial waste flow, with a broader range of possible contaminants. The purpose and known historical use of the industrial waste line for discharging Ra-226 paint wastes indicate that a greater potential exists for the presence of contaminants within the industrial waste line. Two types of industrial waste lines are present at OU-2C, the gravity flow line and two force main lines. Two pump stations are present within the OU-2C area that are connected to the force main industrial waste line: Pump Station 1 and Pump Station 2. The gravity-fed industrial waste line is more likely than the force main line to accumulate contaminants since flow was pressurized within the force main line. This pressurized flow minimized the ability of sediment, along with possible contaminants, to settle to the bottom of the pipe. Therefore, for the force main sections of the line, sediment would not be expected to be present in the line. However, due to the fact that Ra-226 paint wastes were known to have been disposed of into the line, the interior of the force main line may include paint wastes that have adhered to the inside of the pipe, and, through time, became part of the piping.

2.2 ENVIRONMENTAL ASSESSMENT AND CLEANUP

The history of environmental assessment at OU-2C dates back to 1982, when the Initial Assessment Study (IAS) was conducted; this assessment and numerous investigations are well documented in the OU-2C ROD (DON 2014). The key parts of this history that relate to the activities documented in this Technical Memorandum are described in this section, in chronological order.

The IWTP, located south of Building 5, was closed by the California Department of Toxic Substances Control on October 12, 1999. Although the IWTP was removed, the industrial waste lines were left in place; sampling was not conducted in the industrial waste lines as part of the IWTP closure activities.

Between 2008 and 2010, a time-critical removal action (TCRA) for Installation Restoration Sites 5 and 10, Buildings 5 and 400 storm drain lines was completed (TtEC 2011) that addressed Storm Drain Lines F and FF, which discharge to Outfalls F and FF in Seaplane Lagoon. Lines F and FF and associated soil around the lines were removed and replaced during this TCRA. During the TCRA, more than 9,500 linear feet of known contaminated pipe, manhole structures, and catch basins from Storm Drain Line F and FF were removed and replaced. Line F is the storm drain line documented as radiologically impacted in the Historical Radiological Assessment for Alameda; its history indicates that Ra-226 paint wastes were discharged to this line prior to installation of the industrial waste lines. Sampling of sediment in Line F conducted prior to removal of the line showed a maximum concentration of 1,116.6 picocuries per gram (pCi/g). The history of Line F is similar to that of the industrial waste line, except that the sampling of the current industrial waste line does not indicate such high levels of Ra-226. During the TCRA, the approach was to excavate to the level of the storm drain pipe, then remove the pipe and a minimum of 1 foot of soil below and to either side of the pipe. The storm drain system removed during the TCRA comprised of a variety of materials, including polyvinyl chloride, high-density polyethylene, ductile iron, vitrified clay, and unreinforced and reinforced concrete. Pipe diameters ranged from 3 inches to 36 inches, and pipe depths ranged from approximately 4 feet to 11 feet below ground surface. Soils from around the pipe as well as the sides and floor of the trench excavation were screened and characterized. The areal extent of the excavation is well known based on data collected during the TCRA. The trench excavations were divided into 45 survey units. The TCRA report documents that any contamination located outside of the pipe was within 5 feet of either side of the pipe. The TCRA included collecting samples using access from industrial waste line manholes, as well as from manholes and catch basins in other storm drain lines. Also during the TCRA, a background reference area and value were determined for the OU 2C drain lines. See Appendix G of the TCRA Completion Report (TtEC 2011) for a more detailed discussion of the background reference area; Figure 3-1 in Appendix G (TtEC 2011) shows the location and Attachment 2 of Appendix G (TtEC 2011) provides sampling data. Only areas that were not impacted by historical activities at NAS Alameda were selected for background reference areas. Samples were collected from a total of 156 manholes and catch basins in Storm Drain Lines A, B, and G. Of the 156 locations, only a total of 7 locations for all lines (2 locations in Storm Drain Line A, 3 locations in Storm Drain Line B, and 2 locations in Storm Drain Line G) exhibited radium-226 activity greater than 1 pCi/g above background. Sediment was removed from these seven storm drain line locations at manholes and/or catch basins. A total of 14 locations were sampled at manholes in the industrial waste system; 4 additional manholes identified for sampling were either not accessible or contained no sediment. Of the 14 sampled manholes in the industrial waste system, 9 exhibited Ra-226 activity greater than 1 pCi/g above background. Since the industrial waste system was not active, sediment from these nine manholes was not removed during the TCRA.

The manhole locations along the gravity-fed industrial waste line originating from Buildings 5 and 400 were sampled in 2009 for radiological isotopes. Minimal information was known about the sediment within the gravity-fed portions of the industrial waste lines or the potential for other contaminants being present within the system. Available information from historical maps or excavation activities indicated the gravity-fed portion of the inactive industrial waste line is constructed of vitrified clay, but the force main portion of the industrial waste line is constructed of cast iron. Results of the TCRA sampling showed that the maximum Ra-226 activity within the gravity-fed industrial waste line sampling location is in manhole MH1-8, which is located between Buildings 5 and 400. The final outcome of these previous investigations, as well as examination of historical drawings and discussions with the BCT in 2013, was to conclude that additional investigation should be conducted.

2.3 FEASIBILITY STUDY ADDENDUM

The FS Addendum (TtEC 2012) provided additional assessment of and recommendations for Storm Drain Lines A, B, and G and the industrial waste line. The assessment was based on analytical results associated with the sediment removed from manholes in the lines. It identified the radionuclide of concern (ROC) and provided remedial action objectives, a remediation goal (RG), an evaluation of remediation alternatives, and a summary of applicable or relevant and appropriate requirements (ARARs). The FS Addendum also presented a risk analysis for possible ROCs within the potentially radiologically impacted drain lines not included in the previous FS Report, including Storm Drain Lines A, B, and G and the industrial waste line. Portions of Storm Drain Lines A, B, and G and the industrial waste line were identified for remedial action in the FS Addendum based on risk analysis and regulatory agency input.

The FS Addendum summary presented here focuses on the risk analysis for Storm Drain Lines A, B, and G to provide background. However, the FS Addendum results for the industrial waste line are included in Table 2-1. Additional detail related to the risk analysis is provided in Appendix A of the FS Addendum (TtEC 2012). The hydro-jetting alternatives of the FS Addendum are briefly described because of their relevance to the investigation described in this Technical Memorandum.

2.3.1 Risk Analysis Summary

This discussion of risk assessment results from the FS Addendum is specific to Storm Drain Lines A, B, and G, and it includes modeling input parameters.

As described in the FS Addendum, results of sediment samples from Storm Drain Lines A, B, and G were modeled using the Residual Radioactivity Model (RESRAD). Input parameters and modeling results for dose and risk were presented in Appendix A of the FS Addendum. A brief description of key aspects of the modeling and site-specific revisions to RESRAD default input parameters follows.

The only exposure pathway modeled for the FS Addendum where the receptor would be in contact with Ra-226 was the outdoor worker. Modeling was conducted for both mean and maximum sample results. The exposure frequency and duration used in the modeling were in accordance with EPA recommendations (EPA 1997b). For the outdoor maintenance worker who is in contact with radiologically impacted waste, exposure was assumed to be 225 days per year, 8 hours per day, for 25 years.

The default RESRAD input parameter for the area of the contaminated zone is 10,000 square meters (m^2). Based on the individual characteristics of the modeled scenarios, separate values for the area of the contaminated zone are used to appropriately describe the potential area of contamination. The largest pipe diameter typically encountered at Alameda Point is 36 inches, which correlates to a circumference of 2.87 meters. The individual most likely to enter piping is a maintenance worker, who is not likely to work in a span of piping that exceeds 25 meters in length during a day's work. As such, a surface area of that span of pipe including extra length is conservatively estimated as 100 m^2. Additionally, because the area is not zoned for residential reuse, and underground piping constitutes a small portion of the underground area at Alameda Point, it is unlikely that a resident or industrial worker would spend a significant portion of time standing or working above an area of 100 m^2 of underground piping. Therefore, 100 m^2 was used in the FS Addendum modeling.

The default value in RESRAD for the thickness of the contaminated zone is 2 meters. The largest diameter piping typically encountered at Alameda Point is 36 inches (0.914 meter). Even if the piping was completely filled with contaminated material, this thickness would not approach 2 meters. A contamination thickness of 0.1 meter is the most realistic value and assumes a considerable amount of material is present throughout the pipe. A significant increase above this thickness would indicate a blockage in the pipe that would require maintenance and/or repair. Therefore, 0.1 meter was used in the FS Addendum modeling.

The default value in RESRAD for the cover depth is zero. The contamination is assumed to be on the surface. The depth of most of the storm drain systems varies from 1 to 2 meters. In the case of an outdoor worker performing maintenance inside the pipe, the cover depth default parameter of zero is used to reflect that the worker will not have the benefit of the soil around the piping as shielding during work operations.

To assess uncertainty in the risk analysis, uncertainty analysis was conducted using NUREG-6697 (NRC 2000). Results showed that due to the longevity of Ra-226's half-life (1,600 years), the most important input parameter affecting the risk from Ra-226 is the thickness and density of the contaminated zone. The results of the risk and dose assessments for Storm Drain Lines A, B, and G from the FS Addendum are summarized in Table 2-1. Modeling for the outdoor worker was performed using the net mean sample results equally distributed in each storm drain line. This resulted in increased cancer risks for Ra-226 of 9.441×10^{-6}, 2.099×10^{-5}, and 3.372×10^{-6} for Storm Drain Lines A, B, and G, respectively.

Prior to the hydro-jetting, sediment collected from manholes in Storm Drain Lines A, B, and G in 2010 had Ra-226 sample results greater than the soil RG for Ra-226 of 1.0 pCi/g above background along the main trunk lines of their respective systems. Therefore, the FS Addendum (TtEC 2012) identified these portions of the lines for remediation. The FS Addendum also included laterals to the first manhole as requiring action, but Ra-226 did not exceed the RG in samples from manholes on the laterals. Subsequent to issuance of the FS Addendum in 2012, the Navy, with concurrence of the BCT, determined that more data were required before a decision on these lines could be made.

2.3.2 Hydro-Jetting Alternatives

Both Alternatives D5 and D6 in the FS Addendum (TtEC 2012) included the process of hydro-jetting, limited excavation, and disposal for the main trunk of Storm Drain Lines A, B, and G. The FS Addendum specified hydro-jetting in these alternatives to remove sediment from within the main trunk lines of Storm Drain Lines A, B, and G. It also specified hydro-jetting of sediment from lateral lines to remove sediments to the first manhole encountered moving out from the main line in each lateral. Extracted sediments were required to be radiologically screened.

Once extraction of sediments via hydro-jetting was completed, a video camera inspection and radiological survey of the inside of the pipe would be performed to assess physical, visual, and radiological conditions. The removed and screened soils and sediments and the video camera and radiological survey data would be evaluated to assess the final disposition of the storm drain lines. Alternatives D5 and D6 included conducting limited excavations in sections of the pipe shown to be impacted or in such poor condition that the hydro-jetting could not be conducted. Alternatives D5 and D6 differ in their treatment of the industrial waste line, the former calling for ICs only and the latter for excavation and disposal.

2.4 PROPOSED PLAN SUMMARY

The Proposed Plan for OU-2C IR Sites 5, 10, and 12 (DON 2012) identifies and summarizes the recommended alternatives that were presented in the FS Report (Battelle 2011) and FS Addendum (TtEC 2012). In addition, the OU-2C Proposed Plan (DON 2012) presents the preferred remedial alternative for the radiologically impacted drain lines and surrounding soil outside Buildings 5 and 400. The preferred alternative is Alternative D5, and is described as hydro-jetting, limited excavation and disposal from the main trunk of Storm Drain Lines A, B, and G and ICs for the industrial waste line.

The preferred alternative summarized above met all the threshold criteria for overall protection of human health and the environment and for compliance with ARARs, and is rated moderate for all of the balancing criteria. This alternative involved removing sediment within the main trunk lines and adjacent lateral lines to the first manhole from the main trunk of Storm Drain Lines A and B. Since the sediment had been removed from Storm Drain Line G's main trunk during a

previous project, the alternative included removing sediment from Storm Drain Line G's lateral segments connecting directly with the main trunk. Once extraction of sediments in the storm drain lines by hydro-jetting was completed, camera verification and a radiological survey of the inside of the pipe would be performed. The removed sediments in combination with the radiological survey would be used to determine whether the storm drain line is radiologically impacted. Limited excavation would be conducted, as appropriate.

Since the industrial waste line was not considered a candidate for hydro-jetting due to its deteriorated condition, ICs were identified as the preferred alternative for the radiologically impacted portion of the industrial waste line to limit exposure to contamination associated with the line. Institutional controls would prohibit disturbance of the area encompassing the line and associated potentially impacted soil unless there was prior regulatory agency approval. If the existing engineering controls (soils) would be removed, an equivalent engineering control must be implemented unless any remaining impacted soil and the industrial waste line are excavated and properly disposed of off-site. Periodic monitoring and maintenance of the engineering controls for the industrial waste line would be required to ensure they continue to provide adequate protectiveness. Five-year reviews would be required to evaluate the continued protectiveness of the institutional and engineering controls.

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3.0 FIELD ACTIVITIES AND INVESTIGATION RESULTS

This section summarizes the field activities and investigation results for Storm Drain Lines A, B, and G and the industrial waste line.

3.1 STORM DRAIN LINE INVESTIGATION ACTIVITIES AND RESULTS

Field activities conducted between August 2012 and January 2014 for Storm Drain Lines A, B, and G included removing sediment by hydro-jetting the main trunk lines of Storm Drain Lines A and B, and the laterals connected to the main trunk lines to the first manhole of Storm Drain Lines A, B, and G. The main trunk of Storm Drain Line G was not hydro-jetted because sediment removal and hydro-jetting of this line were completed in 2011 (TtEC 2011). A video camera inspection was conducted to document the pipe condition for the main trunk lines and, as feasible, for the laterals to the first manhole of Storm Drain Lines A, B, and G. Also, a gamma scan survey was conducted of the main trunk lines and the laterals to the first manhole of Storm Drain Lines A, B, and G.

After conducting the activities described above, it was concluded that a limited excavation, survey, and removal of sections of Storm Drain Lines A, B, and G should be performed. This was based on a review of the 2012 – 2013 investigation results.

3.1.1 Summary of the 2012–2013 Storm Drain Line Investigation Results

The initial storm drain line investigation activities were performed between August 6, 2012 and January 28, 2013. These activities have been documented in a report titled the Final Field Summary Report for Operable Unit 2C Drain Lines (TtEC 2013), which is included with this Technical Memorandum as Appendix A. Pertinent activities and results are described in that summary report and led to the additional investigations for the storm drain lines reported in this Technical Memorandum. For a more detailed discussion of these 2012 – 2013 activities, refer to Appendix A.

To enable collection of characterization data on the condition of Storm Drain Lines A, B, and G and the level of radiological activity in the sediment within them, the lines required cleaning. TtEC performed hydro-jetting to remove the sediment and debris, conducted video camera inspection, and conducted radiological surveys of the interior of the main trunk and lateral lines to the first manhole moving out from the main trunk of Storm Drain Lines A, B, and G. A summary of the completed quantities (linear feet) of hydro-jetting and video camera verification surveying is included in Appendix A (Table 3-1).

The video camera inspection survey showed that the storm drain lines are functional and that hydro-jetting was effective in removing the sediment from the line. Appendix A summarizes information from the videos about the pipe condition (see Table 3-3 of Appendix A).

Gamma surveys were performed with a waterproof gamma detector, Ludlum Model 44-10-5, connected to a Ludlum Model 2350-1 data logger, which was attached to a robotic crawler and driven through each drain line reach. The readings were recorded. The detector was moved at a maximum rate of 0.5 meter per second through each reach. A detailed evaluation of the survey data can be found in Section 4.0 of Appendix A.

3.1.2 Selecting Storm Drain Lines for Investigation

Gamma surveys of the lines were performed in 2012–2013 and a report was prepared (Appendix A). Based on the highest readings of the gamma survey, four sections of lines A, B, and G were selected for excavation and investigation. Figure 3-1 identifies the locations of the four excavated sections. A location with elevated gamma readings within each section was selected for investigation. Additionally, seepage identified from the camera inspection during the 2012 – 2013 surveys at a pipe joint in Reach 27 was selected for additional investigation.

The four sections selected were reaches 7 and 12 from Storm Drain Line A, reach 27 from Storm Drain Line B, and reach 63 from Storm Drain Line G. Figures 3-2, 3-3, 3-4, and 3-5, respectively, show the area of each reach that was excavated and the locations investigated for seepage and elevated readings. Sample locations are also shown on these figures. Note that the pipes removed from Reaches 12, 27, and 63 were composed of unreinforced concrete, and the pipe removed from Reach 7 was composed of vitrified clay. All 4 of the reaches were replaced with precast concrete pipe.

The four sections of Storm Drain Lines A, B, and G, were excavated during December 2013 and January 2014. The first step in the process was to excavate down to within 1 foot of the top of the pipe and collect four core samples from outside the pipe at the elevated and seepage investigation locations. Two samples were collected on each side at the location of the highest gamma reading within the pipe segment or reach (note: Reach 27 included two locations with high gamma readings), and two samples were collected on each side from under the pipe. The second step in the process was to excavate the pipe, collect sediment samples within the pipe, and survey the interior and exterior of the removed pipe. Ra-226 was analyzed in the collected samples via Method 901.1, which also provides results for cesium-137. Note that although the storm drain lines were hydro-jetted and sediment removal was confirmed by camera verification during the 2012 – 2013 investigation, approximately 11 months had elapsed since the selected sections were excavated; therefore, new sediment had built up within the lines.

3.1.3 Storm Drain Line Investigation Results

After extraction of sediment in the storm drain lines by hydro-jetting was completed, camera verification and a radiological survey of the inside of the pipe were performed. The removed sediment and the radiological survey results were used to identify locations where limited excavation and additional surveys needed to be conducted. The results of the additional surveys indicated no radiological contamination was present in soil surrounding the pipe in the most

elevated gamma reading locations identified during the gamma survey. It was concluded that the elevated gamma readings were likely due to the naturally occurring radioactive materials used in manufacturing the concrete or vitrified clay storm drain pipes that were investigated.

Gamma surveys of the inside and outside of the removed pipes indicated readings above background that were most likely due to the type of materials used to manufacture the individual pieces of pipe. Naturally occurring radioactive materials are found in varying concentrations in building materials such as concrete. The surveys indicate only total beta activity and cannot differentiate between the isotopes. No removable activity was identified at levels above any criteria, and no alpha activity was identified. Ra-226 is primarily an alpha emitter. Appendix B presents the survey results for the excavated pipe. As stated previously, these activity levels have been attributed to the types of materials used to manufacture the individual pieces of pipe because the readings were observed both on the inside and outside of the pipe and appear to be associated with the overall concrete material rather than a layer of fixed activity.

Analytical results associated with the sediment and soil samples taken at each of the four storm drain line excavations from inside and outside of the pipe were all below the Ra-226 release criterion. Appendix C provides all of the analytical results; the mean values of the samples collected at each excavation were below 0.500 pCi/g, and the mean for all of the samples was 0.402 pCi/g, which is less than background. Results for these samples as well as the calculated mean are found in Table 3-1. Appendix K summarizes the data validation findings in a data quality assessment for samples that underwent third party data validations.

The sediments have since been removed. The line segments with the highest readings identified during the gamma survey have also been removed. In addition, prior to the removal of the sediment, for Ra-226 mean sample results, the increased risk of cancer was in the risk management range (between 3.372×10^{-6} and 2.099×10^{-5}) (TtEC 2012). Following sediment removal, videos of the line interiors and radiological surveys did not show any indication of contamination in Storm Drain Lines A, B, and G.

3.1.4 Storm Drain Line Investigation Waste Management

Excavated material from each excavation was transported to the Site 17 yard and separated into distinct piles, based on the reach from which the excavated material originated, for processing. All processing work was conducted in accordance with the general approach and methodologies in the *Final Remedial Action Work Plan: Installation Restoration Site 17 Seaplane Lagoon, Alameda Point, Alameda, California* (Battelle and TtEC 2011), the associated Sampling and Analysis Plan (SAP), the Alameda Standard Operating Procedures (SOPs), and other associated documents, including this description of work. Sediment placed on screening pads was spread into 6-inch lifts and surveyed using a vehicle-towed array (VTA). Sediment VTA data plots are included in Subappendix C2 in addition to background VTA data used to determine the mean plus 3 sigma investigation levels for these surveys.

Following the VTA survey, the sediment was sampled for the presence of radiological and chemical constituents. The material was characterized (Subappendix C2) as non-LLRW and non-hazardous, and, in July 2014, the material was transferred to IR Site 1 for beneficial reuse.

Upstream and downstream manholes were plugged to prevent as much water as possible from entering the excavation. Water from the upstream manhole was pumped around the excavation and discharged into the next downstream manhole. During excavation and prior to performing the final status survey scan, water that accumulated in the trench was removed using pumps and hoses, and was temporarily stored in 21,000-gallon water tanks staged at the work site. Stored water collected from the trench was transported via a vacuum truck to the 350,000-gallon storage tank associated with the Site 17 water treatment system. The water, which was sampled in accordance with the requirement of the California Regional Water Quality Control Board (RWQCB) permit for the treatment system that was in place at the time of the investigation, was discharged following RWQCB review and approval of the sampling results (Subappendix C2). Water management was performed in accordance with the processes for water handling and sampling described in the Work Plan and SAP.

3.2 INDUSTRIAL WASTE LINE INVESTIGATION ACTIVITIES AND RESULTS

Evidence derived from the examination of historical drawings indicated that additional investigations should be conducted on the industrial waste line to support the proposed ICs alternative. Investigation activities included collection of data to verify the current site conceptual model. Post-2009 information on the industrial waste line is provided in the Final Field Summary Report (TtEC 2013) presented in Appendix A.

3.2.1 Summary of 2012–2013 Industrial Waste Line Investigation Results

As indicated in the Final Field Summary Report (TtEC 2013) in Appendix A, a manhole was discovered in 2013 near the former Building 29 pump station. The manhole is situated between the force main and the former Building 29 pump station where the industrial waste line's force main historically discharged. Sediment was removed from the manhole, and four samples were collected and analyzed for Ra-226. Ra-226 activity in these samples was measured between 0.7514 pCi/g and 1.64 pCi/g.

3.2.2 Industrial Waste Line Investigation

The industrial waste line investigation activities began in July 2014 and ended in November 2014. This investigation was conducted using a specific work plan with site-specific field sampling procedures approved by the regulatory agencies. The investigation summary provided here includes the following topics:

- Industrial waste line inspection and sampling
- Former Building 29 pump station investigation

- Sampling of sump in paint room on northeast side of Building 5A
- Industrial waste line waste management

Photographs of these activities are provided in Appendix E1.

3.2.2.1 Industrial Waste Line Inspection and Sampling

Before the investigation began, the condition of the industrial waste line was assessed using a video camera for remote visual inspection. In addition, the amount of sediment remaining within the line was assessed based on the video. The remaining sediment within the line was estimated to be approximately 24 cubic yards (this volume calculation is provided in Appendix G, Table G1). The two force main locations (Pump Stations 1 and 2) were dismantled as needed to allow access to the lines for the camera to travel as far as possible. Unfortunately, a large percentage of the line was not accessible for video camera inspection due to the significant amount of sediment in the line and other physical impediments, such as bends in the pipe, which the camera was not able to traverse, and other lines that were blocked at the manhole. Figure 3-6 shows which portions of the industrial waste lines able to undergo camera inspection. Based on review of the video, which covered approximately 2% of the line, the force main portions of the industrial waste line appear to be free of sediment, while the gravity-fed portion of the sediment-containing lines range from entirely open to 75 percent blocked. Digital copies of the video inspections are provided in Appendix G, along with a summary table of the video inspections (Table G2).

If sufficient sediment was found, samples of the sediment from inside the lines were collected. The plan included locations approximately 10 feet from the vaults at Pump Stations 1 and 2, in both the upstream and downstream directions. Sufficient sediment was present only upstream of Pump Station 1. A sample also was planned from inside the line approximately 10 feet from the former Pump Station 29 manhole, but insufficient sediment was present. Also, as feasible, samples were to be collected from inside the lines, approximately 10 feet from the manhole in each direction, at manholes MH1-1, MH1-5, and MH1-8 because these manholes had the highest recorded levels for Ra-226 (9.4 pCi/g, 2.6 pCi/g, and 29.4 pCi/g, respectively). Figure 3-7 shows these locations, and Figure 3-8 shows the Ra-226 results, which characterized the sediment remaining within the industrial waste line and adjacent soil. However, there was insufficient sediment in the lines on either side of manhole MH1-1; therefore, manhole MH1-4 was substituted due to the availability of sediment within the line and because it is a common connection point from Buildings 5 and 400. The highest recorded level for Ra-226 in manhole MH1-4 was 1.5 pCi/g. The samples were analyzed for metals, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and Ra-226.

Borings were advanced to provide data to support ICs. One boring was located downstream of Manhole MH1-8 because this manhole had the highest levels of Ra-226. The other boring was advanced near Pump Station 2 because this is the collection point for the gravity-fed industrial

waste line before the force main line to the former Building 29 pump station. These locations are shown on Figure 3-7.

Because the primary objective of the borings and sample collection was to help establish the IC boundaries, no excavation or pavement removal was required. The limited intrusive activity helped ensure no contact occurred with the industrial waste line piping. The borings were located approximately 5 feet from the center of the industrial waste line. Each boring was logged by a geologist, and gamma readings were collected on the cores. The combination of using logs and gamma readings was considered to be the best way to identify potential contaminants. Two samples were collected from each boring based on field evaluation of the logs and gamma readings. The samples were analyzed for Ra-226, metals, VOCs, and SVOCs based on the history of the wastes discharged to the industrial waste line.

To characterize the sediment within the industrial waste line manholes, sampling of sediment was performed, followed by a limited cleaning out of sediment. Two samples (as practicable) were collected from each manhole/vault identified for sampling on Figure 3-7. Sediment was sampled from the industrial waste line at a total of 11 manhole locations, including manholes MH1-1, MH1-2, MH1-3, MH1-4, MH1-5, MH1-6, MH1-7, MH1-8, MH1-9, MH1-13, and MH1-14 (gravity-fed line to the south and east of Building 5). In addition, sediment samples were collected from the vaults at Pump Stations 1 and 2, which were previously sampled for Ra-226 during the TCRA (TtEC 2011). These samples were analyzed for metals, VOCs, and SVOCs at the locations highlighted in yellow on Figure 3-7. The radiological sample results are summarized in Section 3.2.3 and the chemical results are summarized in Section 3.2.4. All of the sample analysis results are provided in Appendix D and a Table 3-4, Table 3-5, Table 3-6, and Table 3-7 summarizes the detectable results. Appendix K summarizes the data validation findings in a data quality assessment for samples that underwent third party data validations.

Two gravity-fed lines meet at Pump Station 2: the industrial waste line flowing east from Buildings 5 and 400, and the system collecting from the eastern half of OU-2C. Because of the potential for backflow from the western side to the eastern side (where it connects at manhole MH1-13) and because there is a connection to Storm Drain Line G south of manhole MH1-24 of the industrial waste line (shown on Figure 3-7), samples were collected from manhole structures between manhole MH1-12 and the storm drain cross-connection at manhole MH1-24. These samples were analyzed for metals, VOCs, SVOCs, and Ra-226. Only one sample was collected from manhole MH1-11A because sufficient sediment was not present for two samples.

After samples were collected, the manholes were isolated using pneumatic plugs, and standing water/suspended sediment was removed. Collected water was treated and discharged in accordance with the IR Site 17 Remedial Action Work Plan (Battelle and TtEC 2011). After water was removed, the remaining sediment was removed, using a vacuum truck, and transferred for drying to an existing dewatering pad located near Outfall F at the northwest side of the

Seaplane Lagoon. Before and after photographs of the sediment removal can be found in Subappendix E2.

3.2.2.2 Former Building 29 Pump Station Investigation

Historical drawings indicate the industrial waste line previously discharged to pump station vaults at the former Building 29 pump station before being pumped to a treatment facility. This information was discovered during the previous investigation, and details are provided in Appendix A. No record of the former Building 29 pump station removal is available.

Because it was not known whether the former Building 29 pump station and any sediment within it were previously removed, geophysical surveys were conducted to determine if the boundaries of the pump station could be identified. Results of the geophysical survey were evaluated, and shallow excavation was conducted to expose the top of the pump station structure or verify that the vaults were removed. Once the top of the pump station was found, it appeared the pumps and internal structure had been removed and the area backfilled with sand. A figure showing the results of the geophysical survey is provided in Appendix H.

The former pump station was divided into three separate vaults as shown on Figure 3-7. It was proposed that soil samples be collected from all three vaults, as feasible, using a drill rig and sampled. One boring was advanced in each of the three vaults. Figure 3-7 shows the locations with an expanded view of the borings at the former Building 29 pump station. The purpose of these borings was to sample any remaining sediment that might have accumulated in the vault and may not have been previously removed. Borings were advanced to the bottom of all three vaults through the exposed openings in the top of the pump station. Each boring was logged by a geologist, and two samples were collected from each boring based on field evaluation of the logs and gamma readings. Samples were analyzed for Ra-226, metals, VOCs, and SVOCs based on the history of the wastes discharged to the industrial waste line.

3.2.2.3 Sampling of Sump in Paint Room on Northeast Side of Building 5A

The northwest and northeast corners of Building 5A were used as aircraft painting bays from approximately 1950 to 1990. A 10- to 15-foot-deep trench is located in each bay. These trenches were part of the downdraft ventilation system that used recirculating water to capture errant paint vapors. In March 2014, it was noticed that a sump located in the northeast corner of Building 5A was connected to a force main portion of the industrial waste line. This finding was made after the initial radiological sampling was performed in 2008; therefore, verification sampling of the sump was required. Wastewater accumulated from the ventilation system was transferred to the industrial waste force main using a pump placed within the sump that was connected to the subsurface trenches. During the current investigation, the sump was accessed and the contents were sampled for Ra-226 (see Figure 3-7).

3.2.2.4 Industrial Waste Line Waste Management

Approximately 30 cubic yards of excavated material from the shallow excavation at the former Building 29 Pump Station was transferred to IR Site 17's existing asphalt processing pad and spread out in a 6-inch lift to perform a radiological scan. No elevated radiological activity was identified by the scan of the excavated materials. This material was also sampled for waste characterization and determined to be nonhazardous. On November 13, 2014, TtEC transferred the excavated material from the IR Site 17 processing yard to a location near IR Site 1 to be used as foundation material for the IR Site 1 landfill cover project. Waste characterization data can be found in Subappendix D3.

During the project, approximately 5 cubic yards of sediment was collected from industrial waste line manholes using a vacuum truck and transferred for drying to an existing dewatering pad located near Outfall F at the northwest side of the Seaplane Lagoon. The sediment was radiologically scanned and sampled for waste characterization. The sediment was characterized as RCRA hazardous waste due to cadmium results above the toxicity characteristic leaching procedure limit. On October 28, 2014, the sediment was transported to the Clean Harbors' Buttonwillow landfill in Buttonwillow, California. Waste characterization data can be found in Subappendix D4.

During the industrial waste line investigation portion of the project approximately 50,000 gallons of wastewater was accumulated. Wastewater was stored in existing water storage tanks located within the IR Site 17's processing yard. On August 21, 2014, the wastewater was sampled and analyzed to assess whether it met discharge criteria. Sample results indicated that discharge criteria were not met and therefore needed treatment and alternative effluent handling. On October 1, 2014, the wastewater was treated using the on-site IR Site 17 water treatment system and spread by water truck onto the adjacent asphalt processing pad to evaporate.

3.2.3 Industrial Waste Line Radiological Sample Results

During the current investigation, radiological samples were collected from 10 locations within the industrial waste lines. A total of 20 sediment samples were collected. Four of the 10 locations from which the samples were collected (and 7 of the 20 sediment samples) were within the pipeline, either upgradient of or downgradient from a manhole or vault. While sediment was removed from the manhole structures and pump station vaults, as described above, sediment still remains within the industrial waste pipeline.

An additional three borings were advanced into the backfill material within the abandoned vaults at the former Building 29 Pump Station (producing 6 samples), and two other borings were advanced adjacent to the industrial waste line near manholes MH1-8 and MH1-13 (producing four samples). Finally, one sediment sample was collected from a sump located within in the northeast corner of Building 5. Therefore, during the investigation, 31 samples were collected from 16 locations for radiological analysis. Analytical results for Ra-226 for samples

representing sediment that remains in the industrial waste line (i.e. sediment samples originating from the industrial waste line pipe and sediment collected during boring activities near MH 1-8 and MH 1-13) are presented in Table 3-2, and full laboratory reports for all industrial waste line radiological results are provided in Appendix D1. The calculated mean value for Ra-226, which represents sediment remaining within the industrial waste system, is 0.898 pCi/g, which is below the established OU-2C Ra-226 value of 1.56 pCi/g.

Investigation results associated with samples for Ra-226 collected from the industrial waste line were compared to 1.0 pCi/g greater than the background level of 0.5602 pCi/g, or 1.5602 pCi/g, which is the RG for Ra-226 identified in the 2014 ROD for OU-2C. Mean values for Ra-226 in the dataset subgroupings identified above were compared to 1.0 pCi/g greater than the background, and none exceeded it. Individual analytical results for Ra-226 in samples collected within the industrial waste line show that 1.0 pCi/g greater than the background level is only exceeded in three samples, with the maximum concentration being 2.250 pCi/g. In the manholes where the sediment was removed, two samples exceeded this value; all other samples results were below 1.5602 pCi/g. The mean value of Ra-226 activity for the samples characterizing the industrial waste line was 0.898 pCi/g.

Radiological sample results for Ra-226 are presented in Table 3-1. Because slight exceedances of the Ra-226 RG of 1.0 pCi/g greater than the background were identified outside the portions of the industrial waste line that were identified in the FS Addendum (TtEC 2013) as requiring action, and consistent with the site conceptual model for the industrial waste line, a new figure, Figure 3-9, was created, which shows the additional portions of the industrial waste line requiring action.

3.2.4 Industrial Waste Line Chemical Sample Results

Analytical results for sediment samples collected from the industrial waste lines and manholes, as well as soil samples collected from three boreholes at former Building 29 (near Pump Station 2) and two boreholes near the industrial waste line (one near manhole MH1-8 and the other near MH1-13) are presented in Subappendix D1. Data provided in Appendix D1 include analytical results for VOCs, SVOCs, and metals. Appendix K summarizes the data validation findings in a data quality assessment for samples that underwent third party data validations. Evaluation of these data is presented in three groupings.

- The first group consists of five sample locations within the industrial waste line pipe either upstream of or downstream from a manhole or vault, and two boring samples located 5 feet from the pipeline near manholes MH1-8 and MH1-13. This Technical Memorandum considers the contents within the pipe and adjacent to the pipe as one group because this is the potential future exposure pathway of concern. Results from sediment within the pipe and soil adjacent to the pipe both were used based on the potential future scenario wherein the pipe becomes deteriorated or damaged such that the

contents of the pipe are transported to the adjacent soils. Also, the contents within the pipe and adjacent to the pipe would likely fall within a proposed IC corridor. This group is considered to be the only group representative of the sediment remaining within the industrial waste line, because the sediments were not removed from the piping during the investigation. Mean values of detected analytes for this data set are presented in Table 3-3 and are compared to screening values; results are below the screening values.

- The second group includes 18 manholes and 2 pump station vaults from which sediment has been removed. These data do not represent current conditions within the industrial waste line since the sediment sampled is no longer in the industrial waste line. Sediment collected within these lines could have entered the system through the manhole lid and settled within the manhole; therefore, these results were not considered representative of the remaining sediment (i.e., sediment remaining within the pipeline and sediment surrounding the pipeline). Sample results of detected analytes for this group are presented in Table 3-5, Table 3-6, and Table 3-7.
- The third group consists of the borehole samples collected from former Building 29. These are representative of the material used to backfill the area formerly occupied by the vault that was removed at this location. Sample results associated with analytes detected for this group are presented in Table 3-5, Table 3-6, and Table 3-7.

Within the group one data set described above, five sample locations were within the industrial waste line piping. Samples were collected approximately 10 feet upstream of MH1-4, approximately 10 feet upstream of MH1-5, approximately 10 feet upstream of MH1-8, approximately 10 feet downstream from MH1-8, and approximately 10 feet upstream of Pump Station 1, as shown on Figure 3-7. Also, two borings were advanced 5 feet from the industrial waste line piping connecting MH1-13 to Pump Station 2, and 5 feet from the industrial waste line piping connecting to MH1-8, and results represent sediment conditions surrounding the pipe.

Mean values for the results of these analyses are presented in Table 3-3. To provide data on the range of values, maximum results also are included in Table 3-3. Consistent with Comprehensive Environmental Response, Compensation, and Liability Act requirements for risk-based decisions, the results in Table 3-3 are described below relative to the mean values. The results are summarized as follows:

- The mean results for metals showed all constituents to be below the OU-2C RGs or the EPA Industrial Regional Screening Level (RSL) for Region 9. The arsenic mean value of 10 milligrams per kilogram (mg/kg) is so similar to the background value for OU-2C of 9.14 mg/kg that it is considered as equivalent to background. In addition, there is no evidence that arsenic was ever introduced to the industrial waste line. Also, the background value for arsenic at nearby OU-2B is 16.55 mg/kg.

- Among the detectable VOC concentrations, none was above the OU-2C RGs or the EPA Region 9 Industrial RSLs.
- A total of 20 SVOCs were detected in this sample set. None of these analytes had a mean concentration above the OU-2C screening limit or the EPA Region 9 Industrial RSLs.

Results associated with the six samples collected from three borings located within the former Building 29 pump station vaults showed that no mean concentrations were above the project action limits or EPA Region 9 RSLs. Arsenic was not found above the OU-2C background level for arsenic, which is 9.14 mg/kg.

3.2.5 Summary of Industrial Waste Line Results

The Proposed Plan (DON 2012) identified the preferred alternative for the radiologically impacted drain lines and surrounding soil outside Buildings 5 and 400 as Alternative D5 (hydro-jetting, limited excavation, and disposal for the main trunk of Storm Drain Lines A, B, and G, and ICs for the Industrial Waste Line. Per the Proposed Plan, this alternative meets the threshold criteria for overall protection of human health and the environment and for compliance with ARARs, and is rated moderate for all of the balancing criteria.

The FS Addendum (TtEC 2012) indicated that the industrial waste line was not considered a candidate for hydro-jetting due to the potentially deteriorated condition of the line. The purpose of the camera investigation was to gain more information about the condition of the industrial waste line. However, video inspection was not possible over a large percentage of the line because of the amount of sediment accumulated in the line and other physical impediments (difficult bends in the pipe and other impediments at the manhole). Therefore, further assessment of the condition of lines that contain sediment was not possible.

TtEC's past encounters with the industrial waste line during the removal and replacement of Storm Drain Line F attest to the delicate state of the vitrified clay pipe in the gravity-fed portion of the industrial waste system. Extreme water pressure from cleaning the industrial waste line could well cause breaching and release of contaminated sediment into the surrounding soils. Therefore, leaving the industrial waste line system undisturbed will serve as an engineered control for containing the sediment within the gravity-fed industrial waste lines. The analytical results for the samples collected from the two borings compared with results from the adjacent sediment samples collected within the industrial waste line demonstrate adequate protection. For the radiological results, none of the samples were found in greater concentrations than were already identified; therefore, ICs are still applicable to the industrial waste line.

The results of samples collected from the sediment within the industrial waste system, which included boring samples collected 5 feet from the industrial waste line piping, indicated that, for both radiological and chemical constituents, no values were above site-specific OU-2C RGs or

screening limits if site-specific criteria were not available; therefore, the use of a 5-foot to 10-foot buffer for ICs is supported for the entire industrial waste system.

Because slight exceedances of the Ra-226 release criterion were identified outside the portions of the industrial waste line that were identified in the FS Addendum as requiring action, a new figure, Figure 3-9, was prepared that identified the portions of the industrial waste line requiring action. The original length of industrial waste line identified was approximately 3,000 linear feet, while the additional length identified is approximately 3,300 linear feet. This results in a total length requiring action of 6,300 linear feet.

The available video inspections indicate that sediment is not present in the force main portion of the line, and is unlikely to be present in sections that the camera was unable to access. Because of the pressurized nature of the line, it is highly likely that all sediment within the industrial waste slurry was easily washed out of the force main lines by the pressurized pumping processes. The video evidence also indicates that the force main portion of the line is structurally sound, and it is unlikely that soils outside of the pipe have been contaminated. The additional industrial waste line identified as requiring action in this Technical Memorandum is force main as opposed to the primarily gravity-fed portion of the system identified in the FS Addendum. The gravity-fed portion of the system is deeper than the force main system and is known to contain a considerable amount of sediment. Because of this information, the excavation and removal of the force main portion of the line have a much lower likelihood of contaminating the surrounding soils, and, because of the average depth of the line (5 feet below ground surface), will generate less excavated soil and less water to manage when compared to the average depth of the gravity-fed portion of the line (9 feet below ground surface). Because there is a lower likelihood of contaminating surrounding soils, a simplified screening process for excavated soils can be adopted if removal of the force main line piping or soil surrounding the piping is necessary.

4.0 CONCLUSIONS

In summary, the OU-2C Proposed Plan (DON 2012) identified the preferred alternative for the radiologically impacted drain lines and surrounding soil outside Buildings 5 and 400 as Alternative D5. This alternative included (1) hydro-jetting, (2) video surveys, (3) gamma surveys, (4) limited excavation and disposal for main trunk of storm drain lines A, B, and G, and (5) ICs for the industrial waste line. Per the FS Addendum (TtEC 2012) and the OU-2C Proposed Plan (DON 2012), this alternative meets the threshold criteria for overall protection of human health and the environment and for compliance with ARARs, and is rated moderate for all of the balancing criteria. The DON's efforts to date to implement the preferred alternative's technologies have resulted in the following actions described below:

1. Hydro-jetting: Sediment within the main trunk lines and adjacent lateral lines was removed to the first manhole out from the main trunk of Storm Drain Lines A, B and G; sediments also were removed up to the first manhole encountered moving out from the main line in each lateral.
2. Video Surveys: A video camera verification survey was performed within the main trunk lines and adjacent lateral lines to the first manhole out from the main trunk of Storm Drain Lines A, B and G to demonstrate the effectiveness of sediment removal described above.
3. Gamma Surveys: Gamma surveys were performed within the main trunk lines and adjacent lateral lines to the first manhole out from the main trunk of Storm Drain Lines A, B and G.
4. Limited Excavation and Disposal for Main Trunk of Storm Drain Lines A, B, and G: The completed video surveys, and radiological surveys were used to identify specific locations where limited excavation and additional surveys were conducted.

The results of the additional surveys for Storm Drain Lines A, B, and G indicate that radiological soil contamination is not present in soil surrounding the removed pipe and the drain line is not contaminated. The readings associated with the initial gamma survey were likely due to the naturally occurring radioactive materials used in manufacturing the pipe.

The risk assessment in the FS Addendum was based on an assumed conservative volume of sediments at mean and maximum concentrations within the lines. Risk was in the risk management range for the mean sample results for Ra-226 prior to removal of the sediment. As the sediments have been removed, there is no indication of contamination remaining. Therefore, Storm Drain Lines A, B, and G do not require further action, and have been removed from the remedial alternative.

The industrial waste line is not a viable candidate for hydro-jetting based on its condition when it was uncovered during the 2008–2010 removal action. It was only possible to inspect a small

percentage of the system using the camera, and no additional information on the condition of the line was gained. Investigation results for sediment within the line are lower than the results in the manholes that were modeled in the FS Addendum.

Because slight exceedances of the Ra-226 release criterion were identified outside the portions of the industrial waste line that were discussed in the FS Addendum as requiring action, a new figure, Figure 3-9, was created that identified the portions of the industrial waste line requiring action. The original length of industrial waste line was approximately 3,000 linear feet, while the additional length identified is approximately 3,300 linear feet. This results in a total length of 6,300 linear feet that requires action.

Because of the new information presented in this Technical Memorandum, three modified alternatives are proposed in order to support the decision-making process for the future selection of the remedy for the OU-2C Drain Lines associated with, but outside of, Buildings 5 and 400 at Alameda Point. These modified alternatives are summarized below. To support the decision-making process for the future drain line ROD, a cost estimate was prepared for each alternative; a summary of this cost estimate is presented in Appendix J, and the estimated cost of each modified alternative is included below:

- Modified Alternative mD5A – ICs for the Industrial Waste Line ($734,000)
- Modified Alternative mD5B – Excavation and disposal of the force main portions of the Industrial Waste Line and ICs for the gravity-fed portion of the Industrial Waste Line ($1,822,500)
- Modified Alternative mD6 – Excavation and disposal of the Industrial Waste Line ($8,665,300)

The ROD for the drain lines may specify implementation of any of these alternatives for all or a portion of the industrial waste lines. Regarding the effectiveness of ICs for the industrial waste line, during the TCRA, more than 9,500 linear feet of known contaminated pipe was removed, followed by extensive sampling of the surrounding soil; the TCRA report documented that any contamination located outside of the pipe was limited to within 5 feet of either side of the pipe. Therefore, in combination with the soil sampling conducted as part of the investigation documented in this Technical Memorandum, there is a high level of confidence that any Ra-226 associated with the industrial waste line would be confined to the soil less than 5 feet from the line. The modified alternatives listed above are considered to be consistent with the Alternative D5 and Alternative D6 described in the FS Addendum (TtEC 2012) because these modified alternatives apply the same group of technologies associated with Alternative D5 (hydro-jetting, limited excavation, and disposal for the main trunk of storm drain lines A, B, and G, and ICs for the Industrial Waste Line) and Alternative D6 (hydro-jetting, limited excavation, and disposal for main trunk of storm drain lines A, B, and G, and excavation and disposal of the industrial waste line).

5.0 REFERENCES

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TABLES

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TABLE 2-1

SUMMARY OF SELECTED RESRAD RESULTS FROM THE OU-2C FS ADDENDUM*

Total Dose and Risk with Ra-226 Based on Net Mean Sample Results			
Impacted Area	**Sample Result (pCi/g)**	**Radiological Risk[a]**	**Dose[b] (mrem/y)**
Storm Drain Line A	0.7487	9.441×10^{-6}	0.8893
Storm Drain Line B	1.6645	2.099×10^{-5}	1.977
Storm Drain Line G	0.2647	3.372×10^{-6}	0.3716
Industrial Waste Line	1.8035	2.275×10^{-5}	2.142

Notes:

[a] Total excess lifetime carcinogenic risk.

[b] Dose is calculated using investigative sample data.

Abbreviations and Acronyms:

FS – feasibility study
mrem/y – millirem per year
OU – operable unit
pCi/g – picocuries per gram
Ra-226 – radium 226
RESRAD – residual radioactivity (computer code)

*The FS Addendum risk analysis and risks presented in this table are based on analytical results for sediment in manholes/catch basins and an estimated volume of sediment within the lines that was subsequently removed from the storm drain lines.

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TABLE 3-1

RA-226 RESULTS FOR SOIL SAMPLES COLLECTED DURING THE LIMITED STORM DRAIN LINE REMOVAL

Sample ID	Location ID	Method: Analyte: Units: Collection Date	EPA 901.1 Radium-226 pCi/g
FZ02-TU07-01	TU07 SYSTEMATIC	12/10/2013	0.542
FZ02-TU07-02	TU07 SYSTEMATIC	12/10/2013	0.410
FZ02-TU07-03	TU07 SYSTEMATIC	12/10/2013	0.596
FZ02-TU07-04	TU07 SYSTEMATIC	12/10/2013	0.499
FZ02-TU07-05	TU07 SYSTEMATIC	12/10/2013	0.307
FZ02-TU07-06	TU07 SYSTEMATIC	12/10/2013	0.527
FZ02-TU07-07	TU07 SYSTEMATIC	12/10/2013	0.479
FZ02-TU07-08	TU07 SYSTEMATIC	12/10/2013	0.592
FZ02-TU07-09	TU07 SYSTEMATIC	12/10/2013	0.487
FZ02-TU07-10	TU07 SYSTEMATIC	12/10/2013	0.561
FZ02-TU07-11	TU07 SYSTEMATIC	12/10/2013	0.446
FZ02-TU07-12	TU07 SYSTEMATIC	12/10/2013	0.244
FZ02-TU07-13	TU07 SYSTEMATIC	12/10/2013	0.387
FZ02-TU07-14	TU07 SYSTEMATIC	12/10/2013	0.504
FZ02-TU07-15	TU07 SYSTEMATIC	12/10/2013	0.434
FZ02-TU07-16	TU07 SYSTEMATIC	12/10/2013	0.363
FZ02-TU07-17	TU07 SYSTEMATIC	12/10/2013	0.582
FZ02-TU07-18	TU07 SYSTEMATIC	12/10/2013	0.417
FZ02-TU07-19	TU07 SYSTEMATIC	12/9/2013	0.469
FZ02-TU07-20	TU07 HS BIASED NORTH 5"	12/9/2013	0.334
FZ02-TU07-21	TU07 HS BIASED NORTH 12"	12/9/2013	0.539
FZ02-TU07-22	TU07 HS BIASED SOUTH 5"	12/9/2013	0.683
FZ02-TU07-23	TU07 HS BIASED SOUTH 12"	12/9/2013	0.487
FZ02-TU12-001	TU12 SYSTEMATIC	1/22/2014	0.452
FZ02-TU12-002	TU12 SYSTEMATIC	1/22/2014	0.359
FZ02-TU12-003	TU12 SYSTEMATIC	1/21/2014	0.458
FZ02-TU12-004	TU12 SYSTEMATIC	1/14/2014	0.437
FZ02-TU12-005	TU12 SYSTEMATIC	1/14/2014	0.276
FZ02-TU12-006	TU12 SYSTEMATIC	1/21/2014	0.389
FZ02-TU12-007	TU12 SYSTEMATIC	1/21/2014	0.309
FZ02-TU12-008	TU12 SYSTEMATIC	1/14/2014	0.320
FZ02-TU12-009	TU12 SYSTEMATIC	1/14/2014	0.580
FZ02-TU12-010	TU12 SYSTEMATIC	1/21/2014	0.409
FZ02-TU12-011	TU12 SYSTEMATIC	1/21/2014	0.339
FZ02-TU12-012	TU12 SYSTEMATIC	1/14/2014	0.368
FZ02-TU12-013	TU12 SYSTEMATIC	1/21/2014	0.458
FZ02-TU12-014	TU12 SYSTEMATIC	1/21/2014	0.265
FZ02-TU12-015	TU12 SYSTEMATIC	1/21/2014	0.392
FZ02-TU12-016	TU12 SYSTEMATIC	1/21/2014	0.470

TABLE 3-1 (CONTINUED)

RA-226 RESULTS FOR SOIL SAMPLES COLLECTED DURING THE LIMITED STORM DRAIN LINE REMOVAL

Sample ID	Location ID	Method: Analyte: Units: Collection Date	EPA 901.1 Radium-226 pCi/g
FZ02-TU12-017	TU12 SYSTEMATIC	1/14/2014	0.406
FZ02-TU12-018	TU12 SYSTEMATIC	1/21/2014	0.342
FZ02-TU12-019	TU12 HS BIASED EAST 15"	1/14/2014	0.469
FZ02-TU12-020	TU12 HS BIASED EAST 30"	1/14/2014	0.395
FZ02-TU12-021	TU12 HS BIASED WEST 15"	1/14/2014	0.564
FZ02-TU12-022	TU12 HS BIASED WEST 30"	1/14/2014	0.307
FZ02-TU12-023	TU12 PIPE	1/15/2014	0.352
FZ02-TU27-001	TU27 SYSTEMATIC	12/17/2013	0.430
FZ02-TU27-002	TU27 SYSTEMATIC	12/17/2013	0.396
FZ02-TU27-003	TU27 SYSTEMATIC	12/17/2013	0.491
FZ02-TU27-004	TU27 SYSTEMATIC	12/17/2013	0.453
FZ02-TU27-005	TU27 SYSTEMATIC	12/17/2013	0.436
FZ02-TU27-006	TU27 SYSTEMATIC	12/17/2013	0.468
FZ02-TU27-007	TU27 SYSTEMATIC	12/17/2013	0.588
FZ02-TU27-008	TU27 SYSTEMATIC	12/16/2013	0.455
FZ02-TU27-009	TU27 SYSTEMATIC	12/16/2013	0.432
FZ02-TU27-010	TU27 SYSTEMATIC	12/16/2013	0.427
FZ02-TU27-011	TU27 SYSTEMATIC	12/16/2013	0.431
FZ02-TU27-012	TU27 SYSTEMATIC	12/17/2013	0.575
FZ02-TU27-013	TU27 SYSTEMATIC	12/17/2013	0.541
FZ02-TU27-014	TU27 SYSTEMATIC	12/17/2013	0.401
FZ02-TU27-015	TU27 SYSTEMATIC	12/17/2013	0.412
FZ02-TU27-016	TU27 SYSTEMATIC	12/17/2013	0.449
FZ02-TU27-017	TU27 SYSTEMATIC	12/17/2013	0.477
FZ02-TU27-018	TU27 SYSTEMATIC	12/16/2013	0.372
FZ02-TU27-019	TU27 HS BIASED #2 NORTH 10"	12/16/2013	0.431
FZ02-TU27-020	TU27 HS BIASED #2 NORTH 24"	12/16/2013	0.633
FZ02-TU27-021	TU27 HS BIASED #2 SOUTH 10"	12/16/2013	0.289
FZ02-TU27-022	TU27 HS BIASED #2 SOUTH 24"	12/16/2013	0.501
FZ02-TU27-023	TU27 HS BIASED #1 NORTH 10"	12/17/2013	0.365
FZ02-TU27-024	TU27 HS BIASED #1 NORTH 24"	12/17/2013	0.340
FZ02-TU27-025	TU27 HS BIASED #1 SOUTH 10"	12/17/2013	0.224
FZ02-TU27-026	TU27 HS BIASED #1 SOUTH 24"	12/17/2013	0.347
FZ02-TU27-027	TU 27 PIPE	12/17/2013	0.256
FZ02-TU27-028	TU 27 PIPE	12/17/2013	0.371
FZ02-TU63-001	TU63 SYSTEMATIC	12/4/2013	0.494
FZ02-TU63-002	TU63 SYSTEMATIC	12/4/2013	0.425
FZ02-TU63-003	TU63 SYSTEMATIC	12/4/2013	0.476
FZ02-TU63-004	TU63 SYSTEMATIC	12/4/2013	0.363
FZ02-TU63-005	TU63 SYSTEMATIC	12/4/2013	0.396

TABLE 3-1 (CONTINUED)

RA-226 RESULTS FOR SOIL SAMPLES COLLECTED DURING THE LIMITED STORM DRAIN LINE REMOVAL

Sample ID	Location ID	Method: Analyte: Units: / Collection Date	EPA 901.1 Radium-226 pCi/g
FZ02-TU63-006	TU63 SYSTEMATIC	12/4/2013	0.513
FZ02-TU63-007	TU63 SYSTEMATIC	12/4/2013	0.389
FZ02-TU63-008	TU63 SYSTEMATIC	12/4/2013	0.503
FZ02-TU63-009	TU63 SYSTEMATIC	12/4/2013	0.445
FZ02-TU63-010	TU63 SYSTEMATIC	12/4/2013	0.452
FZ02-TU63-011	TU63 SYSTEMATIC	12/4/2013	0.306
FZ02-TU63-012	TU63 SYSTEMATIC	12/4/2013	0.422
FZ02-TU63-013	TU63 SYSTEMATIC	12/4/2013	0.361
FZ02-TU63-014	TU63 SYSTEMATIC	12/4/2013	0.291
FZ02-TU63-015	TU63 SYSTEMATIC	12/4/2013	0.391
FZ02-TU63-016	TU63 SYSTEMATIC	12/4/2013	0.435
FZ02-TU63-017	TU63 SYSTEMATIC	12/4/2013	0.478
FZ02-TU63-018	TU63 SYSTEMATIC	12/4/2013	0.330
FZ02-TU63-019	TU63 HS BIASED NORTH 10"	12/3/2013	0.331
FZ02-TU63-020	TU63 HS BIASED NORTH 24"	12/3/2013	0.403
FZ02-TU63-021	TU63 HS BIASED SOUTH 10"	12/3/2013	0.396
FZ02-TU63-022	TU63 HS BIASED SOUTH 24"	12/3/2013	0.413
FZ02-TU63-023	TU63 PIPE	12/5/2013	0.284
		MEAN	0.402

Notes:
All samples results above based on 21 day ingrowth.
Criteria is 1 pCi/g above background for Radium -226. Radium-226 background for samples is 0.56 pCi/g.
* Sample IDs are correlated with the figure locations as follows: TU (for trench unit) and the adjacent number correspond to the Reach number on the figure; and the last two digits correspond to the circled numbers on that Reach figure. For example, to locate Sample ID FZ02-TU07-01, go to Reach 7 Pipe Removal figure and the location that is circled 1 on that figure.
OU-2C background established as 1.56 pCi/g.

Abbreviations and Acronyms:
EPA – U.S. Environmental Protection Agency
ID – Identification
pCi/g – picoCuries per gram
TU – Trench unit

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TABLE 3-2

RA-226 RESULTS FOR SEDIMENT WITHIN THE INDUSTRIAL WASTE LINE AND ADJACENT BORINGS

Sample ID	Location ID	Method: Analyte: Units: Collection Date	EPA 901.1 Radium-226 pCi/g
IWL-MH1-4-ND-01 *	MH1-4-ND *	07/30/14	0.856
IWL-MH1-4-UP-01	MH1-4-UP	07/30/14	2.250
IWL-MH1-5-DN-01	MH1-5-DN	07/30/14	1.800
IWL-MH1-5-UP-01	MH1-5-UP	07/30/14	0.719
IWL-MH1-8-DN-01	MH1-8-DN	08/04/14	0.704
IWL-MH1-8-UP-01	MH1-8-UP	08/04/14	0.773
IWL-PS1-VAULT-UP-01	PS1-VAULT-UP	08/26/14	1.620
IWL-SB1-01	SB1	08/18/14	0.403
IWL-SB1-02	SB1	08/18/14	0.375
IWL-SB2-01	SB2	08/18/14	0.514
IWL-SB2-02	SB2	08/18/14	0.348
		MEAN	0.898

Notes:
All samples results above based on 21-day ingrowth.
* Sample ID for this sample is listed as "ND" on chain-of-custody but is the same as "DN" (indicating down) as in other sample IDs listed herein.
OU-2C background established as 1.56 pCi/g

Abbreviations and Acronyms:
ID – Identification
IWL – Industrial Waste Line
MH – Manhole
pCi/g – picocuries per gram
PS –
SB – soil boring
U – not detected above stated value

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TABLE 3-3

MEAN AND MAXIMUM RESULTS FOR DETECTED METALS, VOCS, AND SVOCS FOR THE INDUSTRIAL WASTE LINE*

Method	Analyte [1]	Units	IWL Detected Max[2]	IWL[2] Mean	OU-2C Alameda RGs [3]	EPA Industrial RSL [4]
EPA 6020A	Antimony	mg/kg	11.5	4.9	--	470
	Arsenic[4]	mg/kg	20	10.0	9.14 (background)[5]	n/a
	Barium	mg/kg	834	267.4	--	220,000
	Beryllium	mg/kg	1.83	0.7	--	2,300
	Cadmium	mg/kg	1,370	558.3	--	980
	Chromium (Total)	mg/kg	2,000	780.7	1,400	n/a
	Cobalt	mg/kg	51.4	16.9	--	350
	Copper	mg/kg	4,700	826.4	--	47,000
	Iron	mg/kg	48,700	23,711.1	--	820,000
	Lead	mg/kg	1,290	435.9	800	n/a
	Molybdenum	mg/kg	78	22.7	--	5,800
	Nickel	mg/kg	1,170	263.4	--	22,000
	Selenium	mg/kg	2.7	1.8	--	5,800
	Silver	mg/kg	28.4	8.3	--	5,800
	Thallium	mg/kg	2.8	0.7	66	n/a
	Vanadium	mg/kg	87.4	35.8	--	5,800
	Zinc	mg/kg	3,960	1,132.5	--	350,000
EPA 7471B	Mercury	mg/kg	2	0.6	--	40
EPA 8260C	1,1,1-Trichloroethane[7]	mg/kg	0.0115	0.013	--	36,000
	Chlorobenzene[7]	mg/kg	0.010	0.013	--	1,300
	Chloroethane	mg/kg	0.681	0.113	--	57,000
	cis-1,2-Dichloroethene	mg/kg	0.586	0.068	--	2,300
	Ethylbenzene	mg/kg	0.039	0.007	860	n/a
	Methylene Chloride	mg/kg	0.469	0.063	--	1,000
	Xylenes	mg/kg	0.232	0.038	--	2,800
EPA 8270D	1,4-Dichlorobenzene	mg/kg	0.973	0.348	--	11
	2,4-Dimethylphenol	mg/kg	0.670	0.294	--	16,000
	Acenaphthene	mg/kg	1.250	0.299	--	45,000
	Anthracene	mg/kg	1.490	0.328	--	230,000
	Benz[a] anthracene	mg/kg	3.750	0.673	--	3
	Benzo[a] pyrene	mg/kg	3.060	0.867	1.5[6]	n/a
	Benzo[b] fluoranthene	mg/kg	2.300	0.595	--	3
	Benzo[g,h,i] perylene	mg/kg	2.070	0.658	1.2[6]	n/a
	Benzo[k] fluoranthene	mg/kg	0.884	0.380	--	29
	Bis[2-ethylhexyl] phthalate	mg/kg	174	28.762	--	1,600
	Butyl benzyl phthalate	mg/kg	0.937	0.394	--	1,200
	Chrysene	mg/kg	4.8	0.802	--	290
	Dibenzo[a,h]anthracene[7]	mg/kg	0.231	0.283	--	0.29
	Di-n-butyl phthalate	mg/kg	1.450	0.567	--	82,000
	Fluoranthene	mg/kg	8.9	1.352	--	30,000
	Fluorene	mg/kg	1.740	0.353	--	30,000
	Indeno[1,2,3-cd]pyrene	mg/kg	1.910	0.579	--	3
	Naphthalene	mg/kg	18.8	2.488	--	17
	Phenanthrene	mg/kg	8.610	1.159	4.1[5]	n/a
	Pyrene	mg/kg	8.310	2.050	--	23,000

TABLE 3-3 (CONTINUED)

MEAN RESULTS FOR DETECTED METALS, VOCS, AND SVOCS FOR THE INDUSTRIAL WASTE LINE*

Notes:

***** Mean values were calculated for sediment samples within the industrial waste line piping and adjacent borings.

[1] Only analytes with detected results are included.

[2] Screening Levels were compared to mean values based on CERCLA Risk Assessment Guidance. Mean value for IWL sample locations MH1-4-UP-01, MH1-5-UP-01, MH1-8-UP-01, MH1-8-DN-01, PS1-VAULT-UP-01, SB1-01, SB1-02, SB2-01, SB2-02; calculation of mean used 1/2 of detection limit for samples with non-detectable concentrations.

[3] RGs established for OU-2C at the former Alameda Naval Air Station (DON 2014). Values within this column represent the OU-2C RGs unless otherwise stated in the notes below.

[4] EPA Industrial RSL for Region 9; lower value used when both carcinogenic and non-carcinogenic RSL values are available.

[5] Although the mean value of arsenic is slightly above the background value for OU-2C, it is considered equivalent to background. In addition, there is no evidence that arsenic was ever a COC introduced to the industrial waste line. Also, the mean value of 10 mg/kg is less than the arsenic background level of 16.55 mg/kg of nearby OU-2B location.

[6] No RSL is available for benzo(a)pyrene, benzo[g,h,i] perylene, and phenanthrene. Historically, Alameda Point has based PAH screening levels on site-specific data. Also, the RI Report did not identify these as COCs. The maximum concentration within OU-2C is listed as a site-specific screening value used to evaluate these three PAHs.

[7] The mean values are higher than the maximum value since some of the non-detected values used in the calculation of the mean were elevated due to dilution of the sample.

n/a Not applicable because a site-specific RG has been calculated.

Abbreviations and Acronyms:

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
COC – chain-of-custody
DON – Department of the Navy
EPA – U.S. Environmental Protection Agency
IWL – industrial waste line
mg/kg – milligrams per kilogram
n/a – Not applicable because a site-specific remediation goal (RG) has been calculated.
OU – Operable Unit
PAH – polynuclear aromatic hydrocarbon
RG – remediation goal
RI – remedial investigation
RSL – regional screening level
SVOC – semivolatile organic compound
VOC – volatile organic compound

TABLE 3-4

ANALYTICAL RESULTS FOR DETECTED Ra-226 IN THE SEDIMENT REMOVED FROM THE INDUSTRIAL WASTE MANHOLES AND FORMER BUILDING 29 PUMP STATION VAULTS DURING THE 2014 INVESTIGATION*

		Method:	EPA 901.1
		Analyte:	Radium-226
		Units:	pCi/g
Sample ID	**Location ID**	**Collection Date**	
IWL-BLDG29-SB1-01	BLDG29-SB1	8/18/2014	0.297
IWL-BLDG29-SB1-02	BLDG29-SB1	8/18/2014	0.351
IWL-BLDG29-SB2-01	BLDG29-SB2	8/18/2014	0.482
IWL-BLDG29-SB2-02	BLDG29-SB2	8/18/2014	0.258
IWL-BLDG29-SB3-01	BLDG29-SB3	8/18/2014	0.279
IWL-BLDG29-SB3-02	BLDG29-SB3	8/18/2014	0.352
IWL-MH1-10-01	MH1-10	7/22/2014	0.522
IWL-MH1-10-02	MH1-10	7/22/2014	0.522
IWL-MH1-11-01	MH1-11	7/23/2014	1.46
IWL-MH1-11-02	MH1-11	7/23/2014	1.29
IWL-MH1-11A-01	MH1-11A	7/23/2014	0.675
IWL-MH1-12-01	MH1-12	7/23/2014	1.29
IWL-MH1-12-02	MH1-12	7/23/2014	0.94
IWL-MH1-22-01	MH1-22	7/22/2014	0.783
IWL-MH1-22-02	MH1-22	7/22/2014	0.64
IWL-MH1-23-01	MH1-23	7/21/2014	1.64
IWL-MH1-23-02	MH1-23	7/21/2014	1.65
IWL-MH1-24-01	MH1-24	7/21/2014	0.673
IWL-MH1-24-02	MH1-24	7/21/2014	0.845
IWL-SUMPPR-01	SUMPPR	8/4/2014	0.219

Notes:
*All sample results based on 21-day ingrowth. Refer to Subappendix D2 for uncertainty values.

Abbreviations and Acronyms:
ID – identification
MH – manhole
pCi/g – picoCuries per gram
SB – soil boring
U – not detected above stated value

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TABLE 3-5

ANALYTICAL RESULTS FOR DETECTED VOCs IN THE SEDIMENT REMOVED FROM THE INDUSTRIAL WASTE MANHOLES AND FORMER BUILDING 29 PUMP STATION VAULTS DURING THE 2014 INVESTIGATION

	Analyte:	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1-Dichloroethane	2-Butanone (MEK)	Acetone	Benzene	Chlorobenzene	Chloroethane	cis-1,2-Dichloroethene	Ethylbenzene	Methylene Chloride	Toluene	Xylenes, Total
Sample ID	**Units:**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
IWL-MH1-1-01	**7/29/2014**	0.0103 U	0.0103 U	0.0103 U	0.0514 U	0.103 U	0.0103 U	0.0103 U	0.0103 U	0.0103 U	0.00379 J	0.0514 U	0.0103 U	0.0514 U
IWL-MH1-1-02	**7/29/2014**	0.0089 U	0.00885 U	0.00885 U	0.0443 U	0.0885 U	0.00885 U	0.00885 U	0.00885 U	0.00885 U	0.00398 J	0.0443 U	0.00885 U	0.0443 U
IWL-MH1-2-01	**7/29/2014**	0.0193 U	0.0193 U *	0.0193 U	0.0964 U	0.323 J	0.0193 U	0.0193 U *	0.0193 U	0.0193 U	0.0963 J *	0.0964 U	0.0165 J *	0.096 J *
IWL-MH1-2-02	**7/29/2014**	0.0142 J	0.0152 U	0.0152 U	0.0762 U	0.152 U	0.0152 U	0.0138 J	0.0152 U	0.0152 U	0.0152 U	0.0762 U	0.0152 U	0.0762 U
IWL-MH1-3-01	**7/29/2014**	0.0015 U	0.00146 U *	0.00146 U	0.00728 U	0.0146 U	0.00146 U	0.00197 J	0.00146 U	0.00146 U	0.00146 U	0.00728 U	0.00146 U	0.00728 U
IWL-MH2-3-02	**7/29/2014**	0.0017 U	0.00167 U *	0.00167 U	0.00836 U	0.0167 U	0.00167 U	0.00167 U	0.00167 U	0.00167 U	0.00167 U	0.00836 U	0.00167 U	0.00836 U
IWL-MH1-4-01	**7/30/2014**	0.0081 J	0.0117 U *	0.0117 U	0.0585 U	0.126 J	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0585 U	0.0186 J	0.0585 U
IWL-MH1-4-02	**7/30/2014**	0.0123 U	0.0123 U	0.0123 U	0.0613 U	0.123 U	0.0123 U	0.0123 U	0.0701 J	0.0123 U	0.0123 U	0.0613 U	0.00931 J	0.0613 U
IWL-MH1-5-01	**7/30/2014**	0.0186 J	0.0113 U *	0.0848	0.0567 U	0.0769 J	0.0113 U	0.0362 J	0.0113 U	0.0113 U	0.0113 U	0.0567 U	0.0113 U	0.0567 U
IWL-MH1-5-02	**7/30/2014**	0.0082 J	0.0164 U *	0.0367 J	0.082 U	0.121 J	0.0164 U	0.0499 J	0.0164 U	0.0164 U	0.0164 U	0.082 U	0.0164 U	0.082 U
IWL-MH1-6-01	**7/30/2014**	0.0096 U	0.00958 U	0.00958 U	0.0479 U	0.0958 U	0.00958 U	0.00958 U	0.00958 U	0.00958 U	0.00958 U	0.0479 U	0.00958 U	0.0479 U
IWL-MH1-6-02	**7/30/2014**	0.01 U	0.01 U *	0.01 U	0.0501 U	0.0964 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.0501 U	0.01 U	0.0501 U
IWL-MH1-7-01	**7/31/2014**	0.0067 J	0.00184 J*	0.015	0.0092 U	0.0493	0.00184 U	0.00184 U *	0.12	0.00252 J	0.00184 U *	0.0092 U	0.00184 U *	0.0092 U *
IWL-MH1-7-02	**7/31/2014**	0.0041 J	0.00196 J*	0.00685 J	0.00978 U	0.101	0.00196 U	0.00424 J *	0.0493	0.00196 U	0.00196 U *	0.00978 U	0.00196 U *	0.00978 U *
IWL-MH1-8-01	**7/31/2014**	0.0131 U	0.0131 U *	0.0131 U	0.0654 U	0.247 J	0.00695 U	0.0301 J	0.0131 U	0.0131 U	0.00754 J	0.0654 U	0.0131 U	0.0654 U
IWL-MH1-8-02	**7/31/2014**	0.0063 J	0.00929 U *	0.0161 J	0.0465 U	0.189	0.00929 U	0.0444 J	0.00929 U	0.00929 U	0.00413 J	0.0465 U	0.00929 U	0.0465 U
IWL-MH1-09-01	**8/4/2014**	0.0438 J	0.015 U	0.0767	0.0751 U	0.285 J	0.00675 U	0.015 U	0.124 J	0.015 U	0.015 U	0.0325 J	0.015 U	0.0751 U
IWL-MH1-09-02	**8/4/2014**	0.0142 U	0.0142 U *	0.0142 U	0.0709 U	0.211 J	0.0142 U	0.0142 U	0.0775 J	0.0142 U	0.0141 J	0.0256 J	0.0142 U	0.0709 U
IWL-MH1-10-01	**7/22/2014**	0.0014 U	0.00144 U	0.00144 U	0.0081 J	0.02 J	0.00049 J	0.0267	0.00144 U	0.00144 U	0.00992	0.00721 U	0.00144 U	0.00721 U
IWL-MH1-10-02	**7/22/2014**	0.0016 U	0.00156 U	0.00156 U	0.0112 J	0.0273 J	0.00081 J	0.0687	0.00156 U	0.00156 U	0.0159	0.00779 U	0.00156 U	0.00779 U
IWL-MH1-11-01	**7/23/2014**	0.0021 U	0.00206 U*	0.00206 U	0.0103 U	0.0206 U	0.014	0.0081 J *	0.00206 U	0.0171	0.00677 J *	0.0103 U	0.00417 J *	0.00408 J *
IWL-MH1-11-02	**7/23/2014**	0.0019 U	0.00189 U *	0.00189 U	0.00947 U	0.0262 J	0.00575 J	0.00232 J	0.00189 U	0.0194	0.00251 J	0.00947 U	0.00233 J	0.00214 J
IWL-MH1-12-01	**7/23/2014**	0.0021 U	0.0021 U*	0.0021 U	0.0458	0.149	0.0129	0.00531 J *	0.0021 U	0.00215 J	0.00317 J *	0.0105 U	0.00466 J *	0.00416 J *
IWL-MH1-12-02	**7/23/2014**	0.0033 U	0.00326 U*	0.00326 U	0.0488 J	0.143	0.0202	0.00781 J *	0.00326 U	0.00239 J	0.00337 J *	0.0163 U	0.00569 J *	0.0154 J *
IWL-MH1-13-01	**7/24/2014**	0.0221 U	0.0221 U	0.0221 U	0.11 U	0.221 U	0.0105 J	0.0221 U	0.0541 J	0.0221 U	0.0136 J	0.11 U	0.0176 J	0.11 U
IWL-MH1-13-02	**7/24/2014**	0.0269 U	0.0269 U *	0.0269 U	0.135 U	0.269 U	0.0132 J	0.0256 J	0.0833 J	0.0269 U	0.0135 J	0.135 U	0.0226 J	0.0234 J
IWL-MH1-14-01	**8/4/2014**	0.0127 U	0.0127 U*	0.0127 U	0.0636 U	0.253 J	0.0102 J	0.0127 U *	0.0127 U	0.0127 U	0.016 J *	0.0278 J	0.0127 U *	0.0636 U *
IWL-MH1-14-02	**8/4/2014**	0.014 U	0.014 U*	0.014 U	0.07 U	0.318	0.0119 J	0.014 U *	0.014 U	0.014 U	0.0173 J *	0.0253 J	0.0114 J *	0.07 U *
IWL-MH1-22-01	**7/22/2014**	0.486 U	0.486 U	0.486 U	1.22 U	1.22 U	0.486 U	0.486 U	0.486 U	0.486 U	0.486 U	1.22 U	0.486 U	0.486 U

TABLE 3-5

ANALYTICAL RESULTS FOR DETECTED VOCs IN THE SEDIMENT REMOVED FROM THE INDUSTRIAL WASTE MANHOLES AND FORMER BUILDING 29 PUMP STATION VAULTS DURING THE 2014 INVESTIGATION (Continued)

	Analyte:	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1-Dichloroethane	2-Butanone (MEK)	Acetone	Benzene	Chlorobenzene	Chloroethane	cis-1,2-Dichloroethene	Ethylbenzene	Methylene Chloride	Toluene	Xylenes, Total
Sample ID	**Units:**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**	**mg/kg**
IWL-MH1-22-02	**7/22/2014**	0.307 U	0.307 U	0.307 U	0.767 U	0.767 U	0.307 U	0.307 U	0.307 U	0.307 U	0.307 U	0.767 U	0.307 U	0.307 U
IWL-MH1-23-01	**7/21/2014**	0.0743 U	0.0743 U	0.0743 U	0.186 U	0.186 U	0.0743 U	0.0743 U	0.0743 U	0.0743 U	0.0743 U	0.186 U	0.0743 U	0.0743 U
IWL-MH1-23-02	**7/21/2014**	0.158 U	0.158 U	0.158 U	0.395 U	0.395 U	0.0392 J	0.158 U	0.158 U	0.158 U	0.158 U	0.395 U	0.158 U	0.169 J
IWL-MH1-24-01	**7/21/2014**	1.8 U	1.8 U	1.8 U	4.51 U	4.51 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	4.51 U	1.8 U	1.8 U
IWL-MH1-24-02	**7/21/2014**	0.807 U	0.807 U	0.807 U	2.02 U	2.02 U	0.807 U	0.807 U	0.807 U	0.807 U	0.807 U	2.02 U	0.807 U	0.807 U
IWL-PS1VAULT-01	**7/29/2014**	0.0186 U	0.0186 U*	0.0186 U	0.0931 U	0.178 J	0.0186 U	0.0186 U *	0.0186 U	0.0186 U	0.0751 J *	0.0931 U	0.069 J *	0.936
IWL-PS1VAULT-02	**7/29/2014**	0.0218 U	0.0218 U *	0.0218 U	0.109 U	0.218 U	0.0218 U	0.0218 U	0.0218 U	0.0218 U	0.0888 J	0.109 U	0.0967 J	1.13
IWL-PS2-VAULT-01	**7/24/2014**	0.0161 U	0.0161 U *	0.0161 U	0.433	0.161 U	0.012 J	0.16	0.0161 U	0.0161 U	0.0169 J	0.0807 U	0.065 J	0.0197 J
IWL-PS2-VAULT-02	**7/24/2014**	0.0132 U	0.0132 U *	0.0132 U	0.0658 U	0.132 U	0.0106 J	0.233	0.0132 U	0.0132 U	0.0151 J	0.0658 U	0.061 J	0.0191 J

Notes:

The values listed are from the Regional Screening Level (RSL) Summary Table (TR=1E, HQ=1) November 2014 for industrial use.

Abbreviations and Acronyms:

B – method blank contamination
J – value is estimated
mg/kg – milligrams per kilogram
U – not detected above stated value
VOCs – volatile organic compounds
^ – Instrument related QC exceeds the control limits

TABLE 3-6

ANALYTICAL RESULTS FOR DETECTED SVOCs IN THE SEDIMENT REMOVED FROM THE INDUSTRIAL WASTE MANHOLES AND FORMER BUILDING 29 PUMP STATION VAULTS DURING THE 2014 INVESTIGATION

	Analyte:	2,4-Dimethylphenol	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Chrysene	Di-n-butyl phthalate	Di-n-octyl phthalate	Fluoranthene	Fluorene	Naphthalene	N-Nitrosodiphenylamine	Phenanthrene	Phenol	Pyrene
Sample ID	**Units:**	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
IWL-BLDG29-SB1-01	**8/18/2014**	109 U	109 U	109 U	109 U	109 U	109 U	109 U	109 U	109 U	109 U	44.9 J	109 U	109 U	109 U	109 U	109 U	109 U
IWL-BLDG29-SB1-02	**8/18/2014**	106 U	106 U	106 U	106 U	106 U	106 U	106 U	106 U	106 U	106 U	62.7 J	106 U	106 U	106 U	106 U	106 U	73.4 J
IWL-BLDG29-SB2-01	**8/18/2014**	115 U	115 U	115 U	115 U	115 U	115 U	115 U	115 U	115 U	115 U	74.6 J	115 U	115 U	115 U	115 U	115 U	115 U
IWL-BLDG29-SB2-02	**8/18/2014**	109 U	109 U	63.9 J	72 J	109 U	109 U	109 U	61.3 J	109 U	109 U	147 J	109 U	109 U	109 U	123 J	109 U	184 J
IWL-MH1-1-01	**7/29/2014**	3130 U	3130 U	3130 U	3130 U	3130 U	10800	3130 U	3130 U	3130 U	3130 U	3130 U	3130 U	3130 U	3130 U	3130 U	3130 U	3130 U
IWL-MH1-1-02	**7/29/2014**	2740 U	2740 U	2740 U	2740 U	2740 U	3890 J	2740 U	2740 U	2740 U	2740 U	2740 U	2740 U	2740 U	2740 U	2740 U	2740 U	2740 U
IWL-MH1-2-01	**7/29/2014**	5830 U	5830 U	5830 U	5830 U	5830 U	58000	5830 U	5830 U	5830 U	5830 U	5830 U	5830 U	5830 U	5830 U	5830 U	5830 U	5830 U
IWL-MH1-2-02	**7/29/2014**	4710 U	4710 U	4710 U	4710 U	4710 U	5800 J	4710 U	4710 U	4710 U	4710 U	4710 U	4710 U	4710 U	4710 U	4710 U	4710 U	4710 U
IWL-MH1-4-01	**7/30/2014**	654 J	710 U	710 U	710 U	710 U	21800	417 J	710 U	638 J	710 U	305 J	710 U	710 U	710 U	710 U	2650	293 J
IWL-MH1-4-02	**7/30/2014**	758 U	758 U	758 U	758 U	758 U	27800	853 J	758 U	737 J	758 U	606 J	758 U	758 U	758 U	475 J	781 J	498 J
IWL-MH1-5-01	**7/30/2014**	672 U	672 U	672 U	672 U	672 U	2290	304 J	672 U	855 J	672 U	672 U	672 U	672 U	672 U	672 U	672 U	672 U
IWL-MH1-5-02	**7/30/2014**	978 U	978 U	978 U	978 U	978 U	4740	416 J	978 U	1470 J	978 U	978 U	978 U	978 U	978 U	978 U	978 U	978 U
IWL-MH1-6-01	**7/30/2014**	586 U	586 U	586 U	586 U	586 U	4470	521 J	586 U	872 J	586 U	586 U	586 U	216 J	586 U	586 U	586 U	586 U
IWL-MH1-6-02	**7/30/2014**	622 U	622 U	622 U	622 U	622 U	3860	394 J	622 U	628 J	622 U	622 U	622 U	622 U	622 U	622 U	3270	622 U
IWL-MH1-7-01	**7/31/2014**	531 U	532 J	619 J	874 J	280 J	4830	532 J	711 J	674 J	531 U	1400 J	531 U	1150 J	531 U	489 J	531 U	1050 J
IWL-MH1-7-02	**7/31/2014**	578 U	578 U	578 U	578 U	578 U	3600	406 J	578 U	569 J	578 U	407 J	578 U	327 J	578 U	335 J	2520	380 J
IWL-MH1-8-01	**7/31/2014**	1120 J	769 U	769 U	769 U	769 U	22700	1060 J	769 U	1510 J	769 U	1270 J	769 U	769 U	769 U	613 J	17100	1350 J
IWL-MH1-8-02	**7/31/2014**	906 J	565 U	565 U	565 U	565 U	17200	316 J	565 U	404 J	565 U	337 J	565 U	565 U	565 U	565 U	2840	253 J
IWL-MH1-09-01	**8/4/2014**	929 U	929 U	929 U	929 U	929 U	12500	575 J	929 U	570 J	929 U	397 J	929 U	504 J	929 U	929 U	929 U	378 J
IWL-MH1-09-02	**8/4/2014**	824 U	824 U	824 U	824 U	824 U	35100	781 J	824 U	1390 J	824 U	394 J	824 U	1480 J	824 U	824 U	824 U	481 J
IWL-MH1-10-01	**7/22/2014**	2060 U	2060 U	2060 U	2060 U	2060 U	12400	2060 U	2060 U	2060 U	2060 U	5470 J	2060 U	2060 U	2060 U	2060 U	2060 U	2060 U

TABLE 3-6

ANALYTICAL RESULTS FOR DETECTED SVOCs IN THE SEDIMENT REMOVED FROM THE INDUSTRIAL WASTE MANHOLES AND FORMER BUILDING 29 PUMP STATION VAULTS DURING THE 2014 INVESTIGATION (Continued)

	Analyte:	2,4-Dimethylphenol	Benzo[a]anthracene	Benzo[a]pyrene	Benzo[b]fluoranthene	Benzo[k]fluoranthene	Bis(2-ethylhexyl) phthalate	Butyl benzyl phthalate	Chrysene	Di-n-butyl phthalate	Di-n-octyl phthalate	Fluoranthene	Fluorene	Naphthalene	N-Nitrosodiphenylamine	Phenanthrene	Phenol	Pyrene
Sample ID	**Units:**	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
IWL-MH1-10-02	**7/22/2014**	2220 U	2220 U	2220 U	2220 U	2220 U	5520 J	2220 U	2220 U	2220 U	2220 U	2880 J	2220 U	2220 U	2220 U	2220 U	2220 U	2220 U
IWL-MH1-11-02	**7/23/2014**	2810 U	2810 U	2810 U	2810 U	2810 U	4180 J	2810 U	2810 U	2810 U	2810 U	2810 U	2810 U	2810 U	2810 U	2810 U	2810 U	2810 U
IWL-MH1-12-01	**7/23/2014**	3060 U	3060 U	3060 U	3060 U	3060 U	4680 J	3060 U	3060 U	3060 U	3060 U	3060 U	3060 U	3060 U	3060 U	3060 U	3060 U	3060 U
IWL-MH1-12-02	**7/23/2014**	4760 U	4760 U	4760 U	4760 U	4760 U	14000 J	4760 U	4760 U	4760 U	4760 U	6090 J	4760 U	4760 U	4760 U	4760 U	4760 U	4760 U
IWL-MH1-13-01	**7/24/2014**	6390 U	6390 U	6390 U	6390 U	6390 U	48100	6390 U	6390 U	6390 U	6390 U	6390 U	6390 U	6390 U	6390 U	6390 U	6390 U	6390 U
IWL-MH1-13-02	**7/24/2014**	8310 U	8310 U	8310 U	8310 U	8310 U	60400	8310 U	8310 U	8310 U	8310 U	8310 U	8310 U	8310 U	8310 U	8310 U	8310 U	8310 U
IWL-MH1-14-01	**8/4/2014**	766 U	766 U	766 U	766 U	766 U	23200	766 U	766 U	759 J	766 U	1800 J	766 U	355 J	766 U	766 U	766 U	806 J
IWL-MH1-14-02	**8/4/2014**	830 U	830 U	830 U	830 U	830 U	53200	830 U	830 U	1330 J	830 U	2300 J	830 U	1010 J	830 U	658 J	830 U	1210 J
IWL-MH1-22-01	**7/22/2014**	27100	3520 U	3520 U	3520 U	3520 U	69200	3520 U	3520 U	3520 U	4060 J	449000	3520 U	3520 U	6890 J	5500 J	3520 U	5180 J
IWL-MH1-22-02	**7/22/2014**	6100 J	2210 U	2210 U	2210 U	2210 U	46400	2210 U	2210 U	2210 U	2210 U	86800	2210 U	2210 U	2210 U	2210 U	2210 U	2210 U
IWL-MH1-23-01	**7/21/2014**	2200 U	2200 U	2200 U	2200 U	2200 U	22700	2200 U	2200 U	2200 U	2200 U	7330	2200 U	2200 U	2200 U	2200 U	2200 U	2200 U
IWL-MH1-23-02	**7/21/2014**	4670 U	4670 U	4670 U	4670 U	4670 U	61400	4670 U	4670 U	4670 U	4670 U	9460 J	4670 U	4670 U	4670 U	4670 U	4670 U	4670 U
IWL-MH1-24-01	**7/21/2014**	18000	3540 J	2680 U	4590 J	2680 U	131000	5290 J	5280 J	2680 U	2680 U	263000	3420 J	2680 U	6690 J	9140	8530 J	8160 J
IWL-MH1-24-02	**7/21/2014**	10800	2400 U	2400 U	2400 U	2400 U	109000	5290 J	2900 J	2400 U	2400 U	217000	2400 U	2400 U	5550 J	5270 J	2400 U	4300 J
IWL-PS1VAULT-01	**7/29/2014**	9030 J	5540 U	5540 U	5540 U	5540 U	223000	5540 U	5540 U	5540 U	5540 U	4760 J	5540 U	13200 J	5540 U	4810 J	5540 U	4450 J
IWL-PS1VAULT-02	**7/29/2014**	5100 J	6670 U	6670 U	6670 U	6670 U	231000	6670 U	6670 U	6670 U	6670 U	6670 U	6670 U	4800 J	6670 U	6670 U	6670 U	6670 U
IWL-PS2-VAULT-01	**7/24/2014**	11200 J	4750 U	4750 U	4750 U	4750 U	58500	4750 U	4750 U	4750 U	4750 U	54800	4750 U	4750 U	4750 U	4750 U	4750 U	4750 U
IWL-PS2-VAULT-02	**7/24/2014**	10100 J	3910 U	3910 U	3910 U	3910 U	55300	3910 U	3910 U	3910 U	3910 U	52400	3910 U	3910 U	3910 U	3910 U	3910 U	3910 U

Abbreviations and Acronyms:
µg/kg – micrograms per kilogram
J – value is estimated
SVOC – semivolatile organic compound
U – not detected above stated value

TABLE 3-7

ANALYTICAL RESULTS FOR DETECTED METALS IN THE SEDIMENT REMOVED FROM THE INDUSTRIAL WASTE MANHOLES AND FORMER BUILDING 29 PUMP STATION VAULTS DURING THE 2014 INVESTIGATION

		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Vanadium	Zinc
Sample ID	**Units:**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
IWL-BLDG29-SB1-01	**8/18/2014**	2.38 UJ	3.91 J	21.6	0.237 J	0.137 J	34.5	9.24	5.73	16800	4.45	0.029 U	1.79 U	48.7	1.62 J	0.123 J	27.2	29.4
IWL-BLDG29-SB1-02	**8/18/2014**	2.31 UJ	6.39	24.4	0.17 J	1.18	41.2	8.77	7.9	17000	4.64	0.0291 U	0.681 J	43.1	0.847 J	0.347 U	29.7	29.4
IWL-BLDG29-SB2-01	**8/18/2014**	2.45 UJ	3.6 J	45.6	0.205 J	0.245 U	34.4	9.79	6.59	17000	4.05	0.0311 U	1.84 U	45.2	2.45 U	0.367 U	30.8	32.4
IWL-BLDG29-SB2-02	**8/18/2014**	2.5 UJ	3.16 J	21.1	0.15 J	0.156 J	23.2	5.8	5.49	10900	5.69	0.0125 J	1.87 U	28.6	2.5 U	0.374 U	20.9	30.1
IWL-BLDG29-SB3-01	**8/18/2014**	2.54 UJ	5.89	21.6	0.176 J	0.254 U	35.4	7.46	5.71	14500	3.89	0.0313 U	1.91 U	45.6	2.54 U	0.381 U	24.9	26.3 J
IWL-BLDG29-SB3-02	**8/18/2014**	2.34 UJ	3.92 J	14.3	0.164 J	0.234 U	31.5	7.67	4.81 J	14700	4.76	0.0332 U	1.76 U	35.1	2.34 U	0.351 U	25.5	26.5
IWL-MH1-1-01	**7/29/2014**	3.13 J	25.3	315 J	0.421 J	111	2810	10.9 J	223 J	22800 J	383 J	0.575	8.85 J	118 J	4.63 U	4.67 J	34.8 J	1600
IWL-MH1-1-02	**7/29/2014**	2.66 J	9.66	245	0.467 J	111	2610	11.2 J	244 J	34200 J	389 J	0.555	10.7 J	123 J	1.4 J	2.5 J	31.6 J	1590
IWL-MH1-2-01	**7/29/2014**	10.5	18.4 J	524 J	0.505 J	332	7120	14.5 J	554 J	32500 J	582 J	0.914	66.5 J	419 J	8.97 U	8.63 J	37.3 J	2310
IWL-MH1-2-02	**7/29/2014**	6.67 J	14.2 J	608 J	0.487 J	398	10800	16 J	569 J	33700 J	1550 J	1.9	41.9 J	421 J	7.45 U	8.15 J	37.6 J	2830
IWL-MH2-3-01	**7/29/2014**	3.22 U	4.28 J	125 J	0.244 J	43.5	250	10.2 J	141 J	19200 J	120 J	0.253	2.01 J	63.2 J	1.11 J	2.36 J	36.1 J	907
IWL-MH2-3-02	**7/29/2014**	1.81 J	5.69 J	125 J	0.245 J	71.9	431	12.4 J	305 J	21500 J	238 J	0.828	5.24 J	88.2 J	1.56 J	4.96 J	40.6 J	1610
IWL-MH1-4-01	**7/30/2014**	6.47	11.7 J	291 J	1.3	1280	2560	30.4 J	511 J	21900 J	547 J	1.56 J	48.3 J	587 J	5.8 U	27.8 J	25.7 J	2410
IWL-MH1-4-02	**7/30/2014**	7.74	13.5	362 J	2.19	1790	2370	90.3 J	532 J	29800 J	549 J	1.13 J	63.9 J	840 J	6.1 U	27 J	30.2 J	2600
IWL-MH1-5-01	**7/30/2014**	7.76	11.4	683 J	1.26	1470	7110	28.7 J	1060 J	37800 J	1620 J	2.16 J	62.4 J	648 J	1.87 J	34.8 J	53.7 J	7560
IWL-MH1-5-02	**7/30/2014**	16.5	13.2 J	832 J	1.35 J	2380	9410	33.8 J	1350 J	30800 J	1910 J	2.31 J	103 J	716 J	6.81 U	60.5 J	36.9 J	3230
IWL-MH1-6-01	**7/30/2014**	5.61	13.7	310 J	0.874 J	2230	2040	28.7 J	434 J	23200 J	436 J	0.717 J	28.5 J	634 J	4 U	28.4 J	21.3 J	1900
IWL-MH1-6-02	**7/30/2014**	4.77	12.9	475 J	1	1660	2210	25.6 J	427 J	32400 J	494 J	0.864 J	33.4 J	702 J	4.29 U	21.4 J	20.5 J	1490
IWL-MH1-7-01	**7/31/2014**	4.35	12.6	393 J	4.16	1100	1570	87.6 J	602 J	21600 J	434 J	1.61 J	61.3 J	1210 J	2.95 J	31 J	28.3 J	3130
IWL-MH1-7-02	**7/31/2014**	24.7	21.4	1300 J	3.23	1450	2890	88.7 J	1250 J	32300 J	944 J	1.43 J	135 J	3130 J	1.63 J	113 J	37.6 J	5080
IWL-MH1-8-01	**7/31/2014**	15.9	29.9	645 J	2.36	1650	2740	74.6 J	1550 J	45700 J	1410 J	3.08 J	119 J	1130 J	6.15 U	46.6 J	77.3 J	5830
IWL-MH1-8-02	**7/31/2014**	7.64	19.8	346 J	0.895 J	729	1880	36.9 J	971 J	61100 J	814 J	1.98 J	44.8 J	533 J	2.47 J	27.7 J	83.5 J	3900
IWL-MH1-09-01	**8/4/2014**	9.92 J	20.4	713 J	1.68	878 J	1750 J	48	465 J	26300 J	632 J	1.34	63.7	1320 J	7.11 U	43.6	28.6	3340 J
IWL-MH1-09-02	**8/4/2014**	18.5 J	21.4	1030 J	2.68	1470 J	2540 J	56.2	597 J	32600 J	918 J	2.47	120	1550 J	2.3 J	59.9	35.1	4480 J
IWL-MH1-10-01	**7/22/2014**	5.18 J	5.61 J	158 J	0.203 J	16.8 J	277	6.37	175	24100 J	389 J	1.62 J	6.52 J	101	3.38 UJ	2.39 J	15	890 J
IWL-MH1-10-02	**7/22/2014**	2.24 J	7.51	182 J	0.544 U	8.69 J	132	9.69	163	45000 J	204 J	1.43 J	8.11 J	96.8	3.35 UJ	5.44 J	20.5	615 J
IWL-MH1-11-01	**7/23/2014**	11.9 J	6.12 J	448 J	0.736 J	271 J	3780 J	93.4 J	489 J	18100	1030	3.28 J	125 J	2720 J	1.56 J	219 J	15.4 J	1390
IWL-MH1-11-02	**7/23/2014**	6.98 J	9.42 J	375 J	0.308 J	370 J	4990 J	52.9 J	571 J	16800	1310	2.77 J	67.9 J	2800 J	1.91 J	350 J	17.1 J	1460

TABLE 3-7

ANALYTICAL RESULTS FOR DETECTED METALS IN THE SEDIMENT REMOVED FROM THE INDUSTRIAL WASTE MANHOLES AND FORMER BUILDING 29 PUMP STATION VAULTS DURING THE 2014 INVESTIGATION (Continued)

		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Iron	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Vanadium	Zinc
Sample ID	**Units:**	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
IWL-MH1-12-01	**7/23/2014**	36.3 J	16.8 J	723 J	0.454 J	154 J	1780 J	53.3 J	646 J	31500	1870	12.9 J	66.2 J	1070 J	4.76 UJ	86 J	37.2 J	3110
IWL-MH1-12-02	**7/23/2014**	9.69 J	21.7 J	1390 J	0.572 J	467 J	7470 J	124 J	1130 J	47800	3100	18.2 J	157 J	3830 J	6.67 UJ	371 J	61.6 J	4150
IWL-MH1-13-01	**7/24/2014**	11.5	24.6	584 J	0.823 J	262 J	890 J	33.6	617 J	35500	1030 J	3.21 J	42.5	395 J	10.5 U	30	28.4	2640
IWL-MH1-13-02	**7/24/2014**	14.5	49.2	817 J	0.943 J	694 J	1870 J	59.9	1110 J	81300	2020 J	3.29 J	70.4	1020 J	12.1 U	41.8	56.1	4790
IWL-MH1-14-01	**8/4/2014**	8.41 J	21.2	522 J	1.07 J	1090 J	1830 J	18.1	652 J	28500 J	638 J	1.88	45	477 J	6 U	29.1	21.6	2270 J
IWL-MH1-14-02	**8/4/2014**	8.49 J	17.3	494 J	1.73	1890 J	3780 J	24.6	1000 J	22800 J	845 J	1.59	76.8	586 J	6.84 U	42.5	22.4	2480 J
IWL-MH1-22-01	**7/22/2014**	55.8 J	7.98 J	355 J	0.895 J	395 J	2870	62	622	23200 J	1060 J	3.39 J	97 J	2160	5.37 UJ	185 J	15.9	1990 J
IWL-MH1-22-02	**7/22/2014**	213 J	8.35	962 J	1.05	454 J	2410	34.4	628	31900 J	907 J	1.7 J	51.6 J	1460	66.2 J	91.9 J	14.5	2250 J
IWL-MH1-23-01	**7/21/2014**	62.8 J	16.9	384 J	0.42 J	96.1 J	469	22.9	1280	58100 J	784 J	5.2 J	36.7 J	654	3.34 UJ	19 J	19.5	4440 J
IWL-MH1-23-02	**7/21/2014**	18 J	31.3	762 J	0.697 J	263 J	1870	107	1530	46800 J	1590 J	4.27 J	107 J	1390	2.54 J	59.2 J	36.3	3350 J
IWL-MH1-24-01	**7/21/2014**	11.1 J	10.4	388 J	0.386 J	113 J	1180	29.7	631	37900 J	668 J	1.27 J	42.6 J	619	4.23 UJ	64.6 J	18.4	2160 J
IWL-MH1-24-02	**7/21/2014**	34.2 J	12.1	1130 J	0.535 J	90.9 J	1550	37.7	1240	84300 J	2150 J	0.049 UJ	52.6 J	798	3.71 UJ	88.8 J	34.8	4790 J
IWL-PS1-VAULT-01	**7/29/2014**	11.8	21.8	972 J	0.539 J	223	1860	23.4 J	802 J	66200 J	1190 J	1.02	71.1 J	174 J	7.89 U	10.3 J	53.5 J	6390
IWL-PS1VAULT-02	**7/29/2014**	11.8	27.5	704 J	1.51 U	196	1600	19.3 J	733 J	95300 J	1140 J	1.12	69.3 J	125 J	3.87 J	10.6 J	50.6 J	8580
IWL-PS2-VAULT-01	**7/24/2014**	6.86 J	31.1	409 J	0.496 J	1360 J	3490 J	71.7	1270 J	67700	944 J	4.07 J	243	1690 J	7.68 U	152	35.5	2500
IWL-PS2-VAULT-02	**7/24/2014**	7.57	21.1	466 J	0.478 J	879 J	4160 J	62.4	1050 J	45300	828 J	2.37 J	122	1630 J	2.07 J	172	31.9	2050

Abbreviations and Acronyms:
J – value is estimated
mg/kg – milligrams per kilogram
U – not detected above stated value

FIGURES

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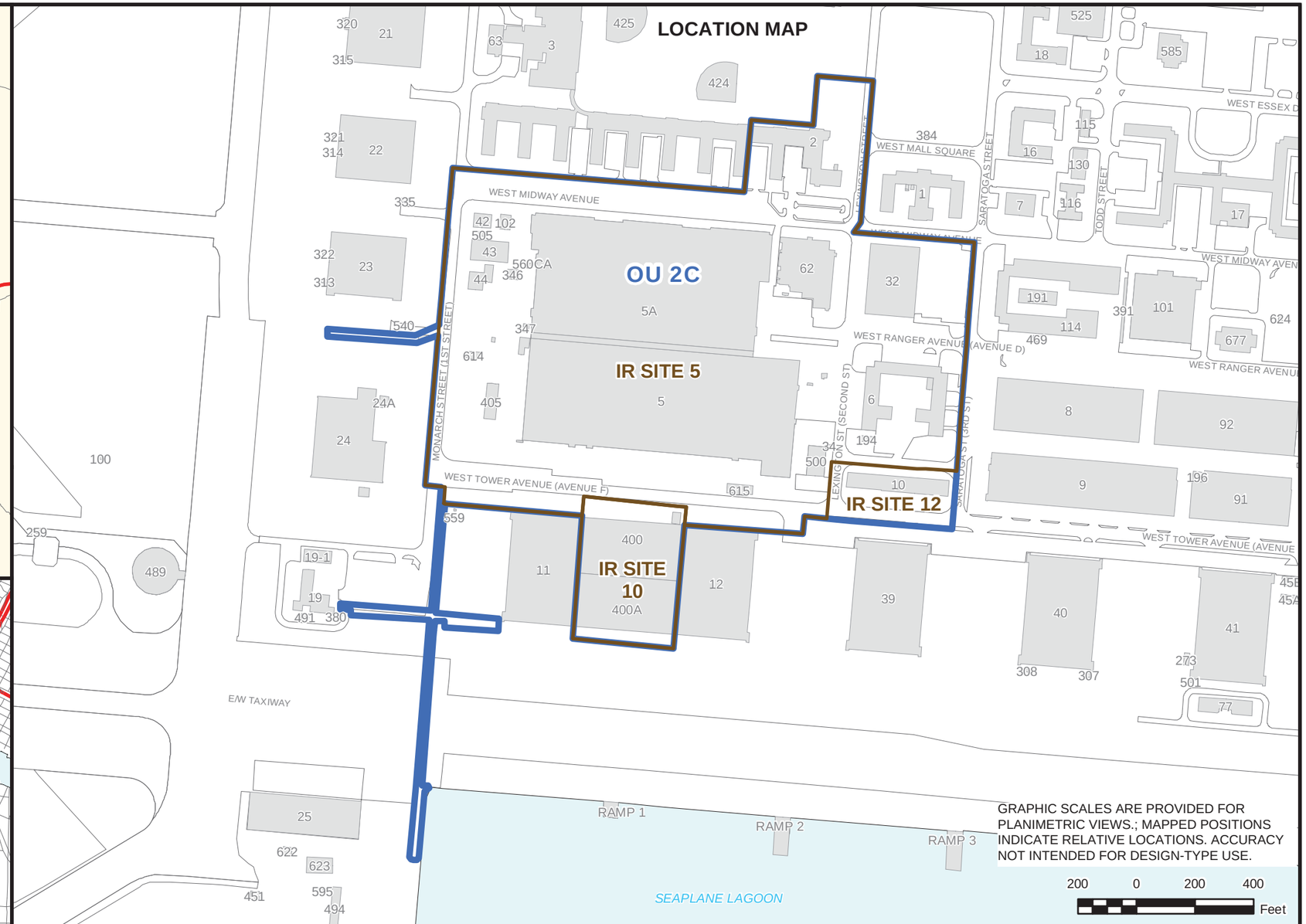

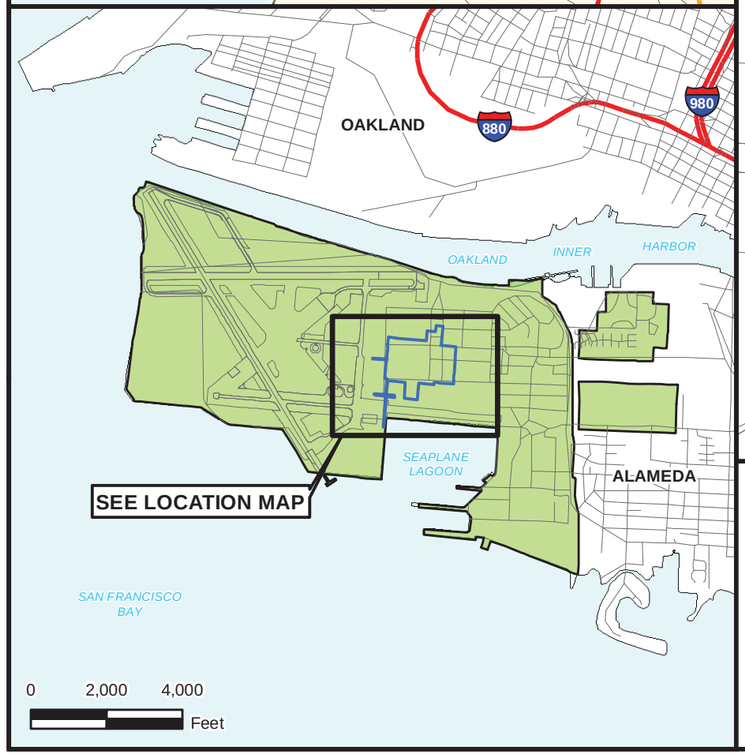

LEGEND

- ROAD/RUNWAY
- STATE HIGHWAY
- US HIGHWAY
- INTERSTATE HIGHWAY
- ALAMEDA POINT
- IR SITE BOUNDARY
- OPERABLE UNIT 2C
- BUILDING AND BUILDING NUMBER
- WATER

NOTES:

IR - INSTALLATION RESTORATION

OU - OPERABLE UNIT

FWBZ - FIRST WATER-BEARING ZONE

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
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FIGURE 1-1

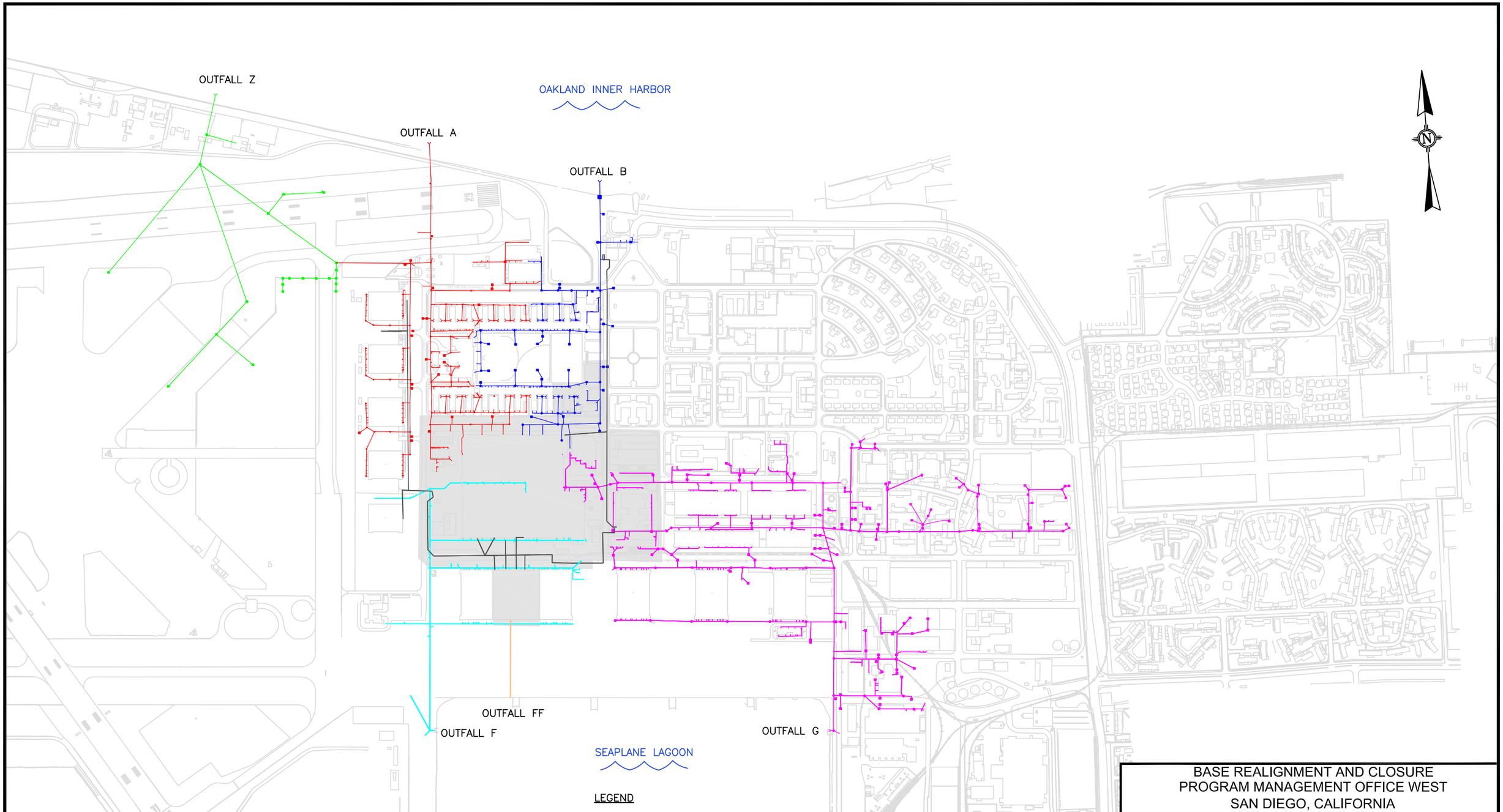
SITE LOCATION MAP

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW:
AUTHOR: AM
DCN: UMAC-2006-0008-0001
FILE NUMBER: FIGURE 1-1.mxd

TETRA TECH

R:\Projects_2014\Alameda\maps\CTO8\FIGURE 1-1.mxd



LEGEND

- OU–2C
- STORM DRAIN LINE A
- STORM DRAIN LINE B
- STORM DRAIN LINE F
- STORM DRAIN LINE FF
- STORM DRAIN LINE G
- STORM DRAIN LINE Z
- INDUSTRIAL WASTE SYSTEM

ABBREVIATIONS

IR = INSTALLATION RESTORATION
OU = OPERABLE UNIT

350 0 350 700

(FEET)

GRAPHIC SCALES ARE PROVIDED FOR PLANIMETRIC VIEWS; MAPPED POSITIONS INDICATE RELATIVE LOCATIONS. ACCURACY NOT INTENDED FOR DESIGN–TYPE USE.

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FIGURE 1-2

OU-2C STORM DRAIN AND INDUSTRIAL WASTE LINES

ALAMEDA POINT
ALAMEDA, CALIFORNIA

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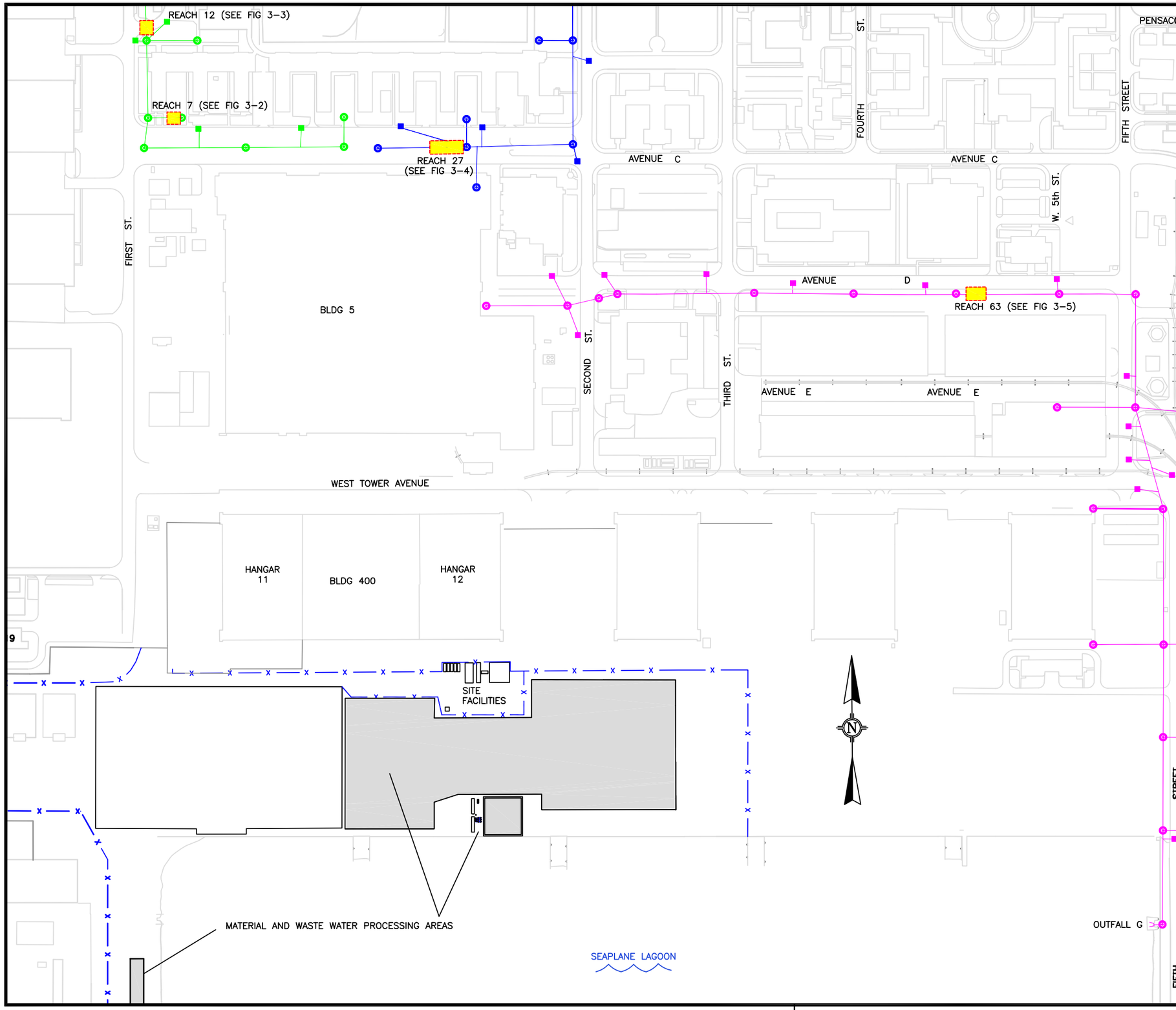

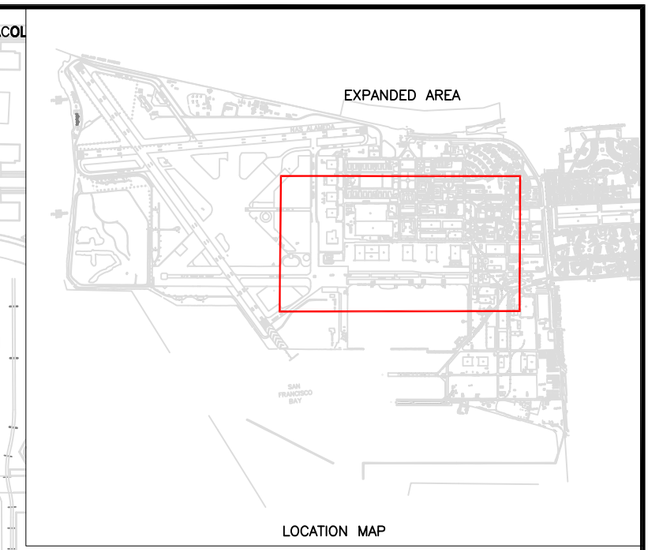

LOCATION MAP

LEGEND

STORM DRAIN SYSTEM A
STORM DRAIN SYSTEM B
STORM DRAIN SYSTEM G
LOCATION OF LIMITED EXCAVATION
TEMPORARY CONSTRUCTION FENCE

150 0 150 300
(FEET)

SCALE IS APPROXIMATE

GRAPHIC SCALES ARE PROVIDED FOR PLANIMETRIC VIEWS; MAPPED POSITIONS INDICATE RELATIVE LOCATIONS. ACCURACY NOT INTENDED FOR DESIGN-TYPE USE.

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FIGURE 3-1
LOCATIONS OF LIMITED EXCAVATION OF STORM DRAIN LINES

ALAMEDA POINT
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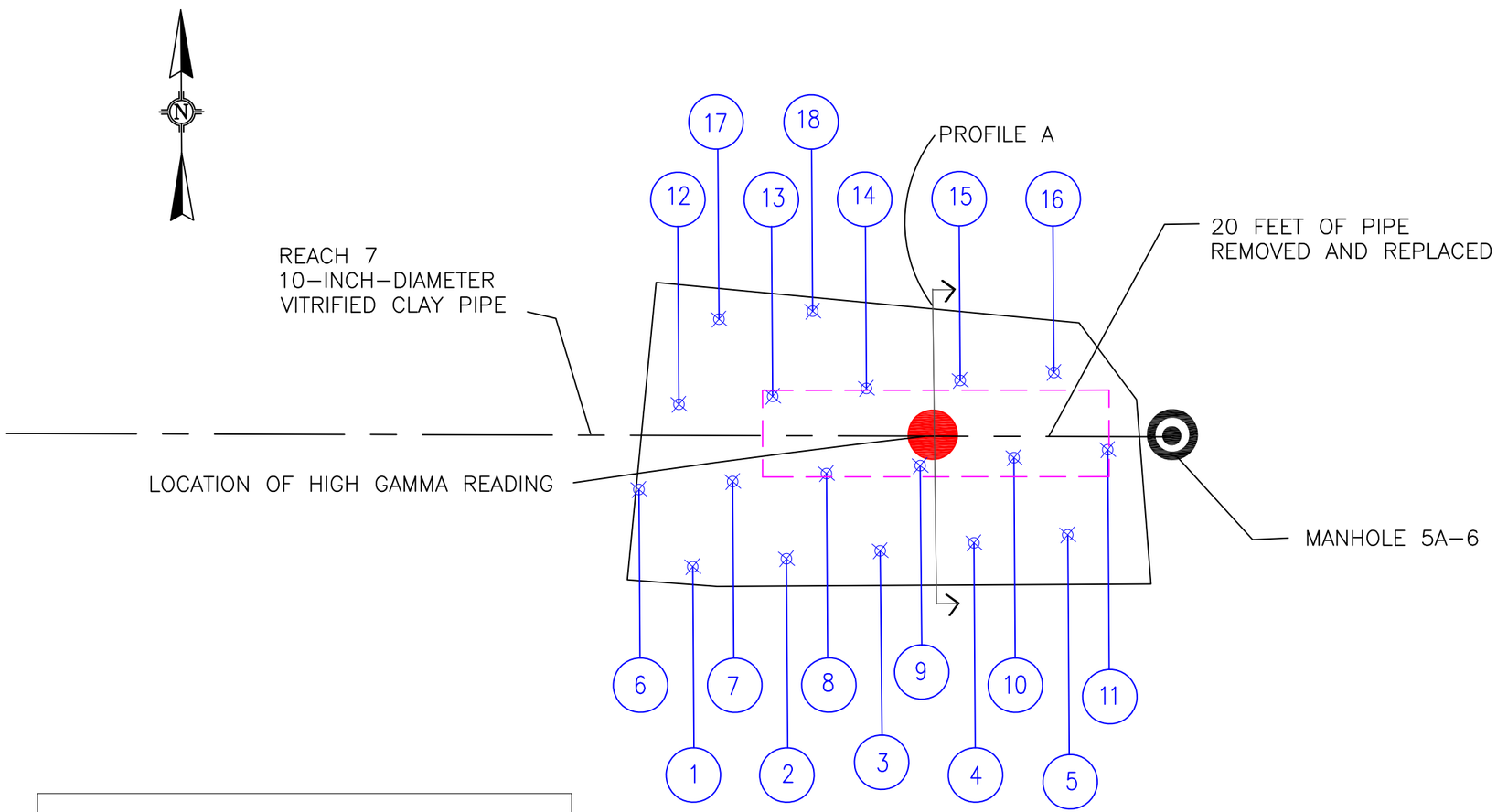

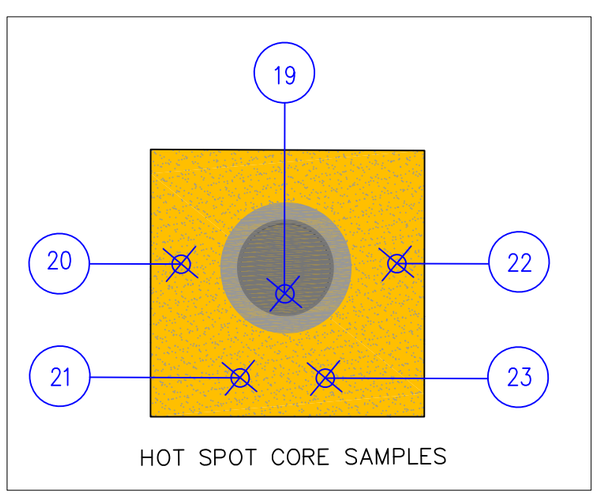

PROFILE A
DRAWING IS FOR SCHEMATIC PURPOSES; HORIZONTAL AND VERTICAL DISTANCES ARE NOT TO SCALE

5 0 5 10
(FEET)

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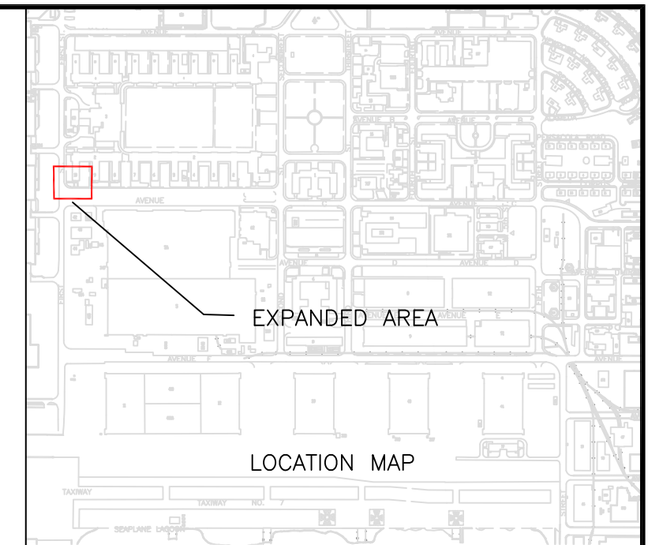
18 SYSTEMATIC SAMPLES



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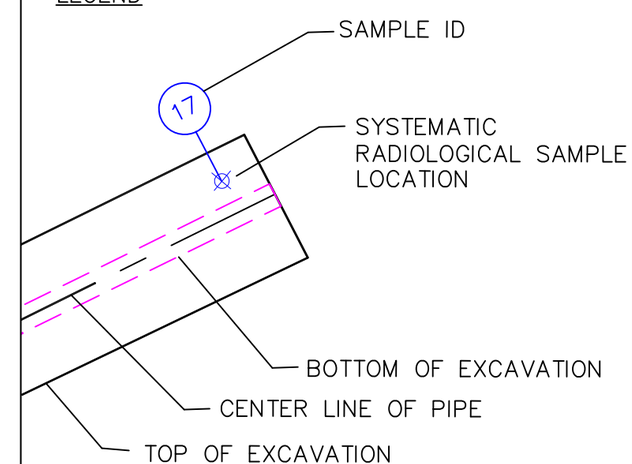

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FIGURE 3-2
STORM DRAIN LINE REACH 7 DETAILS

ALAMEDA POINT
ALAMEDA, CALIFORNIA

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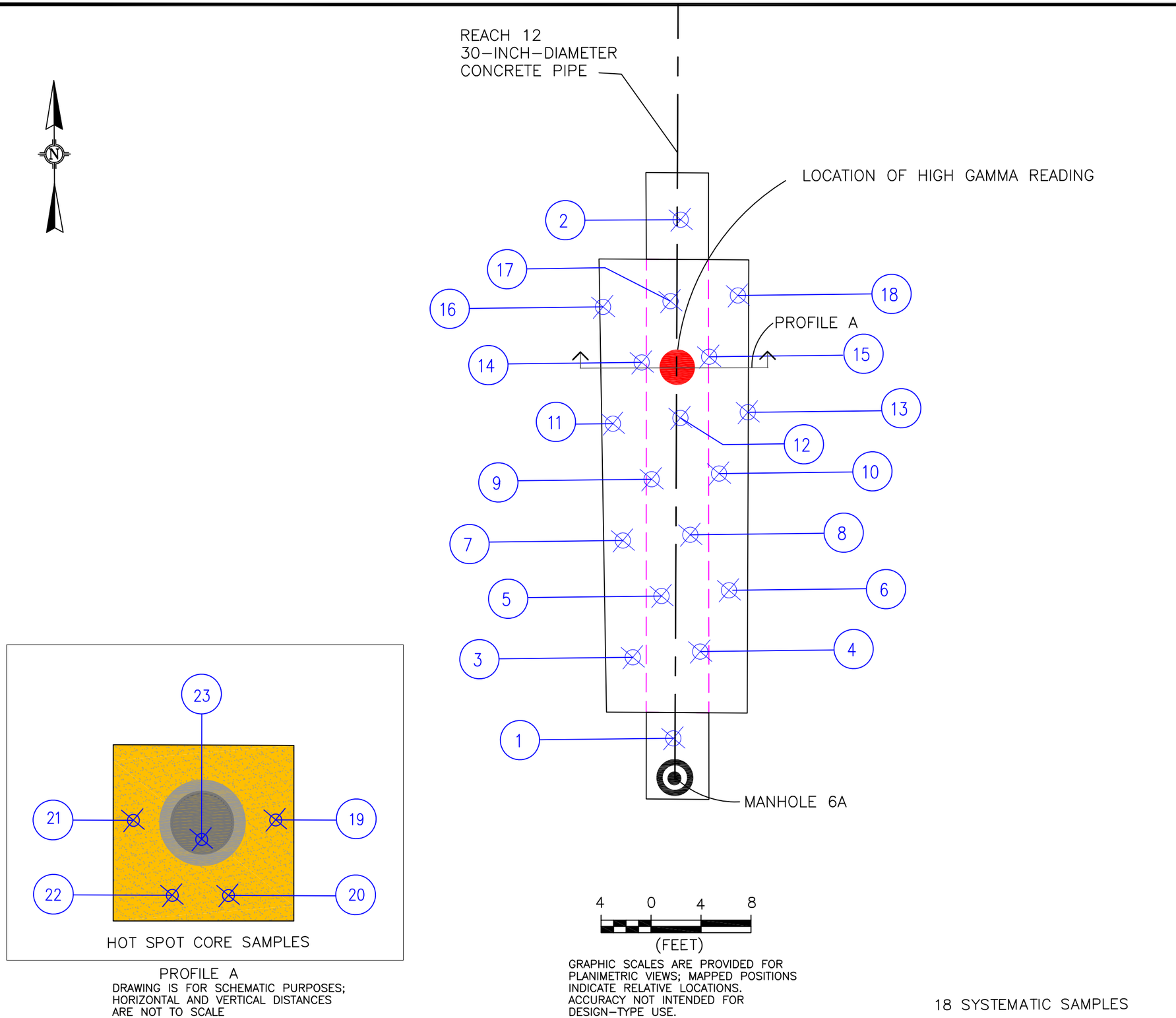

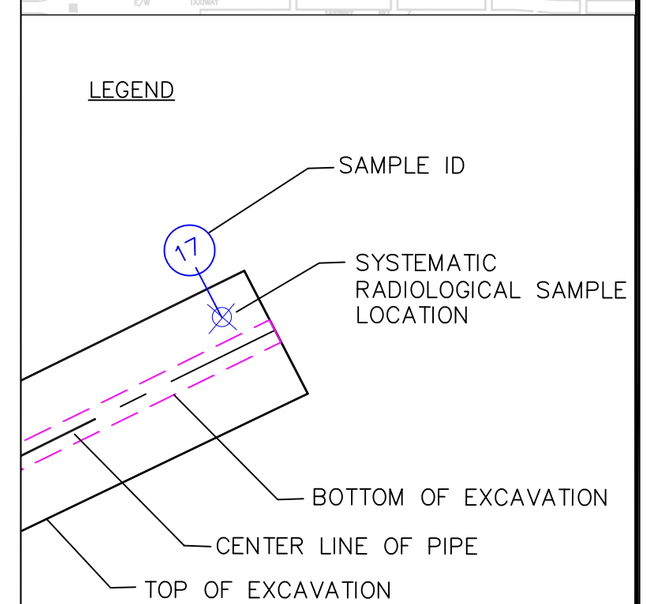

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FIGURE 3-3
STORM DRAIN LINE REACH 12 DETAILS

ALAMEDA POINT
ALAMEDA, CALIFORNIA

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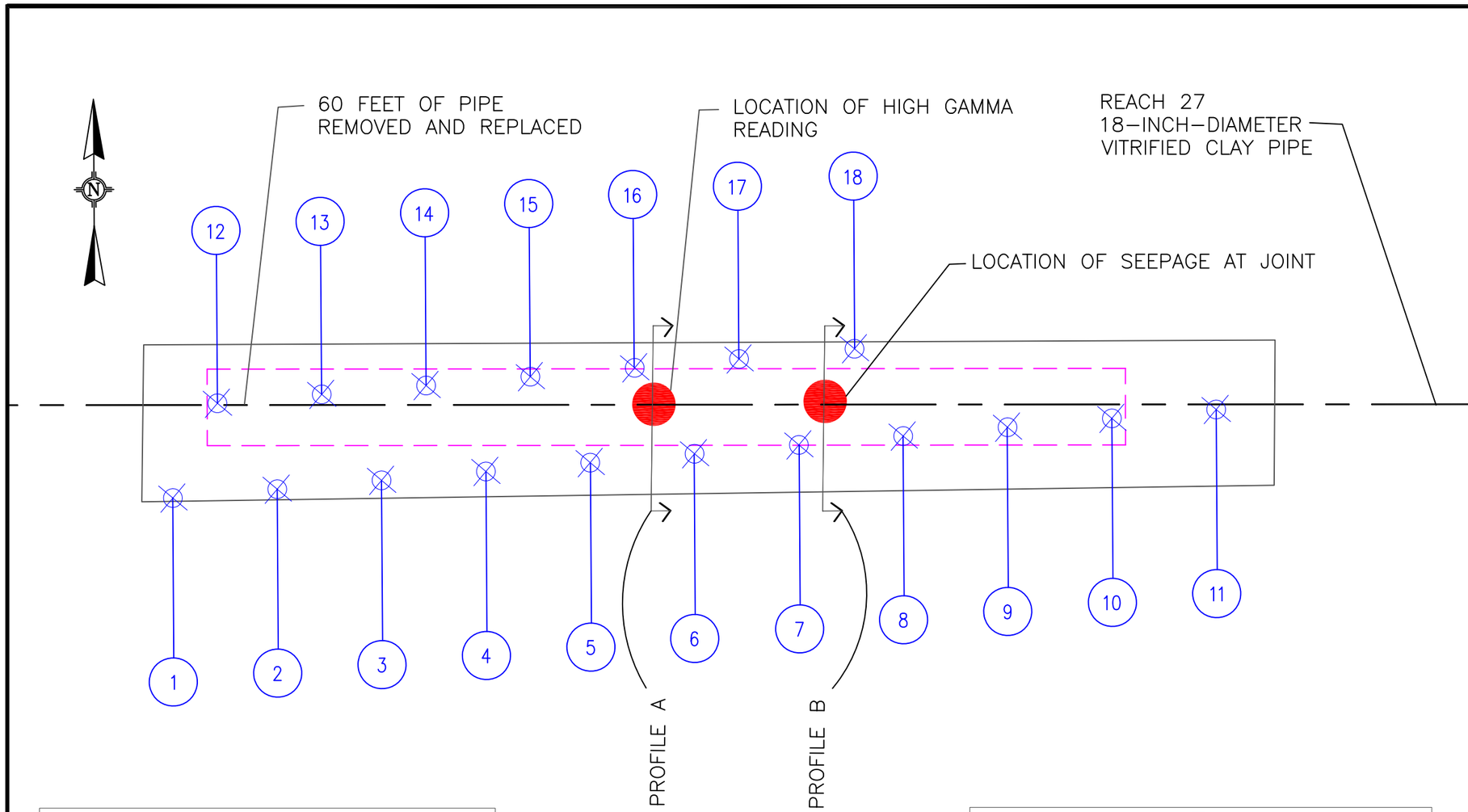
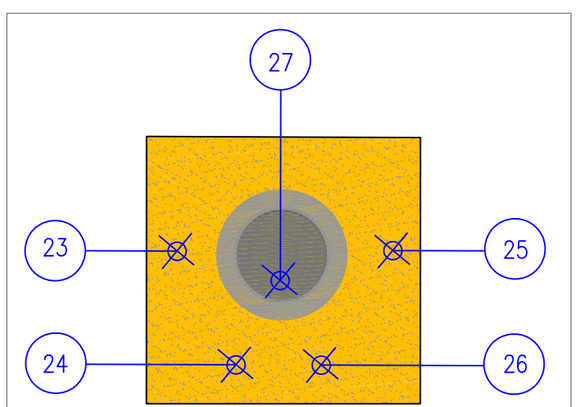


18 SYSTEMATIC SAMPLES



1 HOT SPOT CORE SAMPLES

PROFILE A

DRAWING IS FOR SCHEMATIC PURPOSES;
HORIZONTAL AND VERTICAL DISTANCES
ARE NOT TO SCALE

4 0 4 8

(FEET)

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ACCURACY NOT INTENDED FOR
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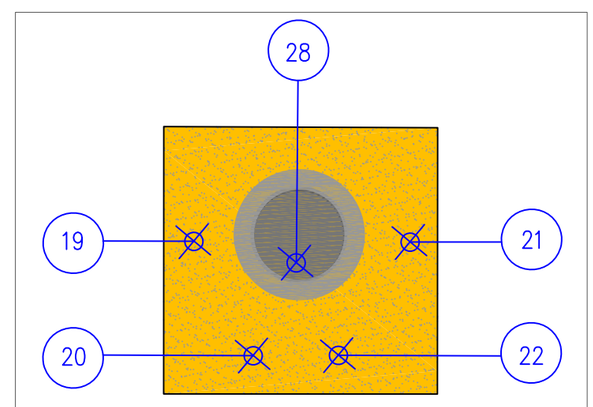
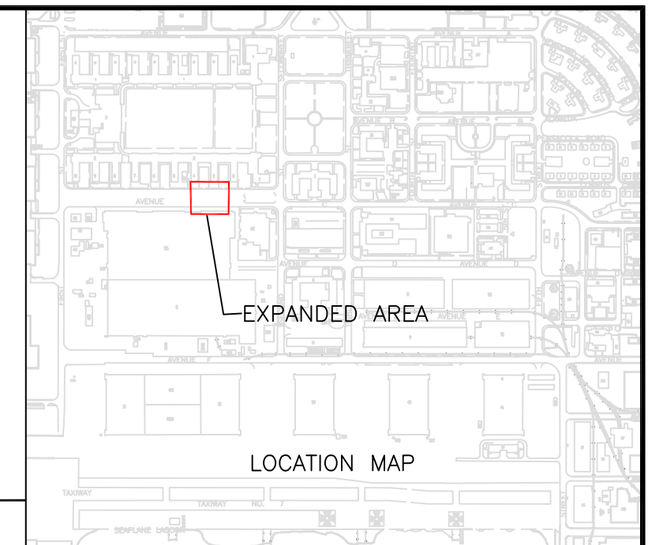


2 JOINT SEEPAGE CORE SAMPLES

PROFILE B

DRAWING IS FOR SCHEMATIC PURPOSES;
HORIZONTAL AND VERTICAL DISTANCES
ARE NOT TO SCALE



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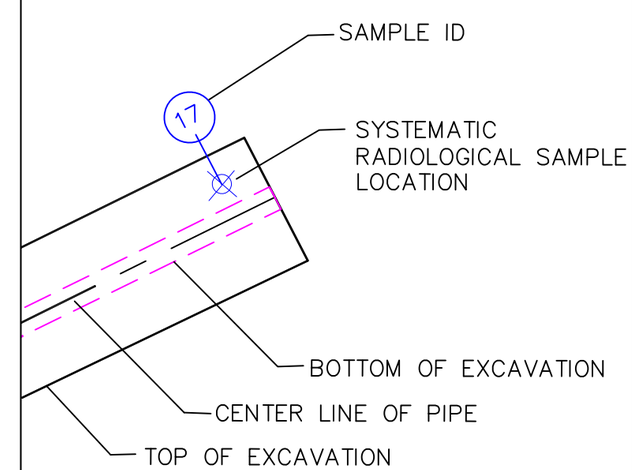

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FIGURE 3-4
STORM DRAIN LINE REACH 27 DETAILS

ALAMEDA POINT
ALAMEDA, CALIFORNIA

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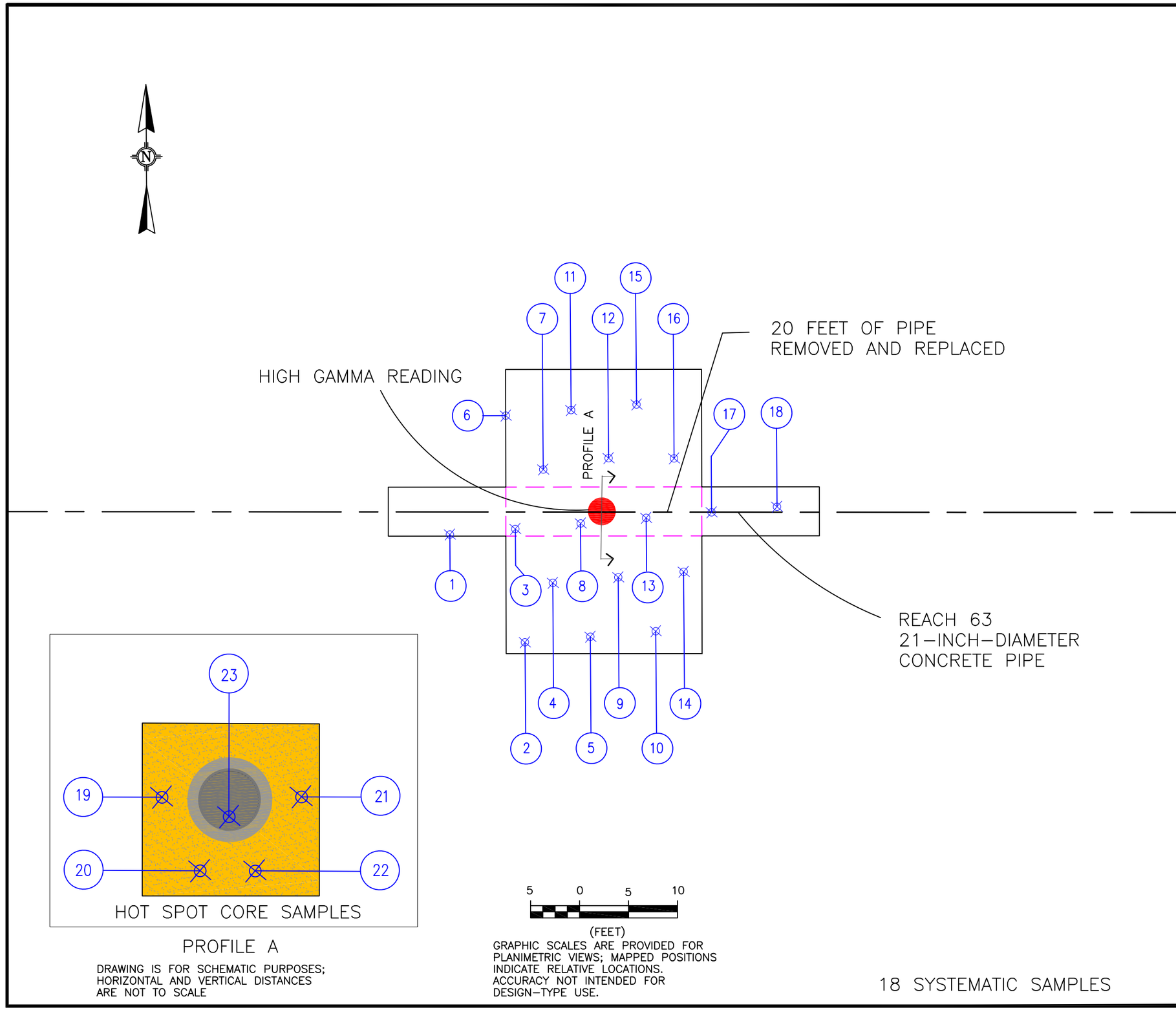

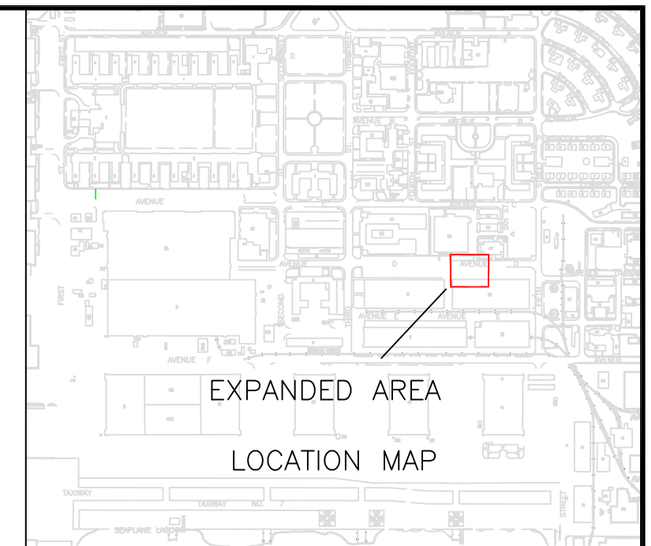

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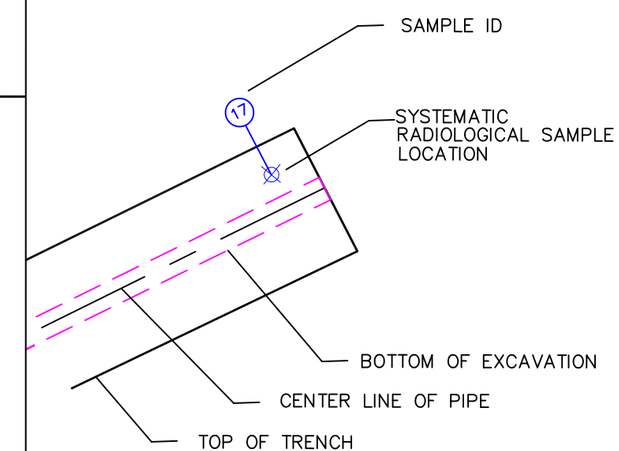

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FIGURE 3-5
STORM DRAIN LINE REACH 63 DETAILS

ALAMEDA POINT
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REVIEW: 0
AUTHOR: RS
DATE: JUNE 10, 2015
FILE NUMBER: Figure 3-5.dwg

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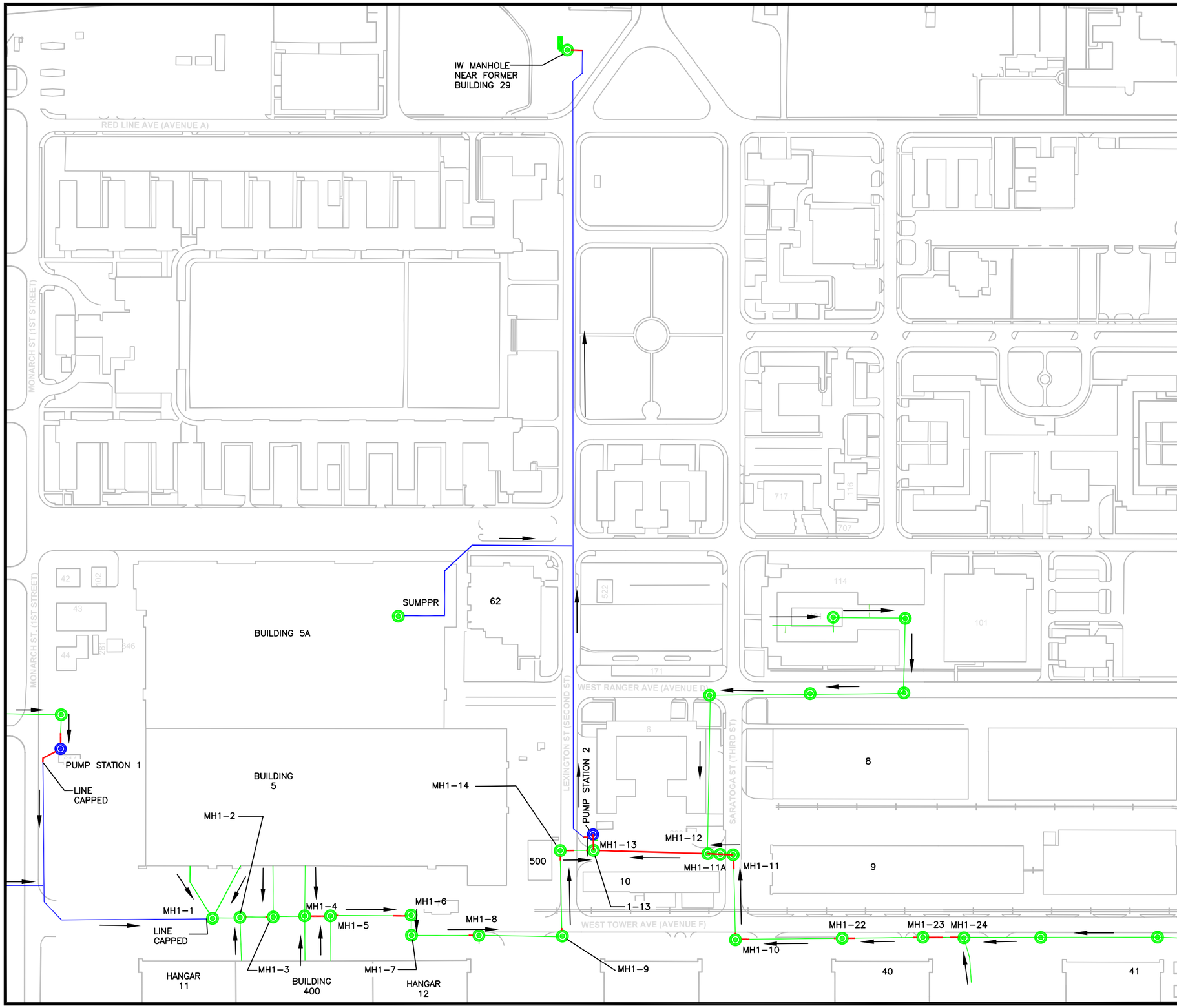

LEGEND

- INDUSTRIAL WASTE FORCE MAIN (CAST IRON PIPING)
- INDUSTRIAL WASTE GRAVITY LINES (VITRIFIED CLAY PIPING)
- PORTION OF INDUSTRIAL WASTE LINES ABLE TO BE VIDEO INSPECTED
- INDUSTRIAL WASTE MANHOLE
- INDUSTRIAL WASTE PUMP STATION
- FLOW DIRECTION

REFERENCES

1. FORMER NAS ALAMEDA HISTORICAL AS-BUILT CANVAS DRAWINGS
2. "NAVAL AIR STATION, ALAMEDA INDUSTRIAL WASTE SYSTEM". PWC DRAWING NUMBERS: 23996 (REV. 1991), 23997 (REV. 1995), & 23998 (REV. 1990).

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FIGURE 3-6
INDUSTRIAL WASTE LINES THAT UNDERWENT CAMERA INSPECTION

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ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JUNE 10, 2015
FILE NUMBER: Figure 3-6.dwg

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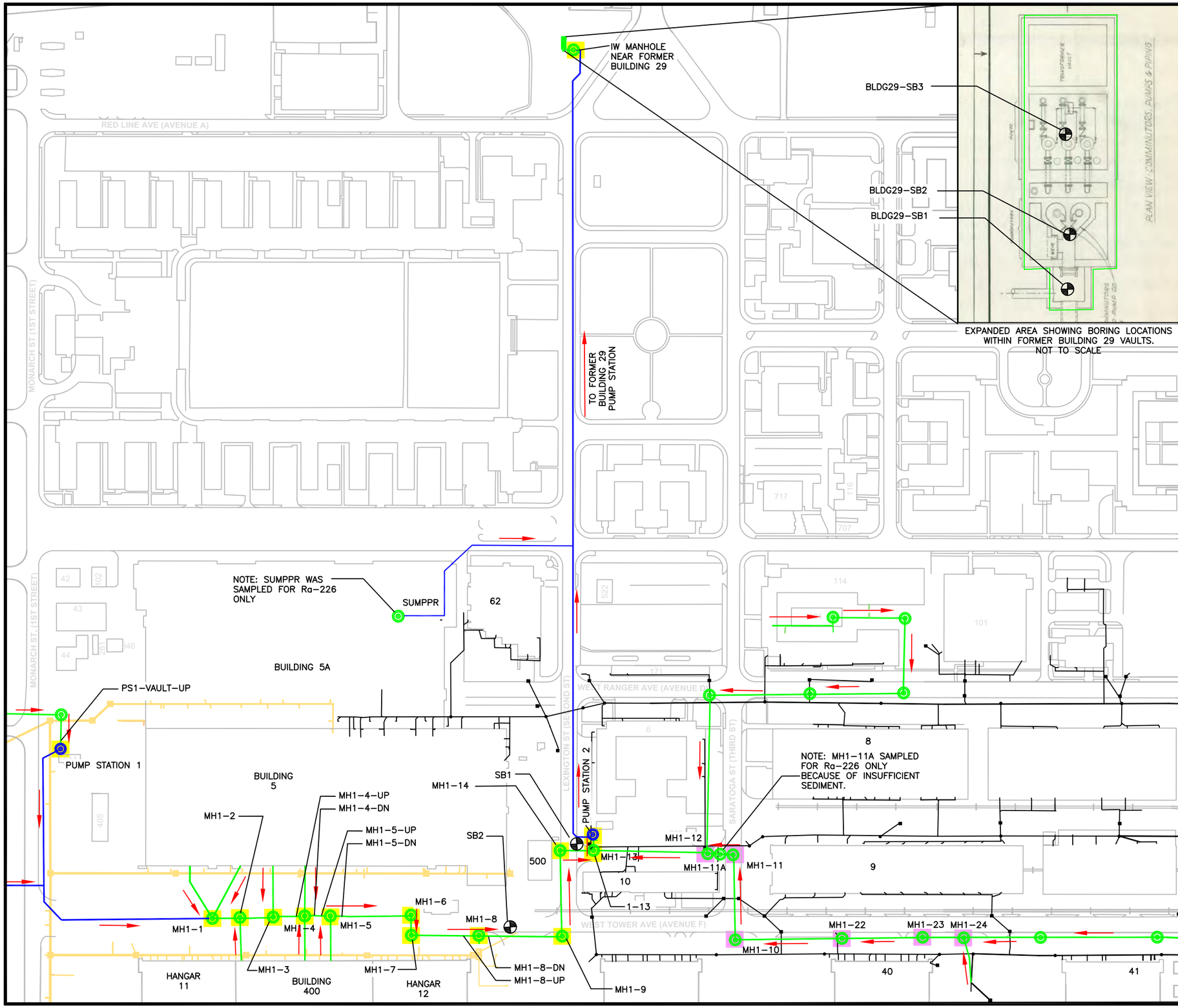

LEGEND

- INDUSTRIAL WASTE FORCE MAIN (CAST IRON PIPING)
- INDUSTRIAL WASTE GRAVITY LINES (VITRIFIED CLAY PIPING)
- INDUSTRIAL WASTE MANHOLE
- INDUSTRIAL WASTE PUMP STATION
- INDUSTRIAL WASTE SYSTEM DIRECTION OF FLOW
- INDUSTRIAL WASTE MANHOLE SAMPLED FOR METALS, VOCs, AND SVOCs
- INDUSTRIAL WASTE PUMP STATION VAULT SAMPLED FOR METALS, VOCs, AND SVOCs
- INDUSTRIAL WASTE MANHOLE SAMPLED FOR Ra-226, METALS, VOCs, AND SVOCs
- STORM SYSTEM G
- REMOVED & REPLACED PORTION OF STORM SYSTEM F
- BORING LOCATION

ABBREVIATIONS

IR = INSTALLATION RESTORATION
IW = INDUSTRIAL WASTE
NAS = NAVAL AIR STATION
pCi/g = PICOCURIES PER GRAM
Ra-226 = RADIUM 226
SVOCs = SEMIVOLATILE ORGANIC COMPOUNDS
VOCs = VOLATILE ORGANIC COMPOUNDS
SUMPPR = SUMP PAINT ROOM

REFERENCES

1. FORMER NAS ALAMEDA HISTORICAL AS-BUILT CANVAS DRAWINGS
2. "NAVAL AIR STATION, ALAMEDA INDUSTRIAL WASTE SYSTEM". PWC DRAWING NUMBERS: 23996 (REV. 1991), 23997 (REV. 1995), & 23998 (REV. 1990).

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FIGURE 3-7
INDUSTRIAL WASTE LINE INVESTIGATION SAMPLE LOCATIONS

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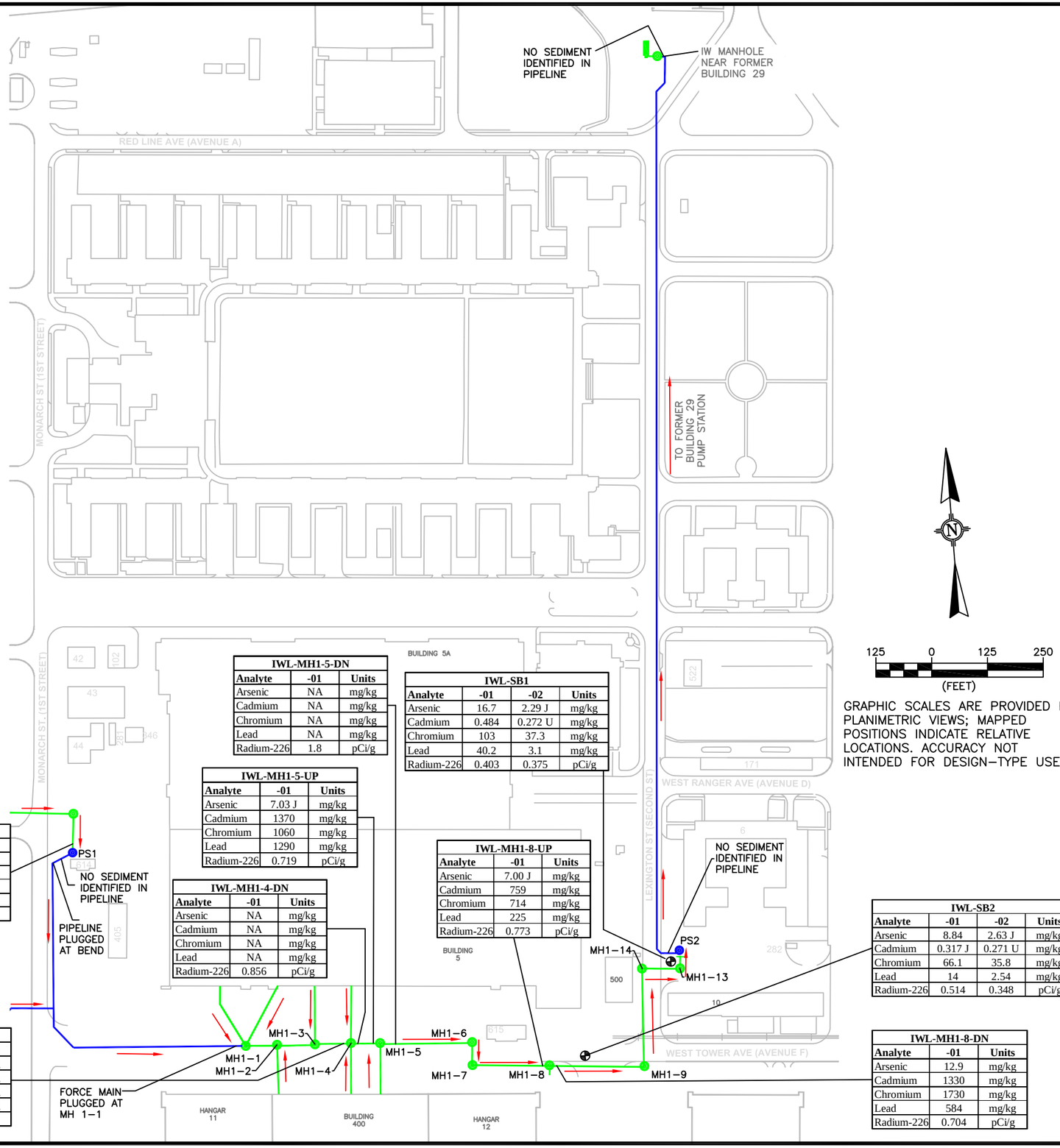
REVIEW: 0
AUTHOR: RS
DATE: JAN. 11, 2016
FILE NUMBER: Figure 3-7.dwg

TETRA TECH EC, INC.



IWL-MH1-5-DN		
Analyte	-01	Units
Arsenic	NA	mg/kg
Cadmium	NA	mg/kg
Chromium	NA	mg/kg
Lead	NA	mg/kg
Radium-226	1.8	pCi/g

IWL-SB1			
Analyte	-01	-02	Units
Arsenic	16.7	2.29 J	mg/kg
Cadmium	0.484	0.272 U	mg/kg
Chromium	103	37.3	mg/kg
Lead	40.2	3.1	mg/kg
Radium-226	0.403	0.375	pCi/g

IWL-MH1-5-UP		
Analyte	-01	Units
Arsenic	7.03 J	mg/kg
Cadmium	1370	mg/kg
Chromium	1060	mg/kg
Lead	1290	mg/kg
Radium-226	0.719	pCi/g

IWL-PS1-VAULT-UP		
Analyte	-01	Units
Arsenic	12.6	mg/kg
Cadmium	195	mg/kg
Chromium	1280	mg/kg
Lead	885	mg/kg
Radium-226	1.62	pCi/g

IWL-MH1-8-UP		
Analyte	-01	Units
Arsenic	7.00 J	mg/kg
Cadmium	759	mg/kg
Chromium	714	mg/kg
Lead	225	mg/kg
Radium-226	0.773	pCi/g

IWL-MH1-4-DN		
Analyte	-01	Units
Arsenic	NA	mg/kg
Cadmium	NA	mg/kg
Chromium	NA	mg/kg
Lead	NA	mg/kg
Radium-226	0.856	pCi/g

IWL-SB2			
Analyte	-01	-02	Units
Arsenic	8.84	2.63 J	mg/kg
Cadmium	0.317 J	0.271 U	mg/kg
Chromium	66.1	35.8	mg/kg
Lead	14	2.54	mg/kg
Radium-226	0.514	0.348	pCi/g

IWL-MH1-4-UP		
Analyte	-01	Units
Arsenic	20	mg/kg
Cadmium	1370	mg/kg
Chromium	2000	mg/kg
Lead	879	mg/kg
Radium-226	2.25	pCi/g

IWL-MH1-8-DN		
Analyte	-01	Units
Arsenic	12.9	mg/kg
Cadmium	1330	mg/kg
Chromium	1730	mg/kg
Lead	584	mg/kg
Radium-226	0.704	pCi/g

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LEGEND

- INDUSTRIAL WASTE FORCE MAIN (CAST IRON PIPING)
- INDUSTRIAL WASTE GRAVITY LINES (VITRIFIED CLAY PIPING)
- INDUSTRIAL WASTE MANHOLE
- INDUSTRIAL WASTE PUMP STATION
- INDUSTRIAL WASTE SYSTEM DIRECTION OF FLOW
- BORING LOCATION

NOTES

1. OU–2C RECORD OF DECISION SOIL REMEDIAL GOALS:
   - ARSENIC = 9.14 mg/kg
   - CHROMIUM = 1400 mg/kg
   - LEAD = 800 mg/kg
2. USEPA INDUSTRIAL REGIONAL SCREENING LEVEL FOR SOIL FOR CADMIUM IS 980 mg/kg

ABBREVIATIONS

BLDG = BUILDING
DN = DOWNSTREAM
IR = INSTALLATION RESTORATION
IWL = INDUSTRIAL WASTE LINE
J = VALUE IS ESTIMATED
mg/kg = MILLIGRAMS PER KILOGRAM
MH = MANHOLE
NA = NOT AVAILABLE (UNABLE TO SAMPLE)
NAS = NAVAL AIR STATION
OU = OPERABLE UNIT
pCi/g = PICOCURIES PER GRAM
PWC = PROJECT WORKS COMMISSION
PS = PUMP STATION
REV. = REVISED
SB = SOIL BORING
U = NOT DETECTED ABOVE STATED VALUE
UP = UPSTREAM
USEPA = UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REFERENCES

1. FORMER NAS ALAMEDA HISTORICAL AS–BUILT CANVAS DRAWINGS
2. "NAVAL AIR STATION, ALAMEDA INDUSTRIAL WASTE SYSTEM". PWC DRAWING NUMBERS: 23996 (REV. 1991), 23997 (REV. 1995), & 23998 (REV. 1990).

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FIGURE 3-8
SAMPLE RESULTS CHARACTERIZING SEDIMENT REMAINING WITHIN THE INDUSTRIAL WASTE LINE AND ADJACENT SOIL

ALAMEDA POINT, ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JULY 2, 2015
FILE NUMBER: Figure 3–8.dwg

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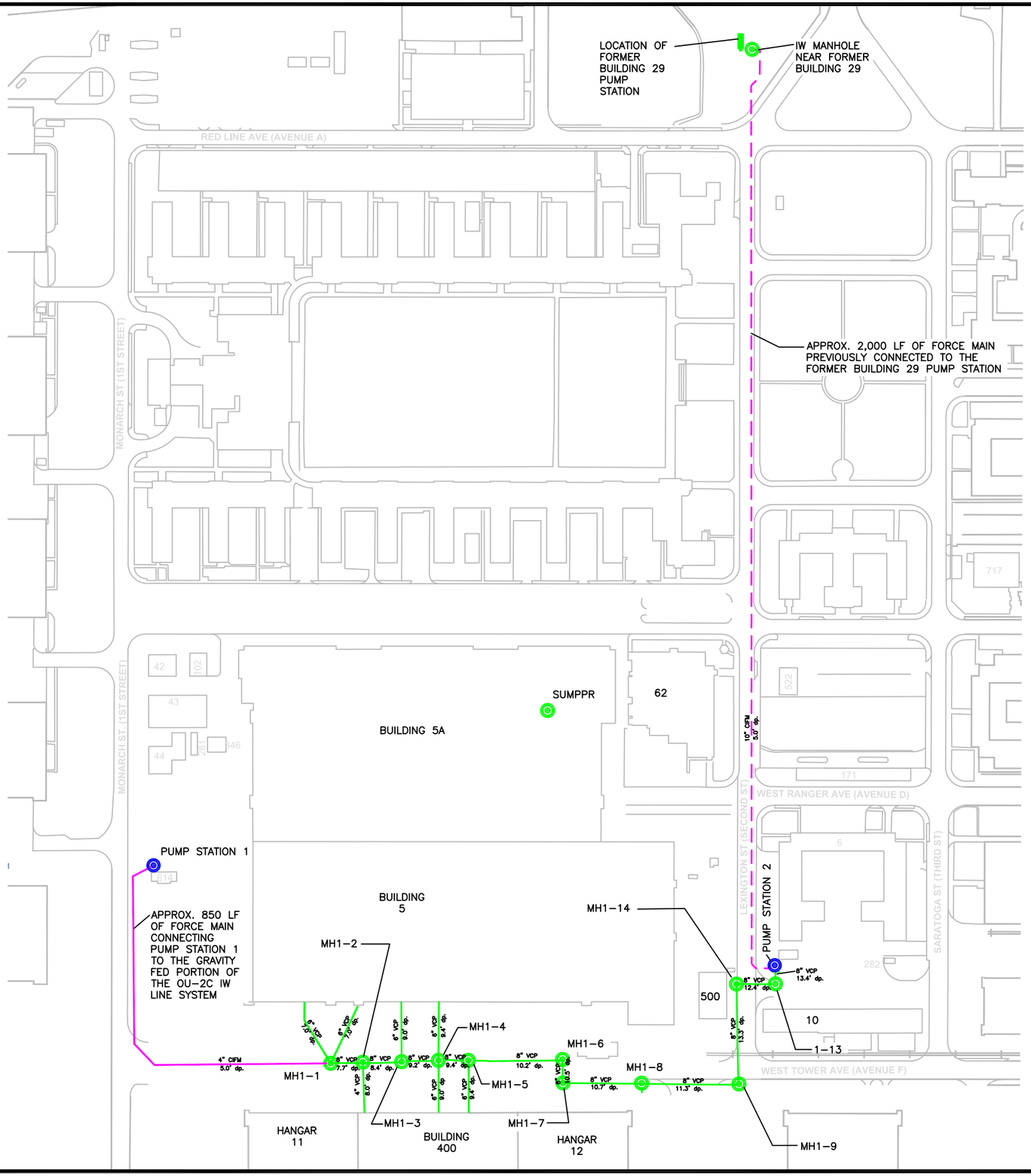

LEGEND

- INDUSTRIAL WASTE FORCE MAIN REQUIRING ACTION; NOT INCLUDED IN THE FS ADDENDUM
- INDUSTRIAL WASTE FORCE MAIN REQUIRING ACTION ORIGINALLY INCLUDED IN THE FS ADDENDUM
- INDUSTRIAL WASTE GRAVITY LINES REQUIRING ACTION ORIGINALLY INCLUDED IN THE FS ADDENDUM
- INDUSTRIAL WASTE MANHOLE (SEDIMENT WAS REMOVED FROM THE MANHOLES DURING INVESTIGATION)
- INDUSTRIAL WASTE PUMP STATION (SEDIMENT WAS REMOVED FROM THE PUMP STATION VAULTS DURING INVESTIGATION)
- 8" VCP — DIAMETER OF PIPE AND MATERIAL TYPE
- 10.7' dp. — ESTIMATED DEPTH TO THE INVERT OF THE PIPE

ABBREVIATIONS

APPROX. = APPROXIMATELY
CIFM = CAST IRON FORCE MAIN
dp. = DEPTH OF PIPE
FS = FEASIBILITY STUDY
IR = INSTALLATION RESTORATION
IW = INDUSTRIAL WASTE
LF = LINEAR FEET
NAS = NAVAL AIR STATION
SUMPPR = SUMP IN PAINT ROOM
VCP = VITRIFIED CLAY PIPE

REFERENCES

1. FORMER NAS ALAMEDA HISTORICAL AS-BUILT CANVAS DRAWINGS
2. "NAVAL AIR STATION, ALAMEDA INDUSTRIAL WASTE SYSTEM". PWC DRAWING NUMBERS: 23996 (REV. 1991), 23997 (REV. 1995), & 23998 (REV. 1990).

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FIGURE 3-9
INDUSTRIAL WASTE LINES REQUIRING ACTION

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JULY 2, 2015
FILE NUMBER: Figure 3-9.dwg

TETRA TECH EC, INC.

APPENDIX A

FINAL FIELD SUMMARY REPORT (JULY 2013)
(on CD)

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Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108-4310

CONTRACT NO. N62473-10-D-0809
CTO NO. 0005

FINAL

FIELD SUMMARY REPORT FOR OPERABLE UNIT 2C DRAIN LINES

July 2013

DCN: RMAC-0809-0005-0003

ALAMEDA POINT
ALAMEDA, CALIFORNIA

Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108-4310

CONTRACT NO. N62473-10-D-0809
CTO NO. 0005

FINAL

FIELD SUMMARY REPORT FOR OPERABLE UNIT 2C DRAIN LINES

July 2013

ALAMEDA POINT
ALAMEDA, CALIFORNIA

DCN: RMAC-0809-0005-0003

Prepared by:

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APPENDICES

Appendix A Video Camera Verification Survey (videos on DVD)

Appendix B Sediment and Background VTA Data Plots and Sediment Radiological Analytical Results (on CD only)

Appendix C Potential Industrial Waste Line Figures (on CD only)

Appendix D Gamma Scan Survey Data (on CD only)

Appendix E Project Photographs (on CD only)

Appendix F Work Plan Field Change Forms (on CD only)

Appendix G Hazardous Waste Manifest (on CD only)

Appendix H Laboratory Reports – Hazardous Waste Characterization (on CD only)

Appendix I Laboratory Reports – Non-Hazardous Sediment Chemical Characterization (on CD only)

Appendix J Air Sample Data (on CD only)

ABBREVIATIONS AND ACRONYMS

µCi/ml	microcurie(s) per milliliter
BCT	BRAC Cleanup Team
BRAC	Base Realignment and Closure
cpm	counts per minute
cy	cubic yards
DAC	derived air concentration
DON	Department of the Navy
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
IR	Installation Restoration
m^2	square meter
mrem/y	millirems per year
NAS	Naval Air Station
OU	Operable Unit
pCi/g	picocurie(s) per gram
PVC	polyvinyl chloride
Ra-226	radium-226
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RESRAD	Residual Radioactivity (Model)
RG	remediation goal
ROC	radionuclide of concern
ROD	Record of Decision
TCRA	time-critical removal action
TtEC	Tetra Tech EC, Inc.
VTA	vehicle towed array

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1.0 INTRODUCTION

Tetra Tech EC, Inc. (TtEC) prepared this Field Summary Report for drain lines located in Operable Unit (OU)-2C Installation Restoration (IR) Sites 5 and 10 at Alameda Point in Alameda, California (Figure 1-1). This report was prepared at the direction of the Department of the Navy (DON) under Contract No. N62473-10-D-0809, Contract Task Order No. 0005. This report documents the field activities conducted between August 6, 2012 and January 28, 2013 for Storm Drain Lines A, B, and G and for the manhole identified as IWS29-1 in this report.

1.1 PURPOSE AND FIELD ACTIVITIES

The purpose of this field investigation was to provide additional characterization data for the OU-2C drain lines (Figure 1-2). This investigation was conducted in accordance with input and approval from the Base Realignment and Closure (BRAC) Cleanup Team (BCT).

The OU-2C Feasibility Study (FS) Addendum (TtEC 2012) concluded that portions of Storm Drain Lines A, B, and G and the industrial waste line associated with Buildings 5 and 400 require action. The primary focus of this 2012/2013 investigation was to provide additional data for the storm drain lines since they are active lines and were not considered potentially radiologically impacted at the time of the OU-2C remedial investigation. While investigating these storm drain lines associated with Building 5 (IR Site 5), a manhole (identified as IWS29-1) that appears to be connected to the industrial waste line was discovered and included in the investigation.

The data from this investigation are planned to be used for two purposes:

1. To support the upcoming OU-2C Record of Decision (ROD) by providing information that could affect the details of the selected alternative and facilitate a more accurate ROD, particularly related to the condition of the storm drain lines and content of the sediment within them. This is in accordance with the OU-2C Proposed Plan issued to the public in September 2012, which referenced the continuing evaluation of the drain lines “prior to the ROD to support future remedial activities.”
2. To support coordination with the City of Alameda and decisions related to storm water line maintenance by the City.

To enable collection of characterization data for Storm Drain Lines A, B, and G regarding the condition of the lines and activity of the sediment within them, the lines required cleaning. TtEC performed hydrojetting to remove the sediment and debris, and conducted video camera inspection and radiological surveys of the interior of the main trunk and lateral lines, as feasible, to the first manhole moving out from the main trunk of Storm Drain Lines A, B, and G. This Field Summary Report documents the completion of the fieldwork and provides the data

collected during the video camera inspection and radiological surveys of the interior of the lines and sampling of the sediment removed from the lines.

In addition, TtEC repaired two sinkholes that formed as a result of collapses in Storm Drain Line A and investigated a manhole that is potentially connected to the industrial waste line. This manhole is located downstream of the forced main that runs along Lexington Street, prior to the industrial waste lines historical discharge into former Structure 29. The following activities are documented in this report:

- Hydrojetting
- Video camera inspection survey
- Storm drain line and manhole radiological surveying (interiors of lines/manholes)
- Sediment sampling, radiological surveying, and sediment disposal
- Wastewater treatment and disposal
- Repair of two sinkholes that formed as a result of collapses in Storm Drain Line A
- Investigation of a potential industrial waste line manhole

1.2 REPORT ORGANIZATION

This report has been organized into the following sections:

- **Section 1.0: Introduction** – This section describes the purpose and organization of the report.
- **Section 2.0: Site History and FS Addendum Summary** – This section presents information on the site background.
- **Section 3.0: Field Activities** – This section describes the hydrojetting, video camera inspection survey, radiological survey, water/sediment processing, sinkhole repair, and potential industrial waste manhole activities.
- **Section 4.0: Drain Line Radiological Survey and Analytical Results** – This section describes the radiological survey of the storm drain lines, statistics, uncertainty related to the survey, and radiological analytical results.
- **Section 5.0: Summary of Field Data** – This section summarizes the collected data.
- **Section 6.0: References** – This section includes references used to prepare this report.

Tables and figures are included following the text.

Supporting data are presented in the following appendices:

- **Appendix A:** Video Camera Verification Survey (Videos on DVD)
- **Appendix B:** Sediment and Background VTA Data Plots and Sediment Radiological Analytical Results (on CD only)
- **Appendix C:** Potential Industrial Waste Line Figures (on CD only)
- **Appendix D:** Gamma Scan Survey Data (on CD only)

- **Appendix E:** Project Photographs (on CD only)
- **Appendix F:** Work Plan Field Change Forms (on CD only)
- **Appendix G:** Hazardous Waste Manifest (on CD only)
- **Appendix H:** Laboratory Reports – Hazardous Waste Characterization (on CD only)
- **Appendix I:** Laboratory Reports – Non-Hazardous Sediment Chemical Characterization (on CD only)
- **Appendix J:** Air Sample Data (on CD only)

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2.0 SITE HISTORY AND FS ADDENDUM SUMMARY

This section summarizes the site background, focusing on the radiological history of OU-2C IR Sites 5 and 10.

2.1 SITE HISTORY

Alameda Point is located on the western end of Alameda Island, which lies on the eastern side of San Francisco Bay, adjacent to the City of Oakland. Overall, Alameda Point encompasses roughly 1,700 acres of land. Development of Alameda Point first began in 1930 under the ownership of the United States Army. The DON acquired title to the property in 1936. The majority of former Naval Air Station (NAS) Alameda was built on shallow open water, tidelands, marshlands, and sloughs of San Francisco Bay through several rounds of dredging and filling with sediments from the bay and Oakland Inner Harbor. The average elevation is 15 feet above mean sea level. OU-2C is located in the central portion of former NAS Alameda and includes IR Sites 5, 10, and 12. IR Site 12, the former power plant, had no radiological operations. A description of key IR Sites 5 and 10 operations follows.

The Naval Air Rework Facility is located in central Alameda Point, to the north of Seaplane Lagoon. The most prominent IR Site 5 feature is Building 5, which is approximately 910,382 square feet or 21 acres. Past uses of Building 5 include, but are not limited to, cleaning, reworking, and manufacturing of metal parts, plating, painting, tool maintenance operations, and specialty operations including the application of radioluminescent paint to aircraft dial faces and refurbishment of aircraft instruments. From the early 1940s through the early 1960s, radioluminescent painting operations were conducted on the second floor of Building 5. Radiological operations within Building 5 included disposing of radioluminescent paint via storm drain lines. The radium paint shop facilities for painting radioluminescent aircraft instrument dials were moved from Building 5 to Building 400 in the late 1950s. Site history indicates radium paint was disposed via drains in Buildings 5 and 400 into the storm drain and industrial waste lines. All activities in Buildings 5 and 400 ceased in 1993. Between July 1996 and July 1997, a total of 125,814 linear feet of storm drain lines was cleaned during the IR Site 18 storm sewer system time-critical removal action (TCRA) (Tetra Tech EM, Inc. and Morrison Knudson Corporation, 1998). The removal action closeout report documented that portions of Storm Drain Lines A, B, and G were cleaned, but some sections of these lines were not cleaned due to poor condition or inaccessibility.

A TCRA was completed between 2008 and 2010 that addressed storm drain lines/piping outside of Buildings 5 and 400 that flow to Outfalls F and FF in the Seaplane Lagoon. Lines F and FF and associated soil around the lines were removed and replaced during this TCRA. Other drain lines were sampled as part of the TCRA because historical information indicated that drain lines

originating from OU-2C could be radiologically impacted. The OU-2C sampling included collecting samples from industrial waste line manholes and from manholes and catch basins in storm drain lines. A total of 164 manholes and catch basins in Storm Drain Lines A, B, G, and Z were sampled. Of the 164 sampled manholes and catch basins, 7 exhibited radium-226 (Ra-226) activity greater than 1 picocurie per gram (pCi/g) above background. Sediment from these seven storm drain line manholes and/or catch basins was removed. A total of 14 manholes in the industrial waste system were sampled; 4 additional manholes identified for sampling were either not accessible or contained no sediment. Of the 14 sampled manholes in the industrial waste system, 9 exhibited Ra-226 activity greater than 1 pCi/g above background. Since the industrial waste system was not active, sediment from these nine manholes was not removed during the TCRA. The FS Addendum provides a more detailed radiological history of OU-2C IR Sites 5 and 10.

2.2 FS ADDENDUM SUMMARY

The FS Addendum (TtEC 2012) presented risk analysis for potential ROCs for the potentially radiologically impacted drain lines not included in the FS Report, including Storm Drain Lines A, B, and G and the industrial waste line. Portions of Storm Drain Lines A, B, and G and the industrial waste line were identified for remedial action in the FS Addendum based on risk analysis and regulatory agency input.The FS Addendum provided remedial action objectives, the radionuclide of concern (ROC), remediation goal (RG), evaluation of remediation alternatives, and applicable or relevant and appropriate requirements.

The summary of the FS Addendum in this section focuses on the risk analysis for Storm Drain Lines A, B, and G because they were further characterized by the 2012/2013 investigation. Additional detail related to the risk analysis is provided in Appendix A of the FS Addendum (TtEC 2012). The hydrojetting alternatives of the FS Addendum are briefly described because part of these alternatives is relevant to the 2012/2013 investigation.

2.2.1 Risk Analysis Summary

The following summary from the FS Addendum includes key regulatory criteria and modeling input parameters, but otherwise is specific to Storm Drain Lines A, B, and G.

In accordance with the FS Addendum, the applicable or relevant and appropriate requirement for annual dose is the Nuclear Regulatory Commission limit of 25 millirems per year (mrem/y), which correlates to an increased cancer risk of 5×10^{-4}. U.S. Environmental Protection Agency (EPA) guidance for radiological remediation indicates that an increased cancer risk of 3×10^{-4}, which correlates to an annual dose of 15 mrem/y, may be acceptable for radiological remediation decisions (EPA 1997a).

As described in the FS Addendum, results of sediment samples from Storm Drain Lines A, B, and G were modeled using the Residual Radioactivity Model (RESRAD). Input parameters and

modeling results for dose and risk were presented in Appendix A of the FS Addendum. A brief description of key aspects of the modeling and site-specific revisions to RESRAD default input parameters follows.

The only FS Addendum modeled exposure pathway where the receptor would be in contact with Ra-226 is the outdoor worker. The modeling was conducted for both mean and maximum sample results. The exposure frequency and duration used in the FS Addendum modeling are in accordance with U.S. EPA recommendations (EPA 1997b). For the outdoor (maintenance) worker that is in contact with the radiologically impacted waste, exposure for 225 days per year, 8 hours per day, for 25 years was modeled.

The default RESRAD input parameter for the area of the contaminated zone is 10,000 square meters (m^2). Based on the individual characteristics of the modeled scenarios, separate values for the area of the contaminated zone are used to appropriately describe the potential area of contamination. The largest pipe diameter typically encountered at Alameda Point is 36 inches, which correlates to a circumference of 2.87 meters. The individual most likely to enter piping is a maintenance worker, who is not likely to work in a span of piping that exceeds 25 meters in length during a day's work. As such, a surface area of that span of pipe including extra length is conservatively estimated as 100 m^2. Additionally, because the area is not zoned for residential reuse, and underground piping constitutes a small portion of the underground area at Alameda Point, it is unlikely that a resident or industrial worker would spend a significant portion of time standing or working above an area of 100 m^2 of underground piping. Therefore, 100 m^2 was used in the FS Addendum modeling.

The default value in RESRAD for the thickness of the Contaminated Zone is 2 meters. The largest diameter piping typically encountered at Alameda Point is 36 inches (0.914 meter). Even if the piping was completely filled with contaminated material, this thickness would not approach 2 meters. A thickness of contamination of 0.1 meter is the most realistic value and assumes a considerable amount of material is present throughout the pipe. A significant increase above this thickness would indicate blockage in the pipe that would require maintenance and/or repair. Therefore, 0.1 meter was used in the FS Addendum modeling.

The default value in RESRAD for the cover depth is zero. The contamination is assumed to be on the surface. The depth of most of the storm drain systems varies from 1 to 2 meters. In the case of an outdoor worker performing maintenance inside the pipe, the cover depth default parameter of zero is used to reflect that the worker will not have the benefit of the soil around the piping as shielding during work operations.

To assess uncertainty in the risk analysis, the FS Addendum conducted uncertainty analysis using NUREG-6697 (NRC 2000). Results showed that due to the longevity of Ra-226's half-life of 1,600 years, the most important input parameter affecting the risk from Ra-226 is the

thickness and density of the contaminated zone (TtEC 2012). The results of the risk and dose assessments for Storm Drain Lines A, B, and G from the FS Addendum are summarized in Table 2-1. Modeling for the outdoor worker was performed using the net mean sample results for all ROCs equally distributed in each storm drain line. This resulted in an increased risk of cancer of 1.051×10^{-5}, 2.189×10^{-5}, and 4.053×10^{-6} and annual dose of 0.9965 mrem/y, 2.045 mrem/y, and 0.369 mrem/y for Storm Drain Lines A, B, and G, respectively. Modeling was also performed for the outdoor worker using the maximum concentrations of each ROC as equally distributed in each storm drain line. This resulted in the maximum increased cancer risk of 2.211×10^{-4}, 9.516×10^{-4}, and 2.816×10^{-4} and maximum annual dose of 20.73 mrem/y, 89.55 mrem/y, and 26.39 mrem/y for Storm Drain Lines A, B, and G, respectively.

Prior to the hydrojetting conducted between 2011 and 2012, sediment collected from manholes in Storm Drain Lines A, B, and G in 2010, had Ra-226 sample results greater than the soil RG for Ra-226 of 1.0 pCi/g above background along the main trunk lines of their respective systems (Figure 2-1). The FS Addendum (TtEC 2012) identified these portions of the lines for remediation (Figure 2-2). The FS Addendum also included laterals to the first manhole as requiring action, but Ra-226 did not exceed the RG in samples from manholes on the laterals.

2.2.2 Hydrojetting Alternatives

Both Alternatives D5 and D6 in the FS Addendum (TtEC 2012) include the processes of hydrojetting, limited excavation, and disposal for the main trunk of Storm Drain Lines A, B, and G. The FS Addendum specifies hydrojetting in these alternatives to remove sediment from within the main trunk lines of Storm Drain Lines A, B, and G. Lateral lines would also have sediments removed to the first manhole encountered moving out from the main line in each lateral. Extracted sediments would be radiologically screened. Once extraction of sediments via hydrojetting was completed, a video camera inspection and radiological survey of the inside of the pipe would be performed to assess physical, visual and radiological conditions. The removed and screened soils and sediments and the video camera and radiological survey data would be evaluated to assess the final disposition of the storm drain lines. Alternatives D5 and D6 include conducting limited excavations in sections of the pipe shown to be impacted or in such poor condition that the hydrojetting could not be conducted. Alternatives D5 and D6 differ in their treatment of the industrial waste line, the former calling for institutional controls only and the latter for excavation and disposal.

3.0 FIELD ACTIVITIES

This section summarizes the following field activities conducted between August 6, 2012, and January 28, 2013 at Storm Drain Lines A, B, and G and the manhole identified as IWS29-1.

- Hydrojetting the main trunk lines of Storm Drain Lines A and B, and laterals connected to the main trunk lines to the first manhole, as feasible, of Storm Drain Lines A, B, and G, to remove sediments. The main trunk of Storm Drain Line G was not hydrojetted since sediment removal and hydrogetting of this line was completed in 2011, prior to the IR Site 17 remedial action.)
- Conducting a video camera inspection survey to document the pipe condition for the main trunk lines and, as feasible, for the laterals to the first manhole of Storm Drain Lines A, B, and G.
- Conducting a gamma scan survey of the main trunk lines and, as feasible, for the laterals to the first manhole of Storm Drain Lines A, B, and G.
- Processing the sediment and water generated by the hydrojetting cleaning process.
- Repairing two sinkholes caused by the collapse of two locations within Storm Drain Line A after hydrojetting was performed.
- Investigating a manhole (IWS29-1) that is potentially connected to the industrial waste line downstream of the forced main line that runs along Lexington Street, before the location where the industrial waste line historically discharged into former Structure 29.

Because of the need to address potential discharge of contaminated storm water and/or sediment into Seaplane Lagoon prior to the start of the IR Site 17 remediation, the IR Site 17 Remedial Action Work Plan (RAWP) included the plan for Storm Drain Line G hydrojetting, with its associated radiological, sediment, and wastewater components. The source of contamination from the former IR Site 5 (Building 5) operations for Storm Drain Lines A and B is the same as for Storm Drain Line G and Seaplane Lagoon. Therefore, the 2012/2013 investigation was conducted in accordance with the requirements in the IR Site 17 RAWP, with minor modifications that apply those requirements to Storm Drain Lines A and B (Appendix F). The IR Site 17 wastewater treatment plant in that plan was designed to treat the IR Site 17 source area (Buildings 5 and 400) contaminants. The plant's discharge criteria include radiological as well as chemical and metals criteria.

3.1 HYDROJETTING AND VIDEO CAMERA INSPECTION

Field mobilization began on August 6, 2012. The main trunk and the lateral lines (extending out from the main trunk to the first manhole) are shown on Figures 3-1 and 3-2. These figures also identify the "reaches" or spans of drain line between two manholes or catch basins. The hydrojetting process focused on no more than two reaches of drain line at a time. Hydrojetting started on August 9, 2012 at the upstream manholes, and proceeded downstream to the outfalls

for Storm Drain Lines A and B. The main trunk of Storm Drain Line G was hydrojetted prior to the IR Site 17 remedial action, but a radiological survey of the inside of the pipe to assess radiological conditions was not performed at that time. Therefore, only the lateral lines (extending from the main trunk to the first manhole) were hydrojetted in Storm Drain Line G during this phase of fieldwork.

Because of the size and configuration of some of the smaller laterals, the hydrojetting, camera, and/or survey equipment could not be used in those laterals. Most of these laterals were in reaches that ended in catch basins where the pipe diameter was too small for the equipment, and/or bends in the pipe were too pronounced for the equipment to pass through. Lateral Reaches 17, 32, 38, 44, 46, 49, and 74 were not radiologically surveyed. Of these, only Reach 17 was inspected with the video camera. The only lateral reaches that were not hydrojetted were Reaches 44, 46 and 49. A summary of the completed linear foot quantities of hydrojetting and video camera verification surveying is included in Table 3-1.

The work area around an upstream and downstream manhole was covered with impervious material and posted as a Radiologically Controlled Area. The manholes were plugged to prevent water and sediment from leaving the section of drain line being worked on. The upstream side of the upstream manhole and the downstream side of the downstream manhole were plugged. Laterals that feed into the manholes were also plugged. Manholes upstream and downstream of the manholes being worked on were checked periodically to verify that the plugs were not leaking and, if necessary, plugs were reseated.

Sediment removal operations did not take place during rain events. However, when rain events did occur, water from upstream of the isolated area was pumped to a manhole within Storm Drain Lines A, B, and G that was further down in the system, thus bypassing the area where work was in progress.

The hydrojetting nozzle was connected to a high-pressure water pump and propelled through the drain line using water jets. Cleaning was accomplished by pulling the nozzle back through the pipe (repeatedly, if necessary) until the water ran clear. The water and sediment, including debris, from hydrojetting were flushed into a downstream manhole and removed using the vacuum truck. The vacuum truck was operated until it was full of sediment. Water was removed from the vacuum truck and pumped into holding tanks.

When the vacuum truck was full of sediment, the suction line was capped and bagged, and the truck was moved onto an existing dewatering pad constructed in accordance with the Final RAWP, for IR Site 17 (Battelle and TtEC 2011). Sediment from the vacuum truck was transported to the dewatering pad and segregated by Storm Drain Lines (A, B, and G) and Manholes (A2 and A5). The material was handled under the procedures for processing

sediments described in the IR Site 17 RAWP. Sediment analytical results for Ra-226 are summarized in Table 3-2.

The robotic crawler configuration for conducting the video camera inspection survey and the gamma scan survey consisted of a track camera inspection vehicle with a waterproof gamma detector (Ludlum Model 44-10-5, connected to a Ludlum Model 2350-1 data logger) mounted to it. Although both were run through the lines together, the process consisted of conducting the video camera inspection survey first and repeating the video survey if additional hydrojetting was needed to remove remaining sediment. Following removal of the sediment, the gamma scan was conducted.

A video camera inspection survey was completed for the previously hydrojetted main trunk of Storm Drain Line G and for each section of line following the hydrojetting process. A camera was drawn through the line to verify the condition of the line and document the removal of all sediment. Additional hydrojetting was conducted to remove any remaining sediment as needed. Hydrojetting of each section was determined complete based on field interpretation of the video. Table 3-1 includes a summary of the completed linear foot quantities of hydrojetting and video camera verification surveying.

The video camera inspection survey indicated that the storm drain lines are functional and that hydrojetting was effective in removing the sediment from the line. Table 3-3 summarizes information from the videos about the pipe condition. See page at joints and cracks can be seen in multiple locations. Tree roots have penetrated the line in a few joint locations. For a portion of Line G, located between manholes MH 5-G and MH 1-G, a polyvinyl chloride (PVC) sleeve had been installed. Digital video discs of the survey and a summary table of the findings from a review of the videos are included in Appendix A. The locations of the findings are shown on Figures 3-1 and 3-2.

3.2 RADIOLOGICAL SURVEY

Following verification of removal of the sediment, a waterproof gamma detector, Ludlum Model 44-10-5, connected to a Ludlum Model 2350-1 data logger, and attached to a robotic crawler, was driven through each drain line reach and the readings recorded. The detector was moved at a maximum speed of 0.5 meter per second through each reach. A summary of the completed linear foot quantities of radiological surveying is included in Table 3-1. The results are summarized on Figures 3-1 and 3-2 and described in Section 4.0.

Manholes and catch basins were also scanned using a Ludlum Model 44-10 detector connected to a Ludlum Model 2350-1 data logger. All accessible interior surfaces of the manholes and catch basins were scanned. The highest and lowest measurements observed during the scan were documented. Manhole and catch basin scanning results are provided in Appendix D.

3.3 WATER AND SEDIMENT PROCESSING

Water and sediment from the hydrojetting process were flushed into the downstream manhole of each drain line section. The water and sediment were removed using the vacuum truck. Water from the vacuum truck was pumped into water storage tanks. Water from the storage tanks was transported to the existing IR Site 17 water filtration system, which included a 350,000-gallon holding tank and was combined with water generated during the IR Site 17 project. This is the same work plan process conducted for the Storm Drain Line G Hydrojetting completed in 2011. Once the system was full, the water was batched, filtered, and sampled for radiological and chemical constituents, in accordance with in-place requirements for the IR Site 17 water treatment system. Sample results indicated the treated water was acceptable for discharge, and the collected water was used for dust suppression or released into Seaplane Lagoon. For this project, 225,000 gallons of water was generated and processed.

Sediment from the vacuum truck was transported to the dewatering pad constructed for the source removal activities for the IR Site 17 remediation. The sediment was segregated by Storm Drain Lines (A, B, and G) and Manholes (2A and 5A) and a potential industrial waste manhole (IWS29-1). The quantities of sediment generated are as follows:

- Line A – 50 cubic yards (cy)
- Line B – 100 cy
- Line G – 10 cy
- Sinkhole 1 (MH 5A) – 97 cy
- Sinkhole 2 (MH 2A) – 100 cy
- Manhole IWS29-1 – less than 1 cy

The sediment, including the debris, was processed in accordance with the requirements of the IR Site 17 RAWP (Battelle and TtEC 2011). Sediment was placed on screening pads and surveyed using a vehicle towed array (VTA) while large pieces of debris were surveyed separately with handheld instrumentation in accordance with the Work Plan. Sediment VTA data plots are included in Appendix B. The background VTA data used to determine the mean plus 3 sigma investigation levels for these surveys are also included in Appendix B.

Following the VTA survey, the sediment was moved to the IR Site 17 sampling/holding cells and sampled for radiological and chemical constituents. Four radiological samples were collected from each material source area (Storm Drain Lines A, B, and G and Manholes 2A and 5A). The project comparison criterion for Ra-226 is 1.0 pCi/g greater than background with an established background for Ra-226 of 0.5602 pCi/g. Sample analytical reports are summarized in Table 3-2 and provided in Appendix B.

None of the VTA data indicated values greater than the mean plus 3 sigma investigation level. None of the sample results from Storm Drain Lines A, B, and G and Manholes 2A and 5A indicated concentrations greater than the project comparison criterion for Ra-226. However, two of the four samples collected from Manhole IWS29-1 exceeded the project comparison criterion for Ra-226, both with a maximum concentration of 1.64 pCi/g for Ra-226. The sediments from Storm Drain Lines B and G contained non-Resource Conservation and Recovery Act (RCRA) (California Hazardous) hazardous concentrations of lead and were disposed of as non-RCRA hazardous material. The non-RCRA hazardous waste was transported off-base for disposal on January 28, 2013. The hazardous waste manifest is presented in Appendix G, and the chemical analytical reports are in Appendix H. The remainder of the non-impacted material was non-hazardous and was moved to the IR Site 2 Landfill staging area in the southwest corner of Alameda Point for use as subgrade for the IR Site 2 Landfill. Appendix I contains the laboratory reports for the non-hazardous sediment.

During hydrojetting operations, air samples were collected upwind and downwind of the individual work areas and at the exhaust of the vacuum truck. Airborne radioactive particulate concentration monitoring was conducted to ensure no work area exceeded 10 percent of a derived air concentration (DAC) for Ra-226. DAC values can be found by consulting the Nuclear Regulatory Commission regulation Title 10, Code of Federal Regulations, Part 20, Appendix B. The DAC value for Ra-226 is 3.0×10^{-10} microcuries per milliliter (µCi/ml) due to alpha activity; therefore 10 percent of the DAC value for Ra-226 is 3.0×10^{-11} µCi/ml. No air samples indicated activity concentrations greater than 10 percent of the DAC. Appendix J contains the air sample data for the project.

3.4 SINKHOLE REPAIR

Two sinkholes developed as a result of the collapse of portions of Storm Drain Line A in the vicinity of Manhole MH5-A and Manhole MH2-A, sinkholes 1 and 2, respectively. The sinkholes developed after the initial hydrojetting in these areas. As a precaution, all repair work was performed with radiological controls in place, and all soil removed to perform the repairs was radiologically processed in the same manner as the hydrojetted sediment. Approximately 97 cy of soil from the Manhole MH5-A repair and 100 cy of soil from the Manhole MH2-A repair were radiologically processed. The VTA survey data plots, raw data, and sediment soil results are included in Appendix B. As shown in Table 3-2, Ra-226 results were below the 1.0 pCi/g greater than background project comparison criterion.

3.5 POTENTIAL INDUSTRIAL WASTE LINE MANHOLE INVESTIGATION

At the time the FS Addendum was completed, no data were available for the industrial waste line downstream of the pump station and subsequent forced main line running along Lexington Street. A previously unidentified manhole that appears to be connected to the industrial waste line downstream of the forced main line along Lexington Street was identified during the

fieldwork for this investigation (located near Storm Drain Line B). The potential for this manhole to be connected to the industrial waste line was identified through a combination of field observations and review of historical figures. The location of this manhole is shown on Figure 3-3. Pictures of the manhole, its location, and historical figures can be found in Appendix C. This manhole resides between the forced main and former Structure 29 where the forced main historically discharged. Sediment within the manhole was removed and radiologically processed in the same manner as the hydrojetted sediment. For the purpose of this investigation, the manhole was identified as IWS29-1.

The amount of sediment recovered was minimal and contained within the four samples collected. Two of the four samples had activity less than the project comparison criterion for Ra-226. Two of the four samples had activity slightly higher than the project comparison criterion for Ra-226. Samples numbered 05-IWS29-1-01 and 05-IWS29-1-03 both indicated a maximum activity concentration of 1.64 pCi/g for Ra-226. Note that the lab duplicate of sample number 05-IWS29-1-01 indicated an activity concentration less than the project comparison criterion of 1.39 pCi/g for Ra-226. These sample results are summarized in Table 3-2 and provided in Appendix B.

4.0 DRAIN LINE RADIOLOGICAL SURVEY AND ANALYTICAL RESULTS

Gamma surveys were performed with a waterproof gamma detector, Ludlum Model 44-10-5, connected to a Ludlum Model 2350-1 data logger, which was attached to a robotic crawler and driven through each drain line reach. The readings were recorded. The detector was moved at a maximum rate of 0.5 meter per second through each reach.

Interpreting data from gamma radiation surveys presented several challenges for a number of reasons. Naturally occurring sources of gamma radiation, including Ra-226, are present in the environment. Radon gas and its progeny, and potassium-40 are the greatest contributors to background gamma radiation concentrations. Naturally occurring radioactive materials are present in differing concentrations within soil and construction materials. Gamma radiation levels vary whether the material is PVC, clay, or concrete. The depth of the soil and the geometry of the pipes have an effect on the background gamma radiation levels. Water acts as a shield to radiation, and the presence of water will also affect the background radiation levels. Due to the variability of all of these factors within the drain line systems, the selection of a single appropriate background reference area for piping runs is unrealistic.

In situations where a single reference background area cannot account for all the variables within an area of interest, the survey data set is compared to the mean plus 3 times the standard deviation, or sigma, of its own data set. Because of the variable nature of the in situ storm drain lines, the survey data for each reach were compared to the mean plus 3 sigma value of its own data set. However, in order for analysis of the data in either situation to be valid, the data should follow a normal distribution.

During the gamma survey, 13,527 readings were collected. Of these readings, 52 exceeded the mean plus 3 sigma of the data set of a given reach. Of the 85 total reaches, 32 contained at least one reading greater than mean plus 3 sigma of its own data set. The mean of the reaches was 5,652 counts per minute (cpm), and the mean standard deviation was 482 cpm. The maximum reading of 17,300 cpm was from Storm Drain Line A Reach 12. Large outliers, such as the one in Reach 12, skew the standard deviation of the data in the reach and indicate that a given reach may need to be investigated further. The standard deviation of Reach 12 was 1,856.58 cpm. The mean of the maximum reading from all 85 reaches was 7,100 cpm.

As previously discussed, gamma scan results are influenced by physical characteristics as well as potential radioactive contamination. Because of the number of unknown variables, the higher gamma data may or may not be due to radioactive contamination in the lines. Therefore, professional judgment was used to identify 9,000 cpm as a value to indicate locations where

further evaluation may be considered. Eight reaches contained at least one reading greater than or equal to 9,000 cpm.

Summary statistics are provided in Table 4-1 and included in Appendix D. Figures 3-1 and 3-2 identify the reaches that had at least one value equal to or greater than 9,000 cpm. The reach survey results and color-coded maps of the survey results are provided in Appendix D.

5.0 SUMMARY OF FIELD DATA

Storm Drain Lines A, B, and G were investigated between August 2012 and January 2013 to gain information to further support the OU-2C ROD preparation and coordination with the City of Alameda regarding storm water line maintenance. During the investigation of Storm Drain Line B, a manhole was discovered in the field that appears to be part of the industrial waste system, but was not previously sampled. A brief summary of the investigations for this manhole and Storm Drain Lines A, B, and G follows.

5.1 INDUSTRIAL WASTE LINE MANHOLE

A manhole was found during investigation of Storm Drain Line B near the former Structure 29 pump station that appeared to connect to the industrial waste system, based on its location and a review of historical documents and drawings. Research of records was conducted, and a historical drawing was located that shows this manhole. This historical drawing (Figure 3-3 [Sheet 2 of 2] and Appendix C of this report) refers to the manhole as I-65, but this report indentifies it as IWS29-1 due to its proximity to the former Structure 29 pump station. The historical drawing identifies the industrial waste line as part of the sanitary sewer system, as did Figure 8-3.22.2 of the Historical Radiological Assessment (Weston 2007). Later documents, including the OU-2C FS Addendum (TtEC 2012), separated the industrial waste system from the sanitary sewer system. This investigation added a field change form for this manhole investigation (Appendix F) because sample collection from this manhole meets the purpose of gathering data to support the ROD.

The sediment was removed from manhole IWS29-1 (less than 1 cy), and four samples were collected and analyzed for Ra-226. Two individual samples were below the Ra-226 RG and two samples exceeded the Ra-226 RG with a maximum activity of 1.64 pCi/g (Table 3-2).

5.2 STORM DRAIN LINES A, B, AND G

Hydrojetting of the lines was required to enable collection of characterization data for Storm Drain Lines A, B, and G regarding condition of the lines and activity of the sediment within the lines. All of the main trunk of Storm Drain Lines A and B was successfully hydrojetted. The main trunk line of Storm Drain Line G was hydrojetted prior to the start of the Site 17 remediation. Most laterals to the first manhole from the main trunk could be hydrojetted for these lines.

Video was taken of the interiors of Storm Drain Lines A, B, and G (Appendix A) following removal of the sediment. The video documents the condition of the lines, which is summarized in Table 3-3 and Figures 3-1 and 3-2. The video camera inspection survey indicated that the storm drain lines are functional and that hydrojetting was effective in removing the sediment

from the line. Tree roots have penetrated the line in a few joint locations, and for a portion of Line G, located between Manholes MH 5-G and MH 1-G, a PVC sleeve had been installed.

As previously discussed, gamma scan results are influenced by physical characteristics as well as potential radioactive contamination. Due to the number of unknown variables, the higher gamma data may or may not be due to radioactive contamination in the lines. Therefore, professional judgment was used to identify 9,000 cpm as a value to indicate locations where further evaluation may be considered. Additional investigation of the pipe may be required if the gamma data are to be used as specified in the FS Addendum as a component of the hydrojetting alternative data evaluation.

A VTA survey was conducted of the sediment removed from Storm Drain Lines A, B, and G. None of the VTA data indicated values greater than the mean background plus 3 sigma level. Following the VTA survey of the removed sediment, four samples were collected for laboratory analysis from each line (Table 3-2). All concentrations were less than the FS Report RG for Ra-226.

6.0 REFERENCES

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TABLES

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TABLE 2-1

SUMMARY OF SELECTED RESRAD RESULTS FROM THE OU-2C FS ADDENDUM*

Total Dose and Risk with Ra-226 Based on Net Mean Sample Results			
Impacted Area	**Sample Result (pCi/g)**	**Radiological Risk[a]**	**Dose[b] (mrem/y)**
Storm Drain Line A	0.7487	9.441×10^{-6}	0.8893
Storm Drain Line B	1.6645	2.099×10^{-5}	1.977
Storm Drain Line G	0.2647	3.372×10^{-6}	0.3716

Total Dose and Risk with Ra-226 Based on Maximum Sample Results			
Impacted Area	**Sample Result (pCi/g)**	**Radiological Risk[a]**	**Dose[b] (mrem/y)**
Storm Drain Line A	17.1758	2.164×10^{-4}	20.38
Storm Drain Line B	75.1508	9.477×10^{-4}	89.26
Storm Drain Line G	21.788	2.748×10^{-4}	25.88

Notes:

[a] Total excess lifetime carcinogenic risk.

[b] Dose is calculated using investigative sample data.

Abbreviations and Acronyms:

FS – feasibility study
mrem/y – millirems per year
OU – operable unit
pCi/g – picocuries per gram
Ra-226 – radium 226

*The FS Addendum risk analysis and risks presented in this table are based on analytical results for sediment that was subsequently removed from the storm drain lines.

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TABLE 3-1

SUMMARY OF COMPLETED QUANTITIES FOR HYDROJETTING, VIDEO CAMERA VERIFICATION, AND RADIOLOGICAL SURVEYING

Line Description	Hydrojetting (linear feet)	Video Camera Verification (linear feet)	Radiological Surveying (linear feet)
Line A Main	2,450	2,450	2,450
Line A Laterals	1,539	1,539	1,509[a]
Line B Main	2,350	2,350	2,350
Line B Laterals	1,276[b]	1,132[c]	1,132[c]
Line G Main	3,850	3,850	3,850
Line G Laterals	2,163[d]	2,160[e]	2,160[e]
Totals	**13,628**	**13,481**	**13,451**

Notes:

[a] 30 feet of laterals could not be radiologically surveyed on Line A due to the configuration of the line and incompatibility with the radiological instruments.

[b] 172 feet of laterals could not be cleaned on Line B due to the configuration of the line and incompatibility with the hydrojetting equipment.

[c] 316 feet of laterals could not be video inspected or radiologically surveyed on Line B due to the configuration of the line and incompatibility with the instruments.

[d] 61 feet of laterals could not be not cleaned on Line G due to the configuration of the line and incompatibility with the hydrojetting equipment.

[e] 64 feet of laterals could not be video inspected or radiologically surveyed on Line G due to the configuration of the line and incompatibility with the instruments.

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TABLE 3-2

SUMMARY OF SEDIMENT Ra-226 ANALYTICAL RESULTS

Sample Source	Sample Number	Flags	Ra-226 Results Curtis & Tompkins (pCi/g)
Line A Sediment	05-A-01		1.1760
Line A Sediment	05-A-02		0.6890
Line A Sediment	05-A-03	AB	0.0977
Line A Sediment	05-A-04		1.0100
Line B Sediment	05-B-01		0.5451
Line B Sediment	05-B-02	#AB	0.4032
Line B Sediment	05-B-03	#AB	-0.0221
Line B Sediment	05-B-04		0.4393
Line G Sediment	05-G-01	#	0.6263
Line G Sediment	05-G-02	AB	0.1714 (0.9358 Lab Dup)
Line G Sediment	05-G-03		0.4207
Line G Sediment	05-G-04		0.5008
MH2A Sediment	05-MH2A-01		0.8037
MH2A Sediment	05-MH2A-02		0.5111
MH2A Sediment	05-MH2A-03		0.4330
MH2A Sediment	05-MH2A-04	#	0.5016
MH5A Sediment	05-MH5A-01		0.8265
MH5A Sediment	05-MH5A-02		0.7194
MH5A Sediment	05-MH5A-03	AB	0.3964
MH5A Sediment	05-MH5A-04		0.6897
MH IWS29-1	05-IWS29-1-01		1.6000/1.64 (1.39 Lab Dup)[a]
MH IWS29-1	05-IWS29-1-02		1.4430/1.13[a]
MH IWS29-1	05-IWS29-1-03		1.6130/1.64[a]
MH IWS29-1	05-IWS29-1-04		0.7514/1.17[a]

Notes:

[a] Values after the slash are results from TestAmerica Laborotory

Abbreviations and Acronyms

– All peaks for activity calculation had bad shape
A – Activity < Minimum Detectible Activity
B – Activity < Critical Level
pCi/g – picocuries per gram
Ra-226 – radium 226

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TABLE 3-3

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (feet)	Diameter (inches)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
STORM DRAIN LINE A					
1	89	15	MH 10-A	MH 9-A	13.0': seepage at joint/cracked piece from 11:00 to 1:00
2	299	21	MH 9-A	MH 8-A	293.0': seepage at joint/weeping at 12:00
3	56	12	CB 8A-1	Main Line 21"	16.2': seepage at joint, stain from 9:00 to 3:00 21.0': crack at 6:00 at joint 31.3' to ~43.3': longitudinal cracks at 6:00 and 12:00 45.9': cracks from 12:00 to 6:00
4	300	24	MH 8-A	MH 7-A	no damage noted
5	56	12	CB 7A-1	Main Line 24"	no damage noted
6	89	24	MH 7-A	MH 5A-5	no damage noted
7	105	10	MH 5A-6	MH 5A-5	no damage noted
8	238	24	MH 5A-5	MH 6-A	5.0': seepage at joint, dripping from 10:00 to 2:00 157.0': hole/weeping at 9:00
9	30	8	CB 6A	MH 6-A	8.8': circumferential crack from 2:00 to 5:00 near pipe joint 22.7': circumferential cracks from 12:00 to 6:00 23.4': seepage at joint/dripping/crack from 11:00 to 1:00 27.5': multiple cracks
10	76	8	CB 6A-1	MH 6-A	no damage noted
11	144	12	MH 6A-1	MH 6-A	no damage noted
12	150	30	MH 6-A	CB 5A-4	no damage noted
13	191	30	CB 5A-4	MH 5-A	no damage noted
14	31	12	CB 5A-2	Main line 30"	17.5': seepage at joint, stain at 5:00
15	144	12	MH 5A-1	MH 5-A	no damage noted
16	331	30	MH 5-A	MH 4-A	5.0': seepage at joint, dripping from 10:00 to 1:00

TABLE 3-3

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (feet)	Diameter (inches)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
17	30	8	CB 4A-3	Main line 30"	13.0': seepage at joint, stain from 9:00 to 5:00
18	104	10	MH 4A-10	Main line 30"	no damage noted
19	24	10	CB 4A-1	MH 4-A	no damage noted
20	303	24	MH 4A-1	MH 4-A	no damage noted
21	207	36	MH 4-A	MH 3-A	6.0': seepage at joint, stain at 12:00
22	148	30	MH 11-A	MH 3-A	5.0': seepage at joint/weeping at 12:0025.9' to 38.0': longitudinal crack at 7:00147.5': seepage at joint/weeping at 12:00
23	197	36	MH 3-A	MH 2-A	25.7': seepage at joint/dripping at 3:00
24	403	36	MH 2-A	MH 1-A (covered)	9.5': seepage at joint/dripping at 12:00 23.2': seepage at joint/dripping at 3:00 60.5': seepage at joint/dripping at 2:00 109.8': seepage at joint, dripping at 3:00 136.5': seepage at joint, dripping at 2:00
25	8	10	CB 1A-1	Main line 36"	no damage noted
26	236	36	MH 1-A (covered)	Outfall A	Note: Downstream to upstream 130.0': seepage at joint/dripping at 12:00 67.3' :seepage at joint/dripping at 12:00 37.3': seepage at joint/dripping
STORM DRAIN LINE B					
27	273	18	MH 7-B	MH 6-B	83.5': circumferential crack from 2:00 to 7:00 99.7': circumferential crack from 10:00 to 2:00 128.6': circumferential cracks from 8:00 to 4:00 145.1': cracks from 6:00 to 12:00 197.4': cracks from 12:00 to 4:00 264.1': cracks from 10:00 to 2:00 267.9' : circumferential cracks from 11:00 to 5:00

TABLE 3-3

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (feet)	Diameter (inches)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
28	209	12	CB 6B-1	MH 6-B	15.1', 24.0', 27.0', 30.0', 33.0', 36.0', 39.0', 42.0', 48.0', 51.0', 54.0', and 57.0': tree root in joints/seepage at joint
29	88	21	MH 8-B	MH 6-B	17.1': cracks from 8:00 to 4:00 20.2': longitudinal crack at 12:00 23.5': crack at joint/seepage at joint/seeping 35.3': cracks at 9:00 to 3:00 44.4': longitudinal crack at 10:00 59.1': longitudinal crack at 2:00 65.4': circumferential cracks from 9:00 to 3:00 77.0': crack/sealing damage at 3:00
30	315	24	MH 6-B	MH 5-B	5.0': seepage at joint/dripping 19.3': seepage at joint/dripping
31	58	12	CB 5B-2	Main Line 24"	6.3': pipe change PVC to RCP/longitudinal crack at joint at 5:00/intruding seal from 12:00 to 3:0014.1' longitudinal crack at 6:0020.6': cracks at joint from 7:00 to 4:0023.1: longitudinal crack at 5:0036.3': cracks at joint at 5:0042.4': longitudinal crack at joint at 6:0051.7': crack on either side of joint at 5:0057.7': longitudinal crack at 12:00
32	121	10	MH 5B-1	Main Line 24"	inaccessible
33	62	10	CB 5B-1	MH 5-B	11.7 ': roots in joint from 8:00 to 1:00 58.6': impassable/abandoned survey
34	310	27	MH 5B	MH 4-B	141.9': seepage at joint/weeping 163.7' :seepage at joint/weeping from 10:00 to 2:00 305.0': seepage at joint/weeping
35	25	12	CB 4B-1	Main Line 27"	15.2': roots in joint at 9:00 to 6:00
36	100	18	MH 4B-1	MH 4-B	13.9': intruding seal at 9:00 31.9': roots in joint 10:00 to 7:00/seepage at joint stain 62.4': seal intruding 92.8': circumferential crack from 9:00 to 5:00 95.2': broken pipe at 6:00/piece missing with associated cracks

TABLE 3-3

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (feet)	Diameter (inches)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
37	384	30	MH 4-B	MH 3-B	14.7': seepage at joint stain at 12:00 114.8': tap break in at 10:00 plugged with debris 139.9': seepage at joint/seeping at 10:00 to 2:00 162.1': seepage at joint/weeping at 9:00 226.9': seepage at joint/weeping at 10:00 to 2:00 244.2': seepage at joint/dripping from 9:00 to 3:00
38	23	8	CB 4B-2	Main Line 30"	inaccessible
39	102	18	MH 3-B1	MH 3-B	12.5': roots in joint at 10:00 to 3:00 45.8': roots in joint at 10:00 to 1:00 94.4': crack from 2:00 to 6:00/broken pieces
40	309	36	MH 3-B	MH 2-B	no damage noted
41	24	10	CB 2B-6	Main Line 36"	1.0': joint offset and cracking from 12:00 to 12:005.8': multiple cracks from 12:00 to 12:0012.0' : cracks from 5:00 to 6:0018.1': fracture at 6:0021.2' : multiple longitudinal cracks from 9:00 to 3:00
42	215	24	MH 2B-1	MH 2-B	no damage noted
43	25	10	CB 2B-2	MH 2-B	Note: Downstream to upstream 5.0': multiple cracks from 7:00 to 1:00 8.3': longitudinal crack at 1:00 9.3': longitudinal crack at 7:00 12.1': cracks from 12:00 to 6:00 19.3': hole in sidewall from 2:00 to 3:00 22.0': longitudinal crack at 7:00
44	101	10	CB 2B-1	MH 2-B	inaccessible
45	358	36	MH 2-B	MH 1-B	no damage noted
46	19	12	CB 1B-1	MH 1-B	inaccessible
47	224	15	CB 1B-2	MH 1-B	no damage noted
48	355	36	MH 1-B	Control Box	273.4': hole in pipe wall
49	52	8	CB 1B-3	Main line 36"	inaccessible

TABLE 3-3

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (feet)	Diameter (inches)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
50	46	36	Control Box	Outfall B	Note: Downstream to upstream 12.3': seepage at joint/running water at 3:00 22.0': seepage at joint/dripping from 10:00 to 2:00
STORM DRAIN LINE G					
51	247	27	MH 15-G	MH 14-G	no damage noted
52	95	12	CB 14G-2	MH 14-G	44.9': circumferential cracks from 2:00 to 6:00 74.6': seepage at joint/seepage at joint at 3:00
53	98	12	CB 14G-3	MH 14-G	79.5': crack at 4:00/seepage at joint/dripping
54	94	27	MH-14-G	MH 13-G	no damage noted
55	54	27	MH-13-G	MH 12-G	36.9': roots in joint 9:00 to 4:00
56	67	10	CB 12G-1	MH 12-G	36.0': change to PVC liner, no damage noted
57	405	15	MH 12-G	MH 11-G	2.1': seepage at joint/weeping at 5:00
58	48	10	CB 11G-1	Main Line 15"	19.0': cracks 11:00 to 2:00/pieces broken 2:00 to 4:0021.7': circumferential crack from 9:00 to 6:00/intruding seal 7:00 to 6:0039.9': joint offset
59	305	18	MH 11-G	MH 10-G	50.2': seepage at joint/dripping at 12:00 70.3': seepage at joint, stain at 8:00 to 10:00
60	20	10	CB 10G-1	Main Line 18"	PVC sleeve 8.4': change to concrete, no damage noted
61	306	18	MH 10-G	MH 9-G	18.9': seepage at joint stain 122.5': intruding seal from 5:00 to 6:00 151.5': seepage at joint/dripping at 11:00 225.1': intruding seal
62	19	12	CB 9G-1	Main Line 18"	no damage noted

TABLE 3-3

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (feet)	Diameter (inches)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
63	306	18	MH 9-G	MH 8-G	3.5': seepage at joint stain 108.9': seepage at joint/dripping at 12:00 147.7': seepage at joint/dripping at 12:00 162.6': seepage at joint/dripping at 12:00
64	19	12	CB 8G-2	MH 8-G	6.7': survey abandoned, no damage noted
65	229	24	MH 8-G	MH 7-G	147': seepage at joint/dripping at 12:00 200.5': infiltration/weeping from 11:00 to 1:00
66	341	24	MH 7-G	MH 6-G	0.1': seepage at joint, stain from 8:00 to 4:00 11.4': seepage at joint/weeping at 3:00 135.7': seepage at joint/weeping from 11:00 to 9:00
67	18	10	CB 6G-1	Main Line 24"	12.9': seepage at joint/weeping at 12:00 15.7': infiltration/weeping at 12:00
68	235	24	MH 6G-16	MH 6-G	146.2': seepage at joint/dripping from 9:00 to 3:00
69	211	18	MH 6-G1	MH 6-G	Note: reverse run 4.0': seepage at joint/weeping at 12:00
70	311	30	MH 6-G	MH 5-G	33.9': seepage at joint/dripping from 10:00 to 2:00
71	34	12	CB 5G-6	Main Line 30"	32.9': seepage at joint/dripping at 12:00
72	62	12	CB 5G-4	Main Line 30"	56.9': abandoned survey, no damage noted
73	65	12	CB 5G-3	Main Line 30"	5.0' to 6.5': multiple longitudinal cracks14.1': longitudinal crack at 9:0034.6': multiple longitudinal cracks~60': crack at 3:00
74	64	12	CB 5G-1	Main Line 30"	abandoned survey at 3.0'
75	205	27	MH 5G-1	MH 5-G	29.7': seepage at joint/dripping from 10:00 to 3:00
76	404	36	MH 5-G	MH 4-G	no damage noted
77	205	21	MH 4G-1	MH 4-G	142.7': crack at 3:00/seepage at joint/weeping
78	49	10	CB 4G-1	MH 4-G	no damage noted

TABLE 3-3

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (feet)	Diameter (inches)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
79	274	36	MH 4-G	MH 3-G	no damage noted
80	467	18	CB 3G-7	MH 3-G	36.1': seepage at joint at 9:00 42.1': seepage at joint/weeping 357.7': seepage at joint/weeping from 9:00 to 3:00 408.7' to 412': multiple longitudinal cracks from 7:00 to 4:00
81	274	36	MH 3-G	MH 2-G	no damage noted
82	230	15	MH 2G-1	MH 2-G	no damage noted
83	275	36	MH 2-G	MH 1-G	no damage noted
84	13	15	CB 1G-1	Main Line 36"	2.5': circumferential cracking from 12:00 to 12:00/broken pieces 11:00 to 1:00 2.6' to 7.5': multiple cracks/broken pieces, inaccessible beyond 7.5'
85	25	36	MH 1-G	Outfall G	no damage noted

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TABLE 4-1

GAMMA SCAN SUMMARY STATISTICS

Reach	Storm System	Main/ Lateral	Length (feet)	Pipe Diameter (inches)	Total Points	Average (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)	Max (cpm)	Total Points in Each Sigma Range						
										<1	1	2	3	4	5	>6
1	A	Lateral	89	15	86	5687.56	320.24	6648.29	6640.00	73	12	1				
2	A	Main	299	21	311	6244.05	523.77	7815.35	7880.00	266	35	9	1			
3	A	Lateral	56	12	118	5621.53	384.69	6775.61	6770.00	106	7	5				
4	A	Main	300	24	260	6932.00	646.15	8870.46	9370.00	220	33	6	1			
5	A	Lateral	56	12	96	6005.94	481.37	7450.03	7430.00	80	11	5				
6	A	Main	89	24	111	6700.81	669.82	8710.26	8550.00	93	14	4				
7	A	Lateral	105	10	127	7665.12	1002.02	10671.19	11000.00	107	14	5	1			
8	A	Main	238	24	204	6780.44	544.93	8415.24	8120.00	170	29	5				
9	A	Lateral	30	8	33	8196.97	467.18	9598.52	9310.00	27	5	1				
10	A	Lateral	76	8	91	4638.46	451.53	5993.05	5730.00	77	13	1				
11	A	Lateral	144	12	171	5610.94	373.61	6731.78	7050.00	149	18	2	2			
12	A	Main	150	30	139	7929.71	1856.58	13499.47	17300.00	123	8	4	3		1	
13	A	Main	191	30	165	7027.76	515.33	8573.75	8590.00	138	23	3	1			
14	A	Lateral	31	30	50	5535.60	385.24	6691.33	6580.00	43	5	2				
15	A	Lateral	144	12	145	5490.07	417.25	6741.82	7070.00	126	14	3	2			
16	A	Main	331	30	296	4627.03	376.87	5757.62	5890.00	251	37	6	2			
18	A	Lateral	104	24	109	6908.35	599.65	8707.31	8440.00	92	14	3				
19	A	Lateral	24	10	28	4652.50	280.35	5493.56	5440.00	24	3	1				
20	A	Lateral	303	24	278	6395.90	576.10	8124.19	8170.00	233	36	8	1			

TABLE 4-1

GAMMA SCAN SUMMARY STATISTICS

Reach	Storm System	Main/ Lateral	Length (feet)	Pipe Diameter (inches)	Total Points	Average (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)	Max (cpm)	Total Points in Each Sigma Range						
										<1	1	2	3	4	5	>6
21	A	Main	207	36	146	4670.48	289.27	5538.29	5590.00	120	24	1	1			
22	A	Lateral	148	30	115	5989.65	460.02	7369.71	7340.00	99	10	6				
23	A	Main	197	36	169	4766.69	296.67	5656.68	5790.00	143	21	4	1			
24	A	Main	403	36	374	4656.52	308.76	5582.80	5540.00	317	48	9				
25	A	Lateral	8	10	9	5375.56	930.07	8165.76	6610.00	7	2					
26	A	Main	236	36	235	4533.19	354.37	5596.31	5720.00	203	26	5	1			
27	B	Main	273	18	308	8683.34	682.49	10730.82	11200.00	265	37	5	1			
28	B	Lateral	209	12	248	5380.16	336.24	6388.88	6630.00	211	30	5	2			
29	B	Lateral	88	21	85	5819.06	401.07	7022.27	7210.00	75	6	3	1			
30	B	Main	315	24	277	7159.53	614.28	9002.39	8840.00	229	44	4				
31	B	Lateral	58	12	122	5285.66	329.83	6275.15	6000.00	104	16	2				
33	B	Lateral	62	10	77	4931.43	347.34	5973.44	5740.00	64	11	2				
34	B	Main	310	27	280	6510.25	620.98	8373.20	9110.00	232	41	6		1		
35	B	Lateral	25	12	40	5339.75	287.36	6201.84	5950.00	34	5	1				
36	B	Lateral	100	18	92	6174.67	449.53	7523.27	7360.00	76	13	3				
37	B	Main	384	30	327	4808.90	317.41	5761.12	6010.00	283	37	3	4			
39	B	Lateral	102	18	99	6337.17	540.13	7957.56	7900.00	88	6	5				
40	B	Main	309	36	263	4798.33	302.01	5704.35	5460.00	225	32	6				
41	B	Lateral	24	10	36	5228.33	306.88	6148.97	5720.00	31	5					

TABLE 4-1

GAMMA SCAN SUMMARY STATISTICS

Reach	Storm System	Main/ Lateral	Length (feet)	Pipe Diameter (inches)	Total Points	Average (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)	Max (cpm)	Total Points in Each Sigma Range						
										<1	1	2	3	4	5	>6
42	B	Lateral	215	24	171	6407.95	523.34	7977.97	7890.00	142	23	6				
43	B	Lateral	25	10	45	5332.00	330.14	6322.43	6190.00	36	8	1				
45	B	Main	358	36	346	4726.16	291.98	5602.10	5790.00	298	37	10	1			
47	B	Lateral	224	15	239	5658.49	526.64	7238.42	7420.00	209	25	4	1			
48	B	Main	355	36	255	4795.84	384.34	5948.88	5800.00	210	40	5				
50	B	Main	46	36	56	4793.93	553.24	6453.64	5580.00	52	4					
51	G	Main	247	27	178	4808.26	338.79	5824.64	5750.00	150	24	4				
52	G	Lateral	34	12	102	5245.00	401.90	6450.71	6170.00	87	12	3				
53	G	Lateral	98	12	85	4964.00	367.65	6066.96	5870.00	69	14	2				
54	G	Main	94	27	110	4500.82	340.49	5522.28	5360.00	94	12	4				
55	G	Main	54	27	64	4810.31	311.49	5744.78	5450.00	51	12	1				
56	G	Lateral	67	10	65	5672.62	438.21	6987.26	7150.00	61	1	2	1			
57	G	Main	405	15	443	6030.97	601.53	7835.56	7920.00	369	61	12	1			
58	G	Lateral	48	10	87	4383.22	375.57	5509.92	5270.00	70	15	2				
59	G	Main	305	18	285	5747.33	422.39	7014.51	7130.00	242	32	10	1			
60	G	Lateral	20	8	21	4560.00	532.01	6156.02	5760.00	18	2	1				
61	G	Main	306	18	298	6549.09	586.80	8309.48	8160.00	253	34	11				
62	G	Lateral	19	12	13	5900.00	293.03	6779.09	6400.00	10	3					
63	G	Main	306	18	356	6194.80	805.18	8610.35	9020.00	298	52	5	1			

TABLE 4-1

GAMMA SCAN SUMMARY STATISTICS

Reach	Storm System	Main/ Lateral	Length (feet)	Pipe Diameter (inches)	Total Points	Average (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)	Max (cpm)	Total Points in Each Sigma Range						
										<1	1	2	3	4	5	>6
64	G	Lateral	19	12	16	5245.63	443.03	6574.73	6190.00	14	1	1				
65	G	Main	229	24	214	6788.69	642.94	8717.52	8790.00	176	34	3	1			
66	G	Main	341	24	352	6511.45	608.30	8336.34	8440.00	286	57	8	1			
67	G	Lateral	18	12	23	5780.00	423.18	7049.54	6490.00	18	5					
68	G	Lateral	235	24	206	6453.01	559.20	8130.62	9000.00	175	24	6		1		
69	G	Lateral	211	18	211	5506.49	699.85	7606.04	8160.00	184	17	7	3			
70	G	Main	311	36	506	5051.50	453.23	6411.20	6970.00	443	46	11	5	1		
71	G	Lateral	34	12	58	5791.55	414.56	7035.23	6870.00	47	10	1				
72	G	Lateral	62	12	97	5679.07	426.66	6959.06	7200.00	84	10	2	1			
73	G	Lateral	65	12	102	5839.31	650.56	7791.01	7820.00	87	9	5	1			
75	G	Lateral	205	27	321	6675.86	682.35	8722.90	8700.00	272	39	10				
76	G	Main	404	36	350	4363.54	309.20	5291.15	5270.00	288	54	8				
77	G	Lateral	205	21	201	5800.70	720.51	7962.22	7990.00	167	31	2	1			
78	G	Lateral	49	10	12	4830.83	351.01	5883.86	5500.00	10	2					
79	G	Main	274	36	194	4462.47	282.92	5311.24	5200.00	159	31	4				
80	G	Lateral	467	18	572	6147.81	553.64	7808.74	8020.00	467	89	13	3			
81	G	Main	274	36	240	4455.04	268.41	5260.26	5090.00	203	31	6				
82	G	Lateral	230	15	241	4934.36	339.76	5953.64	6010.00	200	38	2	1			
83	G	Main	275	36	227	4724.19	582.53	6471.77	6190.00	182	33	12				

TABLE 4-1

GAMMA SCAN SUMMARY STATISTICS

Reach	Storm System	Main/ Lateral	Length (feet)	Pipe Diameter (inches)	Total Points	Average (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)	Max (cpm)	Total Points in Each Sigma Range						
										<1	1	2	3	4	5	>6
84	G	Lateral	13	15	14	4925.71	442.09	6251.98	5450.00	11	3					
85	G	Main	25	36	31	4720.00	274.94	5544.83	5380.00	28	2	1				

Abbreviations and Acronyms:

cpm – counts per minute
Std Dev – Standard Deviation

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FIGURES

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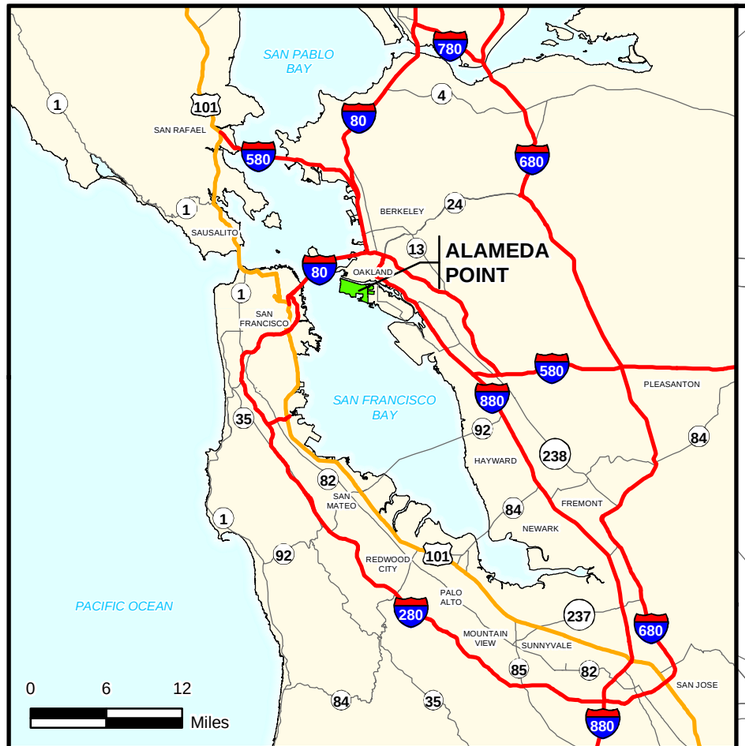
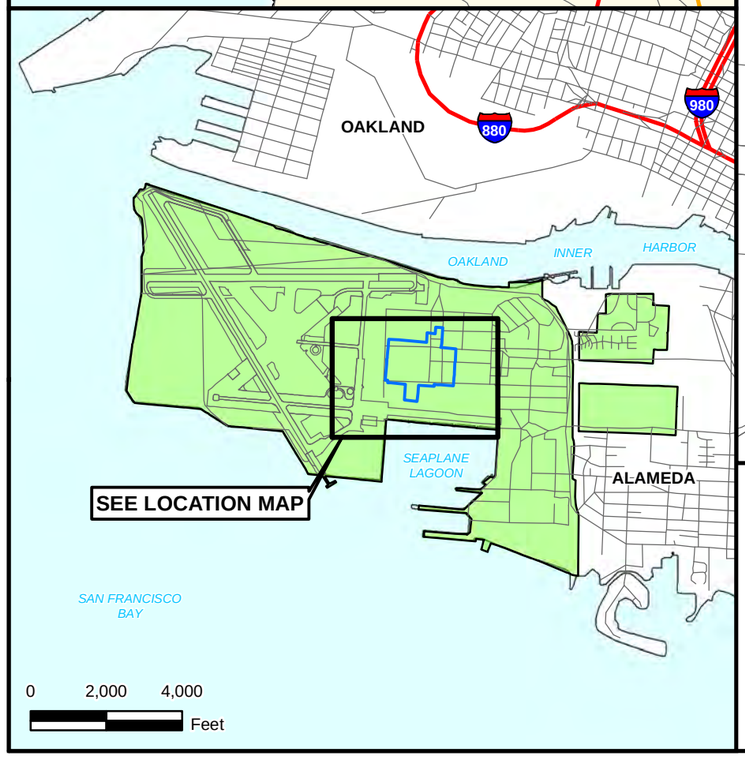
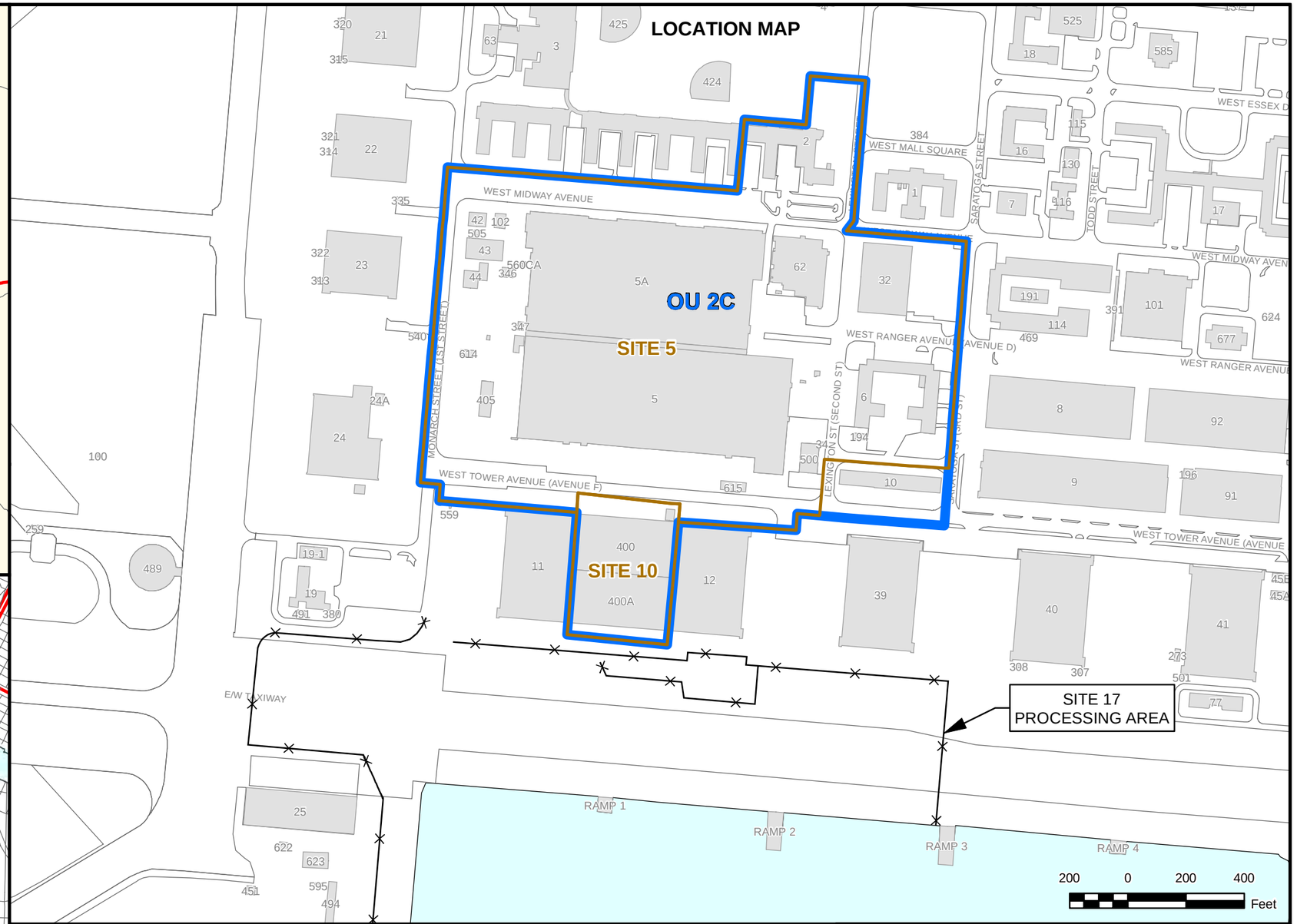






LEGEND

- ROAD/RUNWAY
- STATE HIGHWAY
- US HIGHWAY
- INTERSTATE HIGHWAY
- ALAMEDA POINT
- IR SITE BOUNDARY
- OPERABLE UNIT 2C
- BUILDING AND BUILDING NUMBER
- WATER
- SITE 17 FENCE

NOTES:

IR - INSTALLATION RESTORATION

OU - OPERABLE UNIT

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

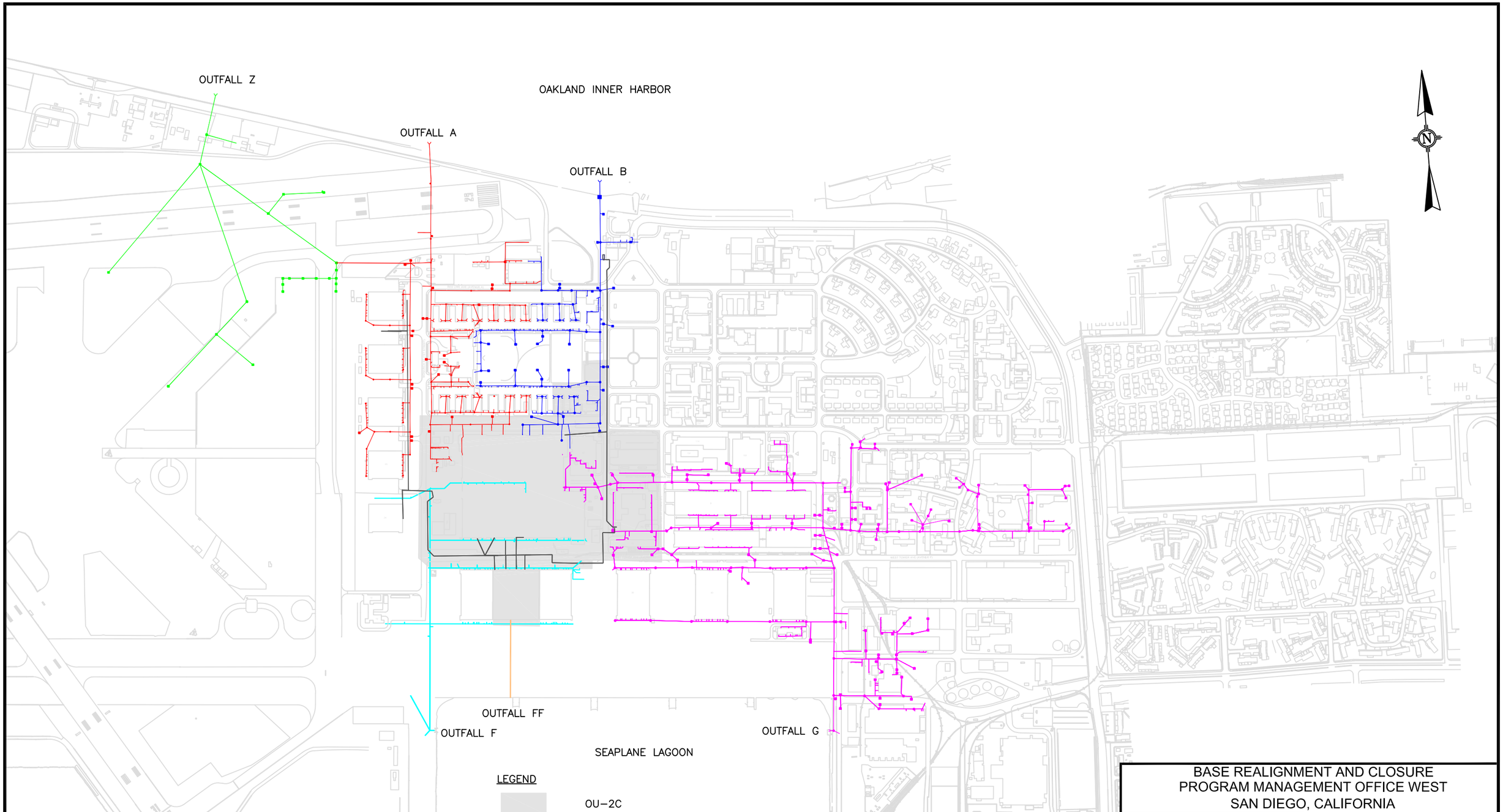
FIGURE 1-1

OU-2C/IR SITES 5 AND 10 LOCATION MAP

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: A
AUTHOR: GFG
FILE NUMBER: 110357L7741.mxd

TETRA TECH EC, INC.



LEGEND

OU–2C

STORM DRAIN LINE A
STORM DRAIN LINE B
STORM DRAIN LINE F
STORM DRAIN LINE FF
STORM DRAIN LINE G
STORM DRAIN LINE Z
INDUSTRIAL WASTE SYSTEM

350 0 350 700
(FEET)

ABBREVIATIONS

IR = INSTALLATION RESTORATION
OU = OPERABLE UNIT

SOURCE: FINAL ADDENDUM 1 TO THE OPERABLE UNIT 2C FEASIBILITY STUDY REPORT, IR SITES 5 AND 10 (TtEC 2012)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

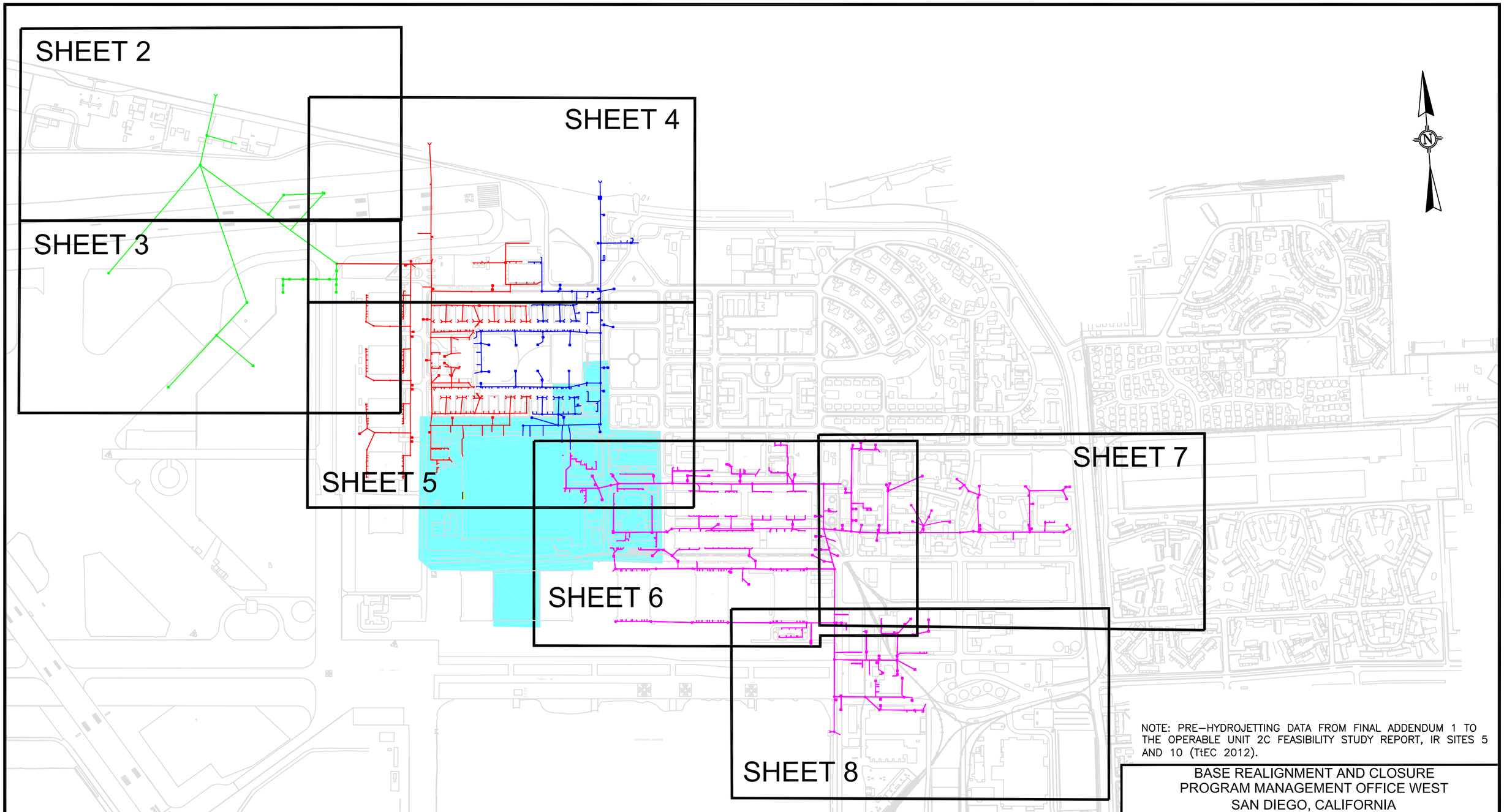
FIGURE 1-2

OU-2C STORM DRAIN AND INDUSTRIAL WASTE LINES

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JULY 10, 2013
FILE NUMBER: Figure 1–2.dwg

TETRA TECH EC, INC.



NOTE: PRE–HYDROJETTING DATA FROM FINAL ADDENDUM 1 TO THE OPERABLE UNIT 2C FEASIBILITY STUDY REPORT, IR SITES 5 AND 10 (TtEC 2012).

ABBREVIATIONS

IR = INSTALLATION RESTORATION
OU = OPERABLE UNIT

LEGEND

OU–2C
STORM DRAIN LINE A
STORM DRAIN LINE B
STORM DRAIN LINE G
STORM DRAIN LINE Z

350 0 350 700
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

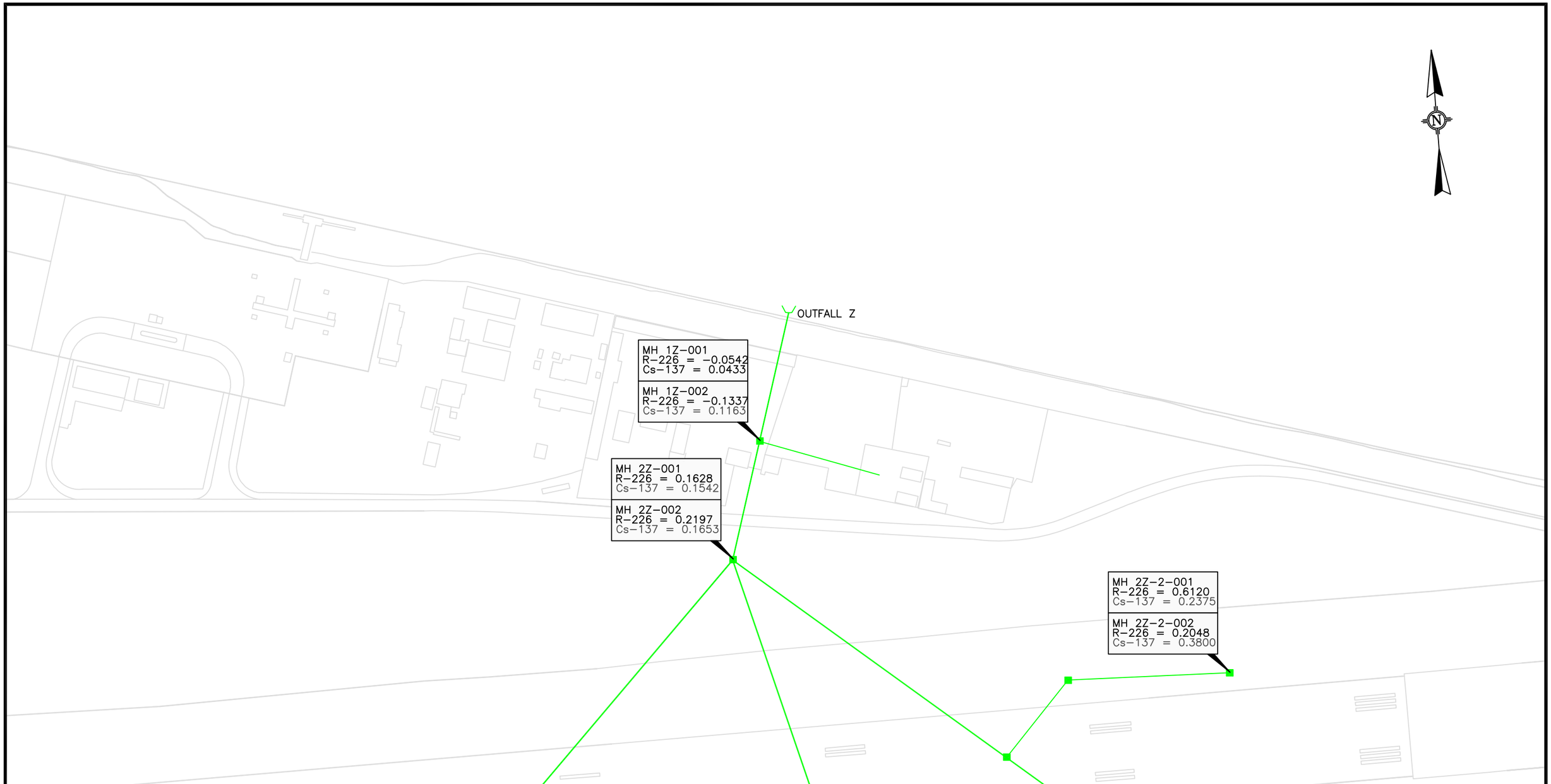
FIGURE 2-1 MANHOLE SAMPLING LOCATIONS AND RESULTS FOR OU-2C STORM DRAIN LINES

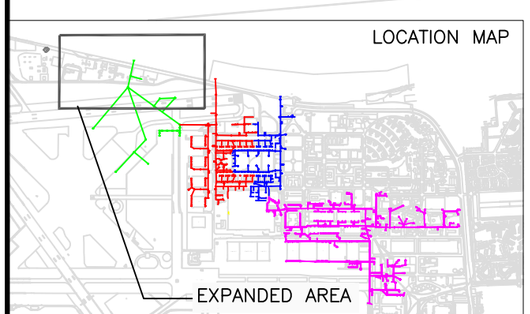
ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JULY 10, 2013
FILE NUMBER: Figure 2–1.dwg

TETRA TECH EC, INC.

SHEET 1 OF 8





ABBREVIATIONS

CB = CATCH BASIN
Cs-137 = CESIUM 137
IR = INSTALLATION RESTORATION
MH = MANHOLE
OU = OPERABLE UNIT
pCi/g = PICOCURIES PER GRAM
R-226 = RADIUM-226

LEGEND

STORM DRAIN LINE Z WITH CATCH BASIN
STORM DRAIN LINE Z WITH MANHOLE

CB 14G-2-001
R-226 = 1.6543
Cs-137 = 0.1333

SURVEYED STRUCTURE ID
RADIUM - 226 SURVEY RESULT (pCi/g)
CESIUM - 137 SURVEY RESULT (pCi/g)

NOTE:
SAMPLE RESULTS WERE DETERMINED PRIOR TO HYDROJETTING

90 0 90 180
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

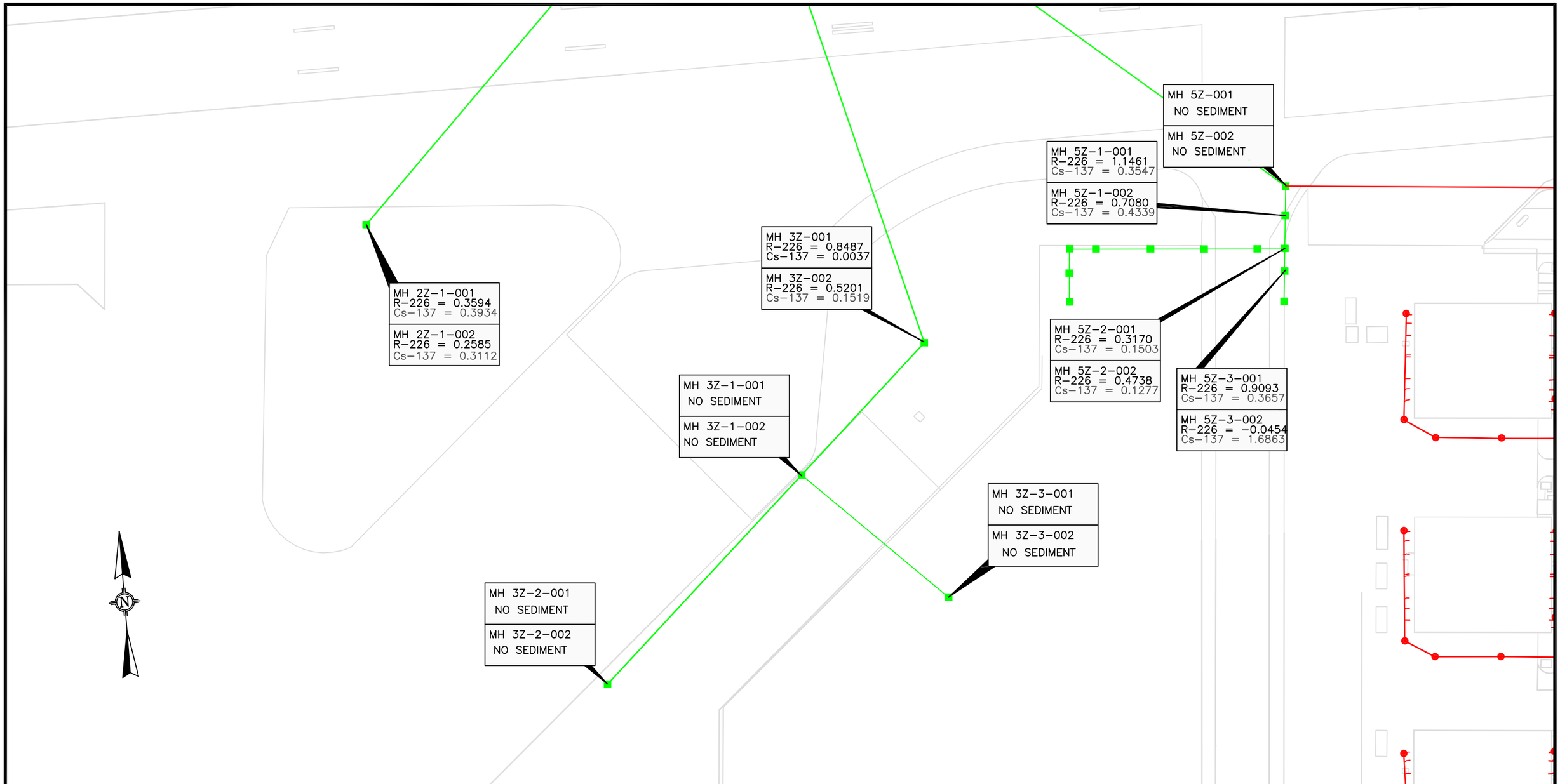
FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

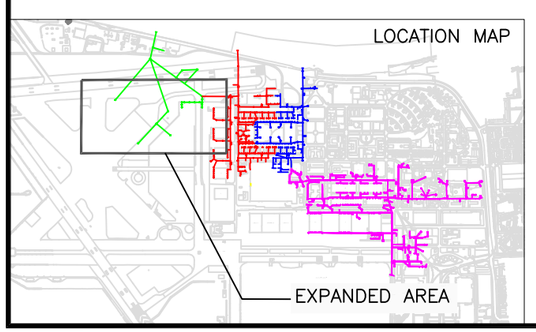
FIGURE 2-1 MANHOLE SAMPLING LOCATIONS AND RESULTS
FOR OU-2C STORM DRAIN LINES

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JUNE 24, 2013
FILE NUMBER: Figure 2-1.dwg

TETRA TECH EC, INC.





ABBREVIATIONS

CB = CATCH BASIN
Cs-137 = CESIUM 137
IR = INSTALLATION RESTORATION
MH = MANHOLE
OU = OPERABLE UNIT
pCi/g = PICOCURIES PER GRAM
R-226 = RADIUM-226

LEGEND

STORM DRAIN LINE A WITH CATCH BASIN
STORM DRAIN LINE A WITH MANHOLE
STORM DRAIN LINE Z WITH CATCH BASIN
STORM DRAIN LINE Z WITH MANHOLE

CB 14G-2-001
R-226 = 1.6543
Cs-137 = 0.1333

SURVEYED STRUCTURE ID
RADIUM - 226 SURVEY RESULT (pCi/g)
CESIUM - 137 SURVEY RESULT (pCi/g)

NOTE:
SAMPLE RESULTS WERE DETERMINED PRIOR TO HYDROJETTING

90 0 90 180
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

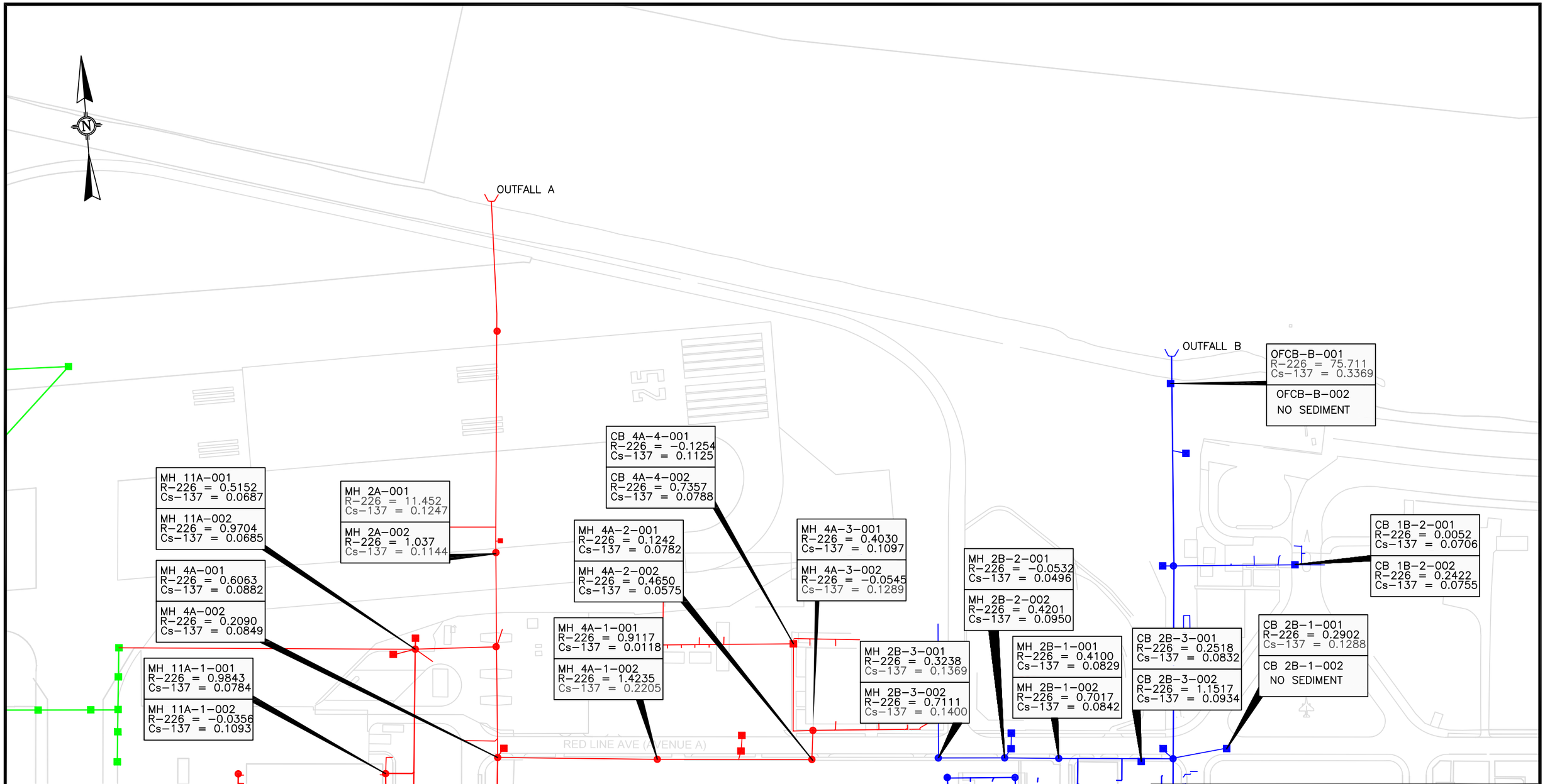
FIGURE 2-1 MANHOLE SAMPLING LOCATIONS AND RESULTS
FOR OU-2C STORM DRAIN LINES

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JUNE 24, 2013
FILE NUMBER: Figure 2-1.dwg

TETRA TECH EC, INC.

SHEET 3 OF 8



ABBREVIATIONS

CB = CATCH BASIN
Cs-137 = CESIUM 137
IR = INSTALLATION RESTORATION
MH = MANHOLE
OU = OPERABLE UNIT
pCi/g = PICOCURIES PER GRAM
R-226 = RADIUM-226

NOTE:
SAMPLE RESULTS WERE DETERMINED PRIOR TO HYDROJETTING

LEGEND

STORM DRAIN LINE A WITH CATCH BASIN
STORM DRAIN LINE A WITH MANHOLE
STORM DRAIN LINE B WITH CATCH BASIN
STORM DRAIN LINE B WITH MANHOLE
STORM DRAIN LINE Z WITH CATCH BASIN
STORM DRAIN LINE Z WITH MANHOLE

CB 14G-2-001
R-226 = 1.6543
Cs-137 = 0.1333

SURVEYED STRUCTURE ID
RADIUM - 226 SURVEY RESULT (pCi/g)
CESIUM - 137 SURVEY RESULT (pCi/g)

90 0 90 180
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

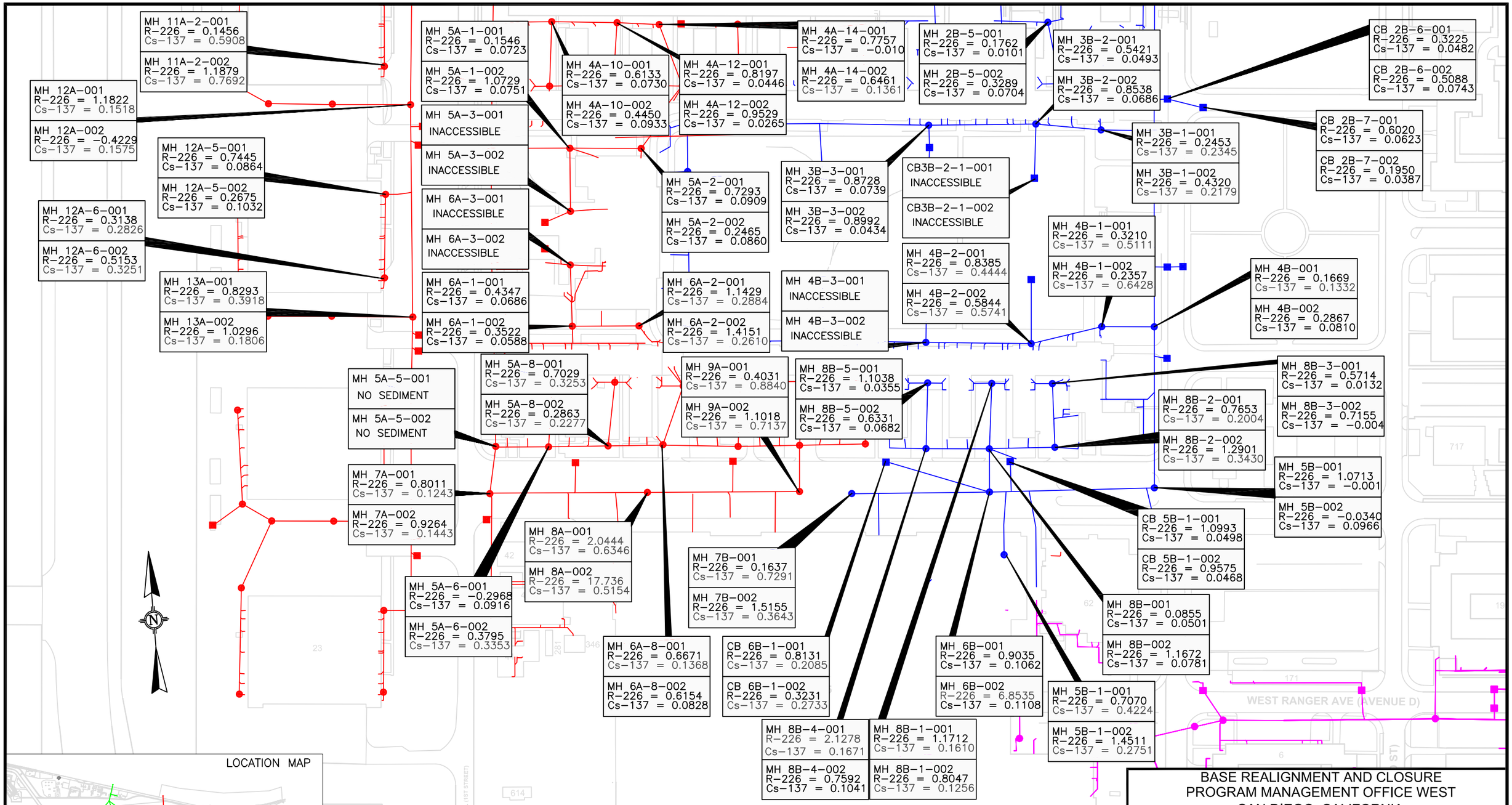
FIGURE 2-1 MANHOLE SAMPLING LOCATIONS AND RESULTS
FOR OU-2C STORM DRAIN LINES

ALAMEDA POINT
ALAMEDA, CALIFORNIA

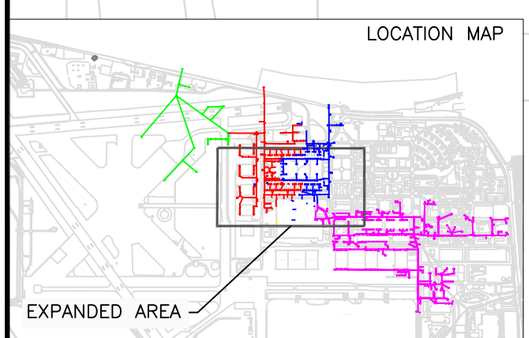
REVIEW: 0
AUTHOR: RS
DATE: JUNE 24, 2013
FILE NUMBER: Figure 2-1.dwg

TETRA TECH EC, INC.

SHEET 4 OF 8



LOCATION MAP



ABBREVIATIONS

CB = CATCH BASIN
Cs-137 = CESIUM 137
IR = INSTALLATION RESTORATION
MH = MANHOLE
OU = OPERABLE UNIT
pCi/g = PICOCURIES PER GRAM
R-226 = RADIUM-226

LEGEND

- STORM DRAIN LINE A WITH CATCH BASIN
- STORM DRAIN LINE A WITH MANHOLE
- STORM DRAIN LINE B WITH CATCH BASIN
- STORM DRAIN LINE B WITH MANHOLE
- STORM DRAIN LINE G WITH CATCH BASIN
- STORM DRAIN LINE G WITH MANHOLE

CB 14G-2-001
R-226 = 1.6543
Cs-137 = 0.1333

SURVEYED STRUCTURE ID
RADIUM - 226 SURVEY RESULT (pCi/g)
CESIUM - 137 SURVEY RESULT (pCi/g)

NOTE:
SAMPLE RESULTS WERE DETERMINED PRIOR TO HYDROJETTING

90 0 90 180
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

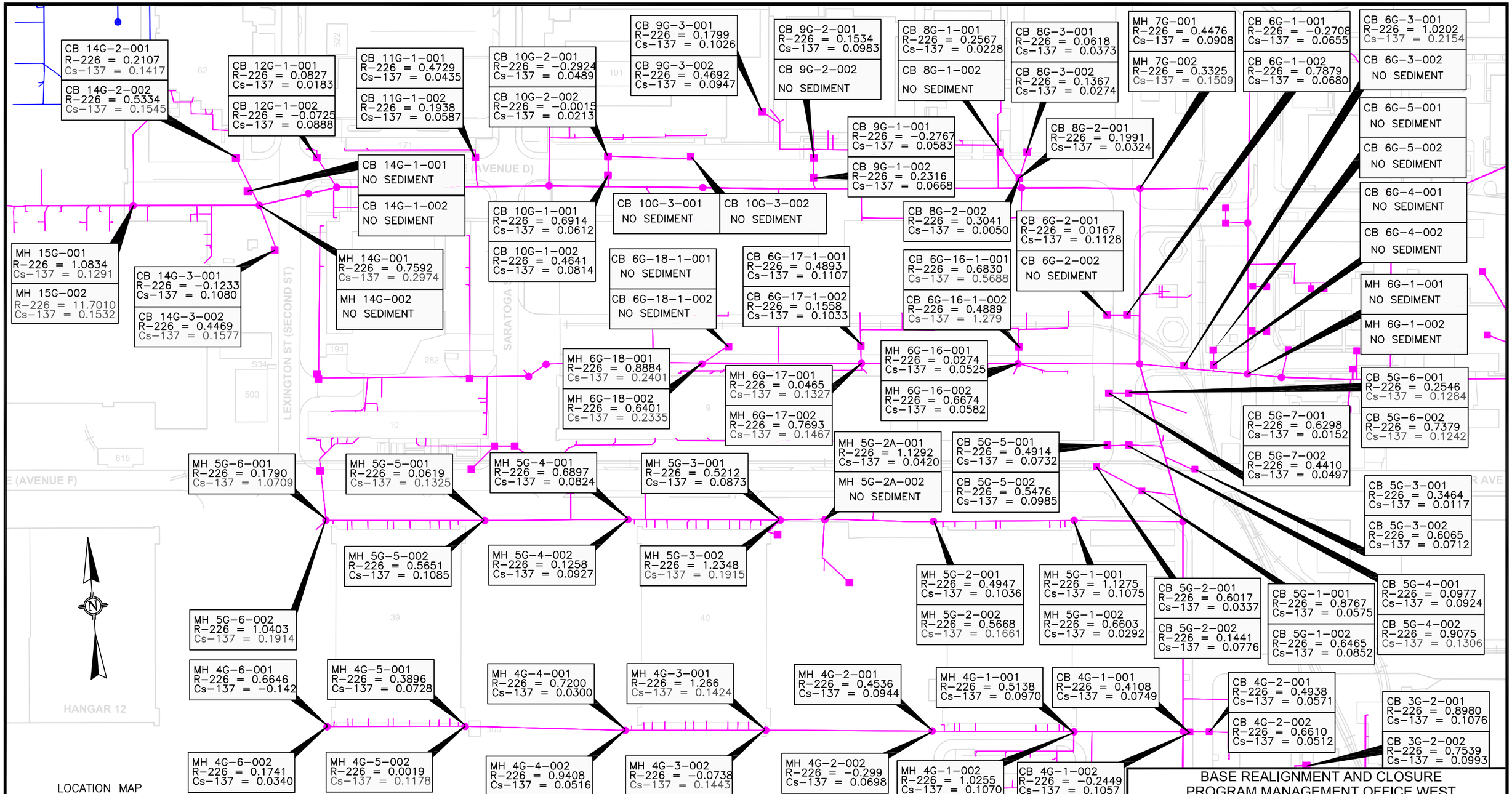
FIGURE 2-1 MANHOLE SAMPLING LOCATIONS AND RESULTS
FOR OU-2C STORM DRAIN LINES

ALAMEDA POINT
ALAMEDA, CALIFORNIA

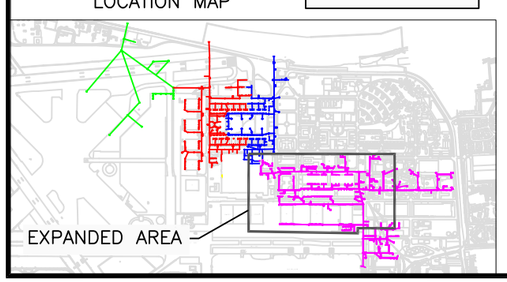
REVIEW: 0
AUTHOR: RS
DATE: JUNE 24, 2013
FILE NUMBER: Figure 2-1.dwg

TETRA TECH EC, INC.

SHEET 5 OF 8



LOCATION MAP



ABBREVIATIONS

CB = CATCH BASIN
Cs-137 = CESIUM 137
IR = INSTALLATION RESTORATION
MH = MANHOLE
OU = OPERABLE UNIT
pCi/g = PICOCURIES PER GRAM
R-226 = RADIUM-226

NOTE:
SAMPLE RESULTS WERE DETERMINED PRIOR TO HYDROJETTING

LEGEND

STORM DRAIN LINE G WITH CATCH BASIN
STORM DRAIN LINE G WITH MANHOLE
STORM DRAIN LINE B WITH CATCH BASIN
STORM DRAIN LINE B WITH MANHOLE

CB 14G-2-001
R-226 = 1.6543
Cs-137 = 0.1333

SURVEYED STRUCTURE ID
RADIUM – 226 SURVEY RESULT (pCi/g)
CESIUM – 137 SURVEY RESULT (pCi/g)

90 0 90 180
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

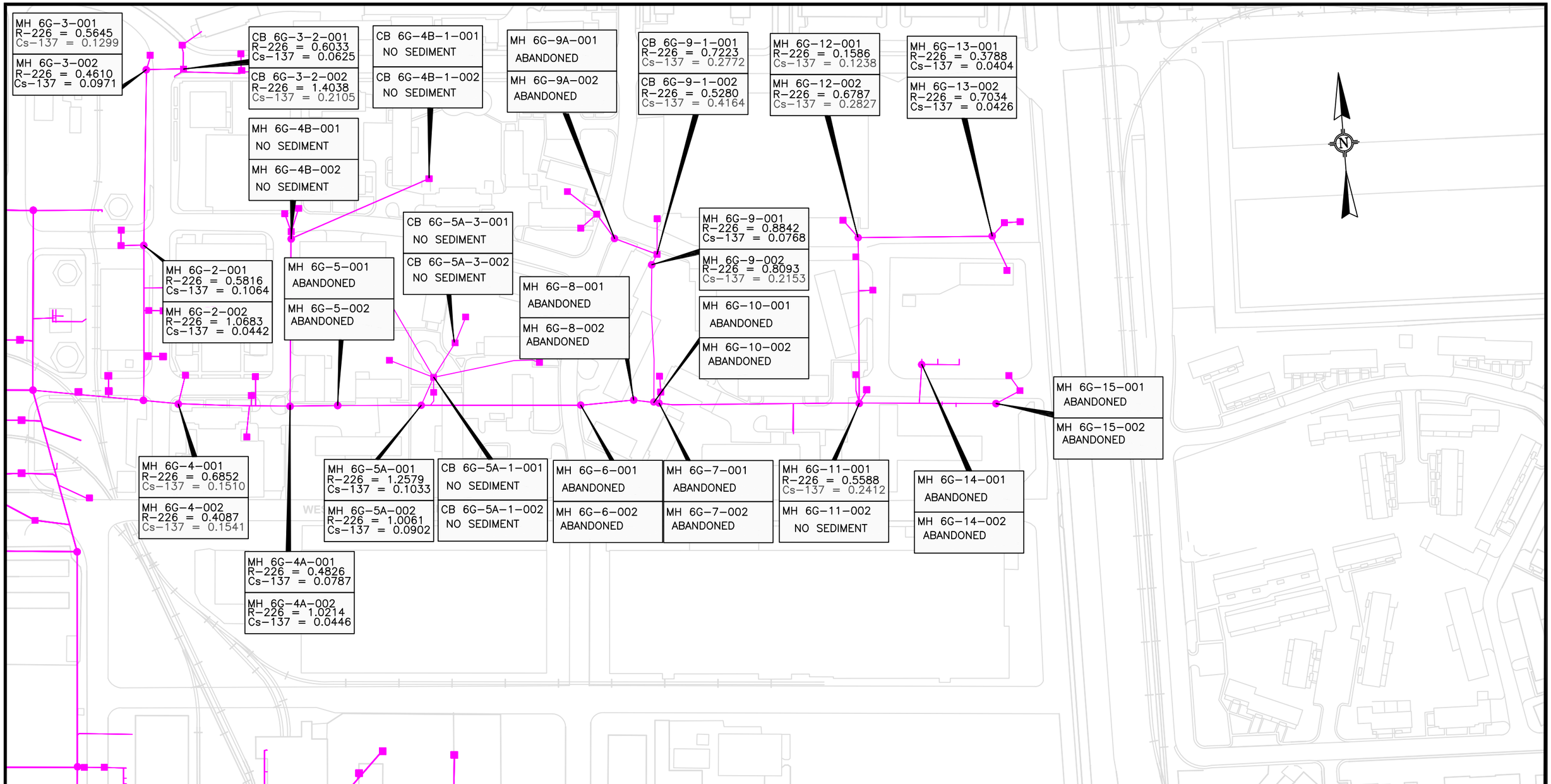
FIGURE 2-1 MANHOLE SAMPLING LOCATIONS AND RESULTS
FOR OU-2C STORM DRAIN LINES

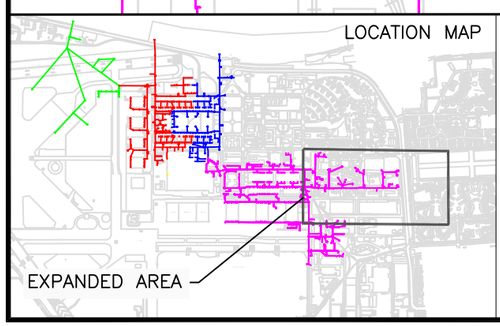
ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JUNE 24, 2013
FILE NUMBER: Figure 2-1.dwg

TETRA TECH EC, INC.

SHEET 6 OF 8





ABBREVIATIONS

CB = CATCH BASIN
Cs-137 = CESIUM 137
IR = INSTALLATION RESTORATION
MH = MANHOLE
OU = OPERABLE UNIT
pCi/g = PICOCURIES PER GRAM
R-226 = RADIUM-226

NOTE:
SAMPLE RESULTS WERE DETERMINED PRIOR TO HYDROJETTING

LEGEND

STORM DRAIN LINE G WITH CATCH BASIN
STORM DRAIN LINE G WITH MANHOLE

CB 14G-2-001
R-226 = 1.6543
Cs-137 = 0.1333

SURVEYED STRUCTURE ID
RADIUM - 226 SURVEY RESULT (pCi/g)
CESIUM - 137 SURVEY RESULT (pCi/g)

90 0 90 180
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

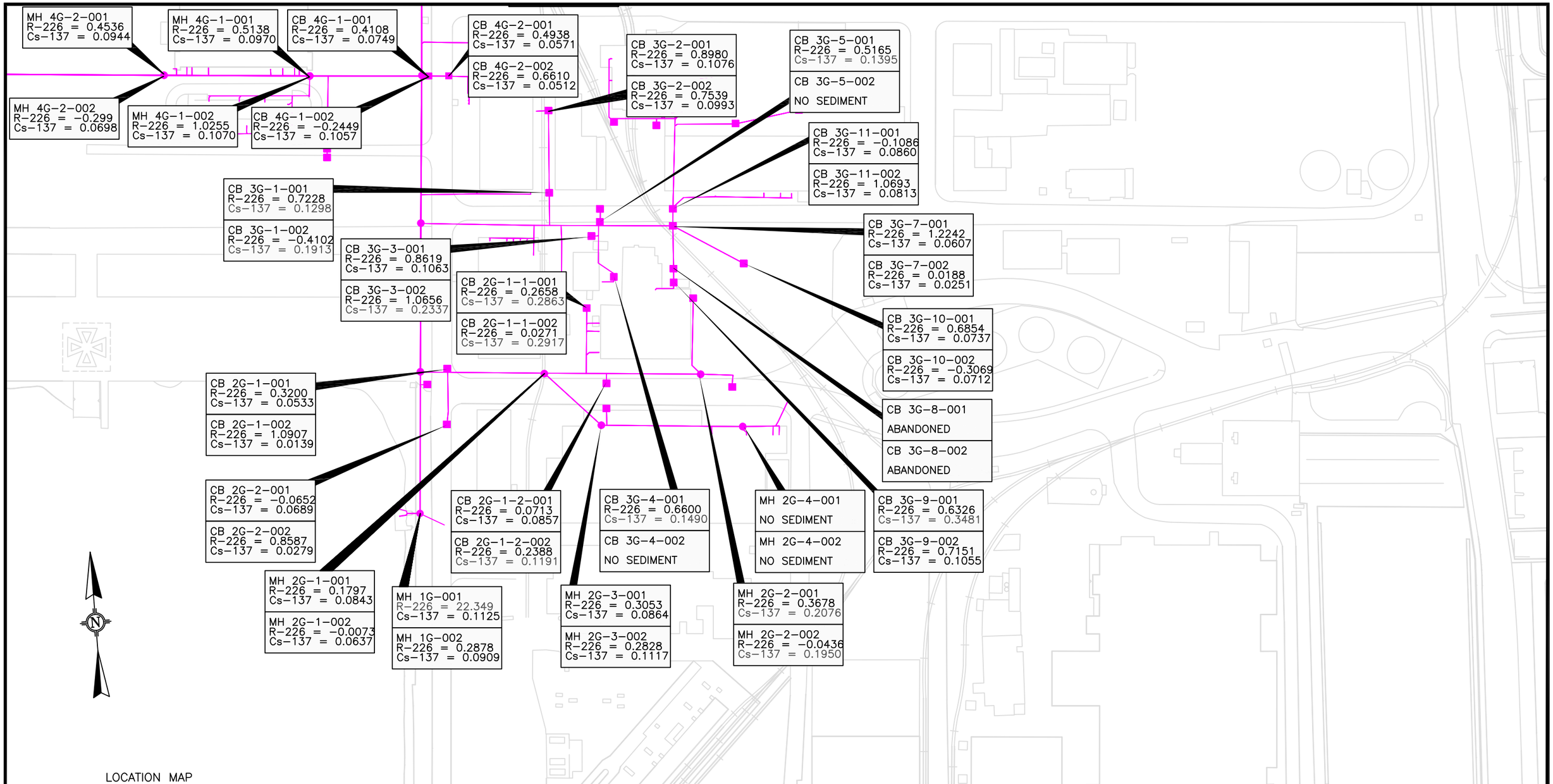
FIGURE 2-1 MANHOLE SAMPLING LOCATIONS AND RESULTS
FOR OU-2C STORM DRAIN LINES

ALAMEDA POINT
ALAMEDA, CALIFORNIA

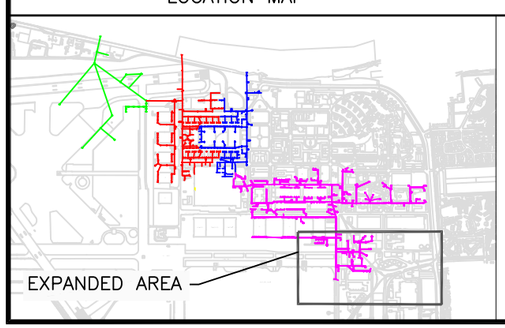
REVIEW: 0
AUTHOR: RS
DATE: JUNE 24, 2013
FILE NUMBER: Figure 2-1.dwg

TETRA TECH EC, INC.

SHEET 7 OF 8



LOCATION MAP



ABBREVIATIONS

CB = CATCH BASIN
Cs-137 = CESIUM 137
IR = INSTALLATION RESTORATION
MH = MANHOLE
OU = OPERABLE UNIT
pCi/g = PICOCURIES PER GRAM
R-226 = RADIUM-226

NOTE:
SAMPLE RESULTS WERE DETERMINED PRIOR TO HYDROJETTING

LEGEND

STORM DRAIN LINE G WITH CATCH BASIN
STORM DRAIN LINE G WITH MANHOLE

CB 14G-2-001
R-226 = 1.6543
Cs-137 = 0.1333

SURVEYED STRUCTURE ID
RADIUM - 226 SURVEY RESULT (pCi/g)
CESIUM - 137 SURVEY RESULT (pCi/g)

90 0 90 180
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

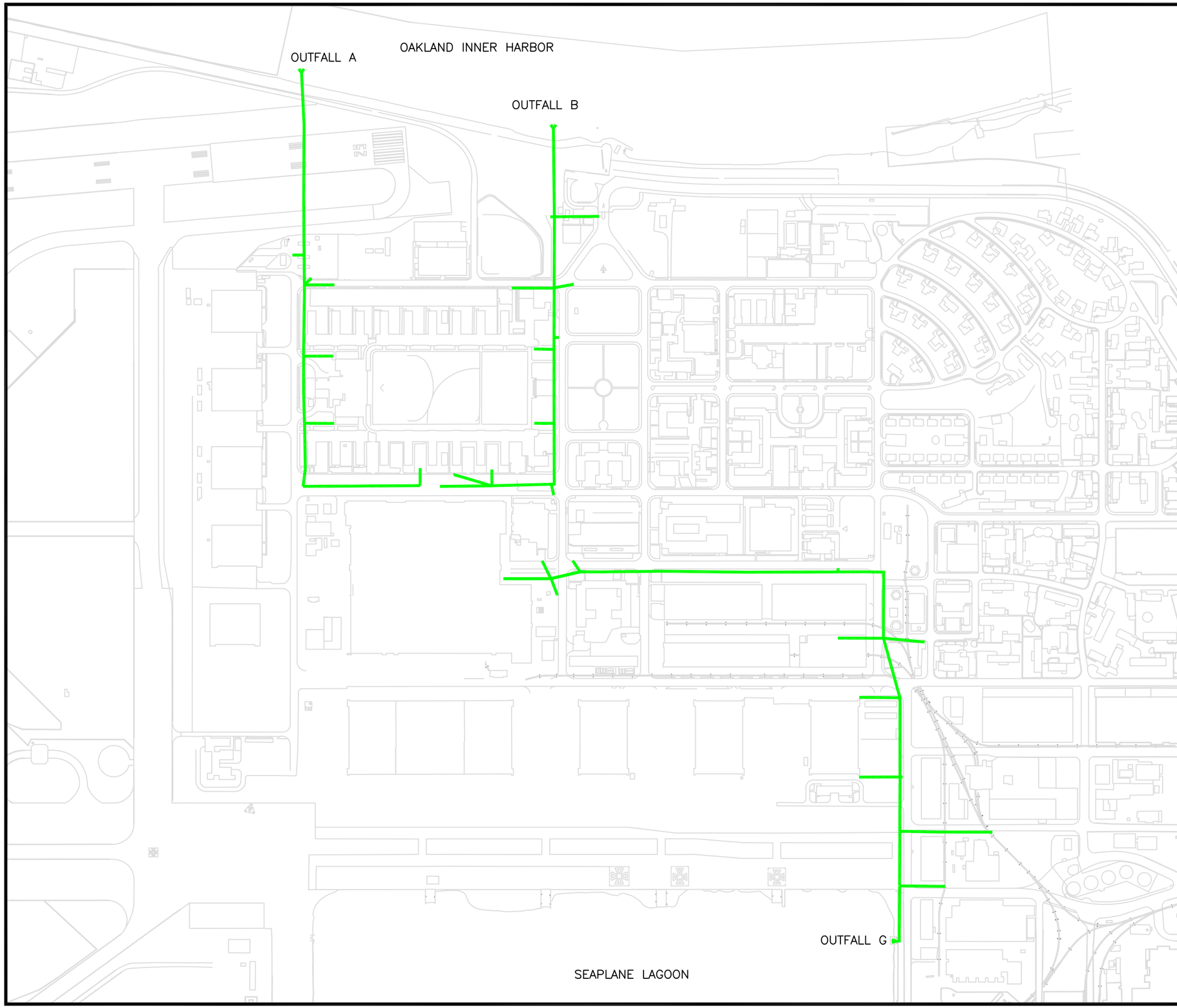
FIGURE 2-1 MANHOLE SAMPLING LOCATIONS AND RESULTS
FOR OU-2C STORM DRAIN LINES

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JUNE 24, 2013
FILE NUMBER: Figure 2-1.dwg

TETRA TECH EC, INC.

SHEET 8 OF 8



LEGEND

STORM DRAIN LINES A, B, & G MAIN TRUNKS

ABBREVIATIONS

IR = INSTALLATION RESTORATION

250 0 250 500

(FEET)

SOURCE: FINAL ADDENDUM 1 TO THE OPERABLE UNIT 2C FEASIBILITY STUDY REPORT, IR SITES 5 AND 10 (TtEC 2012)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

FIGURE 2-2
STORM DRAIN LINES REQUIRING REMEDIATION

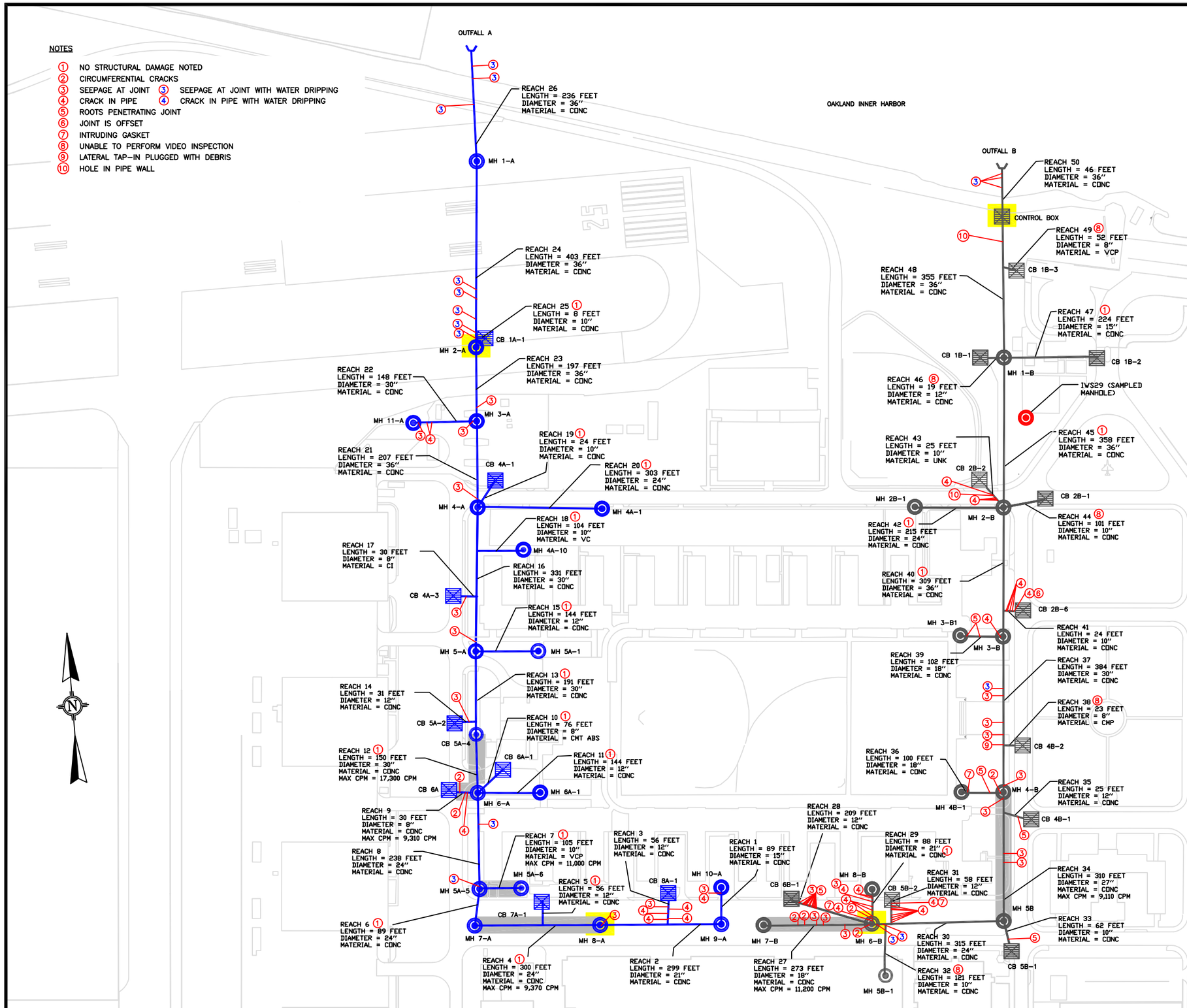
ALAMEDA POINT
ALAMEDA, CALIFORNIA

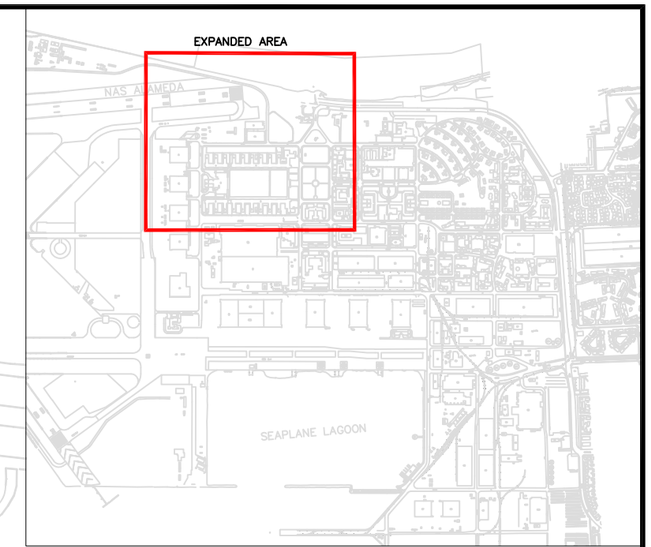
REVIEW: 0
AUTHOR: RS
DATE: JULY 9, 2013
FILE NUMBER: FIGURE 2-2.dwg

TETRA TECH EC, INC.

NOTES

1. NO STRUCTURAL DAMAGE NOTED
2. CIRCUMFERENTIAL CRACKS
3. SEEPAGE AT JOINT
3. SEEPAGE AT JOINT WITH WATER DRIPPING
4. CRACK IN PIPE
4. CRACK IN PIPE WITH WATER DRIPPING
5. ROOTS PENETRATING JOINT
6. JOINT IS OFFSET
7. INTRUDING GASKET
8. UNABLE TO PERFORM VIDEO INSPECTION
9. LATERAL TAP-IN PLUGGED WITH DEBRIS
10. HOLE IN PIPE WALL





LOCATION MAP

LEGEND

- STORM DRAIN LINE A
- STORM DRAIN LINE B
- STORM DRAIN LINE A MANHOLE
- STORM DRAIN LINE A CATCH BASIN
- STORM DRAIN LINE B MANHOLE
- STORM DRAIN LINE B CATCH BASIN
- LOCATION OF SAMPLED POTENTIAL INDUSTRIAL WASTE MANHOLE
- Ra-226 GREATER THAN REMEDIAL GOAL PRIOR TO HYDROJETTING
- AT LEAST 1 GAMMA READING WITHIN REACH WAS 9,000 CPM OR GREATER MAXIMUM CPM RESULT INCLUDED IN REACH INFORMATION

ABBREVIATIONS:

CB = CATCH BASIN
CI = CAST IRON
CMP = CORRUGATED METAL PIPE
CONC = CONCRETE PIPE
CMT.ABS = CEMENT ASBESTOS
CPM = COUNTS PER MINUTE
IWS = INDUSTRIAL WASTE SYSTEM
IR = INSTALLATION RESTORATION
MH = MANHOLE
NAS = NAVAL AIR STATION
Ra-226 = RADIUM 226
VCP = VITRIFIED CLAY PIPE

120 0 120 240
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

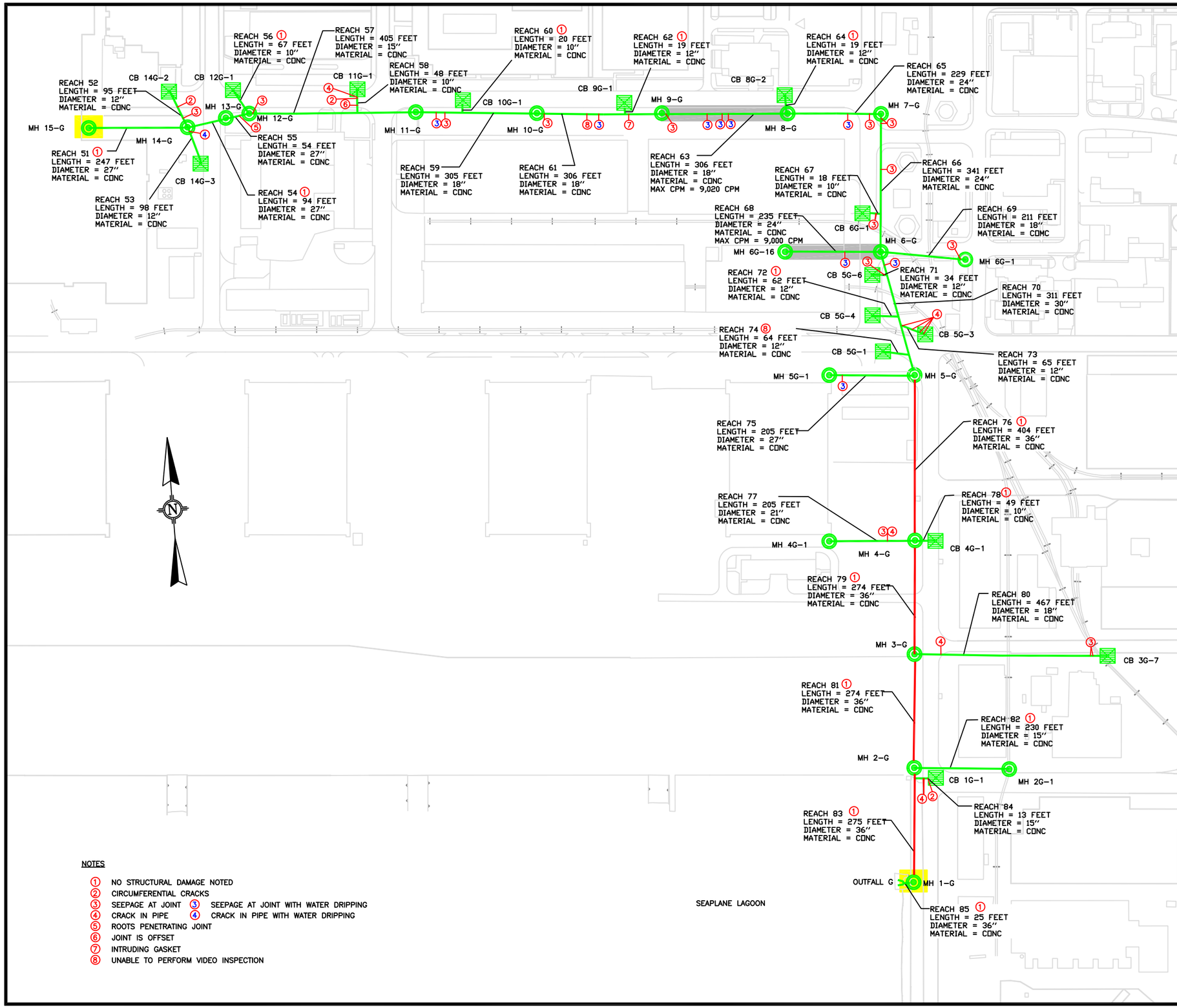
FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

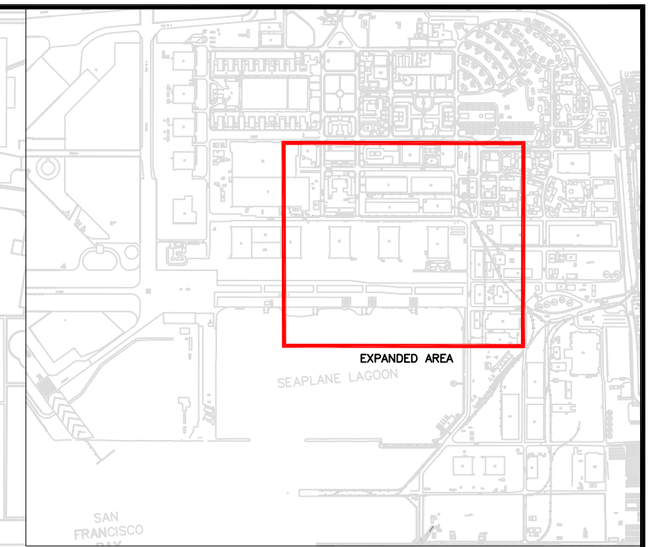
FIGURE 3-1
STORM DRAIN LINES A AND B FINDINGS

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JULY 9, 2013

TETRA TECH EC, INC.





LOCATION MAP

LEGEND

- STORM DRAIN LINE G
- STORM DRAIN LINE G WITH PVC SLEEVE
- STORM DRAIN LINE G MANHOLE
- STORM DRAIN LINE G CATCH BASIN
- Ra-226 GREATER THAN REMEDIAL GOAL PRIOR TO HYDROJETTING
- AT LEAST 1 GAMMA READING WITHIN REACH WAS 9,000 CPM OR GREATER MAXIMUM CPM RESULT INCLUDED IN REACH INFORMATION

ABBREVIATIONS:

CB= CATCH BASIN
CONC= CONCRETE PIPE
CPM = COUNTS PER MINUTE
IR = INSTALLATION RESTORATION
MH = MANHOLE
NAS = NAVAL AIR STATION

120 0 120 240
(FEET)

NOTES

① NO STRUCTURAL DAMAGE NOTED
② CIRCUMFERENTIAL CRACKS
③ SEEPAGE AT JOINT
④ CRACK IN PIPE
⑤ ROOTS PENETRATING JOINT
⑥ JOINT IS OFFSET
⑦ INTRUDING GASKET
⑧ UNABLE TO PERFORM VIDEO INSPECTION
③ SEEPAGE AT JOINT WITH WATER DRIPPING
④ CRACK IN PIPE WITH WATER DRIPPING

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

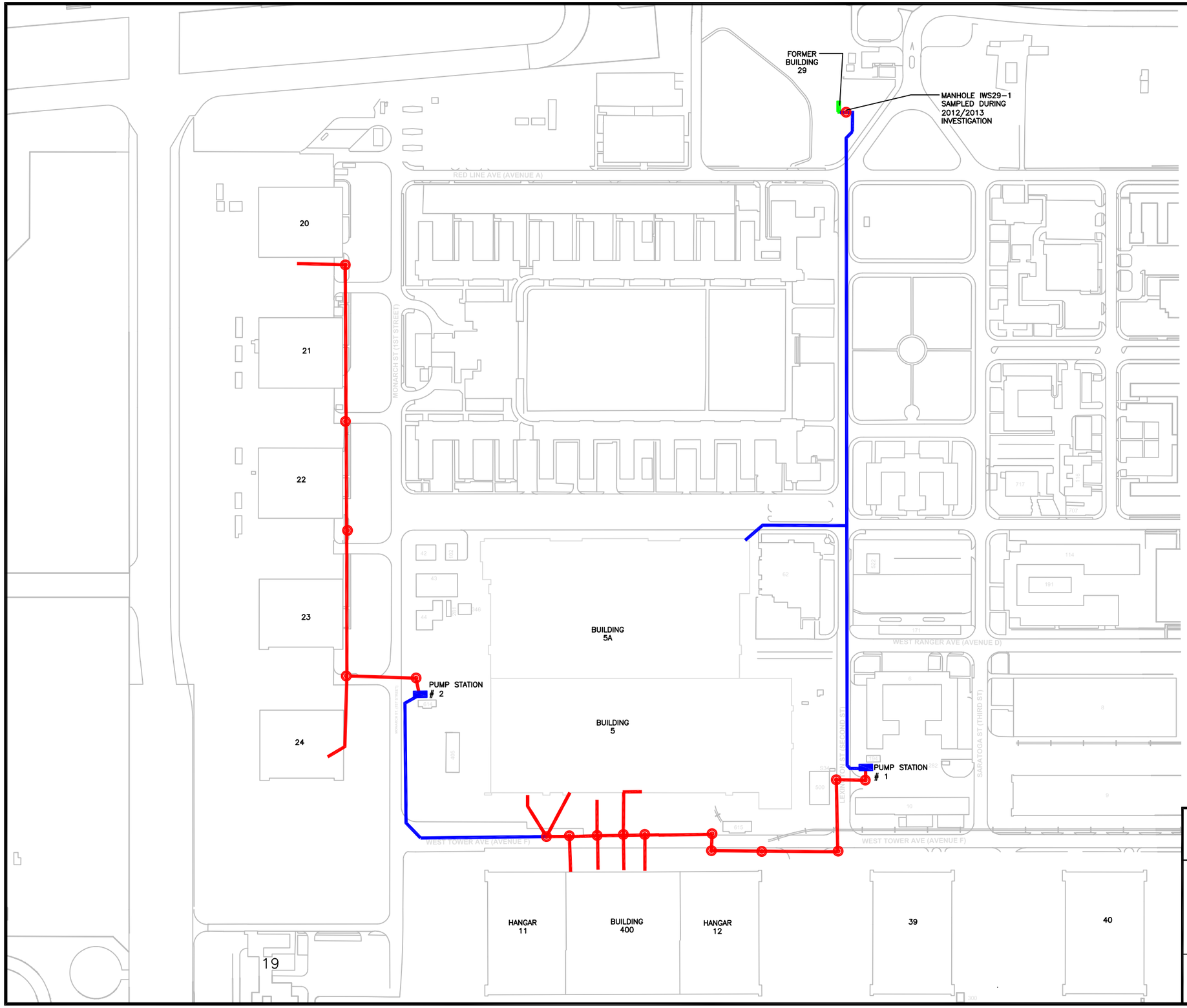
FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

FIGURE 3-2
STORM DRAIN LINE G FINDINGS

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JULY 9, 2013

TETRA TECH EC, INC.



LEGEND

- INDUSTRIAL WASTE LINE (GRAVITY LINE)
- INDUSTRIAL WASTE LINE (FORCE MAIN)
- INDUSTRIAL WASTE LINE PUMP STATION
- INDUSTRIAL WASTE LINE MANHOLE

150 0 150 300
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

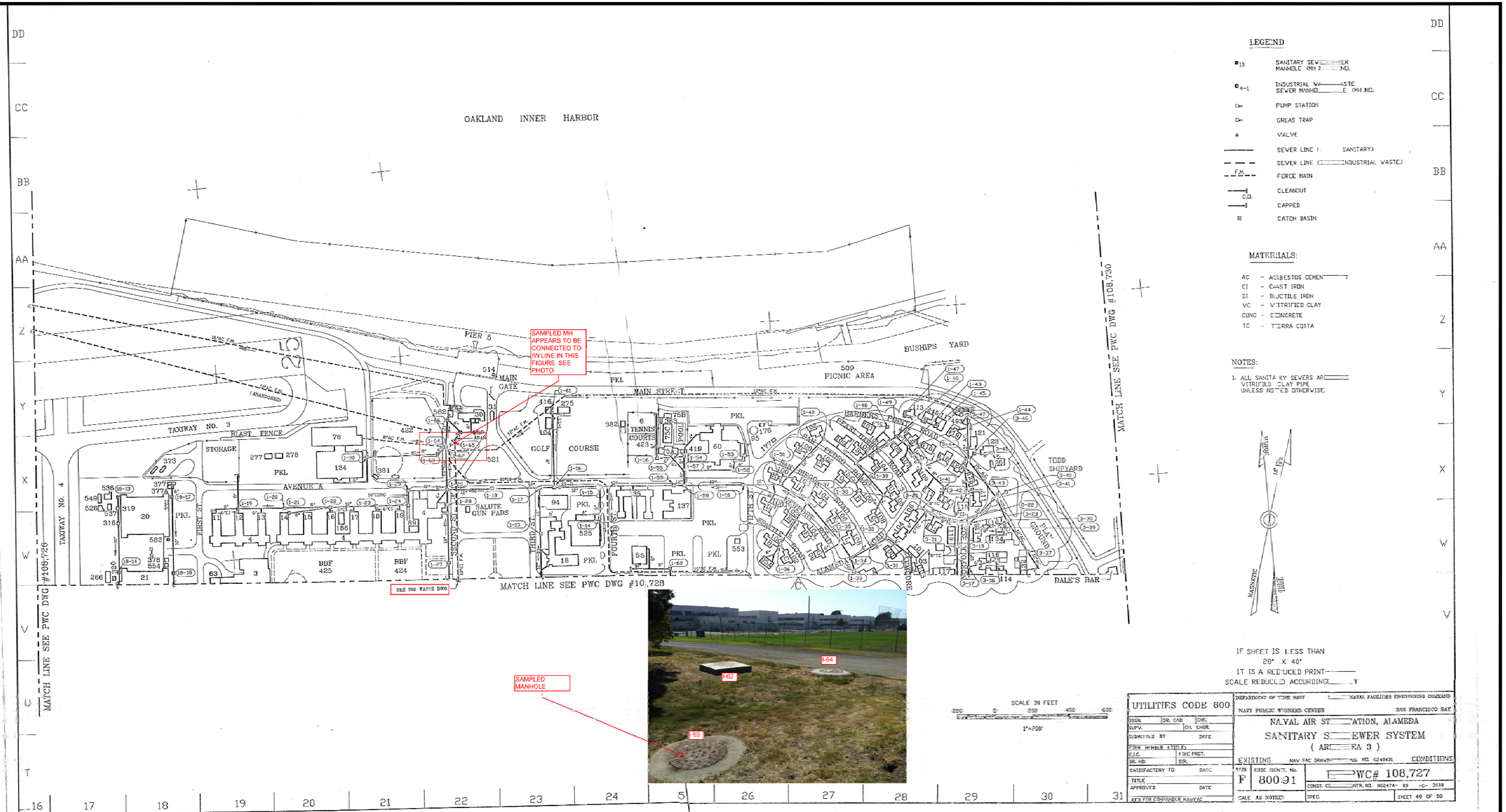
FIGURE 3-3
OPERABLE UNIT 2C INDUSTRIAL WASTE LINE LOCATION MAP

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JULY 9, 2013
FILE NUMBER: FIGURE 3-3.dwg

TETRA TECH EC, INC.

SHEET 1 OF 2



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FIELD SUMMARY REPORT FOR
OPERABLE UNIT 2C DRAIN LINES

FIGURE 3-3
OPERABLE UNIT 2C INDUSTRIAL WASTE LINE LOCATION MAP

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: JULY 9, 2013
FILE NUMBER: FIGURE 3-3.dwg

TETRA TECH EC, INC.

SHEET 2 OF 2

APPENDIX A

VIDEO CAMERA VERIFICATION SURVEY

Including:

- **Storm Drain Lines A, B, and G Pipe Integrity Evaluation**
- **Storm Drain Line A Videos, Reach 01 to 26 (on DVD)**
- **Storm Drain Line B Videos, Reach 27 to 50 (on DVD)**
- **Storm Drain Line G Videos, Reach 51 to 85 (on DVD)**

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STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (ft)	Diameter (in)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
STORM DRAIN LINE A					
1	89	15	MH 10-A	MH 9-A	13.0': seepage at joint/cracked piece from 11:00 to 1:00
2	299	21	MH 9-A	MH 8-A	293.0': seepage at joint/weeping at 12:00
3	56	12	CB 8A-1	Main Line 21"	16.2': seepage at joint, stain from 9:00 to 3:00 21.0': crack at 6:00 at joint 31.3' to ~43.3': longitudinal cracks at 6:00 and 12:00 45.9': cracks from 12:00 to 6:00
4	300	24	MH 8-A	MH 7-A	no damage noted
5	56	12	CB 7A-1	Main Line 24"	no damage noted
6	89	24	MH 7-A	MH 5A-5	no damage noted
7	105	10	MH 5A-6	MH 5A-5	no damage noted
8	238	24	MH 5A-5	MH 6-A	5.0': seepage at joint, dripping from 10:00 to 2:00 157.0': hole/weeping at 9:00
9	30	8	CB 6A	MH 6-A	8.8': circumferential crack from 2:00 to 5:00 near pipe joint 22.7': circumferential cracks from 12:00 to 6:00 23.4': seepage at joint/dripping/crack from 11:00 to 1:00 27.5': multiple cracks
10	76	8	CB 6A-1	MH 6-A	no damage noted
11	144	12	MH 6A-1	MH 6-A	no damage noted
12	150	30	MH 6-A	CB 5A-4	no damage noted
13	191	30	CB 5A-4	MH 5-A	no damage noted
14	31	12	CB 5A-2	Main line 30"	17.5': seepage at joint, stain at 5:00
15	144	12	MH 5A-1	MH 5-A	no damage noted
16	331	30	MH 5-A	MH 4-A	5.0': seepage at joint, dripping from 10:00 to 1:00
17	30	8	CB 4A-3	Main line 30"	13.0': seepage at joint, stain from 9:00 to 5:00
18	104	10	MH 4A-10	Main line 30"	no damage noted
19	24	10	CB 4A-1	MH 4-A	no damage noted
20	303	24	MH 4A-1	MH 4-A	no damage noted
21	207	36	MH 4-A	MH 3-A	6.0': seepage at joint, stain at 12:00

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (ft)	Diameter (in)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
22	148	30	MH 11-A	MH 3-A	5.0': seepage at joint/weeping at 12:00 25.9' to 38.0': longitudinal crack at 7:00 147.5': seepage at joint/weeping at 12:00
23	197	36	MH 3-A	MH 2-A	25.7': seepage at joint/dripping at 3:00
24	403	36	MH 2-A	MH 1-A (covered)	9.5': seepage at joint/dripping at 12:00 23.2': seepage at joint/dripping at 3:00 60.5': seepage at joint/dripping at 2:00 109.8': seepage at joint, dripping at 3:00 136.5': seepage at joint, dripping at 2:00
25	8	10	CB 1A-1	Main line 36"	no damage noted
26	236	36	MH 1-A (covered)	Outfall A	Note: Downstream to upstream 130.0': seepage at joint/dripping at 12:00 67.3' :seepage at joint/dripping at 12:00 37.3': seepage at joint/dripping
STORM DRAIN LINE B					
27	273	18	MH 7-B	MH 6-B	83.5': circumferential crack from 2:00 to 7:00 99.7': circumferential crack from 10:00 to 2:00 128.6': circumferential cracks from 8:00 to 4:00 145.1': cracks from 6:00 to 12:00 197.4': cracks from 12:00 to 4:00 264.1': cracks from 10:00 to 2:00 267.9' : circumferential cracks from 11:00 to 5:00
28	209	12	CB 6B-1	MH 6-B	15.1', 24.0', 27.0', 30.0', 33.0', 36.0', 39.0', 42.0', 48.0', 51.0', 54.0', and 57.0': tree root in joints/seepage at joint
29	88	21	MH 8-B	MH 6-B	17.1': cracks from 8:00 to 4:00 20.2': longitudinal crack at 12:00 23.5': crack at joint/seepage at joint/seeping 35.3': cracks at 9:00 to 3:00 44.4': longitudinal crack at 10:00 59.1': longitudinal crack at 2:00 65.4': circumferential cracks from 9:00 to 3:00 77.0': crack/sealing damage at 3:00
30	315	24	MH 6-B	MH 5-B	5.0': seepage at joint/dripping 19.3': seepage at joint/dripping

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (ft)	Diameter (in)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
31	58	12	CB 5B-2	Main Line 24"	6.3': pipe change PVC to RCP/longitudinal crack at joint at 5:00/intruding seal from 12:00 to 3:00 14.1' longitudinal crack at 6:00 20.6': cracks at joint from 7:00 to 4:00 23.1: longitudinal crack at 5:00 36.3': cracks at joint at 5:00 42.4': longitudinal crack at joint at 6:00 51.7': crack on either side of joint at 5:00 57.7': longitudinal crack at 12:00
32	121	10	MH 5B-1	Main Line 24"	inaccessible
33	62	10	CB 5B-1	MH 5-B	11.7 ': roots in joint from 8:00 to 1:00 58.6': impassable/abandoned survey
34	310	27	MH 5B	MH 4-B	141.9': seepage at joint/weeping 163.7' :seepage at joint/weeping from 10:00 to 2:00 305.0': seepage at joint/weeping
35	25	12	CB 4B-1	Main Line 27"	15.2': roots in joint at 9:00 to 6:00
36	100	18	MH 4B-1	MH 4-B	13.9': intruding seal at 9:00 31.9': roots in joint 10:00 to 7:00/seepage at joint stain 62.4': seal intruding 92.8': circumferential crack from 9:00 to 5:00 95.2': broken pipe at 6:00/piece missing with associated cracks
37	384	30	MH 4-B	MH 3-B	14.7': seepage at joint stain at 12:00 114.8': tap break in at 10:00 plugged with debris 139.9': seepage at joint/seeping at 10:00 to 2:00 162.1': seepage at joint/weeping at 9:00 226.9': seepage at joint/weeping at 10:00 to 2:00 244.2': seepage at joint/dripping from 9:00 to 3:00
38	23	8	CB 4B-2	Main Line 30"	inaccessible
39	102	18	MH 3-B1	MH 3-B	12.5': roots in joint at 10:00 to 3:00 45.8': roots in joint at 10:00 to 1:00 94.4': crack from 2:00 to 6:00/broken pieces
40	309	36	MH 3-B	MH 2-B	no damage noted

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (ft)	Diameter (in)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
41	24	10	CB 2B-6	Main Line 36"	1.0': joint offset and cracking from 12:00 to 12:00 5.8': multiple cracks from 12:00 to 12:00 12.0' : cracks from 5:00 to 6:00 18.1': fracture at 6:00 21.2' : multiple longitudinal cracks from 9:00 to 3:00
42	215	24	MH 2B-1	MH 2-B	no damage noted
43	25	10	CB 2B-2	MH 2-B	Note: Downstream to upstream 5.0': multiple cracks from 7:00 to 1:00 8.3': longitudinal crack at 1:00 9.3': longitudinal crack at 7:00 12.1': cracks from 12:00 to 6:00 19.3': hole in sidewall from 2:00 to 3:00 22.0': longitudinal crack at 7:00
44	101	10	CB 2B-1	MH 2-B	inaccessible
45	358	36	MH 2-B	MH 1-B	no damage noted
46	19	12	CB 1B-1	MH 1-B	inaccessible
47	224	15	CB 1B-2	MH 1-B	no damage noted
48	355	36	MH 1-B	Control Box	273.4': hole in pipe wall
49	52	8	CB 1B-3	Main line 36"	inaccessible
50	46	36	Control Box	Outfall B	Note: Downstream to upstream 12.3': seepage at joint/running water at 3:00 22.0': seepage at joint/dripping from 10:00 to 2:00
STORM DRAIN LINE G					
51	247	27	MH 15-G	MH 14-G	no damage noted
52	95	12	CB 14G-2	MH 14-G	44.9': circumferential cracks from 2:00 to 6:00 74.6': seepage at joint/seepage at joint at 3:00
53	98	12	CB 14G-3	MH 14-G	79.5': crack at 4:00/seepage at joint/dripping
54	94	27	MH-14-G	MH 13-G	no damage noted
55	54	27	MH-13-G	MH 12-G	36.9': roots in joint 9:00 to 4:00
56	67	10	CB 12G-1	MH 12-G	36.0': change to PVC liner, no damage noted
57	405	15	MH 12-G	MH 11-G	2.1': seepage at joint/weeping at 5:00

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (ft)	Diameter (in)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
58	48	10	CB 11G-1	Main Line 15"	19.0': cracks 11:00 to 2:00/pieces broken 2:00 to 4:00 21.7': circumferential crack from 9:00 to 6:00/intruding seal 7:00 to 6:00 39.9': joint offset
59	305	18	MH 11-G	MH 10-G	50.2': seepage at joint/dripping at 12:00 70.3': seepage at joint, stain at 8:00 to 10:00
60	20	10	CB 10G-1	Main Line 18"	PVC sleeve 8.4': change to concrete, no damage noted
61	306	18	MH 10-G	MH 9-G	18.9': seepage at joint stain 122.5': intruding seal from 5:00 to 6:00 151.5': seepage at joint/dripping at 11:00 225.1': intruding seal
62	19	12	CB 9G-1	Main Line 18"	no damage noted
63	306	18	MH 9-G	MH 8-G	3.5': seepage at joint stain 108.9': seepage at joint/dripping at 12:00 147.7': seepage at joint/dripping at 12:00 162.6': seepage at joint/dripping at 12:00
64	19	12	CB 8G-2	MH 8-G	6.7': survey abandoned, no damage noted
65	229	24	MH 8-G	MH 7-G	147': seepage at joint/dripping at 12:00 200.5': infiltration/weeping from 11:00 to 1:00
66	341	24	MH 7-G	MH 6-G	0.1': seepage at joint, stain from 8:00 to 4:00 11.4': seepage at joint/weeping at 3:00 135.7': seepage at joint/weeping from 11:00 to 9:00
67	18	10	CB 6G-1	Main Line 24"	12.9': seepage at joint/weeping at 12:00 15.7': infiltration/weeping at 12:00
68	235	24	MH 6G-16	MH 6-G	146.2': seepage at joint/dripping from 9:00 to 3:00
69	211	18	MH 6-G1	MH 6-G	Note: reverse run 4.0': seepage at joint/weeping at 12:00
70	311	30	MH 6-G	MH 5-G	33.9': seepage at joint/dripping from 10:00 to 2:00
71	34	12	CB 5G-6	Main Line 30"	32.9': seepage at joint/dripping at 12:00
72	62	12	CB 5G-4	Main Line 30"	56.9': abandoned survey, no damage noted

STORM DRAIN LINES A, B, AND G PIPE INTEGRITY PER VIDEO INSPECTION

Reach ID	Length (ft)	Diameter (in)	Upstream Manhole	Downstream Manhole	Visible Damage/Comments
73	65	12	CB 5G-3	Main Line 30"	5.0' to 6.5': multiple longitudinal cracks 14.1': longitudinal crack at 9:00 34.6': multiple longitudinal cracks ~60': crack at 3:00
74	64	12	CB 5G-1	Main Line 30"	abandoned survey at 3.0'
75	205	27	MH 5G-1	MH 5-G	29.7': seepage at joint/dripping from 10:00 to 3:00
76	404	36	MH 5-G	MH 4-G	no damage noted
77	205	21	MH 4G-1	MH 4-G	142.7': crack at 3:00/seepage at joint/weeping
78	49	10	CB 4G-1	MH 4-G	no damage noted
79	274	36	MH 4-G	MH 3-G	no damage noted
80	467	18	CB 3G-7	MH 3-G	36.1': seepage at joint at 9:00 42.1': seepage at joint/weeping 357.7': seepage at joint/weeping from 9:00 to 3:00 408.7' to 412': multiple longitudinal cracks from 7:00 to 4:00
81	274	36	MH 3-G	MH 2-G	no damage noted
82	230	15	MH 2G-1	MH 2-G	no damage noted
83	275	36	MH 2-G	MH 1-G	no damage noted
84	13	15	CB 1G-1	Main Line 36"	2.5': circumferential cracking from 12:00 to 12:00/broken pieces 11:00 to 1:00 2.6' to 7.5': multiple cracks/broken pieces, inaccessible beyond 7.5'
85	25	36	MH 1-G	Outfall G	no damage noted

APPENDIX B

SEDIMENT AND BACKGROUND VTA DATA PLOTS AND SEDIMENT RADIOLOGICAL ANALYTICAL RESULTS (on CD only)

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Curtis & Tompkins Hunters Point Lab

Sample ID: 05-IWS29-1-01
Sample Description: 242479-001, 194706

Detector: HPGE06 51-TP32744A
Contract: Tetra Tech Alameda
Unit Number: IWS29-1
Sample Time: 1/14/2013 13:10
Acquisition Time: 1/21/2013 13:04:16
Analysis Time: 1/23/2013 12:37
Analysis Quantity: 3.180E+02 g

Spectrum ID: 6_20130121_007
Sample Type: SAMPLE
Matrix: S
Live Time: 5400 sec
Real Time: 5408 sec
Dead Time: 0.16 %

Efficiency: HPGE06 S21306 6_20121231003_EffCal
Efficiency Cal Date: 12/31/2012 16:37
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		2.565E-01	35.08	8.996E-02	9.162E-02	5.859E-02
Am-241	#AB	0.000E+00	2000.00	1.367E-01	1.367E-01	1.553E-01
Bi-212	#	1.623E-01	95.91	1.557E-01	1.561E-01	1.157E-01
Bi-214		1.051E+00	10.00	1.050E-01	1.264E-01	3.543E-02
Co-60	#AB	1.334E-03	744.30	9.928E-03	9.929E-03	1.657E-02
Cs-137	#AB	9.957E-03	204.00	2.031E-02	2.033E-02	1.598E-02
Eu-152	#AB	0.000E+00	2000.00	1.273E-02	1.273E-02	5.349E-02
Eu-154	#AB	2.299E-02	305.60	7.024E-02	7.025E-02	5.598E-02
K-40		1.565E+01	5.78	9.041E-01	1.420E+00	1.851E-01
Pa-234	#AB	0.000E+00	2000.00	3.067E-02	3.067E-02	9.108E-02
Pb-212		4.065E-01	14.91	6.060E-02	6.786E-02	2.861E-02
Pb-214		1.131E+00	9.13	1.032E-01	1.289E-01	3.727E-02
Ra-226		1.600E+00	30.29	4.846E-01	4.994E-01	3.407E-01
Th-234	#	8.695E-01	52.44	4.559E-01	4.625E-01	2.676E-01
Tl-208	#	1.984E-01	18.20	3.610E-02	3.844E-02	1.213E-02
U-235		3.654E-02	95.61	3.494E-02	3.505E-02	2.761E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 2.139E+01

Analyst: Chanthachone Alexander

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-IWS29-1-02
Sample Description: 242479-002, 194706

Detector: HPGE03 51-TP42227A
Contract: Tetra Tech Alameda
Unit Number: IWS29-1
Sample Time: 1/14/2013 13:20
Acquisition Time: 1/21/2013 13:14:43
Analysis Time: 1/23/2013 13:18
Analysis Quantity: 3.290E+02 g

Spectrum ID: 3_20130121_009
Sample Type: SAMPLE
Matrix: S
Live Time: 5400 sec
Real Time: 5408 sec
Dead Time: 0.14 %

Efficiency: HPGE03 S21306 3_20130101001_EffCal
Efficiency Cal Date: 1/2/2013 10:45
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		2.917E-01	31.14	9.082E-02	9.293E-02	5.998E-02
Am-241	#AB	5.596E-02	229.70	1.285E-01	1.286E-01	1.037E-01
Bi-212	#	1.523E-01	97.52	1.485E-01	1.488E-01	1.112E-01
Bi-214		8.893E-01	10.58	9.413E-02	1.113E-01	3.297E-02
Co-60	#AB	-8.976E-03	799.60	7.176E-02	7.177E-02	2.157E-02
Cs-137	#AB	-1.250E-03	1340.00	1.675E-02	1.675E-02	1.370E-02
Eu-152	#AB	-2.366E-02	234.80	5.554E-02	5.557E-02	4.457E-02
Eu-154	#AB	-2.108E-02	326.10	6.875E-02	6.877E-02	5.501E-02
K-40		1.672E+01	5.84	9.755E-01	1.524E+00	2.342E-01
Pa-234	#AB	1.214E-02	835.20	1.014E-01	1.014E-01	8.240E-02
Pb-212		4.497E-01	12.51	5.627E-02	6.564E-02	2.431E-02
Pb-214		9.666E-01	9.26	8.949E-02	1.111E-01	3.268E-02
Ra-226		1.443E+00	29.55	4.266E-01	4.403E-01	2.966E-01
Th-234	#	3.551E-01	109.10	3.873E-01	3.886E-01	3.081E-01
Tl-208		1.199E-01	20.91	2.507E-02	2.631E-02	1.172E-02
U-235	AB	1.555E-02	207.40	3.224E-02	3.226E-02	2.608E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 2.147E+01

Analyst: Chanthachone Alexander

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-IWS29-1-03
Sample Description: 242479-003, 194706

Detector: HPGE04 51-TP32733A
Contract: Tetra Tech Alameda
Unit Number: IWS29-1
Sample Time: 1/14/2013 13:30
Acquisition Time: 1/21/2013 13:17:55
Analysis Time: 1/23/2013 13:36
Analysis Quantity: 2.770E+02 g

Spectrum ID: 4_20130121_008
Sample Type: SAMPLE
Matrix: S
Live Time: 5400 sec
Real Time: 5436 sec
Dead Time: 0.66 %

Efficiency: HPGE04 S21306 4_20130101001_EffCal
Efficiency Cal Date: 1/1/2013 15:40
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228	#	4.769E-01	21.09	1.006E-01	1.056E-01	3.354E-02
Am-241	#AB	-3.554E-02	459.40	1.633E-01	1.633E-01	1.333E-01
Bi-212	#	1.373E-01	119.30	1.638E-01	1.641E-01	1.241E-01
Bi-214		1.107E+00	10.31	1.141E-01	1.360E-01	3.931E-02
Co-60	#AB	1.820E-03	492.40	8.960E-03	8.961E-03	2.211E-02
Cs-137	#	2.636E-02	86.39	2.278E-02	2.285E-02	1.677E-02
Eu-152	#AB	1.254E-02	456.30	5.723E-02	5.723E-02	4.642E-02
Eu-154	#AB	-4.348E-02	196.50	8.543E-02	8.548E-02	6.713E-02
K-40		1.293E+01	6.70	8.664E-01	1.253E+00	1.909E-01
Pa-234	#AB	7.503E-04	16120.00	1.210E-01	1.210E-01	9.957E-02
Pb-212		4.017E-01	16.91	6.793E-02	7.433E-02	3.270E-02
Pb-214		1.242E+00	8.36	1.038E-01	1.340E-01	3.566E-02
Ra-226		1.613E+00	33.61	5.421E-01	5.556E-01	3.908E-01
Th-234	#	8.090E-01	51.76	4.187E-01	4.250E-01	3.171E-01
Tl-208		1.667E-01	22.92	3.821E-02	3.979E-02	1.485E-02
U-235		5.900E-02	64.26	3.791E-02	3.817E-02	2.935E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.898E+01

Analyst: Chanthachone Alexander

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-IWS29-1-04
Sample Description: 242479-004, 194706

Detector: HPGE08 50-TP42229A
Contract: Tetra Tech Alameda
Unit Number: IWS29-1
Sample Time: 1/14/2013 13:40
Acquisition Time: 1/21/2013 12:05:42
Analysis Time: 1/23/2013 12:28
Analysis Quantity: 3.510E+02 g

Spectrum ID: 8_20130121_005
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2703 sec
Dead Time: 0.13 %

Efficiency: HPGE08 S21306 8_20121228002_EffCal
Efficiency Cal Date: 12/30/2012 10:35
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		1.622E-01	55.64	9.027E-02	9.093E-02	5.383E-02
Am-241	#AB	-1.587E-02	1244.00	1.974E-01	1.974E-01	1.613E-01
Bi-212	#AB	1.285E-01	158.20	2.033E-01	2.035E-01	1.539E-01
Bi-214		5.500E-01	17.11	9.407E-02	1.010E-01	3.311E-02
Co-60	#AB	-1.685E-04	14680.00	2.474E-02	2.474E-02	2.036E-02
Cs-137	#AB	0.000E+00	2000.00	1.228E-02	1.228E-02	2.182E-02
Eu-152	#AB	2.534E-02	192.00	4.865E-02	4.868E-02	3.714E-02
Eu-154	#AB	4.656E-03	1700.00	7.916E-02	7.916E-02	6.461E-02
K-40		1.041E+01	10.26	1.069E+00	1.294E+00	2.835E-01
Pa-234	#AB	0.000E+00	2000.00	3.197E-02	3.197E-02	1.824E-01
Pb-212		2.587E-01	20.94	5.418E-02	5.757E-02	2.516E-02
Pb-214		6.903E-01	13.45	9.284E-02	1.041E-01	2.683E-02
Ra-226		7.514E-01	76.26	5.731E-01	5.759E-01	4.313E-01
Th-234	#	8.190E-01	55.74	4.565E-01	4.624E-01	3.238E-01
Tl-208		1.244E-01	25.54	3.179E-02	3.285E-02	1.141E-02
U-235		6.369E-02	55.84	3.557E-02	3.589E-02	2.551E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.399E+01

Analyst: Isaako Tapelu

TETRA TECH EC, INC.
1230 Columbia St, Suite 750
San Diego, CA 92101

Chain-of-Custody Record

NUMBER: LAB 02638

ENTERED

Project Name: Alameda	PO Number: 1036773-14
Project Location: CTO5	Project Number: 40440005
Sampler Name: Various	Airbill Number:
Project Chemist: SABINA SUDOKO	Project Chemist Phone: 949-756-7545

LABORATORY NAME: TESTAMERICA - ST. LOUIS

LABORATORY ID: F3B040412

Project Information Section

3-4

SAMPLE_ID	DATE	TIME	Containers	LEVEL	TYPE	TAT	EPA 901.1 MOD (GAMMA SPEC)	EPA 905.0 MOD (TOTAL SR)	DOE SR-03-RC MOD (SR 90)	DOE A-01-R MOD (ISO Pu)	DOE A-01-R MOD (ISO Ur)	DOE A-01-R MOD (ISO Th)	OTHER (See Comments)	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
05-IWS29-1-01	1/14/2013	1310	1	4	S	21 d	☑	☐	☐	☐	☐	☐	☐	Sealed 1/18/13	IWS29-1	NA	NA	N
05-IWS29-1-02	1/14/2013	1320	1	4	S	21 d	☑	☐	☐	☐	☐	☐	☐	Sealed 1/18/13	IWS29-1	NA	NA	N
05-IWS29-1-03	1/14/2013	1330	1	4	S	21 d	☑	☐	☐	☐	☐	☐	☐	Sealed 1/18/13	IWS29-1	NA	NA	N
05-IWS29-1-04	1/14/2013	1340	1	4	S	21 d	☑	☐	☐	☐	☐	☐	☐	Sealed 1/18/13	IWS29-1	NA	NA	N

Relinquished by: (signature)	*Date* 1/29/13	*Received by: (signature)*
Company CET	*Time*	*Company*
Relinquished by: (signature)	*Date*	*Received by: (signature)*
Company	*Time*	*Company*
Relinquished by: (signature)	*Date*	*Received by: (signature)*
Company	*Time*	*Company*

LABORATORY INSTRUCTIONS/COMMENTS

Include Pu238, Pu239, and Pu240
Include Th228, Th230, and Th232
Include U233, U235, and U238
If total Sr exceeds 0.331 pCi/g, then run Sr-90 by DOE SR-03-RC MOD

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)

TEMPERATURE: SAMPLE CONDITION: COOLER SEAL:

SAMPLING COMMENTS

Date Shipped: 1/29/2013

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 40440005

Alameda CTO5

Lot #: F3B040412

Sabina Sudoko

Tetra Tech EC Inc
17885 Von Karman Ave
Ste 500
Irvine, CA 92614

TESTAMERICA LABORATORIES, INC.

Erika Starman
Project Manager

March 4, 2013

13715 Rider Trail North Earth City, MO 63045 **tel** 314.298.8566 **fax** 314.298.8757 **www.testamericainc.com**

Case Narrative
LOT NUMBER: F3B040412

This report contains the analytical results for the four samples received under chain of custody by TestAmerica St. Louis on February 4, 2013. These samples are associated with your Alameda CTO5 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

This report shall not be reproduced, except in full, without the written approval of the laboratory.

RPD and RER results that are outside QC limits for non-detected analytes are statistically invalid. Non-detect results were duplicated, and the RPD/RER can be ignored.

Sample receiving issues are noted on the CUR form and written communications pertaining to these issues are included in the CoC section of the report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. Ra-226 analysis by gamma spectroscopy is performed on an as-received basis unless sample containers were received cracked or broken. Analysis parameters for cracked or broken samples will be listed in the narrative.

Ra-226 results analyzed by method EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on samples in this data set. Specific methods employed are documented on the batch extraction logs.

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

Gamma Spectroscopy - Radium-226 & ODRs (EPA 901.1 MOD)

Radium-226 is reported in these samples from the 609 keV line of Bismuth-214. The samples have not gone through the routine sample preparation process of drying and grinding the sample prior to filling the container. The samples are counted as received from the client in a tuna can.

Affected Samples:
F3B040412 (1): 05-IWS29-1-01
F3B040412 (2): 05-IWS29-1-02
F3B040412 (3): 05-IWS29-1-03
F3B040412 (4): 05-IWS29-1-04

There were no other nonconformances or observations noted with any analysis on this lot.

METHODS SUMMARY

F3B040412

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Gamma Spectroscopy - Ra-226 & Hits	EPA 901.1 MOD	

References:

EPA "EASTERN ENVIRONMENTAL RADIATION FACILITY RADIOCHEMISTRY PROCEDURES MANUAL" US EPA EPA 520/5-84-006 AUGUST 1984

SAMPLE SUMMARY

F3B040412

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MX2VM	001	05-IWS29-1-01	01/14/13	13:10
MX2VN	002	05-IWS29-1-02	01/14/13	13:20
MX2VP	003	05-IWS29-1-03	01/14/13	13:30
MX2VQ	004	05-IWS29-1-04	01/14/13	13:40

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Tetra Tech EC Inc

Client Sample ID: 05-IWS29-1-01

Radiochemistry

Lab Sample ID: F3B040412-001
Work Order: MX2VM
Matrix: SOLID

Date Collected: 01/14/13 1310
Date Received: 02/04/13 1300

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDL	Count Time	Prep Date	Analysis Date
Gamma Ra-226 & hits by EPA 901.1 MOD				pCi/g		Batch # 3042033		Yld %
Cesium 137	-0.0198	U	0.253	0.0700	0.0573	30	01/18/13	02/18/13
Radium (226)	**1.64**		**0.321**	0.700	**0.0788**	30	**01/18/13**	**02/18/13**

NOTE(S)

Data are incomplete without the case narrative.
Bold results are greater than the MDL.

U Result is less than the sample detection limit.

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Tetra Tech EC Inc

Client Sample ID: 05-IWS29-1-01 DUP

Radiochemistry

Lab Sample ID: F3B040412-001X
Work Order: MX2VM
Matrix: SOLID

Date Collected: 01/14/13 1310
Date Received: 02/04/13 1300

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDL	Count Time	Prep Date	Analysis Date
Gamma Ra-226 & hits by EPA 901.1 MOD				**pCi/g**		**Batch # 3042033**		**Yld %**
Cesium 137	-0.00850	U	0.0897	0.0700	0.0626	30	01/18/13	02/18/13
Radium (226)	**1.39**		**0.281**	0.700	**0.0563**	30	**01/18/13**	**02/18/13**

NOTE(S)

Data are incomplete without the case narrative.
Bold results are greater than the MDL.

U Result is less than the sample detection limit.

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Tetra Tech EC Inc

Client Sample ID: 05-IWS29-1-02

Radiochemistry

Lab Sample ID: F3B040412-002
Work Order: MX2VN
Matrix: SOLID

Date Collected: 01/14/13 1320
Date Received: 02/04/13 1300

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDL	Count Time	Prep Date	Analysis Date
Gamma Ra-226 & hits by EPA 901.1 MOD				**pCi/g**		**Batch # 3042033**		**Yld %**
Cesium 137	0.000902	U	0.0459	0.0700	0.0377	30	01/18/13	02/18/13
Radium (226)	**1.13**		**0.214**	0.700	**0.0398**	30	**01/18/13**	**02/18/13**

NOTE(S)

Data are incomplete without the case narrative.
Bold results are greater than the MDL.

U Result is less than the sample detection limit.

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Tetra Tech EC Inc

Client Sample ID: 05-IWS29-1-03

Radiochemistry

Lab Sample ID: F3B040412-003
Work Order: MX2VP
Matrix: SOLID

Date Collected: 01/14/13 1330
Date Received: 02/04/13 1300

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDL	Count Time	Prep Date	Analysis Date
Gamma Ra-226 & hits by EPA 901.1 MOD				pCi/g		Batch # 3042033		Yld %
Cesium 137	0.0324	U	0.0671	0.0700	0.0597	30	01/18/13	02/18/13
Radium (226)	**1.64**		**0.320**	0.700	**0.0669**	30	**01/18/13**	**02/18/13**

NOTE(S)

Data are incomplete without the case narrative.
Bold results are greater than the MDL.

U Result is less than the sample detection limit.

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Tetra Tech EC Inc

Client Sample ID: 05-IWS29-1-04

Radiochemistry

Lab Sample ID: F3B040412-004
Work Order: MX2VQ
Matrix: SOLID

Date Collected: 01/14/13 1340
Date Received: 02/04/13 1300

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDL	Count Time	Prep Date	Analysis Date
Gamma Ra-226 & hits by EPA 901.1 MOD				pCi/g		Batch # 3042033		Yld %
Cesium 137	0.0	U	0.0230	0.0700	0.0654	30	01/18/13	02/18/13
Radium (226)	**1.17**		**0.246**	0.700	**0.0744**	30	**01/18/13**	**02/18/13**

NOTE(S)

Data are incomplete without the case narrative.
Bold results are greater than the MDL.

U Result is less than the sample detection limit.

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

METHOD BLANK REPORT

Radiochemistry

Client Lot ID: F3B040412
Matrix: SOLID

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDL	Count Time	Prep Date	Lab Sample ID Analysis Date
Gamma Ra-226 & hits by EPA 901.1 MOD			**pCi/g**	**Batch # 3042033**		**Yld %**		**F3B110000-033B**
Cesium 137	0.0147	U	0.0593	0.0700	0.0523	30	01/18/13	02/18/13
Radium (226)	-0.0184	U	0.143	0.700	0.0938	30	01/18/13	02/18/13

NOTE(S)

Data are incomplete without the case narrative.
Bold results are greater than the MDL

U Result is less than the sample detection limit.

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Laboratory Control Sample Report

Radiochemistry

Client Lot ID: F3B040412
Matrix: SOLID

Parameter	Spike Amount	Result	Total Uncert. (2 σ+/-)	MDL	% Yld	% Rec	Lab Sample ID QC Control Limits
Gamma Ra-226 & hits by EPA 901.1 MOD		**pCi/g**		**901.1 MOD**			**F3B110000-033C**
Radium (226)	12.2	10.9	1.41	0.199		89.2	(70.0 - 130)
Thorium 232	9.50	9.53	1.39	0.317		100	(70.0 - 130)
	Batch #:	3042033		**Analysis Date:**	02/26/13		

NOTE(S)

Calculations are performed before rounding to avoid round-off error in calculated results

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

DUPLICATE EVALUATION REPORT

Radiochemistry

Client Lot ID: F3B040412
Matrix: SOLID

Date Sampled: 01/14/13
Date Received: 02/04/13

Parameter	SAMPLE Result		Total Uncert. (2σ+/-)	% Yld	DUPLICATE Result		Total Uncert. (2 σ+/-)	% Yld	QC Sample ID Precision	
Gamma Ra-226 & hits by EPA 901.1 MOD				**pCi/g**	**901.1 MOD**				**F3B040412-001**	
Cesium 137	-0.0198	U	0.253		-0.00850	U	0.0897		79.9	%RPD
Radium (226)	**1.64**		**0.321**		**1.39**		**0.281**		16.7	%RPD
		Batch #:	3042033	(Sample)	3042033	(Duplicate)				

NOTE(S)

Data are incomplete without the case narrative.
Calculations are performed before rounding to avoid round-off error in calculated results

U Result is less than the sample detection limit.

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F3B040412

CLIENT ANALYSIS SUMMARY

Storage Loc: RAD

Date Received: 2013-02-04

Analytical Due Date: 2013-03-01

Report Due Date: 2013-03-04

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440010 Alameda CTO5

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc #SMPS in LOT: 4

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS; 5 calendar day TAT (requirements below)
***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 110 for ALL waters if TAR above 2.5 (log for Ra226)
if TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L
PCBs: waters/soils must be extracted within 7/14 days per client SAP (regardless of EPA method).

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	05-IWS29-1-01			2013-01-14 / 1310	MX2VM	SOLID

SAMPLE COMMENTS:

XX	11	EPA	901.1 MOD	SOLID,901.1 MOD,Gamma Ra-226&ODRs asrcd	ML	As Received, Fill Geometry 21 day in-growth	2X	SPECIAL PROJECTS	PROT: B	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
2	05-IWS29-1-02			2013-01-14 / 1320	MX2VN	SOLID

SAMPLE COMMENTS:

XX	11	EPA	901.1 MOD	SOLID,901.1 MOD,Gamma Ra-226&ODRs asrcd	ML	As Received, Fill Geometry 21 day in-growth	2X	SPECIAL PROJECTS	PROT: B	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
3	05-IWS29-1-03			2013-01-14 / 1330	MX2VP	SOLID

SAMPLE COMMENTS:

XX	11	EPA	901.1 MOD	SOLID,901.1 MOD,Gamma Ra-226&ODRs asrcd	ML	As Received, Fill Geometry 21 day in-growth	2X	SPECIAL PROJECTS	PROT: B	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
4	05-IWS29-1-04			2013-01-14 / 1340	MX2VQ	SOLID

SAMPLE COMMENTS:

XX	11	EPA	901.1 MOD	SOLID,901.1 MOD,Gamma Ra-226&ODRs asrcd	ML	As Received, Fill Geometry 21 day in-growth	2X	SPECIAL PROJECTS	PROT: B	WRK LOC	06

TETRA TECH EC, INC.
1230 Columbia St, Suite 750
San Diego, CA 92101

Chain-of-Custody Record

CUR 111

NUMBER: LAB 02638

F3B040412

Project Name: Alameda	PO Number: 1036773-14
Project Location: CTO5	Project Number: 40440005
Sampler Name: Various	Airbill Number:
Project Chemist: SABINA SUDOKO	Project Chemist Phone: 949-756-7545

LABORATORY NAME: TESTAMERICA - ST. LOUIS

LABORATORY ID:

Project Information Section

SAMPLE_ID	DATE	TIME	Containers	LEVEL	TYPE	TAT	EPA 901.1 MOD (GAMMA SPEC)	EPA 905.0 MOD (TOTAL SR)	DOE SR-03-RC MOD (SR 90)	DOE A-01-R MOD (ISO Pu)	DOE A-01-R MOD (ISO Ur)	DOE A-01-R MOD (ISO Th)	OTHER (See Comments)	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
05-IWS29-1-01	1/14/2013	1310	1	4	S	21 d	☑	☐	☐	☐	☐	☐	☐	Sealed 1/18/13	IWS29-1	NA	NA	N
05-IWS29-1-02	1/14/2013	1320	1	4	S	21 d	☑	☐	☐	☐	☐	☐	☐	Sealed 1/18/13	IWS29-1	NA	NA	N
05-IWS29-1-03	1/14/2013	1330	1	4	S	21 d	☑	☐	☐	☐	☐	☐	☐	Sealed 1/18/13	IWS29-1	NA	NA	N
05-IWS29-1-04	1/14/2013	1340	1	4	S	21 d	☑	☐	☐	☐	☐	☐	☐	Sealed 1/18/13	IWS29-1	NA	NA	N

Relinquished by: (signature)	Date 1/29/13	Received by: (signature)
Company CET	Time	Company
Relinquished by: (signature)	Date 2-4-13	Received by: (signature)
Company	Time 1300	Company TA STL
Relinquished by: (signature)	Date	Received by: (signature)
Company	Time	Company

LABORATORY INSTRUCTIONS/COMMENTS

Include Pu238, Pu239, and Pu240
Include Th228, Th230, and Th232
Include U233, U235, and U238
If total Sr exceeds 0.331 pCi/g, then run Sr-90 by DOE SR-03-RC MOD

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)

TEMPERATURE: SAMPLE CONDITION: COOLER SEAL:

SAMPLING COMMENTS

Date Shipped: 1/29/2013

TestAmerica St. Louis

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CUR Form #: 1 1 1

Lot #(s): F3B040409 411 412

CONDITION UPON RECEIPT FORM

Client: Tetra Tech

Quote No: 91149 ; ~~88996~~ 90622 9.24.13

COC/RFA No: See Below

Initiated By: [illegible] Date: 2.4.13 Time: 1300

Shipping Information

Shipper: (FedEx) UPS DHL Courier Client Other: _____ Multiple Packages: Y (N)

Shipping # (s):*		Sample Temperature (s):**	
1. 9612019184996841000 8273	6.	1. 19	6.
2.	7.	2.	7.
3.	8.	3.	8.
4.	9.	4.	9.
5.	10.	5.	10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	Y (N)	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N (N/A)	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N (N/A)	Was sample received with proper pH[1]? (If not, make note below)
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes:

COC#s : LAB 02636
LAB 02637
LAB 02638
LAB 02639

Corrective Action:

☐ Client Contact Name: _____ Informed by: _____

☐ Sample(s) processed "as is"

☐ Sample(s) on hold until: _____ If released, notify: _____

Project Management Review: [illegible] Date: 2/5/13

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004 rev13, REVISED 05/27/11 \\Slsvr01\QA\FORMS\ST-LOUIS\ADMIN\Admin-0004 CUR.doc

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

NUMBER 51280

CHAIN-OF-CUSTODY RECORD

PROJECT NAME: Alameda CA ~~FKI~~ OUXC TWS	PURCHASE ORDER NO.: 1036773-14
PROJECT LOCATION: Alameda, CA	PROJECT NO.: 4044-~~0010~~ 005
SAMPLER NAME: W. Solorzano	AIRBILL NUMBER: 7940 7879 3423
PROJECT CONTACT: S. Sudekro	PROJECT CONTACT PHONE NUMBER: 949 809 5022

LABORATORY NAME: Test America St Louis

LABORATORY ID (FOR LABORATORY): F2K150430

Project Information Section Do not submit to Laboratory

ANALYSES REQUIRED: EPA 901.1/6.137 on 1-7; EPA 905 MOD TSR; DOE SR-03 RC MOD SR-90; Total Alpha Radium; EPA 903 MOD RA 226

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	EPA 901.1/6.137 on 1-7	EPA 905 MOD TSR	DOE SR-03 RC MOD SR-90	Total Alpha Radium	EPA 903 MOD RA 226	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
05-002	11-14-12	1500	7	X		W	10 Day	X	X	X	X	X		005-2A-01	—	—	Rg

RELINQUISHED BY (Signature): ~~[illegible]~~	DATE: 11-14-12	RECEIVED BY (Signature):	
COMPANY: TT/FedEx	TIME: 1510	COMPANY:	
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):	
COMPANY:	TIME:	COMPANY:	
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):	
COMPANY:	TIME:	COMPANY:	

LABORATORY INSTRUCTIONS/COMMENTS: IF Results are > 8 pCi/L Provide DOE SR-03 RC. IF < 8 pCi/L No Further Action

COMPOSITE DESCRIPTION: Cs 137 1 pCi Peak Criteria required start in growth when receiptop samples.

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: _____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

SAMPLING COMMENT:

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 40440005

Alameda CTO5

Lot #: F2K150430

Sabina Sudoko

Tetra Tech EC Inc
17885 Von Karman Ave
Ste 500
Irvine, CA 92614

TESTAMERICA LABORATORIES, INC.

Erika Starman
Project Manager

November 30, 2012

13715 Rider Trail North Earth City, MO 63045 **tel** 314.298.8566 **fax** 314.298.8757 **www.testamericainc.com**

Case Narrative
LOT NUMBER: F2K150430

This report contains the analytical results for the sample received under chain of custody by TestAmerica St. Louis on November 15, 2012. This sample is associated with your Alameda CTO5 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

This report shall not be reproduced, except in full, without the written approval of the laboratory.

RPD and RER results that are outside QC limits for non-detected analytes are statistically invalid. Non-detect results were duplicated, and the RPD/RER can be ignored.

Sample receiving issues are noted on the CUR form and written communications pertaining to these issues are included in the CoC section of the report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. Ra-226 analysis by gamma spectroscopy is performed on an as-received basis unless sample containers were received cracked or broken. Analysis parameters for cracked or broken samples will be listed in the narrative. Client has provided the date that samples were placed into the geometry. This date has been used as the prep date, and the 21 day in-growth completion has been calculated from that date.

Ra-226 results analyzed by method EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Total Strontium by GFPC (EPA 905 MOD)

Samples were reduced to 100mL due to high solid content produced during water precipitation.

Affected Samples:
F2K150430 (1): 05-002

There were no other nonconformances or observations noted with any analysis on this lot.

METHODS SUMMARY

F2K150430

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Gamma Spectroscopy - Cesium-137 & Hits	EPA 901.1 MOD	
Total Alpha Radium by GFPC	EPA 903.0 MOD	
Total Strontium By GFPC	EPA 905 MOD	

References:

EPA "EASTERN ENVIRONMENTAL RADIATION FACILITY RADIOCHEMISTRY PROCEDURES MANUAL" US EPA EPA 520/5-84-006 AUGUST 1984

SAMPLE SUMMARY

F2K150430

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MXCP6	001	05-002	11/14/12	15:00

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Tetra Tech EC Inc

Client Sample ID: 05-002

Radiochemistry

Lab Sample ID: F2K150430-001
Work Order: MXCP6
Matrix: WATER

Date Collected: 11/14/12 1500
Date Received: 11/15/12 0920

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDL	Count Time	Prep Date	Analysis Date
Total SR BY GFPC EPA-905 MOD				pCi/L		Batch # 2324071		Yld % 88.
Strontium Total	0.880	U	1.12	8.00	1.08	200	11/19/12	11/27/12
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/L		Batch # 2326033		Yld %
Cesium 137	-2.32	U	7.05	119	5.56	60	11/27/12	11/27/12
Total Alpha Radium EPA 903.0 MOD				pCi/L		Batch # 2324070		Yld % 80.
Radium (total)	0.869	J	0.262	2.50	0.121	200	11/19/12	11/20/12

NOTE(S)

Data are incomplete without the case narrative.
Bold results are greater than the MDL.

J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Tetra Tech EC Inc

Client Sample ID: 05-002 DUP

Radiochemistry

Lab Sample ID: F2K150430-001X
Work Order: MXCP6
Matrix: WATER

Date Collected: 11/14/12 1500
Date Received: 11/15/12 0920

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDL	Count Time	Prep Date	Analysis Date
Total Alpha Radium EPA 903.0 MOD				pCi/L		Batch # 2324070		Yld % 85.
Radium (total)	0.641	J	0.209	2.50	0.104	200	11/19/12	11/20/12
Total SR BY GFPC EPA-905 MOD				pCi/L		Batch # 2324071		Yld % 84.
Strontium Total	0.394	U	1.08	8.00	1.10	200	11/19/12	11/27/12
Gamma Cs-137 & Hits by EPA 901.1 MOD				pCi/L		Batch # 2326033		Yld %
Cesium 137	0.0	U	4.49	119	7.59	60	11/27/12	11/27/12

NOTE(S)

Data are incomplete without the case narrative.
Bold results are greater than the MDL.

J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

METHOD BLANK REPORT

Radiochemistry

Client Lot ID: F2K150430
Matrix: WATER

Parameter	Result	Qual	Total Uncert. (2 σ+/-)	RL	MDL	Count Time	Prep Date	Lab Sample ID / Analysis Date
Total Alpha Radium EPA 903.0 MOD			pCi/L	Batch #	2324070	Yld %	85.	F2K190000-070B
Radium (total)	0.0670	J	0.0545	2.50	0.0444	200	11/19/12	11/28/12
Total SR BY GFPC EPA-905 MOD			pCi/L	Batch #	2324071	Yld %	88.	F2K190000-071B
Strontium Total	-0.00792	U	0.104	8.00	0.111	200	11/19/12	11/27/12
Gamma Cs-137 & Hits by EPA 901.1 MOD			pCi/L	Batch #	2326033	Yld %		F2K210000-033B
Cesium 137	0.278	U	5.63	119	4.59	60	11/27/12	11/27/12

NOTE(S)

Data are incomplete without the case narrative.
Bold results are greater than the MDL

J Result is greater than sample detection limit but less than stated reporting limit.
U Result is less than the sample detection limit.

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Laboratory Control Sample Report

Radiochemistry

Client Lot ID: F2K150430
Matrix: WATER

Parameter	Spike Amount	Result	Total Uncert. (2 σ+/-)	MDL	% Yld	% Rec	Lab Sample ID / QC Control Limits
Total Alpha Radium EPA 903.0 MOD			**pCi/L**	**903.0 MOD**			**F2K190000-070C**
Radium (total)	11.3	13.3	1.46	0.129	76.7	118	(67.0 - 133)
	Batch #:	2324070		**Analysis Date:**	11/20/12		
Total SR BY GFPC EPA-905 MOD			**pCi/L**	**905 MOD**			**F2K190000-071C**
Strontium Total	9.41	9.28	0.805	0.116	89.1	98.6	(88.0 - 117)
	Batch #:	2324071		**Analysis Date:**	11/27/12		
Gamma Cs-137 & Hits by EPA 901.1 MOD			**pCi/L**	**901.1 MOD**			**F2K210000-033C**
Americium 241	141000	134000	15400	203		94.8	(90.0 - 111)
Cesium 137	53200	51600	5170	64.0		97.0	(90.0 - 111)
Cobalt 60	87800	83100	8220	79.4		94.6	(89.0 - 110)
	Batch #:	2326033		**Analysis Date:**	11/27/12		

NOTE(S)

Calculations are performed before rounding to avoid round-off error in calculated results

The MDL is an estimate of the measured activity at which there is a 99% confidence that a given analyte is present in a given sample matrix. This is functionally analogous to the "critical value" or the "limit of detection".

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

DUPLICATE EVALUATION REPORT

Radiochemistry

Client Lot ID: F2K150430
Matrix: WATER

Date Sampled: 11/14/12
Date Received: 11/15/12

Parameter	SAMPLE Result		Total Uncert. (2σ+/-)	% Yld	DUPLICATE Result		Total Uncert. (2 σ+/-)	% Yld	QC Sample ID Precision	
Total Alpha Radium EPA 903.0 MOD				**pCi/L**	**903.0 MOD**				**F2K150430-001**	
Radium (total)	0.869	J	0.262	80.8	0.641	J	0.209	85.2	30.2	%RPD
	Batch #:		2324070	(Sample)	2324070		(Duplicate)			
Total SR BY GFPC EPA-905 MOD				**pCi/L**	**905 MOD**				**F2K150430-001**	
Strontium Total	0.880	U	1.12	88.2	0.394	U	1.08	84.0	76.3	%RPD
	Batch #:		2324071	(Sample)	2324071		(Duplicate)			
Gamma Cs-137 & Hits by EPA 901.1 MOD				**pCi/L**	**901.1 MOD**				**F2K150430-001**	
Cesium 137	-2.32	U	7.05		0.0	U	4.49		200	%RPD
	Batch #:		2326033	(Sample)	2326033		(Duplicate)			

NOTE(S)

Data are incomplete without the case narrative.
Calculations are performed before rounding to avoid round-off error in calculated results

J Result is greater than sample detection limit but less than stated reporting limit.

U Result is less than the sample detection limit.

Ra-226 results analyzed by EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

F2K150430

CLIENT ANALYSIS SUMMARY

Storage Loc: TestAmerica St. Louis R297

Date Received: 2012-11-15

Analytical Due Date: 2012-12-03

Report Due Date: 2012-12-03

Report Type: X

EDD Code: 00

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440010~~06~~ 05 11/21/12 Alameda CTO~~10~~5

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

#SMPS In LOT: 0

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/solls must be extracted within 7/14 days per client SAP (regardless of EPA method).

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	I
1	05-002			2012-11-14/ 1500	MXCP6	WATER

SAMPLE COMMENTS: PREP SAMPLE FOR SR 90

XX	ZV		RAD SCREEN	WATER, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT:A	WRK LOC	06
XX	2Z	EPA	903.0 MOD	WATER, 903.0 MOD, Total Alpha Radium	LP	Precipitate, Separation	DQ	DOD QSM V3	PROT:R	WRK LOC	06
XX	Z7	EPA	901.1 MOD	WATER, 901.1 MOD, Gamma Cs-137	G7	Direct Addition of Sample to Geometry	2X	SPECIAL PROJECTS	PROT:R	WRK LOC	06
XX	ZM	EPA	905 MOD	WATER, 905 MOD, Total SR BY GFPC	FX	Precipitate, Separation	01	STANDARD TEST SET	PROT:R	WRK LOC	06

TETRA TECH
1230 Columbia Street, Suite 500
San Diego, CA 92101 (619) 234-8696

NUMBER 51280

CHAIN-OF-CUSTODY RECORD

PROJECT NAME	Alameda, CA OU2C IRT Tms
PROJECT LOCATION	Alameda, CA
SAMPLER NAME	W. Solbrzano
PROJECT CONTACT	S. Sudoko
PURCHASE ORDER NO.	1036773-14
PROJECT NO.	4044-~~0010~~ 005
AIRBILL NUMBER	7940 7879 3923
PROJECT CONTACT PHONE NUMBER	949 809 5022

LABORATORY NAME: Test America St Louis

LABORATORY ID (FOR LABORATORY):

Project Information Section Do not submit to Laboratory

ANALYSES REQUIRED

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	EPA 901.1/Cs 137 only	EPA 905 MOD Tsr	DOE SR-03-RC MOD Sr-90	Total Alpha Radium	EPA 903 MOD RA 226				COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
05-002	11-14-12	1500	7	X		W	10 Day	X	X	X	X	X					005-2A-01	—	—	Eg

RELINQUISHED BY (Signature)	DATE 11-14-12	RECEIVED BY (Signature)	
COMPANY TT/FedEx	TIME 1510	COMPANY	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	
COMPANY	TIME	COMPANY	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	
COMPANY	TIME	COMPANY	

LABORATORY INSTRUCTIONS/COMMENTS: If Results are > 8 pCi/L Provide DOE SR-03 RC. If < 8 pCi/L No Further Action.

COMPOSITE DESCRIPTION: Cs 137 1.19 pCi/L Criteria Required start ingrowth when receipt of samples.

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: _____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

SAMPLING COMMENT:

TestAmerica St. Louis

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Lot #(s): ~~F2K140~~ 80 11/15/12 F2K150430

TestAmerica St. Louis

CUR Form #: 3 3 5

CONDITION UPON RECEIPT FORM

Client: Tetra Tech

Quote No: 90622

COC/RFA No: 51280

Initiated By: BD Date: 11/15/12 Time: 0920

Shipping Information

Shipper: (FedEx) UPS DHL Courier Client Other: _____ Multiple Packages: Y (N)

Shipping # (s):*		Sample Temperature (s):**	
1. 7940 7879 3923	6.	1. Ambient	6.
2.	7.	2.	7.
3.	8.	3.	8.
4.	9.	4.	9.
5.	10.	5.	10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	(Y) N	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y (N) N/A	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	(Y) N N/A	Was sample received with proper pH[1]? (If not, make note below)
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes:

Corrective Action:

☐ Client Contact Name: _____ Informed by: _____

☐ Sample(s) processed "as is"

☐ Sample(s) on hold until: _____ If released, notify: _____

Project Management Review: EWS Date: 11/21/12

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

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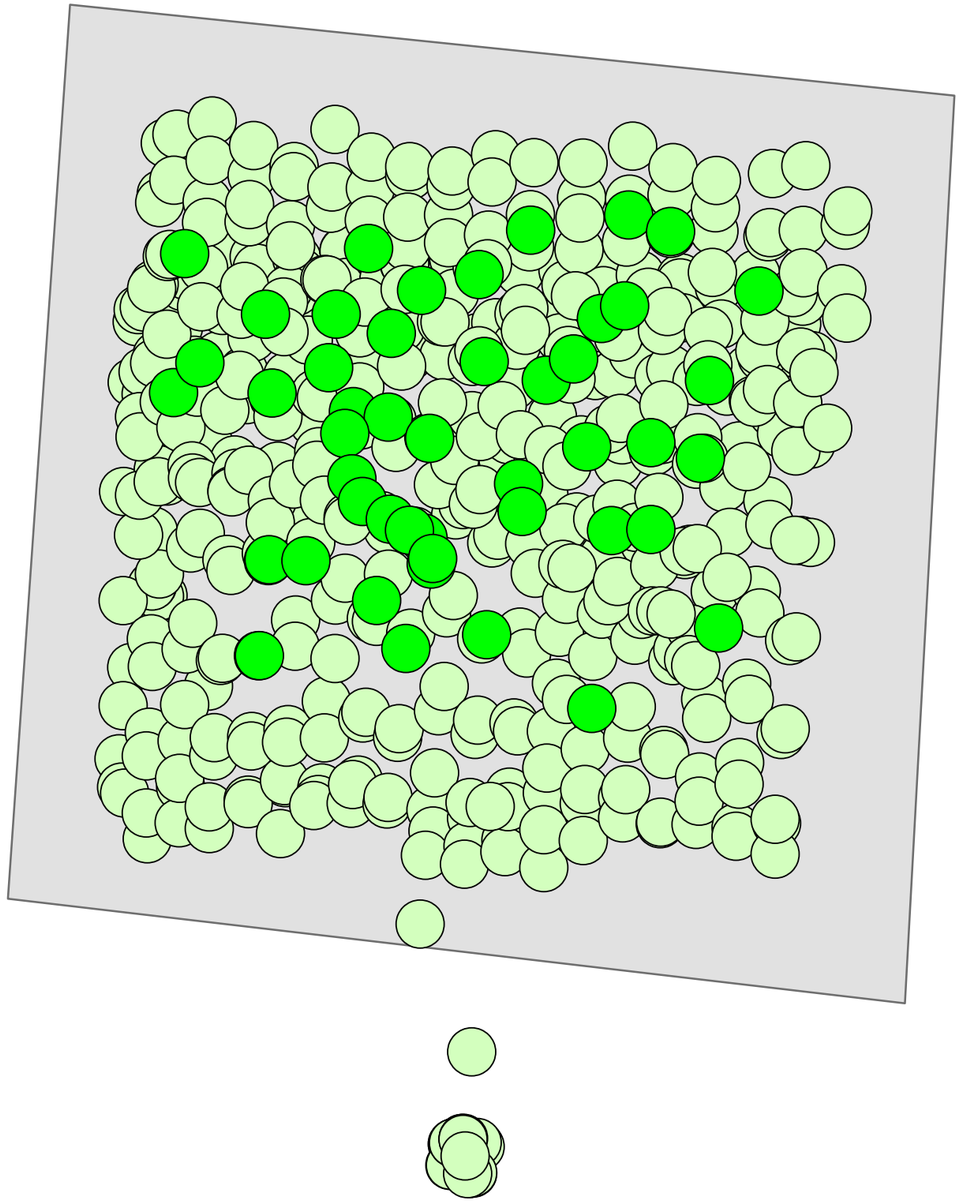


LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6
- SCREENING PAD

0 2 4 8 12 16 Feet

Scale: 1 " = 8 '

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

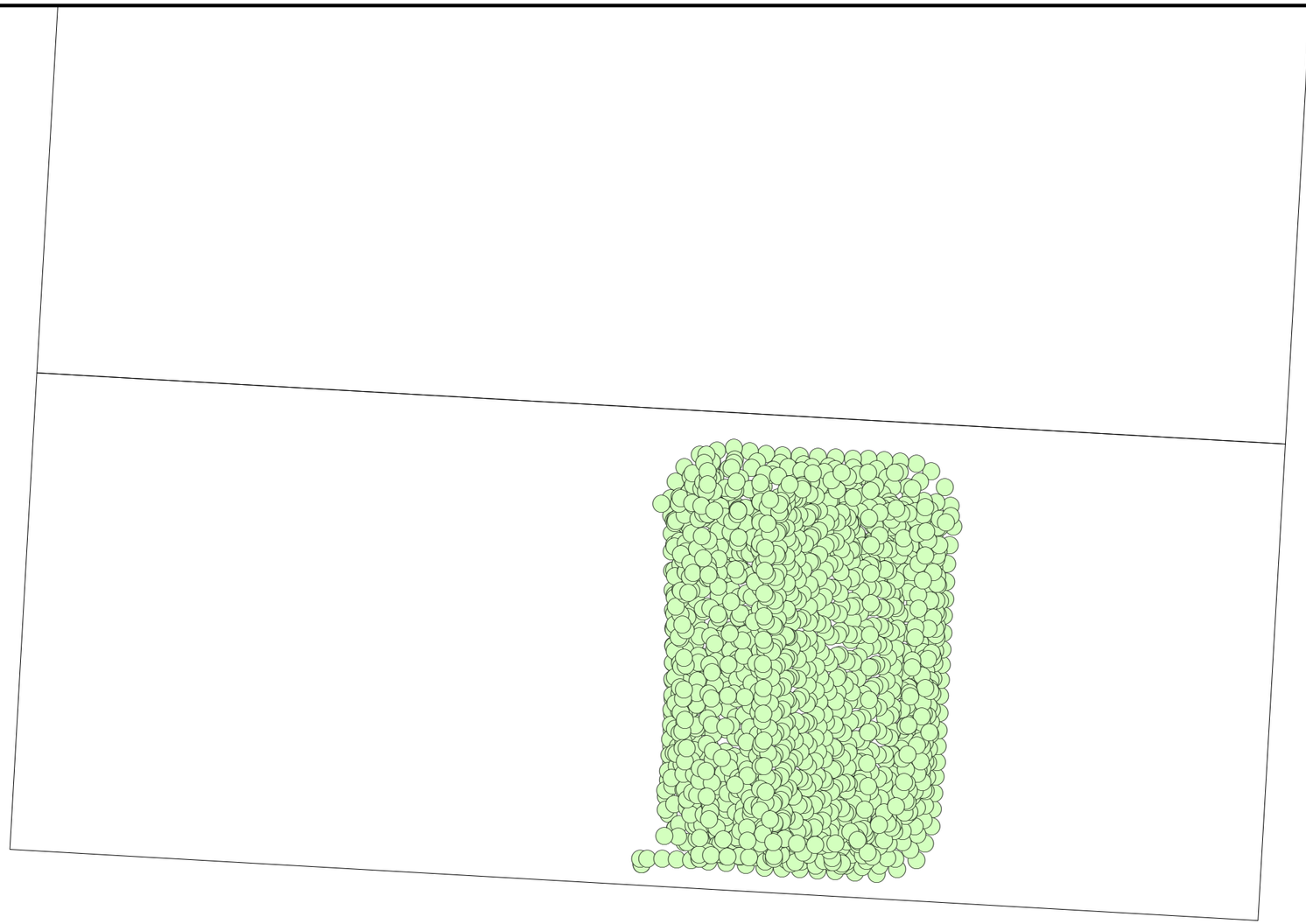
Background Pad

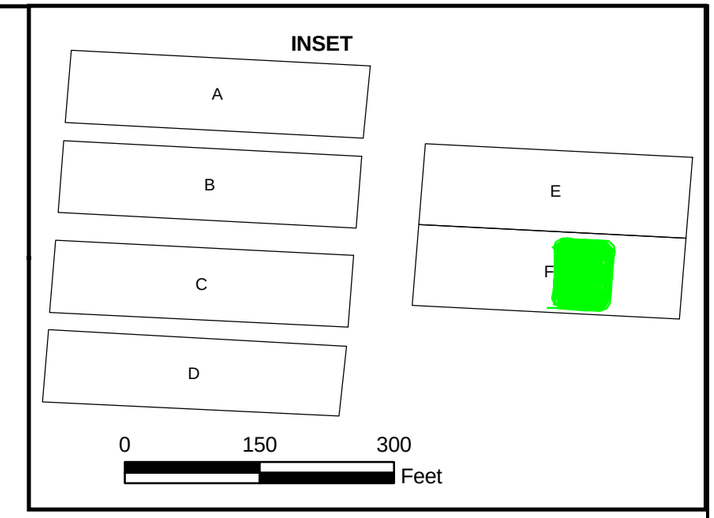
01/14/2013

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
DCN: ECSD-XXXX-XXXX-XXXX
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.





Legend

- >6
- 5-6
- 4-5
- 3-4
- 2-3
- 1-2
- <1

Note:
Sigmas calculated from Background Pad VTA data.

0 5 10 20 30 40 Feet

Scale: 1 " = 25 '

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Line A Sediment
01/14/2013

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
DCN: ECSD-XXXX-XXXX-XXXX
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1	332	560854.2781	4181349.08
2	334	560854.2799	4181349.078
3	329	560854.7343	4181349.06
4	335	560854.7336	4181349.059
5	341	560854.7515	4181349.034
6	324	560854.4443	4181349.167
7	336	560854.4445	4181349.166
8	324	560854.2427	4181348.716
9	331	560854.2442	4181348.716
10	347	560854.6943	4181349.099
11	352	560854.5783	4181348.58
12	324	560854.5778	4181348.582
13	341	560854.2959	4181349.092
14	316	560854.2966	4181349.092
15	340	560854.4696	4181349.164
16	349	560854.4572	4181349.156
17	340	560854.4575	4181349.155
18	333	560854.6239	4181348.585
19	355	560854.6225	4181348.588
20	327	560854.5379	4181348.573
21	319	560854.4966	4181348.87
22	337	560854.6002	4181350.618
23	378	560853.7433	4181352.76
24	423	560851.4758	4181355.132
25	431	560850.1887	4181356.745
26	412	560849.4309	4181358.26
27	436	560849.3677	4181358.255
28	406	560849.2522	4181358.431
29	424	560849.2447	4181358.424
30	422	560848.9006	4181357.061
31	401	560848.6906	4181355.527
32	396	560848.7385	4181355.055
33	392	560848.7855	4181354.951
34	394	560848.7611	4181356.413
35	423	560848.757	4181358.179
36	430	560848.7651	4181360.008
37	427	560848.9165	4181361.839
38	432	560849.0003	4181362.857
39	414	560849.0174	4181363.059
40	442	560849.1169	4181363.096
41	427	560849.3309	4181362.289
42	436	560849.3006	4181360.926
43	434	560849.2685	4181359.34

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
44	398	560849.2376	4181357.533
45	413	560849.2001	4181355.971
46	411	560849.1664	4181354.183
47	409	560849.1467	4181354.612
48	402	560849.1524	4181355.573
49	412	560849.2497	4181357.065
50	450	560849.3675	4181358.622
51	436	560849.4943	4181360.179
52	457	560849.6092	4181361.675
53	418	560849.6935	4181362.761
54	438	560849.7597	4181363.434
55	466	560849.7897	4181364.002
56	415	560849.8132	4181363.622
57	435	560849.9511	4181362.198
58	434	560850.0129	4181360.673
59	434	560849.899	4181359.046
60	425	560849.8146	4181357.357
61	398	560849.7528	4181355.811
62	400	560849.7239	4181355.047
63	406	560849.6993	4181354.439
64	418	560849.7108	4181355.187
65	449	560849.7961	4181356.424
66	423	560849.9287	4181357.787
67	449	560850.0596	4181359.298
68	431	560850.1985	4181360.795
69	434	560850.3577	4181362.278
70	423	560850.4301	4181363.028
71	438	560850.4463	4181363.986
72	420	560850.6501	4181363.163
73	429	560850.7802	4181362.013
74	440	560850.6335	4181360.522
75	421	560850.5065	4181358.854
76	421	560850.3965	4181357.166
77	407	560850.2871	4181355.56
78	406	560850.2122	4181354.342
79	398	560850.2115	4181354.71
80	418	560850.2927	4181355.862
81	420	560850.4309	4181357.196
82	445	560850.5695	4181358.665
83	430	560850.7045	4181360.111
84	438	560850.8343	4181361.534
85	439	560850.9284	4181362.57
86	446	560850.9582	4181363.925

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
87	438	560851.0104	4181363.732
88	459	560851.1464	4181362.985
89	462	560851.2617	4181361.667
90	433	560851.2539	4181360.345
91	416	560851.1627	4181358.959
92	465	560851.027	4181357.263
93	410	560850.9224	4181355.883
94	427	560850.8641	4181354.816
95	419	560850.861	4181354.753
96	432	560850.9135	4181355.724
97	461	560851.0503	4181357.263
98	435	560851.1971	4181358.828
99	446	560851.3633	4181360.416
100	447	560851.5234	4181361.922
101	434	560851.66	4181363.188
102	450	560851.6761	4181363.342
103	421	560851.6704	4181363.894
104	437	560851.7288	4181363.664
105	436	560851.8641	4181362.524
106	451	560851.957	4181361.147
107	454	560851.8061	4181359.548
108	441	560851.6586	4181357.832
109	434	560851.5284	4181355.996
110	404	560851.467	4181355.141
111	409	560851.4016	4181354.249
112	441	560851.5076	4181355.781
113	451	560851.6479	4181357.391
114	448	560851.8536	4181359.075
115	443	560852.0418	4181360.649
116	455	560852.2083	4181362.092
117	456	560852.3379	4181362.986
118	449	560852.4711	4181364.022
119	445	560852.4701	4181364.01
120	438	560852.5043	4181363.484
121	441	560852.7249	4181362.747
122	471	560852.6252	4181361.35
123	453	560852.4993	4181359.821
124	430	560852.3285	4181358.162
125	448	560852.1699	4181356.469
126	407	560852.0968	4181355.008
127	413	560852.0376	4181354.818
128	434	560851.9616	4181354.71
129	454	560852.14	4181355.85

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
130	438	560852.3177	4181357.175
131	434	560852.4833	4181358.528
132	429	560852.6142	4181359.832
133	438	560852.7507	4181361.095
134	445	560852.911	4181362.315
135	450	560852.9969	4181362.954
136	435	560853.0394	4181363.914
137	429	560853.1425	4181363.547
138	460	560853.2602	4181362.67
139	462	560853.2079	4181361.258
140	415	560853.0844	4181359.573
141	432	560852.9289	4181357.845
142	438	560852.7788	4181356.178
143	412	560852.7038	4181355.139
144	399	560852.5907	4181354.749
145	433	560852.6093	4181355.06
146	454	560852.8328	4181356.27
147	449	560853.0155	4181357.8
148	431	560853.2029	4181359.342
149	422	560853.3993	4181360.895
150	441	560853.5588	4181362.232
151	429	560853.4793	4181363.791
152	430	560853.4825	4181363.788
153	471	560853.7644	4181363.384
154	435	560853.9643	4181362.355
155	456	560853.9012	4181360.905
156	448	560853.6534	4181359.307
157	456	560853.5036	4181357.381
158	429	560853.3647	4181355.853
159	408	560853.1923	4181354.728
160	427	560853.2101	4181354.839
161	440	560853.3896	4181355.997
162	422	560853.5856	4181357.597
163	455	560853.7902	4181359.237
164	444	560854.0072	4181360.915
165	422	560854.1453	4181362.246
166	437	560854.3069	4181363.891
167	445	560854.3046	4181363.877
168	441	560854.3268	4181363.292
169	437	560854.6175	4181362.147
170	429	560854.5944	4181360.904
171	431	560854.339	4181359.578
172	435	560854.1927	4181357.936

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
173	425	560854.0523	4181356.287
174	379	560853.9253	4181354.629
175	366	560853.9627	4181354.276
176	403	560853.8306	4181353.867
177	415	560853.9863	4181355.244
178	447	560854.1445	4181356.695
179	444	560854.2975	4181358.221
180	431	560854.456	4181359.747
181	426	560854.6157	4181361.235
182	432	560854.7245	4181362.546
183	438	560854.6924	4181363.731
184	457	560854.7311	4181363.651
185	430	560855.0067	4181362.795
186	439	560855.2998	4181361.733
187	445	560855.1269	4181360.517
188	434	560854.9441	4181359.105
189	436	560854.7725	4181357.492
190	407	560854.6598	4181355.895
191	398	560854.6072	4181354.487
192	349	560854.5434	4181354.024
193	379	560854.4887	4181353.715
194	422	560854.5742	4181354.752
195	435	560854.7071	4181356.132
196	457	560854.8594	4181357.61
197	442	560855.0466	4181359.229
198	446	560855.218	4181360.829
199	450	560855.3571	4181362.414
200	426	560855.401	4181362.935
201	434	560855.4204	4181363.648
202	450	560855.6713	4181362.906
203	456	560855.8562	4181361.877
204	449	560855.7245	4181360.534
205	451	560855.5762	4181359.082
206	417	560855.4199	4181357.601
207	413	560855.3183	4181356.082
208	383	560855.2398	4181354.918
209	386	560855.1805	4181354.109
210	392	560855.1656	4181353.918
211	402	560855.2138	4181354.673
212	444	560855.3704	4181355.944
213	431	560855.5263	4181357.248
214	446	560855.6738	4181358.585
215	449	560855.8178	4181359.904

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
216	444	560855.9616	4181361.219
217	439	560856.0828	4181362.534
218	419	560856.1395	4181363.662
219	444	560856.1846	4181363.416
220	455	560856.3175	4181362.231
221	450	560856.4429	4181360.817
222	428	560856.2527	4181359.222
223	445	560856.0783	4181357.595
224	446	560855.9414	4181355.936
225	384	560855.8706	4181354.901
226	388	560855.8164	4181353.648
227	391	560855.8182	4181354.282
228	408	560855.8673	4181355.313
229	437	560856.03	4181356.739
230	452	560856.1971	4181358.145
231	428	560856.3633	4181359.521
232	462	560856.5321	4181360.764
233	433	560856.6785	4181361.892
234	455	560856.7835	4181362.908
235	429	560856.845	4181363.613
236	423	560856.8159	4181363.316
237	432	560857.004	4181361.924
238	435	560857.0603	4181360.434
239	403	560856.8119	4181358.846
240	430	560856.6395	4181357.183
241	405	560856.5127	4181355.63
242	384	560856.4892	4181354.718
243	403	560856.474	4181354.093
244	430	560856.5013	4181354.955
245	456	560856.6194	4181356.374
246	434	560856.7807	4181357.892
247	471	560856.9523	4181359.354
248	436	560857.1271	4181360.808
249	419	560857.3108	4181362.253
250	446	560857.3805	4181362.801
251	429	560857.4289	4181363.572
252	437	560857.6086	4181362.834
253	434	560857.7462	4181361.856
254	435	560857.6558	4181360.621
255	431	560857.5095	4181359.071
256	432	560857.3394	4181357.454
257	403	560857.2186	4181355.806
258	403	560857.1387	4181354.812

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
259	377	560857.1323	4181354.47
260	411	560857.1843	4181354.944
261	441	560857.2808	4181356.334
262	444	560857.4462	4181357.883
263	457	560857.6126	4181359.375
264	418	560857.7899	4181360.808
265	422	560857.9372	4181361.992
266	439	560858.1094	4181363.52
267	421	560858.1043	4181363.434
268	447	560858.1387	4181362.852
269	440	560858.3813	4181361.786
270	453	560858.3717	4181360.397
271	422	560858.1798	4181358.883
272	433	560857.9721	4181357.099
273	392	560857.8182	4181355.594
274	402	560857.7584	4181354.364
275	416	560857.7682	4181354.395
276	423	560857.8404	4181355.526
277	424	560858.0612	4181357.289
278	439	560858.2642	4181358.97
279	455	560858.4405	4181360.57
280	456	560858.5927	4181361.871
281	434	560858.7462	4181363.484
282	437	560858.7501	4181363.366
283	425	560858.7844	4181362.745
284	415	560858.8807	4181361.62
285	412	560858.827	4181360.001
286	420	560858.681	4181358.266
287	427	560858.5282	4181356.449
288	409	560858.4197	4181355.143
289	406	560858.3633	4181354.348
290	410	560858.4108	4181354.74
291	427	560858.5416	4181356.128
292	463	560858.7423	4181357.722
293	421	560858.9271	4181359.244
294	443	560859.0862	4181360.697
295	426	560859.2475	4181361.982
296	434	560859.3646	4181363.577
297	455	560859.4181	4181363.37
298	432	560859.5491	4181362.597
299	420	560859.653	4181361.24
300	438	560859.5682	4181359.771
301	435	560859.3682	4181358.272

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
302	429	560859.2115	4181356.714
303	435	560859.0902	4181355.387
304	409	560859.0333	4181354.289
305	394	560859.0301	4181354.146
306	442	560859.0825	4181355.023
307	445	560859.2564	4181356.439
308	448	560859.4305	4181357.89
309	417	560859.5994	4181359.376
310	421	560859.7945	4181360.897
311	440	560859.9785	4181362.25
312	421	560860.046	4181362.734
313	445	560860.1501	4181363.113
314	429	560860.3143	4181362.203
315	418	560860.2867	4181360.718
316	437	560860.1184	4181359.102
317	437	560859.9339	4181357.427
318	409	560859.7865	4181355.848
319	409	560859.7118	4181354.361
320	401	560859.6845	4181353.845
321	433	560859.6815	4181354.429
322	415	560859.8503	4181355.939
323	437	560860.0407	4181357.486
324	417	560860.2731	4181359.067
325	425	560860.0312	4181360.6
326	422	560859.4608	4181362.173
327	433	560857.5622	4181363.263
328	420	560855.5676	4181364.023
329	447	560853.3996	4181364.205
330	445	560851.5173	4181363.299
331	426	560849.8256	4181361.975
332	445	560849.3406	4181360.288
333	445	560849.016	4181359.189
334	443	560849.0329	4181359.853
335	437	560849.1409	4181361.552
336	450	560849.2798	4181363.392
337	439	560849.398	4181364.9
338	422	560849.462	4181365.755
339	445	560849.3697	4181364.759
340	453	560849.232	4181363.317
341	425	560849.0946	4181361.917
342	439	560849.0304	4181361.171
343	435	560849.0383	4181360.825
344	428	560849.2876	4181362.066

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
345	433	560849.4937	4181363.851
346	408	560849.6608	4181365.903
347	417	560849.6035	4181365.128
348	436	560849.5403	4181363.884
349	441	560849.4887	4181362.546
350	435	560849.4439	4181361.412
351	437	560849.3427	4181360.077
352	450	560849.7227	4181360.985
353	455	560850.0462	4181362.163
354	434	560850.105	4181363.657
355	429	560850.1642	4181364.772
356	425	560850.2514	4181366.125
357	437	560850.217	4181365.459
358	424	560850.1599	4181364.419
359	435	560850.0749	4181363.006
360	424	560849.9966	4181361.571
361	428	560849.9157	4181360.337
362	442	560849.9189	4181360.135
363	446	560850.0383	4181360.055
364	436	560850.4628	4181361.265
365	447	560850.7314	4181362.874
366	428	560850.8727	4181364.428
367	436	560850.9169	4181365.209
368	449	560850.9426	4181365.704
369	436	560850.8748	4181364.714
370	440	560850.7927	4181363.34
371	447	560850.7104	4181361.857
372	425	560850.6447	4181360.215
373	433	560850.5778	4181359.919
374	433	560850.5813	4181359.896
375	439	560850.8589	4181360.264
376	443	560851.2815	4181361.468
377	442	560851.4416	4181363.082
378	452	560851.5624	4181364.376
379	426	560851.6199	4181365.353
380	421	560851.6162	4181365.186
381	434	560851.5605	4181364.017
382	441	560851.4503	4181362.583
383	435	560851.3474	4181361.161
384	430	560851.261	4181359.75
385	450	560851.2236	4181359.382
386	469	560851.2042	4181358.86
387	443	560851.615	4181360.024

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
388	426	560851.9774	4181361.544
389	443	560852.1433	4181363.454
390	414	560852.2309	4181364.651
391	420	560852.3075	4181365.968
392	450	560852.2551	4181365.003
393	445	560852.1746	4181363.449
394	415	560852.0791	4181361.473
395	445	560852.0015	4181360.338
396	458	560851.8273	4181358.844
397	436	560851.8986	4181359.044
398	445	560852.1285	4181359.751
399	468	560852.4801	4181360.979
400	445	560852.7233	4181362.553
401	456	560852.8774	4181364.081
402	420	560852.903	4181364.982
403	435	560852.9166	4181365.502
404	427	560852.8804	4181364.442
405	438	560852.8095	4181363.075
406	440	560852.7234	4181361.647
407	461	560852.5963	4181360.217
408	442	560852.5313	4181359.469
409	452	560852.5251	4181359.403
410	464	560852.7779	4181359.836
411	426	560853.2692	4181361.095
412	430	560853.4114	4181362.63
413	425	560853.5206	4181363.993
414	413	560853.5627	4181365.187
415	413	560853.5655	4181365.34
416	440	560853.5283	4181364.493
417	438	560853.4864	4181363.281
418	443	560853.4284	4181361.994
419	438	560853.3331	4181360.633
420	469	560853.2434	4181359.544
421	457	560853.0122	4181358.181
422	450	560853.2083	4181358.506
423	455	560853.5583	4181359.356
424	440	560853.883	4181360.806
425	443	560854.0972	4181362.744
426	432	560854.2158	4181364.53
427	409	560854.2525	4181365.018
428	432	560854.2771	4181365.262
429	454	560854.2122	4181364.066
430	441	560854.1576	4181362.736

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
431	421	560854.1137	4181361.377
432	445	560854.046	4181360.007
433	469	560853.9234	4181358.785
434	475	560853.9541	4181358.884
435	430	560854.3186	4181360.413
436	422	560854.7198	4181362.251
437	419	560854.8843	4181364.194
438	418	560855.0005	4181365.536
439	427	560854.945	4181365.082
440	415	560854.8646	4181363.71
441	465	560854.8123	4181362.184
442	434	560854.7439	4181360.813
443	453	560854.6288	4181359.677
444	432	560854.737	4181359.925
445	451	560855.1141	4181361.325
446	427	560855.4798	4181362.957
447	397	560855.5853	4181364.529
448	412	560855.6473	4181365.405
449	459	560855.5942	4181364.388
450	443	560855.505	4181362.586
451	431	560855.4194	4181360.836
452	456	560855.3874	4181360.131
453	458	560855.4479	4181359.666
454	427	560855.8886	4181360.58
455	444	560856.2202	4181362.247
456	440	560856.4024	4181363.935
457	406	560856.4439	4181364.813
458	419	560856.4696	4181365.392
459	451	560856.4166	4181364.474
460	417	560856.3414	4181363.166
461	430	560856.2607	4181361.769
462	448	560856.1922	4181360.316
463	419	560856.1437	4181359.28
464	437	560856.1251	4181358.663
465	432	560856.2817	4181358.599
466	427	560856.712	4181359.427
467	440	560856.8897	4181360.927
468	430	560857.0561	4181362.473
469	421	560857.1914	4181364.066
470	412	560857.2479	4181364.787
471	430	560857.2963	4181365.67
472	459	560857.2404	4181364.635
473	456	560857.1684	4181363.115

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
474	454	560857.0891	4181361.108
475	451	560857.0364	4181359.668
476	429	560856.879	4181358.05
477	445	560857.0463	4181358.375
478	442	560857.3487	4181359.279
479	458	560857.6136	4181360.818
480	442	560857.7999	4181362.583
481	429	560857.9289	4181364.204
482	445	560857.9533	4181364.854
483	429	560857.9709	4181365.305
484	463	560857.9393	4181364.358
485	421	560857.8847	4181362.893
486	442	560857.8242	4181361.328
487	421	560857.7348	4181359.777
488	444	560857.6686	4181358.626
489	413	560857.6266	4181357.876
490	420	560857.7691	4181357.875
491	427	560858.1568	4181358.876
492	448	560858.3875	4181360.775
493	442	560858.5691	4181362.563
494	424	560858.6626	4181364.243
495	416	560858.6886	4181364.634
496	443	560858.7043	4181365.089
497	420	560858.6339	4181363.549
498	445	560858.562	4181361.996
499	425	560858.4876	4181360.43
500	435	560858.3842	4181358.912
501	446	560858.2751	4181357.569
502	442	560858.2373	4181357.052
503	400	560858.3577	4181356.951
504	411	560858.8796	4181358.43
505	436	560859.2139	4181360.286
506	428	560859.4291	4181362.228
507	434	560859.5651	4181364.144
508	420	560859.6454	4181365.203
509	448	560859.6004	4181364.208
510	440	560859.5119	4181362.726
511	433	560859.3245	4181361.394
512	438	560859.3348	4181361.358
513	427	560859.5595	4181361.573
514	407	560859.9876	4181363.197
515	396	560860.1551	4181364.24
516	405	560860.1991	4181365.323

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
517	427	560860.1564	4181363.531
518	409	560860.1201	4181362.203
519	448	560860.0686	4181361.342
520	427	560860.336	4181361.855
521	436	560860.799	4181363.261
522	430	560860.8621	4181364.327
523	428	560860.9047	4181364.562
524	424	560860.8846	4181362.767
525	413	560860.5631	4181360.921
526	424	560860.0132	4181359.041
527	445	560857.9394	4181357.802
528	424	560856.1829	4181356.377
529	416	560854.9117	4181354.583
	475	**Max**	
	26.36	**Std Dev**	
	427.72	**Average**	
	506.78	**3s Investigation Level**	

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1	411	561199.5019	4181720.006
2	410	561199.5018	4181720.007
3	402	561199.4256	4181720.306
4	401	561199.8216	4181720.299
5	393	561200.6833	4181720.284
6	392	561201.5272	4181720.264
7	409	561202.3516	4181720.204
8	390	561203.3415	4181720.133
9	438	561204.3809	4181720.067
10	392	561205.492	4181719.922
11	398	561206.5547	4181719.799
12	417	561207.573	4181719.742
13	405	561208.5834	4181719.685
14	400	561209.5969	4181719.626
15	398	561210.6347	4181719.579
16	411	561211.7732	4181719.52
17	393	561213.0113	4181719.43
18	415	561214.1713	4181719.717
19	406	561215.3128	4181720.2
20	391	561215.7857	4181721.187
21	413	561216.1661	4181722.155
22	395	561216.2373	4181723.161
23	384	561216.3087	4181724.089
24	389	561216.3839	4181724.994
25	390	561216.4578	4181725.867
26	387	561216.5276	4181726.768
27	378	561216.5702	4181727.7
28	393	561216.6093	4181728.693
29	396	561216.6396	4181729.681
30	397	561216.6885	4181730.575
31	392	561216.7382	4181731.462
32	392	561216.7942	4181732.339
33	406	561216.8456	4181733.293
34	409	561216.8876	4181734.265
35	419	561216.9454	4181735.242
36	420	561217.0038	4181736.236
37	400	561217.0614	4181737.248
38	404	561217.1944	4181738.318
39	417	561217.4202	4181739.408
40	405	561217.2485	4181740.575
41	392	561216.9264	4181741.671
42	368	561216.142	4181742.551
43	398	561215.3066	4181742.997

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
44	398	561214.3548	4181743.154
45	397	561213.438	4181743.206
46	396	561212.5306	4181743.257
47	398	561211.6322	4181743.304
48	387	561210.6485	4181743.35
49	374	561209.641	4181743.394
50	386	561208.6015	4181743.443
51	412	561207.6068	4181743.496
52	420	561206.6584	4181743.577
53	398	561205.7286	4181743.697
54	421	561204.8022	4181743.898
55	393	561203.8423	4181743.779
56	394	561202.8528	4181743.514
57	399	561201.9615	4181742.798
58	377	561201.4476	4181741.979
59	387	561201.1623	4181741.02
60	385	561201.1972	4181740.028
61	391	561201.227	4181739.006
62	384	561201.2353	4181737.955
63	377	561201.2564	4181736.844
64	415	561201.2886	4181735.722
65	384	561201.3059	4181734.609
66	393	561201.3227	4181733.547
67	384	561201.3399	4181732.536
68	389	561201.3298	4181731.527
69	383	561201.2948	4181730.523
70	388	561201.2724	4181729.536
71	390	561201.2511	4181728.593
72	396	561201.2305	4181727.695
73	378	561201.2069	4181726.765
74	382	561201.2016	4181725.815
75	398	561201.0159	4181724.833
76	420	561200.8969	4181723.851
77	413	561201.045	4181722.865
78	406	561201.4171	4181722.025
79	401	561201.9534	4181721.26
80	412	561202.659	4181720.846
81	405	561203.4044	4181720.484
82	423	561204.2724	4181720.467
83	386	561205.1628	4181720.432
84	400	561206.058	4181720.387
85	413	561206.9513	4181720.303
86	392	561207.8246	4181720.223

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
87	408	561208.6786	4181720.155
88	399	561209.5085	4181720.105
89	412	561210.349	4181720.09
90	390	561211.2359	4181719.932
91	393	561212.1713	4181719.821
92	419	561213.161	4181719.93
93	406	561214.0726	4181720.301
94	398	561214.9476	4181720.842
95	404	561215.3571	4181721.693
96	411	561215.7024	4181722.515
97	395	561215.7737	4181723.364
98	375	561215.8389	4181724.183
99	406	561215.9016	4181724.997
100	381	561215.9531	4181725.822
101	384	561216.0068	4181726.641
102	394	561216.0765	4181727.453
103	374	561216.1335	4181728.167
104	403	561216.1893	4181728.892
105	364	561216.2251	4181729.778
106	393	561216.2634	4181730.657
107	386	561216.3163	4181731.529
108	389	561216.3677	4181732.273
109	390	561216.431	4181732.983
110	411	561216.4667	4181733.66
111	415	561216.5124	4181734.37
112	404	561216.636	4181735.106
113	404	561216.5491	4181736.038
114	392	561216.3145	4181737.028
115	398	561215.6205	4181737.711
116	412	561214.9699	4181738.285
117	409	561214.2089	4181738.477
118	419	561213.4808	4181738.595
119	432	561212.7496	4181738.63
120	430	561212.0217	4181738.641
121	436	561211.2804	4181738.653
122	413	561210.5258	4181738.674
123	438	561209.7098	4181738.701
124	412	561208.8621	4181738.732
125	407	561207.9193	4181738.796
126	405	561206.9749	4181738.856
127	404	561206.0281	4181738.897
128	417	561204.9086	4181738.91
129	387	561203.7302	4181738.949

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
130	389	561202.7131	4181738.303
131	392	561201.8824	4181737.59
132	396	561201.5711	4181736.558
133	383	561201.4126	4181735.478
134	391	561201.3773	4181734.405
135	396	561201.3519	4181733.496
136	400	561201.3271	4181732.547
137	403	561201.308	4181731.56
138	405	561201.2884	4181730.64
139	363	561201.2711	4181729.737
140	387	561201.2286	4181728.854
141	361	561201.1877	4181727.995
142	395	561201.1508	4181727.16
143	399	561201.097	4181726.27
144	397	561201.0336	4181725.337
145	408	561200.8759	4181724.243
146	397	561200.8899	4181723.124
147	412	561201.4258	4181722.033
148	398	561202.1179	4181721.256
149	388	561202.9476	4181720.588
150	390	561203.9453	4181720.584
151	435	561204.9878	4181720.582
152	399	561206.0753	4181720.582
153	430	561207.1611	4181720.553
154	388	561208.2339	4181720.505
155	406	561209.2428	4181720.434
156	404	561210.2634	4181720.334
157	408	561211.2852	4181720.126
158	411	561212.418	4181720.163
159	379	561213.614	4181720.348
160	410	561214.5146	4181721.255
161	403	561215.2052	4181722.159
162	406	561215.3351	4181723.23
163	392	561215.46	4181724.236
164	393	561215.5997	4181725.232
165	378	561215.6214	4181726.261
166	402	561215.6488	4181727.278
167	405	561215.6994	4181728.282
168	390	561215.756	4181729.262
169	388	561215.8196	4181730.222
170	388	561215.8665	4181731.112
171	391	561215.9128	4181731.986
172	407	561215.959	4181732.845

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
173	399	561216.0485	4181733.71
174	402	561216.2296	4181734.614
175	409	561216.0036	4181735.703
176	397	561215.6851	4181736.705
177	392	561214.9973	4181737.479
178	413	561214.2998	4181737.962
179	405	561213.488	4181738.287
180	399	561212.5291	4181738.27
181	420	561211.5193	4181738.264
182	434	561210.4589	4181738.305
183	431	561209.4595	4181738.329
184	413	561208.4775	4181738.344
185	413	561207.5221	4181738.325
186	418	561206.5746	4181738.337
187	407	561205.6421	4181738.484
188	416	561204.3926	4181738.337
189	392	561203.0798	4181738.041
190	372	561202.3415	4181737.115
191	388	561201.784	4181736.129
192	379	561201.7784	4181734.954
193	391	561201.7583	4181733.877
194	389	561201.7257	4181732.827
195	396	561201.6986	4181731.81
196	373	561201.68	4181730.797
197	377	561201.6944	4181729.787
198	392	561201.6685	4181728.776
199	371	561201.6014	4181727.761
200	393	561201.5883	4181726.721
201	397	561201.5219	4181725.633
202	377	561201.2873	4181724.509
203	397	561201.3683	4181723.421
204	390	561201.6587	4181722.29
205	420	561202.6789	4181721.462
206	396	561203.712	4181720.856
207	398	561204.892	4181720.846
208	405	561206.1172	4181720.83
209	423	561207.3358	4181720.813
210	390	561208.4757	4181720.775
211	389	561209.5252	4181720.725
212	410	561210.4803	4181720.611
213	392	561211.5819	4181720.553
214	385	561212.7424	4181720.485
215	402	561213.6996	4181721.173

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
216	401	561214.5017	4181721.909
217	409	561214.8687	4181722.906
218	398	561215.0415	4181723.858
219	381	561215.0494	4181724.812
220	380	561215.1071	4181725.706
221	388	561215.1623	4181726.602
222	365	561215.2039	4181727.502
223	423	561215.2491	4181728.38
224	383	561215.2976	4181729.252
225	419	561215.3544	4181730.121
226	394	561215.4082	4181730.987
227	389	561215.447	4181731.851
228	390	561215.4943	4181732.715
229	401	561215.5384	4181733.587
230	394	561215.6709	4181734.475
231	413	561215.6906	4181735.432
232	398	561215.2761	4181736.417
233	403	561214.6407	4181737.236
234	407	561213.8698	4181737.991
235	417	561212.9034	4181738.054
236	434	561211.9081	4181738.102
237	412	561210.8826	4181738.087
238	414	561209.8228	4181738.079
239	403	561208.7632	4181738.08
240	395	561207.7396	4181738.068
241	393	561206.7121	4181738.084
242	396	561205.685	4181738.209
243	400	561204.5519	4181738.004
244	403	561203.3895	4181737.607
245	393	561202.6985	4181736.647
246	407	561202.1841	4181735.729
247	368	561202.2166	4181734.741
248	401	561202.209	4181733.668
249	389	561202.1631	4181732.586
250	373	561202.1692	4181731.543
251	367	561202.1688	4181730.5
252	368	561202.1444	4181729.456
253	383	561202.1178	4181728.407
254	394	561202.0877	4181727.363
255	376	561202.0759	4181726.347
256	389	561202.0395	4181725.323
257	396	561201.9106	4181724.296
258	398	561202.1057	4181723.251

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
259	401	561202.494	4181722.196
260	395	561203.3459	4181721.627
261	418	561204.2494	4181721.173
262	400	561205.3056	4181721.163
263	402	561206.4332	4181721.157
264	408	561207.5698	4181721.158
265	394	561208.6798	4181721.143
266	392	561209.7579	4181721.085
267	386	561210.7917	4181720.872
268	416	561211.9485	4181720.89
269	411	561213.1619	4181721.033
270	393	561214.0189	4181721.89
271	389	561214.6886	4181722.759
272	414	561214.8229	4181723.811
273	397	561214.864	4181724.824
274	394	561214.8221	4181725.838
275	377	561214.8322	4181726.89
276	383	561214.85	4181727.943
277	373	561214.8955	4181728.995
278	412	561214.9507	4181730.088
279	394	561215.0115	4181731.188
280	400	561215.0807	4181732.28
281	402	561215.1665	4181733.28
282	418	561215.354	4181734.176
283	412	561215.3175	4181735.125
284	392	561215.1236	4181736.124
285	383	561214.3823	4181736.9
286	424	561213.6453	4181737.545
287	411	561212.7448	4181737.769
288	407	561211.894	4181737.89
289	435	561211.0354	4181737.914
290	427	561210.1413	4181737.947
291	407	561209.2066	4181737.975
292	406	561208.2309	4181737.974
293	405	561207.2622	4181738.021
294	419	561206.2634	4181738.144
295	409	561205.1191	4181737.94
296	374	561204.0002	4181737.57
297	408	561203.0417	4181736.748
298	393	561202.5916	4181735.721
299	396	561202.4708	4181734.542
300	399	561202.5142	4181733.425
301	397	561202.5524	4181732.288

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
302	387	561202.5724	4181731.129
303	389	561202.5709	4181730.07
304	384	561202.5527	4181729.047
305	383	561202.5379	4181728.11
306	389	561202.5144	4181727.162
307	384	561202.4536	4181726.202
308	397	561202.3438	4181725.231
309	399	561202.1287	4181724.233
310	405	561202.5301	4181723.192
311	408	561203.0198	4181722.259
312	402	561203.8654	4181721.639
313	401	561204.7952	4181721.349
314	380	561205.8169	4181721.33
315	389	561206.8662	4181721.346
316	398	561207.9081	4181721.352
317	410	561208.9424	4181721.32
318	413	561209.9673	4181721.191
319	402	561210.994	4181720.936
320	397	561212.0881	4181721.117
321	385	561213.1341	4181721.448
322	422	561213.9777	4181722.239
323	403	561214.4458	4181723.116
324	412	561214.6709	4181724.109
325	390	561214.6861	4181725.098
326	374	561214.7042	4181726.095
327	378	561214.7335	4181727.101
328	396	561214.7569	4181728.107
329	393	561214.7685	4181729.117
330	395	561214.8398	4181730.144
331	378	561214.9101	4181731.134
332	405	561214.9851	4181732.086
333	385	561215.1305	4181733.044
334	389	561215.3876	4181734.008
335	399	561215.2214	4181735.049
336	398	561214.9173	4181736.069
337	402	561214.1796	4181736.93
338	408	561213.2841	4181737.463
339	424	561212.2497	4181737.787
340	419	561211.1722	4181737.792
341	403	561210.0626	4181737.799
342	395	561208.9208	4181737.807
343	416	561207.8357	4181737.862
344	403	561206.7645	4181737.972

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
345	403	561205.6944	4181737.93
346	416	561204.6278	4181737.742
347	385	561203.6654	4181737.099
348	413	561203.055	4181736.247
349	405	561202.659	4181735.196
350	376	561202.6386	4181733.956
351	390	561202.5958	4181732.688
352	396	561202.4927	4181731.392
353	384	561202.3759	4181730.094
354	369	561202.2482	4181728.803
355	392	561202.1638	4181727.544
356	377	561202.057	4181726.274
357	408	561201.8901	4181724.998
358	404	561202.1767	4181723.653
359	402	561202.6809	4181722.303
360	414	561203.8349	4181721.803
361	390	561205.0737	4181721.461
362	416	561206.4452	4181721.554
363	388	561207.7878	4181721.571
364	411	561209.0879	4181721.555
365	411	561210.1792	4181721.386
366	402	561211.3	4181721.322
367	387	561212.4408	4181721.597
368	415	561213.4361	4181722.299
369	400	561214.3421	4181723.225
370	386	561214.3743	4181724.36
371	398	561214.4075	4181725.492
372	392	561214.4447	4181726.62
373	369	561214.4632	4181727.74
374	387	561214.4657	4181728.86
375	402	561214.4903	4181729.982
376	408	561214.5159	4181731.087
377	391	561214.5458	4181732.175
378	416	561214.6289	4181733.278
379	402	561214.7636	4181734.399
380	402	561214.79	4181735.621
381	396	561214.6507	4181736.775
382	412	561214.0043	4181737.763
383	423	561213.0704	4181738.399
384	437	561211.8966	4181738.812
385	420	561210.4399	4181738.78
386	415	561208.911	4181738.812
387	417	561207.3131	4181738.985

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
388	410	561205.7397	4181738.744
389	412	561204.1869	4181738.323
390	410	561203.4948	4181737.08
391	391	561203.0132	4181735.836
392	404	561203.0516	4181734.515
393	404	561203.0499	4181733.222
394	396	561203.0211	4181731.922
395	361	561203.0015	4181730.555
396	399	561202.9851	4181729.205
397	380	561202.9766	4181727.872
398	380	561202.9376	4181726.513
399	419	561202.8787	4181725.129
400	393	561202.8147	4181723.645
401	424	561203.0161	4181722.27
402	415	561203.8659	4181721.122
403	398	561205.1368	4181720.483
404	401	561206.6179	4181720.154
405	420	561208.0755	4181720.02
406	423	561209.52	4181719.927
407	398	561210.954	4181719.934
408	421	561212.2359	4181720.511
409	388	561213.44	4181721.373
410	385	561213.6623	4181722.673
411	396	561213.8321	4181723.928
412	385	561213.8642	4181725.146
413	377	561213.8785	4181726.345
414	393	561213.8763	4181727.538
415	393	561213.9241	4181728.716
416	389	561213.9725	4181729.876
417	391	561214.0243	4181731.018
418	402	561214.0656	4181732.087
419	408	561214.0926	4181733.13
420	388	561214.1809	4181734.12
421	381	561214.1169	4181735.187
422	388	561213.5821	4181736.272
423	411	561212.709	4181737.082
424	428	561211.6272	4181737.734
425	407	561210.3979	4181737.684
426	412	561209.1153	4181737.646
427	402	561207.7787	4181737.641
428	404	561206.3128	4181737.71
429	400	561204.7832	4181737.834
430	389	561203.3813	4181736.85

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
431	398	561202.3661	4181735.722
432	388	561202.1411	4181734.201
433	398	561202.0075	4181732.343
434	395	561201.9314	4181730.433
435	385	561201.941	4181728.622
436	409	561201.917	4181727.055
437	379	561201.806	4181725.735
438	398	561201.9911	4181724.318
439	406	561202.3246	4181722.859
440	413	561203.6897	4181722.21
441	400	561205.0658	4181721.778
442	390	561206.5103	4181721.851
443	394	561207.9634	4181721.862
444	399	561209.4147	4181721.839
445	399	561210.8431	4181721.753
446	386	561212.3311	4181721.786
447	383	561213.8683	4181722.091
448	407	561214.9049	4181722.988
449	405	561215.7043	4181724.261
450	396	561215.8081	4181725.905
451	395	561215.9106	4181727.51
452	408	561216.0133	4181729.078
453	379	561216.1099	4181730.551
454	379	561216.1922	4181731.968
455	408	561216.4115	4181733.176
456	416	561216.4212	4181734.482
457	412	561215.9024	4181735.859
458	383	561215.0519	4181736.754
459	420	561213.9646	4181737.443
460	414	561212.7003	4181737.403
461	411	561211.3127	4181737.376
462	411	561209.8014	4181737.386
463	400	561208.254	4181737.464
464	409	561206.6886	4181737.592
465	408	561205.1527	4181737.078
466	386	561203.915	4181736.27
467	401	561203.3189	4181734.801
468	392	561202.9817	4181733.403
469	408	561202.7741	4181731.998
470	394	561202.7205	4181730.576
471	393	561202.6759	4181729.181
472	372	561202.6528	4181727.812
473	381	561202.551	4181726.564

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
474	380	561202.3563	4181725.331
475	410	561202.7284	4181724.104
476	418	561203.2886	4181723.02
477	383	561204.3677	4181722.328
478	412	561205.523	4181722.095
479	422	561206.7675	4181722.177
480	422	561208.1045	4181722.186
481	408	561209.4718	4181722.163
482	390	561210.8678	4181722.056
483	408	561212.2098	4181722.582
484	393	561213.501	4181723.432
485	378	561213.7376	4181724.836
486	376	561213.9035	4181726.241
487	388	561213.8959	4181727.656
488	386	561213.94	4181729.051
489	390	561214.0169	4181730.426
490	391	561214.0624	4181731.734
491	410	561214.139	4181733.042
492	411	561214.2987	4181734.346
493	401	561214.0091	4181735.641
494	410	561213.4782	4181736.939
495	431	561212.2345	4181737.463
496	410	561210.8296	4181737.875
497	401	561209.2179	4181737.983
498	425	561207.6216	4181738.054
499	402	561206.068	4181738.161
500	408	561205.0739	4181737.417
501	416	561204.2577	4181736.486
502	372	561203.9782	4181735.14
503	396	561203.8065	4181733.733
504	405	561203.7019	4181732.313
505	400	561203.6467	4181730.917
506	378	561203.5908	4181729.535
507	387	561203.5319	4181728.166
508	400	561203.4136	4181726.805
509	396	561203.2226	4181725.444
510	388	561203.7163	4181724.183
511	431	561204.3537	4181723.126
512	389	561205.4489	4181722.557
513	398	561206.667	4181722.341
514	408	561207.9511	4181722.374
515	409	561209.2386	4181722.326
516	396	561210.5402	4181722.272

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
517	388	561211.8556	4181722.202
518	393	561213.2247	4181722.494
519	407	561214.6055	4181722.959
520	388	561215.188	4181724.19
521	376	561215.6494	4181725.503
522	389	561215.7916	4181726.953
523	398	561215.9285	4181728.508
524	371	561216.0613	4181730.116
525	401	561216.2449	4181731.876
526	399	561216.3864	4181733.549
527	425	561216.4458	4181735.14
528	384	561216.5057	4181736.562
529	418	561216.5682	4181737.962
530	411	561216.6585	4181739.421
531	411	561216.4393	4181740.807
532	380	561215.5014	4181741.992
533	387	561214.3456	4181742.524
534	396	561213.0108	4181742.692
535	379	561211.6585	4181742.783
536	397	561210.2635	4181742.874
537	397	561208.8256	4181742.959
538	396	561207.4765	4181743.051
539	389	561206.1506	4181743.148
540	406	561204.851	4181743.259
541	404	561203.5396	4181743.095
542	408	561202.3176	4181742.267
543	412	561201.6797	4181741.116
544	386	561201.3642	4181739.754
545	382	561201.3773	4181738.366
546	390	561201.3878	4181736.885
547	375	561201.3914	4181735.312
548	403	561201.3976	4181733.771
549	392	561201.4045	4181732.241
550	390	561201.433	4181730.738
551	372	561201.4484	4181729.247
552	387	561201.4329	4181727.768
553	373	561201.3583	4181726.373
554	409	561201.2131	4181724.964
555	385	561202.1081	4181723.737
556	411	561203.0728	4181722.838
557	399	561204.3494	4181722.68
558	396	561205.6012	4181722.626
559	392	561206.8558	4181722.639

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
560	386	561208.135	4181722.668
561	413	561209.4143	4181722.679
562	395	561210.6935	4181722.642
563	376	561212.075	4181722.602
564	371	561213.5189	4181722.54
565	397	561214.783	4181723.544
566	409	561215.6605	4181724.714
567	388	561215.6946	4181726.277
568	387	561215.719	4181727.461
569	378	561215.7418	4181728.657
570	394	561215.8116	4181730.295
571	403	561215.8671	4181732.053
572	406	561215.89	4181733.931
573	423	561215.9625	4181735.437
574	405	561216.0599	4181736.863
575	425	561216.299	4181738.244
576	409	561216.3043	4181739.592
577	408	561215.7237	4181740.861
578	404	561214.7989	4181741.664
579	411	561213.6343	4181742.224
580	385	561212.35	4181742.299
581	380	561211.0486	4181742.38
582	386	561209.7307	4181742.474
583	388	561208.3888	4181742.566
584	390	561207.0575	4181742.65
585	401	561205.812	4181742.793
586	419	561204.5004	4181742.742
587	387	561203.1623	4181742.204
588	420	561202.2837	4181741.21
589	382	561201.6466	4181739.946
590	387	561201.6885	4181738.571
591	407	561201.7218	4181737.187
592	391	561201.7332	4181735.793
593	402	561201.7346	4181734.378
594	416	561201.7302	4181732.961
595	390	561201.72	4181731.557
596	384	561201.7209	4181730.142
597	376	561201.749	4181728.713
598	402	561201.6853	4181727.514
599	370	561201.5145	4181726.345
600	393	561201.9025	4181725.17
601	403	561202.4319	4181724.124
602	410	561203.4017	4181723.427

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
603	408	561204.4096	4181723.127
604	405	561205.5002	4181723.102
605	401	561206.6251	4181723.167
606	405	561207.7644	4181723.216
607	405	561208.919	4181723.211
608	415	561210.0714	4181723.193
609	395	561211.2433	4181723.163
610	399	561212.5162	4181723.165
611	378	561213.7664	4181723.402
612	407	561214.8735	4181724.234
613	395	561215.4237	4181725.388
614	385	561215.6389	4181726.748
615	382	561215.6417	4181728.137
616	392	561215.6419	4181729.503
617	396	561215.6349	4181730.843
618	408	561215.7121	4181732.189
619	404	561215.8398	4181733.531
620	427	561216.0125	4181734.848
621	431	561216.2069	4181736.179
622	392	561216.4537	4181737.52
623	426	561216.341	4181738.921
624	418	561216.0594	4181740.344
625	383	561214.9624	4181741.101
626	391	561213.922	4181741.673
627	428	561212.8347	4181741.775
628	390	561211.6602	4181741.857
629	409	561210.4441	4181741.922
630	412	561209.1123	4181741.986
631	395	561207.8017	4181742.05
632	393	561206.5125	4181742.115
633	391	561205.1695	4181742.186
634	421	561203.7414	4181742.263
635	385	561202.3733	4181741.087
636	412	561201.4485	4181739.826
637	377	561201.4051	4181738.271
638	390	561201.4248	4181736.547
639	402	561201.4775	4181734.791
640	407	561201.6272	4181733.054
641	419	561201.7826	4181731.318
642	392	561201.9497	4181729.586
643	376	561201.9564	4181728.127
644	407	561201.8628	4181726.677
645	408	561202.5307	4181725.155

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
646	381	561203.3226	4181724.014
647	406	561204.5696	4181723.621
648	412	561205.7741	4181723.525
649	376	561206.9973	4181723.64
650	397	561208.2856	4181723.594
651	399	561209.6086	4181723.555
652	385	561210.9667	4181723.538
653	409	561212.1533	4181724
654	388	561213.2831	4181724.729
655	378	561213.5537	4181725.958
656	364	561213.7691	4181727.232
657	396	561213.8261	4181728.565
658	396	561213.908	4181729.976
659	381	561213.9919	4181731.342
660	391	561214.1256	4181732.386
661	391	561214.2115	4181733.504
662	394	561214.1348	4181734.697
663	399	561213.8858	4181735.514
664	402	561213.0785	4181736.433
665	400	561213.2262	4181736.372
666	415	561213.7221	4181736.161
667	398	561213.4634	4181736.276
668	397	561213.2851	4181736.241
669	398	561213.3195	4181736.429
670	396	561213.2548	4181736.455
671	401	561213.1275	4181736.417
672	388	561213.044	4181736.49
673	399	561212.4972	4181736.882
674	427	561211.8731	4181737.157
675	442	561211.8392	4181737.194
676	391	561211.389	4181737.431
677	417	561211.5317	4181737.431
678	412	561211.73	4181737.444
679	416	561211.0687	4181737.515
680	400	561209.6368	4181737.589
681	406	561208.1755	4181737.688
682	399	561206.6874	4181737.846
683	398	561204.9864	4181737.304
684	379	561203.3003	4181736.433
685	414	561203.023	4181734.686
686	409	561202.8212	4181733.075
687	395	561202.7673	4181731.591
688	380	561202.6739	4181729.831

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
689	369	561202.5609	4181727.979
690	376	561202.3896	4181725.948
691	390	561202.6894	4181723.957
692	401	561203.8223	4181722.09
693	414	561205.6726	4181721.416
694	403	561207.8168	4181721.265
695	392	561209.851	4181721.124
696	394	561211.8146	4181721.375
697	402	561213.6391	4181722.342
698	376	561214.6571	4181723.636
699	386	561215.3538	4181725.187
700	400	561215.4989	4181727.049
701	400	561215.6436	4181729.259
702	392	561215.7712	4181731.816
703	388	561215.8076	4181733.945
704	390	561215.8067	4181735.925
705	392	561215.8862	4181737.579
706	416	561215.6159	4181739.185
707	399	561214.6305	4181740.639
708	413	561213.3411	4181741.26
709	382	561211.7742	4181741.471
710	395	561209.8813	4181741.5
711	408	561208.1235	4181741.565
712	419	561206.5032	4181741.709
713	408	561205.0073	4181741.532
714	413	561203.5186	4181741.193
715	391	561202.6527	4181739.884
716	384	561202.0494	4181738.465
717	422	561202.0339	4181736.837
718	391	561202.0352	4181736.797
719	395	561202.0526	4181737.962
720	413	561202.2195	4181739.963
721	398	561202.5778	4181741.527
722	405	561203.4896	4181742.491
723	424	561203.2683	4181742.338
724	416	561202.2453	4181741.387
725	402	561202.0021	4181739.519
726	379	561201.8839	4181737.552
727	397	561202.0025	4181735.484
728	410	561202.0426	4181733.448
729	381	561202.0453	4181731.435
730	390	561201.8849	4181729.516
731	406	561201.8313	4181727.672

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
732	385	561201.9871	4181725.902
733	389	561202.8303	4181724.799
734	406	561204.08	4181723.965
735	395	561205.6054	4181723.971
736	397	561207.1211	4181723.971
737	390	561208.627	4181723.956
738	379	561209.8037	4181723.959
739	387	561210.9489	4181723.982
740	390	561212.2627	4181723.9
741	381	561213.5485	4181724.007
742	396	561214.743	4181724.609
743	383	561215.5294	4181725.884
744	381	561216.0278	4181727.59
745	393	561216.0918	4181729.954
746	398	561216.1688	4181732.151
747	380	561216.2737	4181734.182
748	410	561216.466	4181736.097
749	415	561216.4813	4181737.745
750	400	561216.0063	4181739.124
751	401	561215.2161	4181740.27
752	393	561213.7451	4181740.826
753	406	561212.2366	4181741.023
754	399	561210.7011	4181741.018
755	400	561209.1854	4181741.056
756	414	561207.6769	4181741.12
757	403	561206.1777	4181741.246
758	401	561204.5852	4181740.994
759	415	561203.0003	4181740.588
760	412	561202.2738	4181739.402
761	400	561201.7572	4181737.808
762	411	561201.7662	4181735.719
763	392	561201.8339	4181733.772
764	397	561201.9287	4181731.867
765	398	561201.9396	4181730.03
766	387	561201.9833	4181728.303
767	380	561202.0989	4181726.685
768	393	561202.8438	4181725.5
769	389	561203.8994	4181724.488
770	412	561205.0996	4181724.477
771	402	561206.4109	4181724.45
772	386	561207.8326	4181724.382
773	393	561209.1773	4181724.347
774	386	561210.5346	4181724.33

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
775	406	561212.0295	4181724.341
776	391	561213.4487	4181724.601
777	397	561214.6884	4181725.445
778	377	561215.3242	4181726.833
779	366	561215.6017	4181728.478
780	401	561215.8023	4181730.11
781	395	561215.9484	4181731.794
782	386	561215.9762	4181733.535
783	399	561216.0964	4181735.176
784	422	561216.2773	4181736.79
785	419	561215.9362	4181738.352
786	397	561215.3196	4181739.645
787	402	561214.0343	4181740.379
788	415	561212.6035	4181740.625
789	391	561211.0904	4181740.583
790	408	561209.5468	4181740.616
791	401	561207.957	4181740.61
792	400	561206.3217	4181740.52
793	398	561205.1383	4181739.722
794	429	561204.1512	4181738.549
795	401	561204.189	4181737.126
796	396	561204.2148	4181735.782
797	390	561204.2109	4181734.518
798	377	561204.188	4181733.174
799	399	561204.1557	4181731.819
800	403	561204.0853	4181730.495
801	415	561204.0021	4181729.136
802	402	561203.8902	4181727.744
803	401	561203.7681	4181726.304
804	405	561203.6136	4181724.843
805	380	561204.2924	4181723.51
806	389	561205.4195	4181722.402
807	387	561207.302	4181721.899
808	411	561209.012	4181721.678
809	380	561210.7239	4181721.59
810	402	561212.2078	4181722.69
811	391	561213.2426	4181723.79
812	375	561213.4291	4181725.125
813	371	561213.4782	4181726.286
814	374	561213.4241	4181727.395
815	402	561213.4888	4181728.404
816	404	561213.5464	4181729.45
817	378	561213.5736	4181730.535

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
818	403	561213.6772	4181731.895
819	394	561213.8261	4181733.327
820	418	561213.9818	4181734.846
821	410	561214.1376	4181736.324
822	400	561214.2997	4181737.76
823	425	561214.1779	4181739.188
824	401	561213.9217	4181740.633
825	407	561212.7255	4181741.467
826	411	561211.4504	4181742.073
827	404	561209.9891	4181742.129
828	401	561208.5011	4181742.223
829	397	561207.0065	4181742.377
830	387	561205.8327	4181741.536
831	416	561204.9417	4181740.604
832	398	561204.7157	4181739.338
833	366	561204.6333	4181738.124
834	405	561204.646	4181736.922
835	390	561204.6698	4181735.764
836	391	561204.6807	4181734.613
837	392	561204.6507	4181733.47
838	403	561204.6152	4181732.329
839	366	561204.5767	4181731.187
840	397	561204.5237	4181730.042
841	397	561204.4663	4181728.885
842	389	561204.3963	4181727.714
843	395	561204.3164	4181726.486
844	400	561204.2046	4181725.252
845	429	561204.4483	4181724.079
846	380	561204.9372	4181722.959
847	417	561206.0209	4181722.107
848	389	561207.5059	4181721.68
849	409	561209.1344	4181721.516
850	410	561210.6745	4181721.828
851	413	561211.9805	4181722.407
852	409	561212.7975	4181723.63
853	380	561213.0895	4181724.915
854	390	561213.0699	4181726.275
855	392	561213.0879	4181727.652
856	421	561213.1267	4181728.985
857	424	561213.2233	4181730.275
858	403	561213.3151	4181731.401
859	393	561213.4135	4181732.485
860	396	561213.4723	4181733.534

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
861	423	561213.533	4181734.608
862	403	561213.5968	4181735.706
863	419	561213.681	4181736.879
864	398	561213.7822	4181738.079
865	408	561213.8318	4181739.346
866	403	561213.6632	4181740.596
867	371	561212.9271	4181741.733
868	369	561211.8901	4181742.368
869	404	561210.63	4181742.703
870	419	561209.2734	4181742.839
871	415	561207.9202	4181742.823
872	397	561206.5934	4181742.421
873	407	561205.7226	4181741.562
874	421	561205.0814	4181740.42
875	404	561205.1339	4181739.194
876	394	561205.166	4181737.913
877	387	561205.1403	4181736.577
878	384	561205.1245	4181735.34
879	417	561205.1173	4181734.128
880	432	561205.077	4181732.944
881	422	561205.0397	4181731.777
882	376	561205.0102	4181730.627
883	397	561204.9753	4181729.525
884	371	561204.9352	4181728.43
885	407	561204.897	4181727.32
886	386	561204.8476	4181726.178
887	394	561204.7664	4181725.003
888	414	561205.0152	4181723.931
889	406	561205.4673	4181722.867
890	418	561206.478	4181722.318
891	396	561207.5678	4181721.887
892	407	561208.8089	4181721.835
893	381	561210.0379	4181722.04
894	382	561211.2689	4181722.369
895	401	561212.042	4181723.289
896	408	561212.6281	4181724.225
897	388	561212.6571	4181725.316
898	372	561212.6828	4181726.509
899	380	561212.7003	4181727.729
900	400	561212.7896	4181728.982
901	395	561212.8807	4181730.229
902	395	561212.9776	4181731.47
903	405	561213.0882	4181732.602

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
904	402	561213.2182	4181733.694
905	373	561213.2882	4181734.716
906	395	561213.37	4181735.8
907	404	561213.4802	4181736.944
908	415	561213.4101	4181738.121
909	399	561213.2544	4181739.338
910	405	561212.3459	4181740.235
911	365	561211.3481	4181740.912
912	406	561210.089	4181740.983
913	404	561208.7407	4181741.017
914	392	561207.3504	4181741.071
915	410	561206.3131	4181740.123
916	427	561205.5508	4181739.152
917	401	561205.4613	4181737.965
918	389	561205.4553	4181736.753
919	402	561205.5171	4181735.542
920	399	561205.4733	4181734.362
921	391	561205.4422	4181733.209
922	398	561205.4505	4181732.082
923	406	561205.4502	4181730.96
924	393	561205.4471	4181729.821
925	384	561205.3883	4181728.595
926	382	561205.3292	4181727.285
927	385	561205.2754	4181725.889
928	392	561205.2926	4181724.524
929	387	561205.383	4181723.257
930	409	561205.2593	4181722.463
931	393	561204.9559	4181721.552
932	412	561205.4251	4181721.922
933	406	561205.1808	4181721.902
934	389	561205.3259	4181722.736
935	393	561205.0544	4181724.322
936	392	561204.5352	4181726.067
937	378	561204.6599	4181727.973
938	398	561204.7981	4181729.804
939	393	561204.9691	4181731.559
940	399	561205.0854	4181734.185
941	410	561205.1549	4181736.937
942	411	561205.0133	4181739.443
943	426	561204.8964	4181741.475
944	381	561204.8017	4181743.036
945	413	561204.6752	4181742.775
946	415	561204.5209	4181741.39

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
947	387	561204.2351	4181739.803
948	394	561204.0204	4181738.259
949	397	561203.9584	4181736.749
950	383	561203.9492	4181735.419
951	393	561203.9807	4181734.139
952	407	561203.8856	4181732.935
953	390	561203.7931	4181731.657
954	392	561203.7167	4181730.306
955	366	561203.6679	4181728.903
956	380	561203.6375	4181727.487
957	375	561203.595	4181726.056
958	389	561203.5408	4181724.674
959	425	561203.4537	4181723.341
960	400	561203.4633	4181723.024
961	395	561203.3893	4181722.563
962	388	561203.266	4181723.878
963	407	561203.1981	4181725.328
964	390	561203.2682	4181726.916
965	384	561203.3206	4181728.35
966	386	561203.3662	4181729.794
967	386	561203.4218	4181731.443
968	398	561203.4615	4181733.088
969	396	561203.4671	4181734.729
970	389	561203.4488	4181736.397
971	411	561203.4165	4181738.077
972	399	561203.5177	4181739.784
973	395	561203.5786	4181741.439
974	403	561203.5549	4181743.043
975	396	561203.5618	4181743.152
976	409	561203.5893	4181742.147
977	397	561203.8092	4181740.68
978	409	561203.9562	4181739.143
979	398	561203.9326	4181737.53
980	405	561203.9164	4181735.963
981	392	561203.9051	4181734.376
982	419	561203.7127	4181732.647
983	391	561203.5641	4181731.028
984	376	561203.5002	4181729.515
985	386	561203.5473	4181728
986	403	561203.604	4181726.495
987	382	561204.5359	4181725.57
988	363	561205.0583	4181724.971
989	390	561205.2859	4181724.862

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
990	386	561206.3415	4181724.719
991	400	561207.6006	4181724.735
992	394	561208.8647	4181724.638
993	408	561210.1816	4181724.755
994	380	561211.4921	4181725.396
995	388	561211.9661	4181725.427
996	388	561211.9125	4181724.596
997	384	561211.9394	4181722.646
998	429	561211.9648	4181721.144
999	418	561211.9598	4181721.288
1000	382	561212.0333	4181722.491
1001	401	561212.1698	4181723.865
1002	381	561212.2354	4181725.052
1003	400	561212.3128	4181726.254
1004	382	561212.4229	4181727.469
1005	397	561212.5435	4181728.752
1006	394	561212.6717	4181730.047
1007	398	561212.7382	4181731.337
1008	386	561212.7921	4181732.549
1009	395	561212.8141	4181733.683
1010	402	561212.8215	4181734.762
1011	384	561212.8197	4181735.86
1012	395	561212.7847	4181737.112
1013	422	561212.7506	4181738.457
1014	415	561212.7224	4181739.895
1015	402	561212.18	4181741.121
1016	391	561211.3539	4181742.266
1017	400	561210.027	4181742.527
1018	391	561208.6922	4181742.629
1019	411	561207.353	4181742.326
1020	407	561206.3767	4181741.517
1021	415	561205.5797	4181740.412
1022	419	561205.6423	4181739.132
1023	387	561205.7156	4181737.866
1024	402	561205.8205	4181736.617
1025	396	561205.8424	4181735.371
1026	387	561205.8028	4181734.124
1027	408	561205.8314	4181732.873
1028	398	561205.8472	4181731.627
1029	420	561205.8265	4181730.384
1030	397	561205.7814	4181729.12
1031	371	561205.7213	4181727.863
1032	408	561205.6512	4181726.657

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1033	388	561205.57	4181725.422
1034	393	561205.4612	4181724.158
1035	410	561205.9665	4181722.955
1036	409	561206.8494	4181721.799
1037	403	561208.381	4181721.487
1038	398	561209.8193	4181721.532
1039	406	561211.0708	4181722.393
1040	374	561211.7116	4181723.452
1041	418	561212.0364	4181724.677
1042	382	561212.0897	4181725.854
1043	396	561212.1438	4181727.098
1044	397	561212.195	4181728.411
1045	381	561212.2642	4181729.76
1046	408	561212.3476	4181731.102
1047	398	561212.3644	4181732.383
1048	423	561212.3885	4181733.601
1049	399	561212.4374	4181734.754
1050	402	561212.5075	4181735.957
1051	401	561212.6394	4181737.198
1052	409	561211.9521	4181738.329
1053	415	561211.5162	4181739.078
1054	433	561211.247	4181739.384
1055	424	561211.6277	4181739.607
1056	401	561212.8227	4181739.505
1057	415	561214.4609	4181739.438
1058	383	561215.7392	4181739.392
1059	401	561216.6582	4181739.389
1060	412	561216.531	4181739.393
1061	434	561215.444	4181739.401
1062	422	561214.204	4181739.424
1063	429	561212.9186	4181739.457
1064	415	561211.588	4181739.514
1065	409	561210.2361	4181739.566
1066	450	561208.858	4181739.614
1067	439	561207.3772	4181739.75
1068	417	561205.9377	4181739.851
1069	403	561204.5369	4181739.876
1070	398	561203.0669	4181739.877
1071	403	561201.4284	4181739.609
1072	404	561201.4833	4181739.746
1073	400	561201.9879	4181740.093
1074	405	561203.32	4181740.089
1075	410	561204.7851	4181740.062

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1076	415	561206.2274	4181740.027
1077	421	561207.4206	4181739.958
1078	410	561208.6373	4181739.898
1079	425	561209.8781	4181739.87
1080	412	561211.1934	4181739.838
1081	380	561212.5263	4181739.805
1082	429	561213.873	4181739.783
1083	414	561215.2482	4181739.788
1084	392	561216.6512	4181739.861
1085	410	561217.2922	4181739.981
1086	418	561217.0131	4181739.661
1087	411	561215.6999	4181740.068
1088	396	561214.4809	4181740.382
1089	414	561213.3311	4181740.476
1090	400	561213.0543	4181740.617
1091	400	561212.6173	4181740.477
1092	406	561213.7483	4181740.308
1093	407	561214.4863	4181740.181
1094	408	561214.838	4181740.174
1095	405	561214.4326	4181740.18
1096	421	561213.1806	4181740.198
1097	423	561212.0534	4181740.244
1098	415	561210.8635	4181740.293
1099	441	561209.611	4181740.344
1100	402	561208.2666	4181740.393
1101	427	561206.8976	4181740.44
1102	421	561205.4981	4181740.482
1103	400	561204.0341	4181740.544
1104	410	561202.5067	4181740.649
1105	395	561201.6535	4181740.708
1106	379	561200.6507	4181740.74
1107	385	561201.7597	4181741.04
1108	412	561202.9778	4181741.342
1109	399	561204.3145	4181741.607
1110	401	561204.7845	4181741.542
1111	383	561204.9607	4181741.978
1112	411	561203.6717	4181741.424
1113	413	561202.7889	4181740.947
1114	408	561202.6161	4181741.328
1115	397	561202.462	4181741.758
1116	392	561202.4493	4181742.463
1117	397	561202.4113	4181740.743
1118	415	561202.3692	4181739.02

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1119	396	561202.3186	4181737.294
1120	392	561202.2849	4181736.506
1121	394	561202.194	4181735.604
1122	385	561202.4719	4181736.732
1123	381	561202.7024	4181738.141
1124	404	561202.7634	4181739.849
1125	400	561202.9407	4181741.586
1126	403	561203.2312	4181743.542
1127	382	561203.1058	4181743.052
1128	400	561203.0482	4181741.943
1129	431	561203.29	4181740.201
1130	406	561203.3571	4181738.602
1131	375	561203.2992	4181737.229
1132	393	561203.3503	4181736.88
1133	398	561203.3578	4181736.608
1134	412	561203.0584	4181737.58
1135	412	561202.9767	4181738.849
1136	408	561203.0637	4181740.18
1137	397	561203.2176	4181741.441
1138	386	561203.3377	4181742.24
1139	414	561203.32	4181742.579
1140	396	561203.3106	4181741.822
1141	396	561203.3077	4181740.122
1142	373	561204.6192	4181739.087
1143	429	561206.0395	4181738.366
1144	420	561207.6971	4181738.309
1145	430	561209.4165	4181738.305
1146	424	561211.1577	4181738.329
1147	411	561212.9438	4181738.259
1148	411	561214.6196	4181738.219
1149	391	561216.1856	4181738.241
1150	403	561216.617	4181738.305
1151	435	561215.9966	4181738.589
1152	411	561214.5713	4181738.74
1153	426	561213.1927	4181738.871
1154	408	561211.8586	4181738.955
1155	407	561210.5999	4181739.059
1156	433	561209.3589	4181739.178
1157	428	561208.1238	4181739.276
1158	428	561206.8357	4181739.397
1159	410	561205.4977	4181739.573
1160	406	561204.3095	4181739.951
1161	396	561202.9423	4181740.573

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1162	405	561203.6912	4181740.285
1163	395	561204.7082	4181739.737
1164	410	561205.8971	4181738.763
1165	387	561206.364	4181737.894
1166	401	561206.4899	4181736.561
1167	412	561206.3926	4181737.014
1168	415	561206.2931	4181738.091
1169	414	561206.3307	4181739.804
1170	403	561206.3398	4181740.786
1171	391	561206.3296	4181741.903
1172	437	561206.3357	4181740.823
1173	395	561206.3383	4181739.646
1174	396	561206.3302	4181738.371
1175	428	561206.331	4181737.119
1176	402	561206.341	4181735.874
1177	413	561206.3071	4181734.646
1178	421	561206.2848	4181733.447
1179	408	561206.2971	4181732.276
1180	390	561206.2812	4181731.114
1181	370	561206.2426	4181729.943
1182	393	561206.2222	4181728.716
1183	393	561206.195	4181727.479
1184	395	561206.1486	4181726.231
1185	406	561206.1184	4181724.948
1186	396	561206.1255	4181723.79
1187	380	561206.0648	4181723.307
1188	407	561206.0694	4181722.493
1189	409	561206.0612	4181722.524
1190	416	561206.0492	4181722.547
1191	414	561206.0103	4181723.13
1192	410	561205.9896	4181722.976
1193	411	561206.0051	4181722.429
1194	416	561205.9225	4181722.645
1195	409	561205.8042	4181722.856
1196	418	561205.8304	4181723.156
1197	365	561205.7132	4181723.768
1198	397	561205.5836	4181725.053
1199	381	561205.542	4181727.021
1200	395	561205.4513	4181729.575
1201	441	561205.3624	4181731.951
1202	409	561205.2858	4181732.851
1203	407	561205.1868	4181734.386
1204	412	561205.0893	4181736.558

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1205	436	561205.0471	4181738.503
1206	407	561205.0177	4181740.124
1207	421	561205.027	4181740.345
1208	434	561205.0529	4181740.292
1209	411	561205.0808	4181738.766
1210	409	561204.919	4181736.938
1211	396	561204.6665	4181735.066
1212	410	561204.5732	4181733.243
1213	396	561204.5006	4181731.443
1214	387	561204.4687	4181729.667
1215	389	561204.3263	4181727.87
1216	398	561204.1218	4181726.087
1217	397	561204.8822	4181724.564
1218	418	561205.8649	4181723.37
1219	419	561207.3676	4181722.842
1220	416	561209.0823	4181722.959
1221	384	561210.8146	4181723.353
1222	371	561211.414	4181724.604
1223	389	561211.8451	4181725.86
1224	387	561211.8514	4181727.18
1225	394	561211.8579	4181728.327
1226	385	561211.862	4181729.456
1227	403	561211.9103	4181730.675
1228	410	561211.9602	4181731.913
1229	404	561212.0128	4181733.172
1230	395	561212.0724	4181734.429
1231	392	561212.1325	4181735.691
1232	399	561212.2683	4181736.977
1233	423	561212.1978	4181738.299
1234	427	561211.6137	4181739.609
1235	388	561211.1613	4181740.293
1236	410	561210.1992	4181740.829
1237	389	561210.3852	4181740.855
1238	410	561210.2845	4181740.867
1239	408	561208.705	4181740.729
1240	418	561207.5063	4181739.943
1241	415	561206.4738	4181738.817
1242	395	561206.5499	4181737.405
1243	400	561206.615	4181736.093
1244	407	561206.6579	4181734.879
1245	405	561206.6645	4181733.586
1246	383	561206.645	4181732.244
1247	389	561206.6412	4181730.727

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1248	383	561206.6437	4181729.177
1249	390	561206.6601	4181727.593
1250	369	561206.6328	4181726.138
1251	422	561206.5923	4181724.717
1252	393	561206.3002	4181723.375
1253	412	561205.5798	4181722.101
1254	419	561204.0461	4181721.169
1255	409	561202.8596	4181720.296
1256	413	561202.8605	4181720.298
1257	432	561203.2886	4181720.685
1258	414	561202.8329	4181720.564
1259	401	561203.5079	4181720.503
1260	406	561204.4645	4181720.435
1261	428	561205.7048	4181720.395
1262	425	561206.9947	4181720.389
1263	398	561208.3513	4181720.41
1264	409	561209.9728	4181720.178
1265	397	561210.9054	4181720.147
1266	391	561211.04	4181720.049
1267	418	561210.4965	4181720.102
1268	393	561209.11	4181720.528
1269	410	561208.1097	4181722.078
1270	379	561207.4469	4181723.099
1271	393	561207.4547	4181723.689
1272	383	561207.3301	4181722.901
1273	397	561206.9633	4181720.904
1274	419	561207.0559	4181721.02
1275	409	561207.0878	4181722.116
1276	388	561206.5395	4181724.304
1277	385	561206.3636	4181726.701
1278	390	561206.3379	4181729.145
1279	379	561206.0981	4181731.553
1280	397	561205.9691	4181733.908
1281	409	561206.0248	4181736.213
1282	392	561206.3221	4181738.393
1283	417	561206.7634	4181740.495
1284	404	561208.7779	4181741.137
1285	414	561210.7439	4181741.524
1286	387	561212.6894	4181741.455
1287	417	561214.1598	4181740.444
1288	418	561215.3961	4181739.011
1289	442	561215.4361	4181737.28
1290	412	561215.4077	4181735.469

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1291	402	561215.2459	4181733.58
1292	394	561215.0797	4181731.7
1293	396	561214.9104	4181729.818
1294	384	561214.6945	4181727.919
1295	392	561214.5115	4181726.053
1296	398	561214.3894	4181724.217
1297	399	561213.4482	4181722.958
1298	386	561212.3044	4181722.013
1299	404	561212.0138	4181721.941
1300	412	561211.8449	4181721.516
1301	411	561212.7668	4181720.423
1302	384	561212.4963	4181720.693
1303	401	561211.4839	4181721.726
1304	400	561211.3713	4181722.963
1305	389	561211.3017	4181724.23
1306	383	561211.3534	4181725.53
1307	370	561211.3794	4181726.824
1308	379	561211.3856	4181728.111
1309	377	561211.4341	4181729.362
1310	392	561211.472	4181730.578
1311	394	561211.4805	4181731.758
1312	406	561211.5393	4181732.896
1313	386	561211.649	4181734.018
1314	396	561211.6203	4181735.107
1315	413	561211.5969	4181736.237
1316	421	561211.5923	4181737.409
1317	429	561211.5664	4181738.352
1318	428	561211.4883	4181739.697
1319	425	561211.4887	4181739.691
1320	450	561211.4793	4181739.555
1321	423	561211.5291	4181739.297
1322	419	561211.6979	4181738.051
1323	394	561211.8697	4181736.558
1324	386	561211.8136	4181734.829
1325	391	561211.7548	4181733.167
1326	402	561211.6875	4181731.571
1327	404	561211.5976	4181729.876
1328	375	561211.4972	4181728.157
1329	380	561211.4054	4181726.417
1330	393	561211.3134	4181724.677
1331	384	561211.2209	4181722.937
1332	400	561210.9373	4181721.659
1333	410	561210.4665	4181720.352

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1334	405	561210.7847	4181721.782
1335	386	561211.0061	4181723.206
1336	397	561210.9959	4181724.638
1337	401	561211.0318	4181726.094
1338	394	561211.0958	4181727.537
1339	368	561211.1272	4181728.898
1340	398	561211.1778	4181730.271
1341	402	561211.2761	4181731.654
1342	411	561211.4094	4181733.207
1343	422	561211.5609	4181734.801
1344	395	561211.5732	4181736.443
1345	403	561211.5621	4181738.051
1346	414	561211.4988	4181739.625
1347	398	561211.5013	4181740.267
1348	417	561211.3544	4181739.905
1349	413	561211.2922	4181738.89
1350	411	561211.205	4181737.66
1351	395	561211.0761	4181736.217
1352	379	561211.0005	4181734.811
1353	397	561210.9571	4181733.414
1354	362	561210.8927	4181732.035
1355	381	561210.8362	4181730.845
1356	364	561210.7847	4181729.845
1357	379	561210.7454	4181728.787
1358	377	561210.7178	4181727.708
1359	367	561210.6861	4181726.583
1360	391	561210.6514	4181725.484
1361	370	561210.6042	4181724.413
1362	380	561210.5261	4181723.308
1363	427	561210.4228	4181722.231
1364	420	561210.3722	4181721.315
1365	392	561210.3319	4181720.784
1366	410	561210.3392	4181721.838
1367	393	561210.3715	4181722.979
1368	403	561210.4214	4181724.157
1369	396	561210.4952	4181725.429
1370	403	561210.5611	4181726.707
1371	372	561210.6049	4181727.992
1372	384	561210.6665	4181729.343
1373	382	561210.7406	4181730.69
1374	385	561210.7618	4181731.966
1375	408	561210.7923	4181733.184
1376	404	561210.854	4181734.344

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1377	417	561210.9078	4181735.561
1378	412	561210.9544	4181736.799
1379	413	561211.0098	4181738.085
1380	436	561211.0508	4181739.104
1381	424	561211.0555	4181739.857
1382	408	561211.0189	4181740.186
1383	423	561210.7605	4181739.649
1384	397	561210.6819	4181738.539
1385	396	561210.5965	4181737.279
1386	400	561210.5101	4181735.87
1387	389	561210.4378	4181734.501
1388	405	561210.3715	4181733.106
1389	371	561210.3142	4181731.547
1390	368	561210.2343	4181729.9
1391	397	561210.1112	4181728.167
1392	381	561210.0675	4181726.442
1393	389	561210.0657	4181724.726
1394	408	561209.9689	4181723.053
1395	412	561209.8968	4181721.834
1396	407	561209.8376	4181721.068
1397	392	561209.8472	4181721.336
1398	397	561209.925	4181722.524
1399	393	561209.9406	4181723.701
1400	370	561209.959	4181724.87
1401	359	561209.9867	4181726.031
1402	376	561210.004	4181727.273
1403	385	561210.0137	4181728.609
1404	386	561210.0719	4181730.334
1405	364	561210.1085	4181731.923
1406	384	561210.0991	4181733.377
1407	393	561210.129	4181734.66
1408	378	561210.1825	4181735.918
1409	400	561210.2926	4181737.219
1410	415	561210.3703	4181738.477
1411	412	561210.3598	4181739.693
1412	417	561210.3339	4181740.131
1413	426	561210.1216	4181739.583
1414	419	561210.1008	4181738.286
1415	385	561210.0669	4181736.883
1416	409	561210.005	4181735.373
1417	394	561209.9181	4181733.779
1418	398	561209.8183	4181732.197
1419	397	561209.7826	4181730.753

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1420	374	561209.744	4181729.314
1421	381	561209.6982	4181727.879
1422	385	561209.6551	4181726.474
1423	384	561209.6147	4181725.079
1424	375	561209.551	4181723.701
1425	410	561209.472	4181722.415
1426	410	561209.3383	4181721.226
1427	396	561209.3273	4181721.163
1428	393	561209.4339	4181722.109
1429	378	561209.4332	4181723.406
1430	385	561209.4422	4181724.677
1431	366	561209.4788	4181725.921
1432	391	561209.5071	4181727.232
1433	376	561209.5301	4181728.568
1434	411	561209.5413	4181729.965
1435	389	561209.5593	4181731.317
1436	373	561209.596	4181732.623
1437	377	561209.6218	4181733.849
1438	384	561209.6402	4181735.079
1439	406	561209.6811	4181736.406
1440	397	561209.7133	4181737.767
1441	428	561209.7218	4181739.163
1442	406	561209.7048	4181740.306
1443	418	561209.7321	4181741.705
1444	406	561209.532	4181741.143
1445	432	561209.3314	4181740.212
1446	403	561209.3316	4181738.877
1447	403	561209.3005	4181737.34
1448	414	561209.2516	4181735.764
1449	398	561209.2218	4181734.186
1450	387	561209.188	4181732.526
1451	379	561209.1477	4181730.784
1452	357	561209.1239	4181729.397
1453	384	561209.1067	4181728.092
1454	396	561209.0968	4181726.842
1455	375	561209.0747	4181725.587
1456	379	561209.0177	4181724.329
1457	389	561208.9219	4181723.056
1458	391	561208.8116	4181721.857
1459	405	561208.7151	4181721.045
1460	394	561208.6601	4181720.714
1461	404	561208.7627	4181722.06
1462	410	561208.8228	4181723.414

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1463	373	561208.8559	4181724.741
1464	393	561208.8744	4181725.916
1465	392	561208.9019	4181727.06
1466	393	561208.9609	4181728.172
1467	389	561209.005	4181729.227
1468	371	561209.0404	4181730.254
1469	382	561209.056	4181731.197
1470	399	561209.0733	4181732.116
1471	415	561209.1006	4181733.008
1472	395	561209.1166	4181733.884
1473	376	561209.1207	4181734.821
1474	371	561209.1423	4181736.075
1475	403	561209.1679	4181737.394
1476	416	561209.2014	4181738.779
1477	433	561209.2084	4181740.195
1478	409	561209.2494	4181741.974
1479	409	561209.2477	4181741.964
1480	406	561209.1577	4181741.28
1481	425	561209.0233	4181739.917
1482	412	561208.9035	4181738.41
1483	416	561208.7955	4181736.898
1484	400	561208.7628	4181735.508
1485	363	561208.7342	4181734.128
1486	405	561208.7156	4181732.759
1487	403	561208.6968	4181731.217
1488	408	561208.6783	4181729.635
1489	388	561208.6719	4181728.026
1490	404	561208.6507	4181726.446
1491	375	561208.5959	4181724.896
1492	405	561208.5346	4181723.338
1493	400	561208.4768	4181721.851
1494	417	561208.39	4181720.724
1495	406	561208.3291	4181720.1
1496	407	561208.3538	4181721.176
1497	401	561208.3171	4181722.521
1498	396	561208.2334	4181723.873
1499	395	561208.2642	4181724.993
1500	375	561208.2937	4181726.061
1501	398	561208.3221	4181727.075
1502	378	561208.3837	4181728.234
1503	385	561208.4732	4181729.421
1504	376	561208.4853	4181730.608
1505	402	561208.4969	4181731.777

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1506	395	561208.5074	4181732.928
1507	416	561208.5063	4181734.049
1508	398	561208.497	4181735.171
1509	397	561208.4804	4181736.327
1510	413	561208.4751	4181737.515
1511	411	561208.5042	4181738.735
1512	412	561208.5587	4181740.09
1513	390	561208.757	4181741.793
1514	382	561208.7067	4181741.692
1515	419	561208.4918	4181740.98
1516	398	561208.2967	4181739.598
1517	409	561208.2229	4181738.193
1518	386	561208.2252	4181736.78
1519	376	561208.2013	4181735.365
1520	393	561208.1704	4181733.9
1521	397	561208.1243	4181732.385
1522	385	561208.0946	4181730.78
1523	366	561208.0748	4181729.153
1524	373	561208.056	4181727.505
1525	390	561208.0209	4181725.901
1526	382	561207.9487	4181724.341
1527	407	561207.8315	4181722.693
1528	400	561207.4657	4181720.828
1529	412	561207.5285	4181720.878
1530	386	561207.7735	4181721.534
1531	402	561207.702	4181723.022
1532	407	561207.7285	4181724.327
1533	390	561207.8218	4181725.597
1534	396	561207.8403	4181726.887
1535	371	561207.8645	4181728.167
1536	390	561207.905	4181729.435
1537	373	561207.9401	4181730.622
1538	370	561207.9743	4181731.804
1539	398	561207.9916	4181733.044
1540	410	561208.0147	4181734.302
1541	389	561208.0533	4181735.579
1542	394	561208.0788	4181736.999
1543	414	561208.093	4181738.468
1544	426	561208.1908	4181740.031
1545	409	561208.2547	4181741.037
1546	398	561208.277	4181741.485
1547	419	561208.1703	4181741.193
1548	399	561207.9383	4181740.019

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1549	366	561207.8697	4181738.712
1550	406	561207.8227	4181737.357
1551	394	561207.8337	4181735.953
1552	378	561207.8414	4181734.507
1553	413	561207.8498	4181733.091
1554	397	561207.8174	4181731.868
1555	371	561207.7883	4181730.634
1556	384	561207.7692	4181729.387
1557	386	561207.7209	4181728.051
1558	379	561207.6505	4181726.701
1559	405	561207.6612	4181725.362
1560	404	561207.6603	4181724.004
1561	402	561207.6295	4181722.626
1562	380	561207.5956	4181721.691
1563	393	561207.5355	4181720.534
1564	413	561207.5661	4181721.416
1565	410	561207.5752	4181722.465
1566	385	561207.5095	4181723.68
1567	411	561207.5006	4181725.019
1568	399	561207.5296	4181726.365
1569	365	561207.56	4181727.614
1570	394	561207.5908	4181728.887
1571	373	561207.6215	4181730.183
1572	384	561207.6955	4181731.639
1573	406	561207.7952	4181733.13
1574	404	561207.8453	4181734.651
1575	399	561207.8674	4181736.165
1576	376	561207.8247	4181737.673
1577	422	561207.8266	4181739.307
1578	429	561207.8451	4181740.761
1579	411	561207.8615	4181741.196
1580	391	561207.8346	4181741.479
1581	392	561207.6252	4181740.422
1582	413	561207.4892	4181739.323
1583	400	561207.4072	4181738.162
1584	376	561207.3669	4181736.755
1585	410	561207.3391	4181735.4
1586	395	561207.3428	4181734.096
1587	389	561207.3179	4181732.742
1588	404	561207.2746	4181731.388
1589	379	561207.244	4181730.085
1590	384	561207.2147	4181728.806
1591	394	561207.1885	4181727.55

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1592	400	561207.1473	4181726.236
1593	387	561207.0921	4181724.91
1594	394	561207.1252	4181723.579
1595	398	561207.1453	4181722.314
1596	413	561207.1293	4181721.113
1597	397	561207.1248	4181720.314
1598	386	561207.119	4181720.463
1599	412	561207.1401	4181721.351
1600	410	561207.14	4181722.348
1601	402	561207.0624	4181723.453
1602	380	561207.0381	4181724.747
1603	392	561207.0531	4181726.069
1604	369	561207.077	4181727.335
1605	391	561207.0916	4181728.643
1606	403	561207.0807	4181729.994
1607	395	561207.0927	4181731.255
1608	382	561207.1183	4181732.483
1609	380	561207.1596	4181733.633
1610	407	561207.2055	4181734.874
1611	396	561207.2589	4181736.204
1612	387	561207.3188	4181737.701
1613	409	561207.3683	4181739.139
1614	415	561207.4638	4181740.108
1615	414	561207.5356	4181740.862
1616	425	561207.4153	4181740.212
1617	409	561207.3048	4181739.063
1618	411	561207.2435	4181737.801
1619	408	561207.1968	4181736.505
1620	393	561207.1462	4181735.141
1621	372	561207.0893	4181733.708
1622	405	561207.0281	4181732.206
1623	385	561206.9664	4181730.702
1624	376	561206.8985	4181729.251
1625	401	561206.8361	4181727.817
1626	380	561206.7861	4181726.399
1627	398	561206.7182	4181724.973
1628	398	561206.6396	4181723.537
1629	411	561206.5501	4181722.065
1630	398	561206.3184	4181721.237
1631	411	561206.3603	4181721.185
1632	405	561206.4736	4181721.751
1633	391	561206.3275	4181723.064
1634	370	561206.34	4181724.319

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1635	382	561206.3624	4181725.607
1636	384	561206.4102	4181726.928
1637	382	561206.4387	4181728.25
1638	364	561206.4536	4181729.608
1639	400	561206.5202	4181731.141
1640	403	561206.5826	4181732.598
1641	398	561206.6397	4181733.979
1642	419	561206.6849	4181735.334
1643	374	561206.7248	4181736.629
1644	402	561206.7277	4181737.656
1645	419	561206.9037	4181739.004
1646	406	561207.4365	4181740.645
1647	404	561208.7399	4181741.537
1648	389	561210.4119	4181742.059
1649	380	561211.6764	4181741.066
1650	415	561212.5745	4181739.895
1651	419	561212.6711	4181738.316
1652	418	561212.6961	4181736.677
1653	433	561212.6811	4181734.995
1654	378	561212.643	4181733.157
1655	420	561212.6065	4181731.304
1656	373	561212.5732	4181729.436
1657	395	561212.5341	4181727.57
1658	405	561212.4893	4181725.792
1659	380	561212.5407	4181724.461
1660	389	561212.329	4181723.114
1661	391	561211.5029	4181721.851
1662	415	561210.2632	4181721.133
1663	401	561208.8077	4181720.674
1664	390	561207.7366	4181721.479
1665	392	561206.8811	4181722.569
1666	387	561206.627	4181724.176
1667	391	561206.5398	4181725.641
1668	384	561206.5438	4181727.099
1669	371	561206.5224	4181728.639
1670	405	561206.504	4181730.107
1671	400	561206.4917	4181731.504
1672	389	561206.505	4181732.871
1673	384	561206.5346	4181734.223
1674	394	561206.5554	4181735.536
1675	397	561206.5785	4181736.85
1676	399	561206.6078	4181738.165
1677	422	561206.7382	4181739.549

Title:	Decimated Pile Data		Line A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1678	414	561206.8874	4181740.969
1679	388	561208.0111	4181741.824
1680	404	561209.3432	4181742.446
1681	399	561211.006	4181742.486
1682	381	561212.54	4181742.483
1683	398	561214.0452	4181742.503
1684	398	561215.0611	4181741.571
1685	412	561215.805	4181740.511
1686	406	561215.8574	4181739.131
1687	423	561215.8027	4181737.73
1688	390	561215.6806	4181736.286
1689	391	561215.4319	4181734.659
1690	388	561215.2123	4181733
1691	402	561215.058	4181731.303
1692	406	561214.9422	4181729.632
1693	380	561214.8455	4181727.965
1694	389	561214.7831	4181726.298
1695	402	561214.5992	4181724.733
1696	408	561214.1292	4181723.301
1697	412	561213.1436	4181722.232
1698	415	561211.9174	4181721.363
1699	371	561210.6465	4181721.204
1700	414	561209.4925	4181721.098
1701	433	561208.4513	4181721.154
1702	376	561207.0603	4181721.244
1703	414	561205.6076	4181721.347
1704	407	561204.193	4181721.429
1705	395	561202.8626	4181721.504
1706	411	561201.6161	4181721.569
1707	425	561200.8145	4181721.593
	450	**Max**	
	14.81	**Std Dev**	
	398.90	**Average**	
	506.78	**3s Investigation Level**	

Investigation Level Exceeded

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-A-01
Sample Description: 242478-001, 194706

Detector: HPGE09 50-TP42232A
Contract: Tetra Tech Alameda
Unit Number: A
Sample Time: 1/16/2013 09:47
Acquisition Time: 1/21/2013 11:19:24
Analysis Time: 1/23/2013 13:40
Analysis Quantity: 3.300E+02 g

Spectrum ID: 9_20130121_005
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2704 sec
Dead Time: 0.14 %

Efficiency: HPGE09 S21306 9_20121230002_EffCal
Efficiency Cal Date: 12/30/2012 15:48
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228	#	1.397E-01	87.94	1.228E-01	1.232E-01	9.189E-02
Am-241	#AB	2.920E-02	1008.00	2.944E-01	2.944E-01	2.406E-01
Bi-212	AB	1.494E-01	140.00	2.092E-01	2.095E-01	1.559E-01
Bi-214		7.056E-01	15.99	1.128E-01	1.223E-01	3.844E-02
Co-60	#AB	1.576E-02	201.00	3.168E-02	3.169E-02	2.422E-02
Cs-137	#	3.517E-02	83.56	2.938E-02	2.948E-02	2.049E-02
Eu-152	#AB	-7.068E-03	1030.00	7.278E-02	7.278E-02	5.939E-02
Eu-154	#AB	2.077E-02	421.50	8.752E-02	8.753E-02	6.946E-02
K-40		1.067E+01	10.10	1.077E+00	1.311E+00	2.437E-01
Pa-234	#AB	-5.924E-02	297.60	1.763E-01	1.764E-01	1.384E-01
Pb-212		4.207E-01	20.72	8.716E-02	9.271E-02	3.906E-02
Pb-214		6.926E-01	14.19	9.827E-02	1.090E-01	3.496E-02
Ra-226		1.176E+00	56.13	6.599E-01	6.658E-01	4.868E-01
Th-234	#AB	6.084E-02	894.40	5.442E-01	5.442E-01	4.448E-01
Tl-208	#	1.103E-01	32.20	3.552E-02	3.627E-02	1.963E-02
U-235		5.251E-02	86.52	4.543E-02	4.561E-02	3.486E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.427E+01

Analyst: Isaako Tapelu

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-A-02
Sample Description: 242478-002, 194706

Detector: HPGE10 51-TP42231A
Contract: Tetra Tech Alameda
Unit Number: A
Sample Time: 1/16/2013 09:55
Acquisition Time: 1/21/2013 11:21:22
Analysis Time: 1/23/2013 12:30
Analysis Quantity: 3.370E+02 g

Spectrum ID: 10_20130121_005
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2703 sec
Dead Time: 0.10 %

Efficiency: HPGE10 S21306 10_20121230002_EffCal
Efficiency Cal Date: 12/30/2012 19:25
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		3.526E-01	37.18	1.311E-01	1.332E-01	7.165E-02
Am-241	#AB	-2.524E-01	219.70	5.545E-01	5.550E-01	4.417E-01
Bi-212	#	1.920E-01	117.50	2.257E-01	2.261E-01	1.647E-01
Bi-214	#	5.131E-01	19.48	9.996E-02	1.057E-01	5.107E-02
Co-60	#AB	6.325E-03	410.60	2.597E-02	2.597E-02	2.764E-02
Cs-137	#	2.385E-02	128.90	3.074E-02	3.078E-02	2.282E-02
Eu-152	AB	3.482E-02	210.50	7.329E-02	7.333E-02	5.736E-02
Eu-154	#AB	0.000E+00	2000.00	1.441E-02	1.441E-02	1.071E-01
K-40		1.128E+01	9.93	1.120E+00	1.370E+00	2.441E-01
Pa-234	#AB	9.380E-03	1828.00	1.715E-01	1.715E-01	1.401E-01
Pb-212		4.368E-01	17.99	7.858E-02	8.516E-02	3.321E-02
Pb-214		7.202E-01	14.88	1.072E-01	1.179E-01	3.656E-02
Ra-226		6.890E-01	94.28	6.496E-01	6.516E-01	4.975E-01
Th-234	#AB	-2.094E-01	361.30	7.567E-01	7.570E-01	6.137E-01
Tl-208		1.565E-01	24.05	3.764E-02	3.906E-02	1.348E-02
U-235		3.987E-02	105.50	4.205E-02	4.216E-02	3.241E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.446E+01

Analyst: Robin Fluty

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-A-03
Sample Description: 242478-003, 194706

Detector: HPGE12 50-TP32731A
Contract: Tetra Tech Alameda
Unit Number: A
Sample Time: 1/16/2013 10:01
Acquisition Time: 1/21/2013 11:23:08
Analysis Time: 1/23/2013 13:06
Analysis Quantity: 3.230E+02 g

Spectrum ID: 12_20130121_005
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2708 sec
Dead Time: 0.30 %

Efficiency: HPGE12 S21306 12_20121230004_EffCal
Efficiency Cal Date: 12/31/2012 13:11
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228	#	3.332E-01	43.85	1.461E-01	1.478E-01	8.678E-02
Am-241	#AB	2.032E-01	181.30	3.683E-01	3.687E-01	2.886E-01
Bi-212	#	2.290E-01	107.20	2.454E-01	2.459E-01	1.757E-01
Bi-214		5.302E-01	20.48	1.086E-01	1.142E-01	4.050E-02
Co-60	#AB	-1.135E-04	38470.00	4.367E-02	4.367E-02	3.597E-02
Cs-137		6.535E-02	49.35	3.225E-02	3.255E-02	1.363E-02
Eu-152	#AB	-3.600E-02	244.80	8.813E-02	8.816E-02	6.973E-02
Eu-154	#AB	-4.241E-02	304.90	1.293E-01	1.293E-01	1.021E-01
K-40		1.112E+01	11.37	1.265E+00	1.485E+00	3.687E-01
Pa-234	#AB	-6.191E-02	325.30	2.014E-01	2.014E-01	1.584E-01
Pb-212		4.808E-01	17.43	8.379E-02	9.124E-02	3.595E-02
Pb-214		6.067E-01	16.19	9.824E-02	1.066E-01	2.740E-02
Ra-226	AB	9.770E-02	608.70	5.947E-01	5.947E-01	4.836E-01
Th-234	#AB	-1.420E-04	347000.00	4.927E-01	4.927E-01	4.059E-01
Tl-208		1.870E-01	23.01	4.302E-02	4.479E-02	1.377E-02
U-235		6.600E-02	54.58	3.602E-02	3.636E-02	2.456E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.392E+01

Analyst: Isaako Tapelu

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-A-04
Sample Description: 242478-004, 194706

Detector: HPGE05 51-TP42242A
Contract: Tetra Tech Alameda
Unit Number: A
Sample Time: 1/16/2013 10:05
Acquisition Time: 1/21/2013 11:45:45
Analysis Time: 1/23/2013 12:32
Analysis Quantity: 3.500E+02 g

Spectrum ID: 5_20130121_006
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2702 sec
Dead Time: 0.07 %

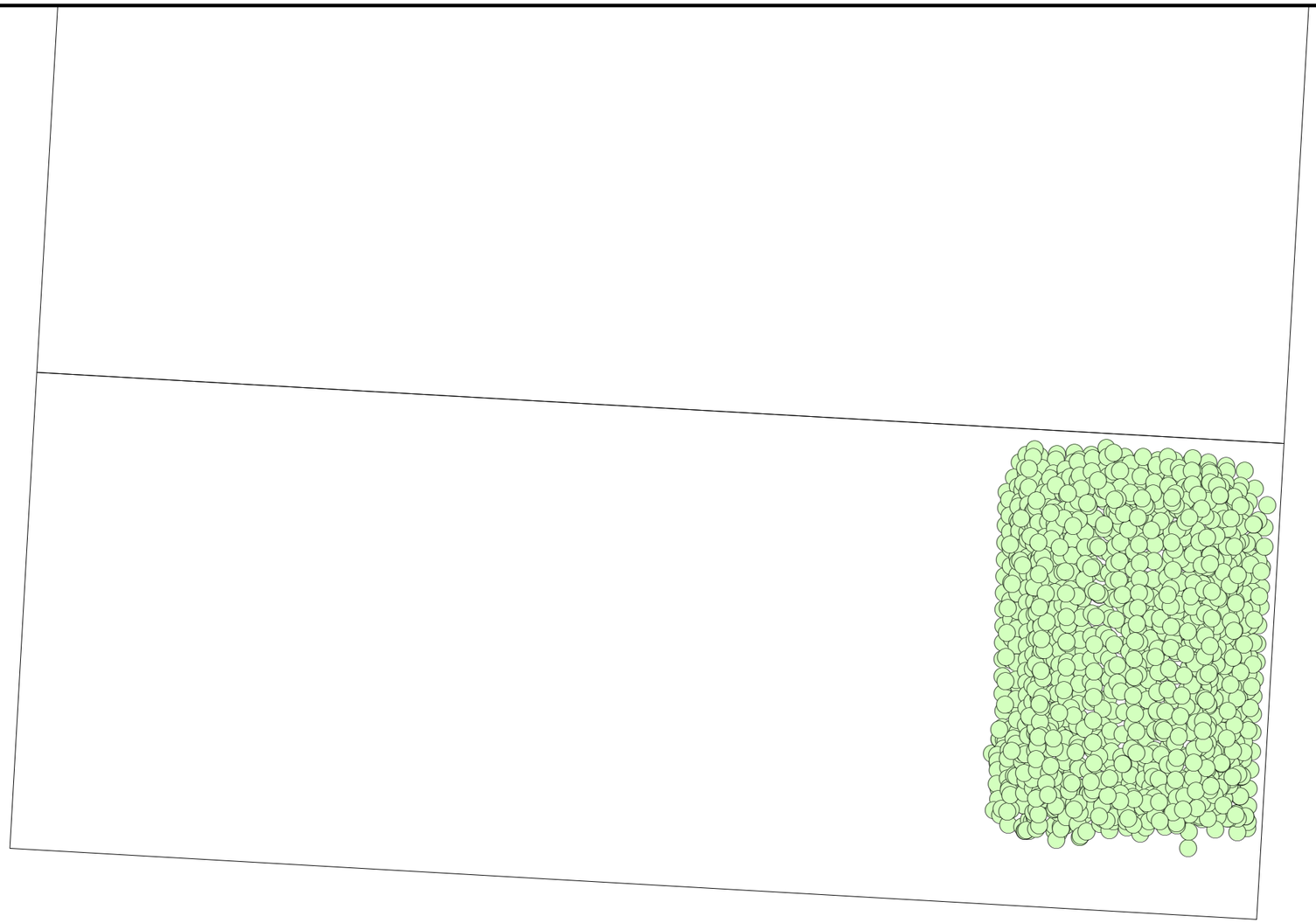
Efficiency: HPGE05 S21306 5_20121231006_EffCal
Efficiency Cal Date: 1/1/2013 12:23
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

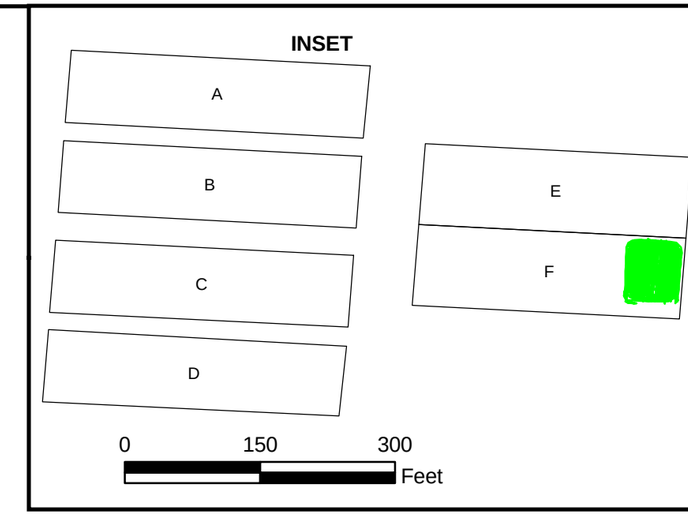
Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		2.991E-01	37.83	1.132E-01	1.150E-01	6.335E-02
Am-241	#AB	-1.546E-03	9354.00	1.446E-01	1.446E-01	1.190E-01
Bi-212	#	1.662E-01	112.20	1.864E-01	1.867E-01	1.346E-01
Bi-214		4.766E-01	18.02	8.587E-02	9.159E-02	3.081E-02
Co-60	#AB	5.997E-04	4676.00	2.804E-02	2.804E-02	2.303E-02
Cs-137	#	2.151E-02	124.40	2.676E-02	2.680E-02	1.984E-02
Eu-152	#AB	1.071E-02	568.90	6.095E-02	6.095E-02	4.928E-02
Eu-154	#AB	-3.822E-02	267.30	1.021E-01	1.022E-01	8.033E-02
K-40	#	8.450E+00	10.98	9.279E-01	1.100E+00	3.056E-01
Pa-234	#AB	0.000E+00	2000.00	1.233E-01	1.233E-01	1.255E-01
Pb-212		4.126E-01	17.24	7.111E-02	7.757E-02	2.985E-02
Pb-214		5.037E-01	16.85	8.486E-02	9.155E-02	2.910E-02
Ra-226		1.010E+00	49.05	4.954E-01	5.012E-01	3.461E-01
Th-234		6.351E-01	65.82	4.180E-01	4.219E-01	3.088E-01
Tl-208	#	9.972E-02	34.42	3.432E-02	3.496E-02	2.117E-02
U-235		2.797E-02	123.60	3.457E-02	3.463E-02	2.692E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.211E+01

Analyst: Chanthachone Alexander





Legend

- >6
- 5-6
- 4-5
- 3-4
- 2-3
- 1-2
- <1

Note:
Sigmas calculated from Background Pad VTA data.

0 5 10 20 30 40 Feet

Scale: 1 " = 25 '

N

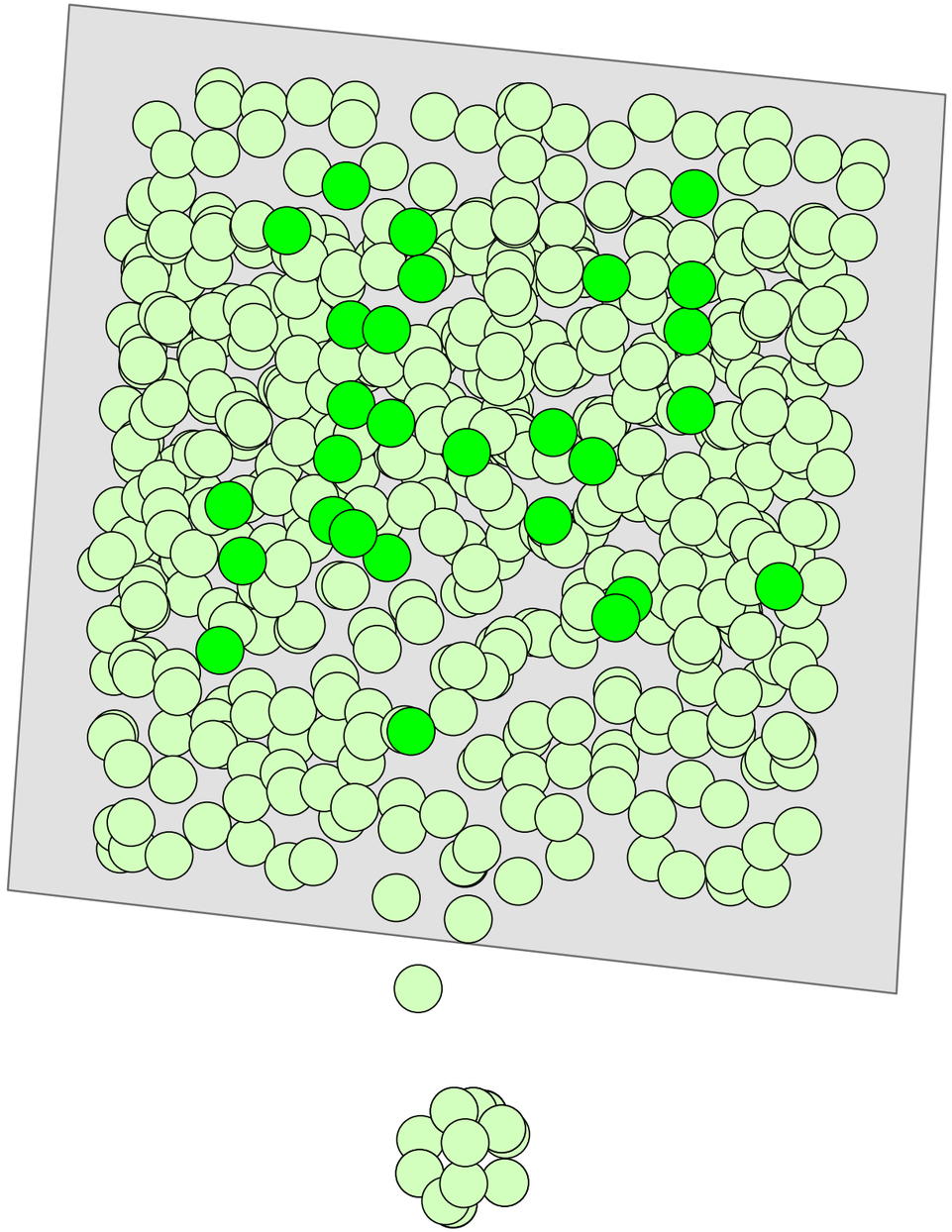
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Line B Sediments
01/09/2013

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
DCN: ECSD-XXXX-XXXX-XXXX
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.



LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6
- SCREENING PAD

0 2 4 8 12 16 Feet

Scale: 1 " = 8 '

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Background Pad

01/09/2013

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
DCN: ECSD-XXXX-XXXX-XXXX
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1	397	561233.6155	4181722.746
2	398	561234.3796	4181721.987
3	377	561234.3939	4181722.361
4	387	561234.4286	4181723.257
5	374	561234.4606	4181724.272
6	364	561234.5526	4181725.351
7	358	561234.6623	4181726.433
8	366	561234.6804	4181727.521
9	391	561234.7001	4181728.566
10	372	561234.7374	4181729.593
11	374	561234.8158	4181730.57
12	391	561234.9067	4181731.578
13	374	561234.9523	4181732.62
14	381	561235.0027	4181733.679
15	390	561235.1323	4181734.746
16	377	561235.178	4181735.871
17	369	561235.2143	4181737.007
18	369	561235.3112	4181738.15
19	363	561235.3761	4181739.301
20	371	561235.5341	4181740.573
21	402	561234.8159	4181741.53
22	405	561234.2251	4181742.594
23	423	561233.1593	4181742.829
24	407	561232.1432	4181743.044
25	383	561231.1289	4181743.101
26	396	561230.179	4181743.155
27	381	561229.2409	4181743.197
28	381	561228.3185	4181743.28
29	377	561227.3476	4181743.367
30	376	561226.3697	4181743.412
31	394	561225.4241	4181743.496
32	408	561224.4456	4181743.637
33	416	561223.4355	4181743.537
34	387	561222.4288	4181743.413
35	381	561221.3007	4181743.075
36	384	561220.9715	4181742.206
37	385	561220.5323	4181741.361
38	379	561220.5076	4181740.437
39	388	561220.4814	4181739.446
40	368	561220.4638	4181738.446
41	384	561220.4387	4181737.472
42	377	561220.4131	4181736.514
43	377	561220.391	4181735.571

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
44	385	561220.3684	4181734.609
45	369	561220.3606	4181733.646
46	372	561220.3347	4181732.7
47	378	561220.2975	4181731.737
48	346	561220.3049	4181730.759
49	384	561220.3121	4181729.769
50	383	561220.3459	4181728.78
51	374	561220.2931	4181727.813
52	381	561220.3357	4181727.097
53	386	561220.2488	4181726.66
54	381	561219.6854	4181726.319
55	395	561220.1581	4181726.315
56	392	561220.1912	4181726.072
57	392	561220.299	4181724.642
58	390	561220.3178	4181725.21
59	377	561220.1551	4181725.459
60	382	561220.4708	4181727.12
61	385	561220.4606	4181726.964
62	365	561220.3797	4181726.618
63	381	561220.4037	4181726.079
64	367	561220.3988	4181724.656
65	383	561220.7343	4181725.029
66	396	561220.5935	4181725.42
67	380	561220.1212	4181727.157
68	377	561220.1215	4181727.155
69	382	561220.384	4181727.122
70	405	561220.4864	4181726.997
71	385	561220.3597	4181726.637
72	400	561220.0022	4181726.258
73	409	561220.0272	4181725.771
74	412	561220.067	4181725.462
75	410	561220.1173	4181723.729
76	382	561220.0847	4181724.294
77	399	561220.0285	4181725.913
78	402	561220.0226	4181725.391
79	394	561219.9747	4181724.605
80	415	561220.0556	4181723.71
81	414	561220.5726	4181723.125
82	397	561222.1086	4181722.114
83	385	561222.024	4181722.127
84	423	561221.5228	4181722.107
85	404	561219.8083	4181723.092
86	411	561220.1828	4181722.815

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
87	422	561220.6272	4181722.257
88	411	561221.4382	4181722.141
89	398	561221.8203	4181721.903
90	391	561223.5278	4181721.765
91	385	561223.3072	4181721.874
92	427	561221.8262	4181722.541
93	423	561222.0073	4181722.469
94	413	561222.1684	4181722.631
95	405	561223.5539	4181722.316
96	405	561223.2787	4181722.244
97	387	561221.5842	4181721.891
98	399	561221.6016	4181721.893
99	394	561222.1485	4181722.771
100	422	561221.6896	4181721.965
101	398	561222.2377	4181721.999
102	407	561223.9702	4181722.209
103	401	561223.7267	4181722.156
104	407	561223.6601	4181722.131
105	406	561223.4118	4181721.398
106	412	561221.5382	4181723.384
107	390	561221.5363	4181723.384
108	388	561220.2522	4181723.179
109	382	561220.7847	4181723.117
110	421	561222.0839	4181722.999
111	399	561223.5185	4181722.962
112	380	561224.8272	4181722.873
113	388	561226.0436	4181722.775
114	384	561227.1713	4181722.77
115	402	561228.248	4181722.765
116	389	561229.3374	4181722.779
117	408	561230.54	4181722.745
118	390	561231.7934	4181722.598
119	384	561232.788	4181723.328
120	399	561233.6374	4181724.076
121	395	561234.0072	4181725.004
122	341	561234.0167	4181725.127
123	386	561234.0988	4181726.203
124	369	561234.0179	4181725.041
125	379	561233.939	4181723.886
126	401	561233.7601	4181722.919
127	401	561233.7617	4181722.902
128	400	561234.2808	4181722.76
129	387	561234.2792	4181722.758

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
130	408	561233.8208	4181721.856
131	382	561233.8391	4181722.634
132	374	561233.9642	4181723.913
133	393	561234.0883	4181725.059
134	386	561234.1453	4181726.075
135	381	561234.199	4181727.033
136	365	561234.2556	4181727.988
137	384	561234.3303	4181728.985
138	382	561234.4144	4181729.978
139	366	561234.4572	4181730.969
140	375	561234.4985	4181731.922
141	371	561234.4948	4181732.863
142	354	561234.5584	4181733.768
143	369	561234.6353	4181734.711
144	374	561234.6706	4181735.695
145	370	561234.705	4181736.643
146	360	561234.6374	4181737.607
147	367	561234.7722	4181738.648
148	387	561235.0312	4181739.784
149	377	561234.4935	4181740.859
150	388	561233.9906	4181741.788
151	384	561233.2014	4181742.64
152	386	561232.1911	4181742.666
153	384	561231.1866	4181742.679
154	394	561230.1915	4181742.75
155	376	561229.2245	4181742.82
156	363	561228.2506	4181742.843
157	359	561227.2256	4181742.847
158	373	561226.2235	4181742.799
159	396	561225.2673	4181742.963
160	394	561224.359	4181743.13
161	381	561223.3687	4181743.283
162	404	561222.5649	4181742.825
163	363	561221.6563	4181742.506
164	386	561221.1949	4181741.756
165	373	561220.6982	4181740.994
166	408	561220.7046	4181740.079
167	369	561220.7414	4181739.118
168	376	561220.7866	4181738.158
169	369	561220.7981	4181737.199
170	381	561220.8093	4181736.22
171	381	561220.7708	4181735.221
172	390	561220.802	4181734.147

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
173	369	561220.8443	4181733.009
174	373	561220.8228	4181731.807
175	368	561220.8007	4181730.53
176	360	561220.7981	4181729.216
177	346	561220.7332	4181727.794
178	371	561220.6721	4181726.588
179	375	561220.6465	4181725.596
180	391	561220.6076	4181724.969
181	398	561220.6752	4181724.477
182	384	561220.6714	4181724.292
183	431	561220.5884	4181723.077
184	382	561220.7733	4181724.001
185	387	561220.9744	4181725.128
186	352	561221.0463	4181726.33
187	348	561221.1672	4181727.615
188	379	561221.3085	4181728.939
189	375	561221.2389	4181730.308
190	369	561221.2008	4181731.7
191	392	561221.2479	4181733.014
192	373	561221.2879	4181733.914
193	389	561221.3358	4181734.843
194	376	561221.3586	4181735.801
195	362	561221.3823	4181736.804
196	363	561221.4229	4181737.815
197	385	561221.4123	4181738.825
198	370	561221.3847	4181739.837
199	386	561221.433	4181740.849
200	384	561221.455	4181741.586
201	386	561221.678	4181743.617
202	396	561221.589	4181742.87
203	401	561221.4932	4181741.964
204	381	561221.3188	4181740.91
205	370	561221.1603	4181739.846
206	364	561221.1856	4181738.774
207	343	561221.1747	4181737.736
208	359	561221.1609	4181736.697
209	389	561221.1609	4181735.655
210	398	561221.1598	4181734.63
211	367	561221.1304	4181733.618
212	372	561221.1203	4181732.647
213	361	561221.1104	4181731.671
214	353	561221.0997	4181730.689
215	376	561221.0838	4181729.551

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
216	367	561221.1338	4181728.383
217	371	561220.9419	4181727.28
218	378	561220.6175	4181726.147
219	387	561221.0822	4181725.097
220	387	561221.5378	4181724.153
221	407	561222.2707	4181723.236
222	401	561223.218	4181723.199
223	404	561224.1666	4181723.157
224	369	561225.1173	4181723.136
225	358	561226.0837	4181723.116
226	384	561227.0429	4181723.073
227	390	561227.9514	4181723.077
228	383	561228.8372	4181723.124
229	413	561229.6909	4181723.031
230	398	561230.5588	4181722.91
231	383	561231.5244	4181722.901
232	397	561232.2267	4181723.455
233	363	561233.0556	4181723.87
234	386	561233.3731	4181724.628
235	384	561233.7345	4181725.401
236	388	561233.6899	4181726.252
237	369	561233.7572	4181727.095
238	366	561233.8325	4181727.935
239	373	561233.8808	4181728.773
240	360	561233.9289	4181729.629
241	374	561233.9894	4181730.484
242	377	561234.0524	4181731.32
243	350	561234.1369	4181732.165
244	364	561234.153	4181733.023
245	385	561234.1689	4181733.89
246	344	561234.2094	4181734.763
247	380	561234.2029	4181735.661
248	376	561234.1602	4181736.579
249	358	561234.2548	4181737.512
250	372	561234.3555	4181738.525
251	391	561234.7697	4181739.636
252	335	561234.2614	4181740.553
253	378	561233.9083	4181741.531
254	382	561233.1284	4181742.018
255	374	561232.3915	4181742.524
256	361	561231.5162	4181742.474
257	346	561230.6327	4181742.497
258	379	561229.7644	4181742.535

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
259	372	561228.9107	4181742.523
260	367	561227.99	4181742.508
261	373	561227.0395	4181742.429
262	390	561226.0836	4181742.605
263	387	561225.1342	4181742.886
264	372	561224.1836	4181742.739
265	375	561223.2235	4181742.586
266	361	561222.1515	4181742.289
267	363	561221.7636	4181741.469
268	378	561221.2087	4181740.682
269	361	561221.2578	4181739.777
270	376	561221.2765	4181739.276
271	374	561221.1832	4181737.491
272	369	561221.4036	4181738.286
273	370	561221.7316	4181739.222
274	381	561221.7115	4181740.356
275	372	561221.722	4181741.526
276	376	561222.1695	4181743.993
277	380	561222.0612	4181743.559
278	379	561221.818	4181742.853
279	383	561221.801	4181741.828
280	387	561221.7845	4181740.818
281	373	561221.7643	4181739.805
282	367	561221.7609	4181738.76
283	367	561221.7633	4181737.781
284	379	561221.7453	4181736.866
285	369	561221.7283	4181736.01
286	365	561221.6977	4181735.166
287	377	561221.7028	4181734.322
288	377	561221.7159	4181733.492
289	373	561221.7042	4181732.676
290	357	561221.6937	4181731.947
291	367	561221.6638	4181731.241
292	359	561221.6735	4181730.567
293	369	561221.701	4181729.853
294	350	561221.6813	4181729.099
295	371	561221.6416	4181728.104
296	353	561221.0764	4181727.059
297	362	561221.4246	4181726.031
298	383	561221.628	4181724.94
299	390	561222.4257	4181724.305
300	366	561223.1261	4181723.708
301	371	561223.999	4181723.531

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
302	373	561224.854	4181723.525
303	391	561225.6429	4181723.524
304	379	561226.3653	4181723.511
305	377	561227.1775	4181723.497
306	379	561227.9964	4181723.542
307	385	561228.7376	4181723.472
308	392	561229.4376	4181723.319
309	375	561230.0965	4181723.38
310	358	561231.0498	4181723.485
311	387	561232.1759	4181723.636
312	358	561232.7179	4181724.377
313	378	561233.4589	4181725.033
314	360	561233.4645	4181725.913
315	390	561233.4682	4181726.805
316	366	561233.5186	4181727.697
317	386	561233.5338	4181728.583
318	372	561233.5435	4181729.465
319	371	561233.5719	4181730.342
320	370	561233.6032	4181731.16
321	376	561233.5664	4181731.97
322	347	561233.6007	4181732.788
323	367	561233.6352	4181733.613
324	360	561233.6702	4181734.446
325	365	561233.7081	4181735.28
326	387	561233.6426	4181736.107
327	365	561233.7404	4181736.85
328	379	561233.8537	4181737.73
329	360	561233.9968	4181738.745
330	355	561234.1001	4181739.778
331	366	561233.9136	4181740.915
332	387	561233.154	4181741.505
333	365	561232.4811	4181742.263
334	400	561231.5639	4181742.338
335	368	561230.6327	4181742.416
336	372	561229.6954	4181742.451
337	383	561228.7559	4181742.447
338	381	561227.7718	4181742.382
339	373	561226.7779	4181742.593
340	375	561225.7922	4181742.791
341	349	561224.6826	4181743
342	361	561223.8186	4181742.425
343	370	561222.8717	4181741.997
344	378	561222.4599	4181741.172

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
345	352	561222.0289	4181740.424
346	359	561222.0764	4181739.569
347	352	561222.1197	4181738.592
348	380	561222.1804	4181737.654
349	351	561222.1709	4181736.751
350	345	561222.1625	4181735.988
351	377	561222.1398	4181735.257
352	377	561222.1519	4181734.55
353	356	561222.1991	4181733.812
354	359	561222.1487	4181733.047
355	357	561222.0921	4181732.24
356	371	561222.0533	4181731.401
357	363	561222.0289	4181730.446
358	367	561222.0426	4181729.496
359	356	561221.911	4181728.567
360	382	561221.7763	4181727.578
361	365	561221.427	4181726.479
362	377	561221.9465	4181725.617
363	371	561222.2948	4181724.707
364	368	561222.9953	4181724.261
365	370	561223.6216	4181723.763
366	379	561224.3931	4181723.67
367	396	561225.2119	4181723.716
368	369	561226.0439	4181723.771
369	350	561226.8906	4181723.801
370	369	561227.6942	4181723.835
371	388	561228.4929	4181723.824
372	388	561229.3071	4181723.819
373	361	561230.183	4181723.691
374	383	561231.0246	4181723.997
375	387	561231.8687	4181724.269
376	360	561232.7777	4181724.74
377	352	561232.9394	4181725.541
378	361	561233.1891	4181726.34
379	348	561233.1665	4181727.168
380	383	561233.1359	4181727.861
381	390	561233.1537	4181728.482
382	364	561233.1593	4181728.872
383	345	561233.1603	4181729.478
384	360	561233.1887	4181730.3
385	348	561233.2212	4181730.977
386	363	561233.2105	4181731.634
387	363	561233.2206	4181732.33

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
388	355	561233.2157	4181733.063
389	353	561233.2554	4181733.831
390	372	561233.2922	4181734.6
391	369	561233.3528	4181735.371
392	359	561233.4007	4181736.156
393	365	561233.3826	4181736.969
394	368	561233.5744	4181737.768
395	370	561233.7974	4181738.621
396	381	561234.0045	4181739.616
397	376	561233.4803	4181740.491
398	367	561233.0977	4181741.469
399	366	561232.2479	4181741.894
400	358	561231.4363	4181742.323
401	350	561230.5688	4181742.331
402	359	561229.8947	4181742.296
403	378	561229.1437	4181742.223
404	360	561228.3143	4181742.252
405	342	561227.3849	4181742.283
406	382	561226.4511	4181742.651
407	362	561225.478	4181742.528
408	369	561224.452	4181742.557
409	386	561223.6833	4181741.976
410	381	561222.9198	4181741.403
411	386	561222.1228	4181740.63
412	381	561222.2161	4181739.704
413	355	561222.3137	4181738.764
414	369	561222.4013	4181737.81
415	352	561222.4887	4181736.866
416	374	561222.5241	4181735.923
417	373	561222.5285	4181734.984
418	379	561222.5469	4181734.053
419	350	561222.5131	4181733.13
420	361	561222.4841	4181732.292
421	354	561222.4378	4181731.472
422	342	561222.4029	4181730.655
423	377	561222.3777	4181729.771
424	360	561222.3008	4181728.824
425	332	561222.1887	4181727.743
426	373	561221.5273	4181726.661
427	382	561221.879	4181725.64
428	393	561222.0695	4181724.574
429	392	561222.817	4181723.964
430	377	561223.7704	4181723.338

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
431	390	561225.0078	4181723.213
432	376	561226.4057	4181723.149
433	373	561227.607	4181723.104
434	406	561228.6084	4181723.024
435	398	561229.6918	4181722.971
436	382	561230.9825	4181722.904
437	365	561231.9008	4181723.883
438	355	561232.9018	4181724.7
439	369	561232.925	4181725.787
440	378	561232.9466	4181726.852
441	352	561232.929	4181727.9
442	337	561232.977	4181728.878
443	352	561233.0302	4181729.82
444	349	561233.0566	4181730.725
445	383	561233.0822	4181731.618
446	368	561233.1048	4181732.505
447	349	561233.1524	4181733.376
448	359	561233.2	4181734.205
449	364	561233.2381	4181734.99
450	352	561233.2806	4181735.791
451	378	561233.2677	4181736.597
452	348	561233.3196	4181737.398
453	348	561233.3315	4181738.254
454	366	561233.5016	4181739.14
455	365	561233.6535	4181740.155
456	362	561233.6111	4181741.345
457	376	561232.8705	4181741.963
458	399	561232.2201	4181742.748
459	390	561231.2979	4181742.848
460	400	561230.3725	4181742.949
461	387	561229.4408	4181742.942
462	360	561228.5308	4181743.047
463	380	561227.6074	4181743.135
464	378	561226.6828	4181743.292
465	393	561225.7625	4181743.456
466	375	561224.7307	4181743.511
467	390	561223.9489	4181742.928
468	362	561223.0603	4181742.457
469	404	561222.6562	4181741.613
470	364	561222.2375	4181740.807
471	364	561222.3639	4181739.91
472	368	561222.4109	4181738.945
473	373	561222.4644	4181737.947

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
474	357	561222.4975	4181736.913
475	365	561222.5283	4181735.684
476	367	561222.5395	4181734.382
477	370	561222.5057	4181732.911
478	372	561222.4735	4181731.442
479	373	561222.4051	4181729.976
480	375	561222.2475	4181728.322
481	359	561221.6311	4181726.578
482	374	561222.4655	4181724.953
483	392	561223.3144	4181723.417
484	381	561225.022	4181723.109
485	397	561226.7123	4181722.915
486	402	561228.3946	4181722.904
487	390	561229.9776	4181722.922
488	373	561231.0661	4181722.917
489	382	561231.6584	4181722.945
490	376	561232.0015	4181723.562
491	383	561233.3345	4181722.879
492	393	561233.2332	4181722.893
493	364	561232.6855	4181722.989
494	374	561231.6796	4181723.054
495	381	561230.6212	4181723.102
496	377	561228.238	4181722.903
497	383	561228.7876	4181722.871
498	400	561229.8833	4181722.818
499	373	561231.3795	4181723.512
500	395	561232.4357	4181724.317
501	372	561232.9251	4181725.464
502	343	561232.9123	4181725.661
503	358	561232.868	4181726.668
504	396	561232.693	4181725.301
505	383	561232.5625	4181724.358
506	419	561232.5494	4181722.253
507	373	561232.5623	4181723.561
508	365	561232.5823	4181724.729
509	367	561232.5618	4181725.758
510	378	561232.5414	4181726.777
511	367	561232.5007	4181727.787
512	358	561232.5074	4181728.77
513	362	561232.4957	4181729.757
514	350	561232.5622	4181730.744
515	367	561232.6292	4181731.742
516	348	561232.6825	4181732.752

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
517	362	561232.7624	4181733.801
518	369	561232.8519	4181734.831
519	369	561232.8909	4181735.845
520	355	561232.9298	4181736.832
521	370	561233.0115	4181737.795
522	364	561233.0897	4181738.675
523	354	561233.2963	4181739.595
524	357	561233.0232	4181740.491
525	387	561232.786	4181741.367
526	382	561232.2556	4181742.241
527	380	561231.28	4181742.51
528	367	561230.2998	4181742.837
529	379	561229.2614	4181742.909
530	362	561228.2587	4181742.98
531	408	561227.2864	4181743.19
532	390	561226.3789	4181743.161
533	387	561225.4188	4181743.299
534	382	561224.6364	4181742.825
535	377	561223.8345	4181742.352
536	363	561222.9711	4181741.698
537	341	561222.9514	4181740.832
538	350	561222.9155	4181739.956
539	358	561222.9353	4181739.071
540	377	561222.9562	4181738.174
541	363	561222.9985	4181737.273
542	345	561222.9499	4181736.375
543	372	561222.8888	4181735.486
544	363	561222.8728	4181734.602
545	366	561222.8578	4181733.713
546	363	561222.8349	4181732.827
547	372	561222.7921	4181731.954
548	354	561222.7329	4181731.037
549	373	561222.7285	4181730.075
550	368	561222.7229	4181729.035
551	356	561222.7429	4181727.953
552	352	561222.651	4181726.749
553	362	561222.5666	4181725.577
554	409	561222.4541	4181724.439
555	401	561222.3892	4181724.134
556	402	561222.4162	4181722.527
557	362	561222.3507	4181723.165
558	354	561222.2285	4181724.069
559	353	561222.2719	4181725.246

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
560	362	561222.3074	4181726.353
561	366	561222.3257	4181727.331
562	359	561222.306	4181727.722
563	342	561222.2832	4181729.054
564	375	561222.2093	4181728.134
565	363	561222.1865	4181726.808
566	373	561221.9967	4181725.204
567	389	561223.008	4181724.44
568	373	561223.9233	4181723.584
569	386	561225.065	4181723.542
570	370	561226.0694	4181723.505
571	391	561227.0249	4181723.51
572	398	561227.8434	4181723.405
573	407	561228.7412	4181723.192
574	375	561229.7011	4181723.381
575	361	561230.7829	4181723.676
576	372	561232.069	4181724.188
577	358	561232.2704	4181725.353
578	347	561232.9165	4181726.079
579	392	561232.8778	4181726.14
580	369	561232.4283	4181726.754
581	367	561232.0905	4181725.733
582	355	561232.1025	4181724.654
583	365	561232.1126	4181722.947
584	381	561232.1242	4181723.811
585	377	561232.1343	4181724.944
586	347	561232.104	4181726.124
587	399	561232.1153	4181727.27
588	354	561232.1215	4181728.368
589	352	561232.1502	4181729.419
590	355	561232.178	4181730.417
591	344	561232.2202	4181731.409
592	344	561232.2782	4181732.427
593	365	561232.3389	4181733.456
594	371	561232.3911	4181734.497
595	336	561232.4422	4181735.521
596	374	561232.4976	4181736.571
597	348	561232.5399	4181737.776
598	382	561232.5678	4181738.916
599	363	561232.6558	4181739.989
600	368	561232.6698	4181740.389
601	358	561232.7741	4181740.622
602	379	561232.7759	4181740.739

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
603	365	561232.6632	4181742.1
604	377	561232.8005	4181741.551
605	368	561233.041	4181740.172
606	366	561233.2153	4181738.605
607	370	561233.0021	4181737.112
608	357	561232.785	4181735.595
609	380	561232.6005	4181734.05
610	365	561232.4212	4181732.502
611	368	561232.2222	4181730.968
612	331	561232.151	4181729.487
613	368	561232.0853	4181728.128
614	366	561232.0281	4181726.892
615	368	561231.9384	4181725.786
616	387	561231.0592	4181724.955
617	393	561231.1058	4181724.79
618	385	561231.2964	4181723.632
619	349	561231.4526	4181724.603
620	357	561231.6026	4181725.369
621	373	561231.6012	4181726.133
622	364	561231.6366	4181727.028
623	371	561231.6745	4181727.904
624	361	561231.7007	4181728.763
625	370	561231.7216	4181729.618
626	357	561231.828	4181730.462
627	371	561231.8641	4181731.287
628	352	561231.903	4181732.129
629	377	561231.9355	4181732.987
630	378	561231.9719	4181733.867
631	373	561231.9131	4181734.752
632	366	561231.971	4181735.627
633	360	561232.0216	4181736.494
634	370	561232.0942	4181737.352
635	385	561232.1707	4181738.274
636	368	561232.6124	4181739.222
637	368	561232.3386	4181740.155
638	334	561232.1479	4181741.238
639	381	561231.2889	4181741.992
640	366	561230.5448	4181742.645
641	365	561229.6035	4181742.847
642	387	561228.6455	4181742.939
643	371	561227.6319	4181743.057
644	390	561226.5556	4181743.075
645	370	561225.4369	4181743.002

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
646	352	561224.197	4181742.639
647	375	561223.7933	4181741.713
648	338	561223.2526	4181740.846
649	339	561223.3074	4181739.908
650	373	561223.3633	4181738.937
651	359	561223.3885	4181737.959
652	370	561223.3655	4181736.986
653	358	561223.3361	4181736.016
654	377	561223.3331	4181735.047
655	355	561223.3297	4181734.065
656	389	561223.3162	4181733.082
657	367	561223.2914	4181732.106
658	378	561223.2752	4181731.134
659	377	561223.2246	4181730.168
660	378	561223.1664	4181729.152
661	368	561222.8569	4181728.117
662	361	561223.0015	4181726.987
663	364	561223.0212	4181725.817
664	368	561223.7277	4181724.956
665	378	561224.3366	4181724.197
666	393	561225.2079	4181723.863
667	382	561226.0086	4181723.8
668	363	561226.8583	4181723.711
669	376	561227.7617	4181723.697
670	400	561228.7497	4181723.699
671	357	561229.7234	4181723.884
672	364	561230.0108	4181724.185
673	362	561230.6757	4181725.131
674	378	561230.8428	4181723.985
675	391	561230.9784	4181723.275
676	393	561230.9834	4181721.303
677	401	561231.0292	4181722.223
678	367	561231.0854	4181723.236
679	366	561231.1147	4181724.343
680	368	561231.1559	4181725.535
681	371	561231.2643	4181726.734
682	362	561231.3091	4181727.906
683	379	561231.3513	4181729.076
684	366	561231.41	4181730.243
685	349	561231.463	4181731.411
686	334	561231.4666	4181732.59
687	364	561231.5233	4181733.819
688	388	561231.5768	4181735.019

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
689	363	561231.6402	4181736.187
690	360	561231.7035	4181737.26
691	350	561231.935	4181738.297
692	348	561231.8854	4181739.314
693	374	561231.9545	4181740.394
694	367	561231.4151	4181741.32
695	370	561230.9029	4181742.174
696	385	561230.0553	4181742.717
697	375	561229.1368	4181742.886
698	379	561228.1971	4181743.098
699	379	561227.2123	4181743.151
700	385	561226.2628	4181743.21
701	394	561225.2001	4181743.06
702	349	561224.6754	4181742.304
703	345	561224.0261	4181741.616
704	364	561223.8526	4181740.742
705	360	561223.6676	4181739.863
706	360	561223.6408	4181738.963
707	375	561223.6915	4181738.062
708	361	561223.7629	4181737.165
709	378	561223.7602	4181736.268
710	374	561223.7596	4181735.354
711	356	561223.6972	4181734.444
712	369	561223.653	4181733.553
713	361	561223.6073	4181732.695
714	391	561223.5733	4181731.871
715	379	561223.5399	4181731.049
716	361	561223.4872	4181730.204
717	353	561223.4665	4181729.24
718	371	561223.407	4181728.232
719	380	561223.5281	4181727.191
720	343	561223.6441	4181726.119
721	369	561223.6886	4181725.203
722	383	561223.6897	4181725.125
723	351	561223.5145	4181723.598
724	360	561223.5597	4181723.763
725	380	561223.8009	4181724.639
726	366	561224.2983	4181725.603
727	384	561224.2746	4181726.529
728	359	561224.2322	4181727.506
729	356	561224.2685	4181728.534
730	365	561224.3091	4181729.624
731	349	561224.3987	4181730.71

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
732	370	561224.4009	4181731.723
733	377	561224.3976	4181732.713
734	357	561224.4166	4181733.68
735	361	561224.4345	4181734.597
736	366	561224.4505	4181735.5
737	381	561224.4796	4181736.381
738	350	561224.5132	4181737.31
739	362	561224.5361	4181738.286
740	358	561224.559	4181739.304
741	380	561224.5507	4181740.344
742	364	561224.5829	4181741.446
743	384	561224.6134	4181742.165
744	410	561224.6182	4181742.503
745	400	561224.631	4181743.559
746	366	561224.7447	4181742.79
747	362	561224.5707	4181741.86
748	371	561224.3406	4181740.946
749	367	561224.33	4181740.021
750	369	561224.32	4181739.093
751	376	561224.2989	4181738.159
752	367	561224.2524	4181737.206
753	354	561224.2098	4181736.242
754	367	561224.1488	4181735.268
755	372	561224.0845	4181734.211
756	367	561224.0244	4181733.136
757	358	561224.0067	4181732.065
758	365	561223.9955	4181730.992
759	376	561223.9512	4181729.917
760	364	561223.9116	4181728.802
761	365	561223.9129	4181727.645
762	386	561223.9319	4181726.319
763	370	561223.9552	4181725.125
764	378	561223.9461	4181724.065
765	397	561224.4106	4181723.731
766	393	561223.6472	4181722.469
767	366	561223.952	4181723.121
768	356	561224.4114	4181723.899
769	359	561224.5343	4181724.942
770	370	561224.6503	4181726.129
771	370	561224.6349	4181727.391
772	349	561224.7161	4181728.839
773	332	561224.7909	4181730.194
774	366	561224.8692	4181731.453

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
775	363	561224.9439	4181732.662
776	373	561225.0112	4181733.849
777	364	561225.0862	4181734.972
778	381	561225.1599	4181736.051
779	354	561225.2236	4181737.089
780	347	561225.2762	4181737.868
781	370	561225.3076	4181738.617
782	346	561225.3325	4181739.465
783	347	561225.366	4181740.337
784	365	561225.3726	4181741.235
785	366	561225.3545	4181741.843
786	388	561225.4927	4181743.774
787	358	561225.4432	4181743.047
788	336	561225.4062	4181742.201
789	371	561225.2787	4181741.246
790	348	561225.1588	4181740.391
791	359	561225.0517	4181739.541
792	348	561225.0459	4181738.633
793	362	561225.0589	4181737.718
794	361	561225.0025	4181736.801
795	356	561224.9366	4181735.753
796	361	561224.8273	4181734.643
797	371	561224.7838	4181733.342
798	372	561224.7428	4181732.071
799	366	561224.6911	4181730.83
800	369	561224.6475	4181729.64
801	352	561224.6107	4181728.438
802	369	561224.6548	4181727.135
803	378	561224.6851	4181725.917
804	355	561224.7764	4181724.789
805	382	561224.8958	4181724.393
806	373	561224.636	4181722.756
807	371	561224.8836	4181723.569
808	373	561225.2182	4181724.555
809	365	561225.3659	4181725.772
810	360	561225.4916	4181727.029
811	368	561225.5074	4181728.339
812	344	561225.5566	4181729.841
813	373	561225.6011	4181731.242
814	362	561225.6571	4181732.542
815	375	561225.7091	4181733.673
816	374	561225.7641	4181734.785
817	361	561225.8972	4181735.963

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
818	374	561226.0384	4181737.202
819	386	561226.1728	4181738.502
820	363	561226.2702	4181739.926
821	363	561226.2061	4181741.332
822	395	561226.262	4181742.503
823	389	561226.264	4181744.413
824	403	561226.3294	4181743.876
825	378	561226.3733	4181742.75
826	363	561225.9646	4181741.527
827	355	561225.8114	4181740.155
828	356	561225.6557	4181738.829
829	360	561225.5767	4181737.544
830	385	561225.5011	4181736.216
831	377	561225.4283	4181734.883
832	348	561225.4077	4181733.564
833	341	561225.3845	4181732.261
834	367	561225.3871	4181730.975
835	365	561225.3911	4181729.801
836	361	561225.4585	4181728.615
837	373	561225.3496	4181727.273
838	355	561225.2317	4181725.891
839	383	561225.2132	4181724.465
840	407	561225.2552	4181723.849
841	411	561224.7435	4181721.995
842	384	561224.8072	4181722.117
843	362	561225.1228	4181722.35
844	385	561225.3521	4181723.597
845	366	561225.5567	4181724.886
846	354	561225.644	4181726.187
847	375	561225.7533	4181727.436
848	380	561225.8706	4181728.694
849	368	561225.9249	4181729.965
850	359	561225.9843	4181731.245
851	353	561226.0551	4181732.519
852	367	561226.1449	4181733.753
853	355	561226.229	4181734.945
854	366	561226.3254	4181736.091
855	355	561226.4166	4181737.229
856	373	561226.4783	4181738.373
857	349	561226.5418	4181739.549
858	345	561226.6124	4181740.756
859	384	561226.6424	4181741.995
860	412	561226.653	4181742.468

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
861	406	561226.6697	4181744.152
862	347	561226.6885	4181743.066
863	347	561226.7022	4181741.944
864	349	561226.7521	4181740.787
865	355	561226.7935	4181739.746
866	378	561226.7816	4181738.736
867	373	561226.7246	4181737.77
868	368	561226.6737	4181736.779
869	361	561226.5882	4181735.767
870	369	561226.5	4181734.631
871	339	561226.4316	4181733.464
872	347	561226.4306	4181732.277
873	353	561226.4425	4181731.133
874	384	561226.3853	4181730.033
875	378	561226.3233	4181728.895
876	366	561226.215	4181727.715
877	361	561226.1791	4181726.344
878	362	561226.137	4181725.236
879	364	561226.1443	4181724.389
880	381	561225.9227	4181722.809
881	381	561226.0906	4181723.061
882	370	561226.3208	4181724.044
883	375	561226.6188	4181725.137
884	357	561226.6156	4181726.381
885	382	561226.6517	4181727.718
886	352	561226.8362	4181729.074
887	347	561226.9358	4181730.479
888	374	561227.0302	4181731.821
889	351	561227.1266	4181733.097
890	356	561227.2139	4181734.272
891	356	561227.3004	4181735.423
892	359	561227.358	4181736.562
893	347	561227.417	4181737.71
894	366	561227.4699	4181738.866
895	349	561227.5246	4181740.021
896	343	561227.6139	4181741.114
897	386	561227.627	4181741.904
898	370	561227.6477	4181743.526
899	337	561227.6463	4181742.781
900	349	561227.628	4181741.734
901	360	561227.4149	4181740.714
902	365	561227.3985	4181740.046
903	350	561227.4879	4181738.382

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
904	354	561227.3773	4181738.882
905	364	561227.1729	4181740.041
906	343	561227.098	4181741.223
907	388	561227.0902	4181741.759
908	361	561227.0633	4181743.141
909	355	561227.0988	4181742.168
910	363	561227.1323	4181741.11
911	366	561227.1304	4181740.038
912	368	561227.0858	4181738.992
913	351	561227.0441	4181737.934
914	358	561226.9852	4181736.867
915	359	561226.9222	4181735.754
916	355	561226.8461	4181734.584
917	350	561226.7454	4181733.167
918	349	561226.6415	4181731.812
919	373	561226.6146	4181730.516
920	362	561226.5882	4181729.342
921	338	561226.4989	4181728.183
922	383	561226.5612	4181726.977
923	395	561226.6359	4181725.696
924	363	561226.6092	4181724.34
925	375	561226.5704	4181723.907
926	377	561226.8229	4181723.661
927	393	561226.8078	4181723.609
928	376	561226.4532	4181722.5
929	348	561226.79	4181723.359
930	370	561227.1713	4181724.439
931	362	561227.483	4181725.597
932	359	561227.4743	4181726.738
933	361	561227.462	4181727.948
934	381	561227.4773	4181729.227
935	363	561227.525	4181730.686
936	352	561227.6441	4181732.119
937	371	561227.7286	4181733.269
938	370	561227.81	4181734.438
939	390	561227.9229	4181735.623
940	377	561228.0277	4181736.797
941	349	561228.087	4181737.983
942	367	561228.1684	4181739.222
943	350	561228.2539	4181740.419
944	366	561228.2939	4181741.575
945	387	561228.3315	4181742.161
946	384	561228.394	4181743.962

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
947	373	561228.26	4181742.836
948	332	561228.1187	4181741.722
949	362	561228.0263	4181740.614
950	351	561227.9409	4181739.557
951	372	561227.8809	4181738.511
952	372	561227.8534	4181737.471
953	378	561227.8372	4181736.344
954	350	561227.7194	4181735.136
955	362	561227.6144	4181733.954
956	375	561227.5905	4181732.779
957	354	561227.4959	4181731.644
958	361	561227.396	4181730.484
959	357	561227.3158	4181729.296
960	345	561227.2281	4181727.999
961	348	561227.1445	4181726.701
962	376	561227.0523	4181725.51
963	370	561227.0049	4181724.777
964	380	561226.98	4181724.505
965	377	561226.6897	4181722.986
966	388	561226.6968	4181723.257
967	362	561227.1049	4181724.163
968	363	561227.6108	4181725.155
969	342	561227.7793	4181726.357
970	358	561227.9625	4181727.731
971	379	561228.1459	4181729.129
972	348	561228.25	4181730.474
973	363	561228.3504	4181731.794
974	340	561228.4651	4181733.087
975	366	561228.5766	4181734.354
976	355	561228.6974	4181735.607
977	359	561228.7723	4181736.823
978	344	561228.8492	4181738.077
979	353	561228.9305	4181739.367
980	342	561229.0031	4181740.656
981	381	561228.978	4181741.801
982	387	561229.0229	4181742.191
983	382	561229.1818	4181743.494
984	347	561229.0447	4181742.536
985	358	561228.8723	4181741.407
986	348	561228.5552	4181740.273
987	361	561228.4829	4181739.147
988	367	561228.4056	4181738.041
989	388	561228.3626	4181736.954

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
990	344	561228.2804	4181735.521
991	339	561228.1152	4181734.042
992	359	561228.0379	4181732.643
993	347	561227.9631	4181731.27
994	374	561227.8764	4181729.922
995	354	561227.7952	4181728.573
996	349	561227.7184	4181727.197
997	343	561227.6801	4181725.69
998	375	561227.6369	4181724.701
999	383	561227.6401	4181724.23
1000	348	561227.4777	4181722.699
1001	362	561227.4464	4181723.039
1002	354	561227.9183	4181724.04
1003	354	561228.4672	4181725.004
1004	355	561228.584	4181726.075
1005	368	561228.7053	4181727.192
1006	354	561228.8342	4181728.33
1007	350	561228.9446	4181729.533
1008	373	561229.0573	4181730.723
1009	354	561229.1454	4181731.902
1010	381	561229.2372	4181733.076
1011	368	561229.3659	4181734.225
1012	364	561229.4402	4181735.272
1013	354	561229.5254	4181736.417
1014	358	561229.5854	4181737.662
1015	372	561229.6499	4181739.124
1016	356	561229.6873	4181740.611
1017	411	561229.7716	4181741.995
1018	407	561229.8305	4181744
1019	366	561229.8658	4181743.431
1020	341	561229.8574	4181742.334
1021	340	561229.3984	4181741.2
1022	365	561229.2344	4181740.026
1023	351	561229.0577	4181738.97
1024	357	561229.0102	4181738.017
1025	374	561228.9592	4181736.973
1026	372	561228.9232	4181735.893
1027	358	561228.8711	4181734.731
1028	367	561228.8217	4181733.554
1029	360	561228.7491	4181732.362
1030	352	561228.6826	4181731.206
1031	371	561228.6398	4181730.069
1032	371	561228.6047	4181728.995

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1033	366	561228.5708	4181727.864
1034	363	561228.5136	4181726.677
1035	360	561228.4572	4181725.463
1036	367	561228.3984	4181724.362
1037	389	561228.3899	4181723.849
1038	384	561228.2244	4181722.348
1039	362	561228.4342	4181722.978
1040	383	561228.7319	4181723.962
1041	379	561228.8072	4181725.055
1042	360	561228.9196	4181726.098
1043	355	561229.0337	4181727.144
1044	375	561229.1418	4181728.194
1045	345	561229.2534	4181729.297
1046	361	561229.3578	4181730.419
1047	393	561229.4507	4181731.578
1048	372	561229.5342	4181732.745
1049	361	561229.6839	4181733.913
1050	365	561229.8271	4181735.088
1051	370	561229.9261	4181736.264
1052	353	561230.0361	4181737.408
1053	364	561230.1439	4181738.604
1054	373	561230.3164	4181739.845
1055	347	561230.4667	4181740.96
1056	377	561230.4627	4181743.394
1057	373	561230.536	4181743.086
1058	360	561230.7985	4181742.277
1059	355	561230.3778	4181741.004
1060	353	561230.0352	4181739.705
1061	356	561230.0151	4181738.353
1062	344	561229.7778	4181737.065
1063	355	561229.5217	4181735.742
1064	377	561229.4236	4181734.362
1065	366	561229.3361	4181732.985
1066	352	561229.2799	4181731.649
1067	364	561229.234	4181730.523
1068	365	561229.2019	4181729.415
1069	364	561229.1023	4181728.332
1070	390	561228.9972	4181726.965
1071	367	561228.9583	4181725.602
1072	393	561228.8937	4181724.559
1073	372	561228.5512	4181722.707
1074	371	561228.7344	4181723.081
1075	361	561229.1314	4181723.888

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1076	381	561229.89	4181724.744
1077	373	561229.886	4181726.013
1078	370	561229.8716	4181727.332
1079	368	561229.9889	4181728.696
1080	368	561230.1109	4181730.091
1081	354	561230.2579	4181731.473
1082	374	561230.3314	4181732.781
1083	359	561230.3966	4181733.912
1084	358	561230.4454	4181734.868
1085	366	561230.504	4181735.9
1086	380	561230.624	4181736.951
1087	363	561230.792	4181738.029
1088	363	561230.9876	4181739.164
1089	365	561231.0605	4181740.372
1090	383	561231.1291	4181741.542
1091	417	561231.2626	4181743.989
1092	399	561231.213	4181743.273
1093	351	561231.1327	4181742.299
1094	373	561231.1341	4181741.063
1095	342	561231.131	4181739.727
1096	369	561231.1498	4181738.375
1097	364	561231.0506	4181737.053
1098	352	561230.938	4181735.728
1099	367	561230.969	4181734.396
1100	368	561230.9911	4181733.144
1101	361	561231.0198	4181731.908
1102	340	561230.9338	4181730.687
1103	364	561230.8505	4181729.466
1104	369	561230.7472	4181728.247
1105	365	561230.6364	4181726.878
1106	372	561230.5579	4181725.578
1107	369	561230.4867	4181724.786
1108	360	561230.0844	4181723.016
1109	353	561230.2224	4181723.286
1110	360	561230.6327	4181724.229
1111	349	561230.8021	4181725.434
1112	367	561230.927	4181726.806
1113	381	561231.0564	4181728.233
1114	368	561231.2073	4181729.713
1115	369	561231.3086	4181731.041
1116	375	561231.2863	4181732.333
1117	360	561231.2637	4181733.57
1118	360	561231.2374	4181734.944

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1119	373	561231.2539	4181736.453
1120	368	561231.2895	4181737.996
1121	373	561231.4288	4181739.502
1122	369	561231.3475	4181740.789
1123	377	561231.2353	4181742.473
1124	371	561231.332	4181741.363
1125	362	561231.2794	4181739.711
1126	365	561231.0511	4181737.923
1127	385	561230.2358	4181736.355
1128	371	561229.385	4181734.778
1129	361	561228.1762	4181733.412
1130	364	561226.9166	4181732.102
1131	374	561225.5756	4181730.874
1132	357	561224.2347	4181729.649
1133	375	561223.3642	4181728.908
1134	359	561223.0433	4181728.57
1135	365	561222.9678	4181728.284
1136	375	561224.4041	4181729.192
1137	362	561225.6628	4181730.148
1138	350	561226.909	4181731.094
1139	355	561228.0983	4181732.084
1140	351	561229.2501	4181733.051
1141	338	561230.4011	4181733.999
1142	356	561231.4742	4181735.005
1143	362	561232.577	4181736.039
1144	375	561233.7461	4181737.062
1145	376	561235.0385	4181738.104
1146	372	561234.5893	4181737.902
1147	375	561233.3994	4181736.719
1148	363	561232.2642	4181735.588
1149	357	561231.1615	4181734.534
1150	354	561230.1328	4181733.551
1151	388	561229.1094	4181732.591
1152	349	561228.1233	4181731.598
1153	366	561227.1253	4181730.588
1154	364	561226.0636	4181729.614
1155	357	561225.0188	4181728.454
1156	386	561223.7792	4181727.099
1157	388	561224.2785	4181725.29
1158	388	561224.7521	4181723.61
1159	399	561226.313	4181723.165
1160	383	561227.8409	4181722.955
1161	382	561229.653	4181722.849

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1162	391	561230.4725	4181724.265
1163	363	561231.283	4181725.666
1164	382	561231.3552	4181727.266
1165	379	561231.4363	4181728.836
1166	373	561231.5505	4181730.397
1167	361	561231.6166	4181731.947
1168	355	561231.6842	4181733.532
1169	338	561231.7351	4181735.154
1170	378	561231.8191	4181736.778
1171	360	561232.2629	4181738.463
1172	367	561231.4882	4181739.91
1173	360	561230.7571	4181741.333
1174	346	561229.252	4181741.616
1175	349	561227.7161	4181741.85
1176	353	561226.1059	4181742.253
1177	378	561224.699	4181741.563
1178	369	561223.296	4181740.917
1179	351	561222.7805	4181739.516
1180	364	561222.3946	4181738.077
1181	381	561222.2825	4181736.581
1182	350	561222.2964	4181735.129
1183	368	561222.3143	4181733.667
1184	362	561222.2377	4181732.197
1185	349	561222.1982	4181730.746
1186	373	561221.8654	4181729.203
1187	327	561222.5914	4181728.373
1188	362	561223.3104	4181727.394
1189	368	561224.5318	4181727.126
1190	359	561225.8571	4181726.873
1191	347	561227.266	4181726.443
1192	363	561228.5503	4181726.989
1193	375	561229.8596	4181727.432
1194	365	561230.4173	4181728.587
1195	345	561230.9099	4181729.742
1196	348	561231.2237	4181730.973
1197	375	561231.3834	4181732.274
1198	373	561231.5552	4181733.599
1199	366	561231.6173	4181734.956
1200	358	561231.6802	4181736.322
1201	370	561232.084	4181737.777
1202	357	561231.3499	4181738.91
1203	360	561230.6945	4181740.111
1204	338	561229.4374	4181740.431

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1205	368	561228.2137	4181740.684
1206	368	561226.9475	4181740.776
1207	360	561225.6303	4181740.592
1208	368	561224.2603	4181740.477
1209	352	561223.3319	4181739.48
1210	363	561222.6146	4181738.389
1211	369	561222.5084	4181737.03
1212	373	561222.5247	4181735.704
1213	365	561222.5415	4181734.37
1214	372	561222.5551	4181733.029
1215	374	561222.5636	4181731.696
1216	358	561222.6042	4181730.346
1217	367	561222.4734	4181728.927
1218	355	561222.3154	4181727.471
1219	362	561222.8457	4181726.076
1220	357	561223.5078	4181724.962
1221	380	561224.6821	4181724.224
1222	351	561226.0488	4181724.05
1223	373	561227.4125	4181723.781
1224	365	561228.4863	4181724.551
1225	345	561229.4101	4181725.44
1226	349	561229.9851	4181726.669
1227	361	561230.0038	4181727.928
1228	355	561230.0161	4181729.181
1229	373	561230.0793	4181730.425
1230	350	561230.1528	4181731.714
1231	377	561230.267	4181733.014
1232	362	561230.3489	4181734.346
1233	365	561230.4296	4181735.655
1234	373	561230.5077	4181736.941
1235	388	561230.5883	4181738.252
1236	380	561230.6841	4181739.458
1237	356	561230.708	4181740.12
1238	357	561230.8855	4181741.677
1239	358	561230.6699	4181741.005
1240	347	561230.3691	4181739.968
1241	369	561230.204	4181738.82
1242	358	561230.1019	4181737.657
1243	357	561229.977	4181736.564
1244	359	561229.9909	4181735.536
1245	356	561229.9978	4181734.377
1246	360	561229.9868	4181733.186
1247	364	561229.8902	4181731.978

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1248	363	561229.7958	4181730.758
1249	361	561229.6754	4181729.528
1250	349	561229.5536	4181728.28
1251	371	561229.429	4181727.011
1252	363	561229.3043	4181725.648
1253	377	561229.2525	4181724.672
1254	391	561229.1573	4181724.099
1255	358	561229.1077	4181723.529
1256	366	561229.6124	4181724.849
1257	362	561229.8161	4181726.477
1258	364	561229.4825	4181728.557
1259	350	561229.6121	4181728.442
1260	352	561230.2315	4181727.684
1261	363	561230.2369	4181726.456
1262	381	561230.1878	4181725.148
1263	388	561230.3445	4181722.98
1264	389	561230.3137	4181723.084
1265	387	561230.1154	4181724.219
1266	374	561230.2577	4181725.577
1267	386	561230.3527	4181726.855
1268	375	561230.4433	4181728.082
1269	374	561230.5333	4181729.257
1270	375	561230.6268	4181730.431
1271	369	561230.7414	4181731.612
1272	349	561230.8585	4181732.84
1273	367	561230.9752	4181734.154
1274	366	561231.2297	4181735.535
1275	371	561231.3098	4181736.928
1276	365	561231.2604	4181738.567
1277	365	561230.0427	4181739.244
1278	347	561228.8684	4181739.967
1279	359	561227.5366	4181739.998
1280	373	561226.1351	4181740.08
1281	351	561224.6973	4181740.57
1282	355	561223.3204	4181740.075
1283	377	561221.8982	4181739.601
1284	361	561221.3134	4181738.217
1285	381	561220.8529	4181736.868
1286	389	561220.6078	4181735.466
1287	373	561220.555	4181734.063
1288	361	561220.4998	4181732.67
1289	361	561220.4841	4181731.285
1290	362	561220.4645	4181729.92

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1291	378	561220.1302	4181728.473
1292	377	561220.85	4181727.26
1293	370	561221.551	4181725.994
1294	390	561222.8898	4181725.426
1295	370	561224.1213	4181724.989
1296	385	561225.3839	4181724.831
1297	373	561226.571	4181724.736
1298	355	561227.789	4181724.63
1299	361	561229.0422	4181724.589
1300	366	561230.3419	4181724.571
1301	361	561231.7865	4181724.296
1302	387	561232.7967	4181725.144
1303	373	561233.8797	4181725.938
1304	369	561234.1845	4181727.205
1305	366	561234.4444	4181728.455
1306	361	561234.5653	4181729.72
1307	388	561234.6369	4181730.97
1308	363	561234.7173	4181732.231
1309	364	561234.7258	4181733.506
1310	376	561234.7886	4181734.843
1311	397	561235.0645	4181736.183
1312	382	561235.1976	4181737.595
1313	375	561235.3732	4181739.029
1314	367	561234.7292	4181740.325
1315	368	561233.9941	4181741.357
1316	369	561232.805	4181741.978
1317	349	561231.5251	4181742.035
1318	362	561230.2487	4181742.098
1319	363	561228.9743	4181742.112
1320	342	561227.6493	4181742.149
1321	372	561226.2954	4181742.255
1322	360	561224.8353	4181742.387
1323	361	561223.3734	4181742.577
1324	392	561222.253	4181741.682
1325	367	561221.3743	4181740.653
1326	384	561220.7376	4181739.176
1327	374	561221.4806	4181737.959
1328	351	561222.1004	4181736.708
1329	366	561223.3195	4181736.416
1330	358	561224.5885	4181736.196
1331	358	561225.8952	4181736.299
1332	360	561227.2204	4181736.282
1333	370	561228.5224	4181736.262

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1334	343	561229.8013	4181736.265
1335	351	561231.1202	4181736.177
1336	371	561232.6959	4181736.107
1337	367	561233.4463	4181734.759
1338	390	561234.2126	4181733.4
1339	367	561233.9905	4181731.841
1340	359	561233.799	4181730.307
1341	374	561233.6498	4181728.782
1342	360	561233.5697	4181727.297
1343	379	561233.5293	4181725.798
1344	373	561232.4874	4181724.749
1345	374	561231.4819	4181724.001
1346	393	561230.1196	4181723.79
1347	358	561228.6076	4181724.303
1348	378	561227.0949	4181724.817
1349	374	561225.5155	4181725.061
1350	372	561224.0828	4181725.582
1351	342	561222.5398	4181726.515
1352	374	561222.5427	4181728.173
1353	367	561222.547	4181729.829
1354	378	561222.6373	4181731.481
1355	376	561222.7236	4181733.114
1356	386	561222.8488	4181734.742
1357	355	561222.7924	4181736.359
1358	359	561222.7332	4181737.955
1359	360	561223.1218	4181739.481
1360	363	561223.8333	4181740.675
1361	354	561225.2607	4181741.393
1362	352	561226.9135	4181741.383
1363	381	561228.585	4181741.375
1364	364	561230.2727	4181741.468
1365	334	561231.7568	4181741.267
1366	363	561233.4405	4181740.665
1367	374	561233.6389	4181739.056
1368	354	561233.8344	4181737.436
1369	370	561233.7278	4181735.794
1370	375	561233.6294	4181734.23
1371	361	561233.5571	4181732.684
1372	362	561233.4169	4181731.163
1373	386	561233.2739	4181729.621
1374	355	561233.2126	4181728.053
1375	381	561232.8991	4181726.612
1376	356	561232.2322	4181725.051

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1377	368	561230.7652	4181724.721
1378	371	561229.3253	4181724.372
1379	371	561227.8833	4181724.533
1380	369	561227.0658	4181724.442
1381	339	561226.3534	4181724.74
1382	372	561226.0074	4181725.638
1383	383	561225.5515	4181726.621
1384	350	561225.5251	4181727.796
1385	350	561225.5075	4181729.073
1386	372	561225.527	4181730.408
1387	372	561225.5589	4181731.922
1388	365	561225.5908	4181733.463
1389	371	561225.68	4181735.029
1390	369	561225.7179	4181736.448
1391	354	561225.4083	4181737.848
1392	352	561225.8171	4181739.059
1393	369	561226.1532	4181740.349
1394	346	561227.2829	4181741.016
1395	343	561228.4818	4181741.48
1396	352	561230.0661	4181741.643
1397	355	561230.823	4181740.501
1398	356	561231.6315	4181739.385
1399	376	561231.7626	4181738.038
1400	349	561231.879	4181736.633
1401	352	561231.9739	4181735.24
1402	368	561231.9612	4181733.978
1403	348	561231.9484	4181732.773
1404	353	561231.9399	4181731.624
1405	369	561231.9236	4181730.342
1406	370	561231.8289	4181729.034
1407	381	561231.9109	4181727.73
1408	379	561232.0321	4181726.346
1409	381	561231.4329	4181725.021
1410	389	561230.6915	4181723.964
1411	405	561229.3604	4181723.292
1412	379	561227.5413	4181723.452
1413	389	561225.8791	4181723.591
1414	385	561224.4238	4181723.987
1415	365	561223.1868	4181724.752
1416	360	561222.2795	4181726.215
1417	359	561222.363	4181728.119
1418	388	561222.4458	4181730.026
1419	350	561222.5187	4181731.936

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1420	357	561222.5305	4181733.786
1421	383	561222.4511	4181735.63
1422	385	561222.379	4181737.507
1423	366	561222.3572	4181739.352
1424	374	561223.0669	4181741.041
1425	371	561224.0549	4181742.165
1426	361	561225.7939	4181742.928
1427	357	561226.9466	4181741.856
1428	368	561228.1081	4181740.792
1429	348	561228.1663	4181739.226
1430	358	561228.2059	4181738.175
1431	375	561228.1978	4181737.247
1432	354	561228.1478	4181736.435
1433	347	561228.1069	4181735.572
1434	356	561228.0182	4181734.662
1435	381	561227.9245	4181733.669
1436	365	561227.8869	4181732.651
1437	356	561227.8676	4181731.601
1438	352	561227.8141	4181730.553
1439	368	561227.9229	4181729.517
1440	341	561228.0025	4181728.474
1441	388	561228.0053	4181727.272
1442	365	561227.2168	4181726.596
1443	374	561226.4631	4181725.779
1444	359	561225.3811	4181725.596
1445	361	561224.2862	4181725.501
1446	368	561223.2785	4181725.825
1447	366	561222.981	4181726.115
1448	346	561222.235	4181726.875
1449	385	561222.8296	4181725.522
1450	399	561223.3791	4181724.208
1451	357	561222.9166	4181724.839
1452	349	561223.0752	4181726.513
1453	354	561223.2181	4181728.096
1454	369	561223.5659	4181729.553
1455	364	561223.8334	4181730.87
1456	349	561223.9834	4181732.202
1457	361	561223.9867	4181733.644
1458	352	561223.9934	4181735.051
1459	375	561223.9546	4181736.422
1460	361	561223.9243	4181737.716
1461	342	561223.6195	4181739.105
1462	363	561224.3771	4181740.321

Title:	Decimated Pile Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1463	337	561225.1803	4181741.608
1464	351	561226.7647	4181741.852
1465	345	561228.3344	4181741.919
1466	358	561230.0684	4181741.952
1467	344	561231.0549	4181740.795
1468	379	561232.0632	4181739.643
1469	371	561232.2367	4181738.125
1470	374	561232.35	4181736.572
1471	370	561232.357	4181735
1472	366	561232.2561	4181733.406
1473	378	561232.1576	4181731.837
1474	361	561232.0174	4181730.296
1475	354	561231.8515	4181728.559
1476	353	561231.3073	4181726.702
1477	372	561232.3043	4181725.36
1478	384	561233.013	4181724.266
1479	382	561233.7168	4181723.689
	431	**Max**	
	15.90	**Std Dev**	
	370.07	**Average**	
	504.56	**3s Investigation Level**	

Investigation Level Exceeded

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
1	315	560854.7073	4181349.442
2	327	560854.7072	4181349.441
3	337	560854.8657	4181349.392
4	328	560854.3696	4181347.876
5	328	560854.3704	4181347.879
6	342	560854.8748	4181349.393
7	327	560854.8744	4181349.392
8	325	560853.8184	4181348.961
9	324	560855.2396	4181348.235
10	346	560855.2392	4181348.235
11	320	560854.7089	4181349.442
12	322	560854.7088	4181349.442
13	320	560855.2527	4181349.051
14	310	560855.1907	4181349.141
15	308	560855.1898	4181349.141
16	319	560853.8002	4181348.391
17	322	560853.8025	4181348.392
18	339	560854.2385	4181347.923
19	327	560854.3849	4181349.438
20	320	560854.3852	4181349.437
21	337	560854.5409	4181348.207
22	330	560854.5713	4181348.908
23	339	560853.7772	4181351.516
24	415	560852.4944	4181354.402
25	432	560850.5378	4181356.232
26	422	560849.1997	4181356.973
27	395	560849.1729	4181357.059
28	413	560848.9297	4181357.833
29	408	560848.6222	4181356.88
30	396	560848.6348	4181355.822
31	398	560848.7324	4181353.874
32	389	560848.6863	4181354.223
33	389	560848.5802	4181355.767
34	412	560848.5755	4181357.595
35	442	560848.6881	4181359.6
36	406	560848.7822	4181361.311
37	407	560848.895	4181362.727
38	432	560848.8712	4181364.211
39	433	560849.1474	4181363.684
40	435	560849.1119	4181362.364
41	414	560849.0671	4181360.763
42	422	560848.9944	4181358.881
43	401	560848.939	4181356.989

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
44	394	560848.9362	4181353.884
45	391	560848.9148	4181354.329
46	383	560848.8626	4181355.316
47	416	560848.996	4181356.842
48	429	560849.1438	4181358.384
49	437	560849.3227	4181359.971
50	434	560849.5354	4181361.781
51	434	560849.6522	4181362.77
52	440	560849.6722	4181362.941
53	412	560849.8001	4181363.538
54	437	560850.0958	4181362.243
55	420	560849.9569	4181360.559
56	437	560849.8115	4181358.763
57	412	560849.6867	4181356.854
58	400	560849.616	4181355.838
59	407	560849.5535	4181353.756
60	410	560849.6204	4181355.047
61	410	560849.6997	4181356.532
62	433	560849.8837	4181358.204
63	443	560850.0695	4181359.888
64	441	560850.2604	4181361.474
65	434	560850.3545	4181362.567
66	431	560850.3134	4181364.577
67	435	560850.3662	4181364.352
68	422	560850.5791	4181363.04
69	415	560850.705	4181361.451
70	466	560850.5752	4181359.705
71	438	560850.4425	4181357.893
72	421	560850.3285	4181356.014
73	432	560850.4852	4181355.629
74	424	560850.1957	4181354.259
75	421	560850.2983	4181355.637
76	458	560850.4225	4181357.242
77	450	560850.6293	4181359.069
78	437	560850.8201	4181360.845
79	436	560850.9505	4181362.385
80	445	560851	4181362.777
81	424	560851.0327	4181364.098
82	424	560851.2777	4181363.218
83	431	560851.4607	4181361.67
84	438	560851.2442	4181359.936
85	439	560851.0956	4181358.066
86	445	560850.9602	4181356.516

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
87	436	560850.9442	4181355.281
88	420	560850.9354	4181353.974
89	413	560850.8671	4181354.711
90	447	560850.992	4181356.125
91	440	560851.116	4181357.548
92	425	560851.2727	4181358.978
93	429	560851.4211	4181360.358
94	437	560851.5602	4181361.648
95	440	560851.6404	4181362.546
96	454	560851.5541	4181364.355
97	446	560851.6886	4181363.972
98	431	560851.9814	4181362.774
99	425	560852.0517	4181361.285
100	417	560851.8965	4181359.449
101	429	560851.7422	4181357.576
102	407	560851.6288	4181355.661
103	375	560851.507	4181355.142
104	410	560851.5834	4181353.56
105	430	560851.6182	4181354.834
106	411	560851.6505	4181356.197
107	448	560851.7887	4181357.645
108	431	560851.9329	4181359.104
109	428	560852.088	4181360.569
110	426	560852.255	4181362.061
111	447	560852.1978	4181364.185
112	444	560852.3244	4181363.864
113	454	560852.6341	4181362.762
114	455	560852.641	4181361.404
115	443	560852.5442	4181359.881
116	441	560852.4453	4181358.326
117	410	560852.3557	4181356.737
118	407	560852.3052	4181355.738
119	405	560851.9956	4181353.637
120	425	560852.1805	4181354.894
121	434	560852.3996	4181356.445
122	434	560852.5444	4181358.302
123	450	560852.7168	4181360.248
124	444	560852.8599	4181361.981
125	446	560852.9442	4181362.535
126	443	560853.075	4181363.821
127	456	560853.2415	4181362.673
128	453	560853.3196	4181361.095
129	446	560853.1147	4181359.397

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
130	442	560852.9922	4181357.531
131	437	560852.9329	4181356.164
132	420	560852.8051	4181355.308
133	428	560852.6947	4181354.552
134	432	560852.9214	4181355.758
135	435	560853.0808	4181357.228
136	465	560853.2526	4181358.814
137	445	560853.4314	4181360.516
138	435	560853.5766	4181361.839
139	463	560853.6914	4181364.323
140	461	560853.841	4181363.537
141	439	560854.0485	4181362.188
142	437	560853.8565	4181360.254
143	445	560853.679	4181357.999
144	400	560853.5472	4181355.862
145	344	560853.4899	4181354.646
146	364	560853.405	4181353.022
147	403	560853.5048	4181354.184
148	451	560853.6511	4181355.877
149	428	560853.8008	4181357.713
150	426	560854.022	4181359.724
151	439	560854.2038	4181361.355
152	427	560854.3248	4181362.609
153	425	560854.2567	4181364.271
154	441	560854.4252	4181363.933
155	432	560854.5705	4181362.506
156	422	560854.7118	4181360.861
157	434	560854.5425	4181358.997
158	416	560854.3808	4181356.9
159	371	560854.5582	4181353.592
160	356	560854.547	4181353.617
161	427	560854.2089	4181354.425
162	446	560854.3669	4181356.161
163	432	560854.5626	4181358.163
164	444	560854.7767	4181360.157
165	432	560854.9447	4181361.851
166	438	560855.0743	4181364.292
167	443	560855.0744	4181364.29
168	439	560855.0972	4181363.529
169	429	560855.5615	4181362.518
170	439	560855.3662	4181360.702
171	443	560855.1638	4181358.788
172	433	560854.9794	4181356.773

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
173	389	560854.8447	4181355.24
174	366	560854.618	4181352.648
175	404	560854.7619	4181353.833
176	398	560854.9458	4181355.366
177	438	560855.1467	4181357.248
178	431	560855.3245	4181359.102
179	438	560855.4602	4181360.847
180	447	560855.5645	4181362.065
181	423	560855.5235	4181364.015
182	427	560855.6553	4181363.571
183	450	560855.9208	4181362.375
184	454	560856.0633	4181360.934
185	439	560855.8867	4181359.226
186	443	560855.7122	4181357.5
187	396	560855.6226	4181355.75
188	378	560855.5906	4181355.067
189	381	560855.4688	4181353.287
190	396	560855.5785	4181354.523
191	442	560855.7022	4181355.922
192	433	560855.8617	4181357.479
193	441	560856.037	4181359.109
194	427	560856.2277	4181360.698
195	438	560856.3724	4181362.021
196	436	560856.3461	4181364.098
197	438	560856.4332	4181363.807
198	440	560856.6878	4181362.59
199	431	560856.7933	4181361.075
200	430	560856.597	4181359.226
201	438	560856.407	4181357.286
202	414	560856.3386	4181355.247
203	381	560856.3416	4181353.696
204	412	560856.1574	4181354.356
205	442	560856.3641	4181355.993
206	444	560856.5812	4181357.717
207	450	560856.8001	4181359.531
208	437	560856.9784	4181361.102
209	425	560856.526	4181363.609
210	436	560856.5875	4181363.568
211	439	560857.2711	4181363.201
212	419	560857.4139	4181361.813
213	427	560857.451	4181360.137
214	426	560857.2393	4181358.382
215	423	560857.1418	4181356.497

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
216	413	560857.1091	4181355.433
217	407	560857.0891	4181355.196
218	408	560857.0522	4181354.807
219	448	560857.1555	4181356.344
220	451	560857.3322	4181358.087
221	413	560857.5023	4181359.765
222	427	560857.6625	4181361.378
223	447	560857.7246	4181362.151
224	436	560857.7278	4181364.138
225	440	560857.8509	4181363.686
226	449	560858.125	4181362.762
227	437	560858.0798	4181361.311
228	432	560857.99	4181359.523
229	443	560857.8221	4181357.674
230	408	560857.7757	4181355.828
231	416	560857.7214	4181353.671
232	403	560857.74	4181354.404
233	407	560857.8458	4181356.153
234	444	560858.0315	4181358.076
235	415	560858.2343	4181359.875
236	457	560858.391	4181361.303
237	427	560858.5273	4181362.357
238	400	560858.6203	4181363.455
239	446	560859.0314	4181362.552
240	431	560858.8523	4181360.903
241	420	560858.6618	4181359.094
242	448	560858.5093	4181357.12
243	402	560858.407	4181355.752
244	384	560858.2384	4181353.374
245	414	560858.3873	4181354.906
246	448	560858.555	4181356.632
247	444	560858.7418	4181358.55
248	437	560858.9389	4181360.452
249	429	560859.1258	4181362.072
250	421	560859.1519	4181362.316
251	426	560859.245	4181363.291
252	405	560859.3775	4181361.812
253	437	560859.3895	4181359.857
254	442	560859.1915	4181357.81
255	404	560859.0761	4181355.766
256	392	560859.0543	4181353.252
257	397	560859.0305	4181353.455
258	420	560858.96	4181354.57

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
259	446	560859.063	4181355.926
260	428	560859.2792	4181357.539
261	426	560859.4925	4181359.13
262	447	560859.6674	4181360.702
263	429	560859.7844	4181361.756
264	430	560859.8761	4181363.964
265	419	560860.0697	4181363.028
266	424	560860.3233	4181361.738
267	432	560860.1068	4181360.075
268	457	560859.8887	4181358.321
269	421	560859.6181	4181356.613
270	392	560859.6401	4181355.204
271	419	560859.6693	4181353.214
272	409	560859.6618	4181353.844
273	425	560859.7058	4181355.318
274	428	560859.8494	4181356.986
275	417	560860.0845	4181358.778
276	427	560860.3059	4181360.464
277	421	560860.4843	4181362.049
278	434	560860.3413	4181363.812
279	427	560860.6211	4181363.593
280	412	560860.6607	4181362.263
281	421	560860.7068	4181360.816
282	434	560860.4953	4181359.268
283	412	560860.2987	4181357.357
284	421	560860.1035	4181355.624
285	386	560860.13	4181355.182
286	399	560860.1956	4181354.1
287	408	560860.095	4181355.57
288	443	560859.1487	4181357.808
289	438	560857.6561	4181360.132
290	433	560855.3125	4181361.282
291	429	560853.0511	4181362.025
292	449	560850.8759	4181360.943
293	411	560849.7284	4181360.242
294	434	560849.163	4181357.867
295	417	560849.1101	4181358.187
296	406	560848.9472	4181359.014
297	413	560849.019	4181360.366
298	401	560849.1044	4181361.982
299	434	560849.1917	4181363.652
300	396	560849.2429	4181364.659
301	446	560849.3449	4181366.043

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
302	428	560849.2434	4181364.748
303	424	560849.1506	4181363.42
304	450	560849.1198	4181362.058
305	425	560848.9849	4181360.588
306	417	560848.4169	4181358.547
307	418	560848.5896	4181358.753
308	417	560849.161	4181359.719
309	437	560849.2894	4181361.118
310	406	560849.4381	4181362.821
311	419	560849.5605	4181364.088
312	424	560849.6073	4181364.92
313	429	560849.649	4181365.545
314	434	560849.6035	4181364.191
315	434	560849.5444	4181362.737
316	423	560849.4864	4181361.328
317	449	560849.4394	4181359.964
318	440	560849.4931	4181359.49
319	424	560849.1335	4181357.907
320	428	560849.5521	4181359.106
321	428	560850.0248	4181360.453
322	450	560850.1227	4181362.034
323	424	560850.2256	4181363.669
324	407	560850.4096	4181366.599
325	436	560850.3967	4181366.374
326	411	560850.3455	4181365.556
327	423	560850.3303	4181364.141
328	432	560850.3086	4181362.789
329	425	560850.2787	4181361.502
330	412	560850.222	4181360.47
331	434	560849.9807	4181358.782
332	429	560850.3037	4181359.494
333	432	560850.7451	4181361.115
334	433	560850.875	4181362.916
335	430	560850.9845	4181364.294
336	414	560851.1635	4181366.347
337	434	560851.1139	4181365.887
338	441	560851.0058	4181364.346
339	414	560850.9839	4181362.605
340	437	560850.9057	4181360.977
341	430	560850.8449	4181359.693
342	456	560850.7971	4181358.753
343	433	560850.6313	4181357.547
344	441	560851.1117	4181358.22

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
345	445	560851.3561	4181359.808
346	444	560851.6039	4181361.447
347	426	560851.7319	4181363.15
348	413	560851.8129	4181364.226
349	425	560851.9448	4181366.418
350	440	560851.9003	4181365.224
351	438	560851.8455	4181363.773
352	427	560851.7576	4181362.066
353	439	560851.6891	4181360.658
354	434	560851.3199	4181358.091
355	433	560851.5521	4181358.6
356	432	560852.0171	4181359.702
357	435	560852.2726	4181361.526
358	437	560852.47	4181363.32
359	412	560852.7065	4181366.357
360	414	560852.6679	4181366.047
361	462	560852.5499	4181365.102
362	434	560852.5228	4181363.51
363	440	560852.484	4181362.025
364	445	560852.4216	4181360.759
365	465	560852.408	4181360.48
366	474	560852.3298	4181359.437
367	434	560852.7369	4181360.756
368	413	560853.0809	4181362.426
369	436	560853.2364	4181363.976
370	418	560853.2245	4181364.368
371	421	560853.1943	4181365.318
372	449	560853.1905	4181363.627
373	425	560853.1729	4181361.981
374	476	560852.6739	4181359.224
375	437	560852.8876	4181359.512
376	445	560853.4892	4181360.416
377	430	560853.7702	4181362.233
378	409	560853.9526	4181363.641
379	418	560854.0495	4181366.157
380	435	560854.0174	4181364.972
381	420	560853.9783	4181363.535
382	438	560853.9295	4181361.845
383	433	560853.9302	4181361.236
384	437	560853.6561	4181359.573
385	429	560854.1248	4181360.847
386	423	560854.6361	4181362.247
387	442	560854.7212	4181363.871

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
388	402	560854.7827	4181364.378
389	403	560854.7896	4181365.944
390	428	560854.7381	4181364.32
391	439	560854.6847	4181362.673
392	447	560854.575	4181361.007
393	474	560854.5967	4181360.593
394	425	560854.201	4181359.114
395	420	560854.6737	4181360.1
396	407	560855.2505	4181361.172
397	433	560855.2986	4181362.484
398	427	560855.35	4181363.75
399	399	560855.497	4181366.319
400	411	560855.4716	4181365.876
401	415	560855.4118	4181364.767
402	421	560855.383	4181362.99
403	439	560855.3657	4181361.753
404	450	560855.412	4181360.796
405	425	560855.4073	4181360.704
406	421	560855.217	4181359.568
407	439	560855.6426	4181360.414
408	423	560856.0968	4181361.813
409	436	560856.1691	4181363.317
410	408	560856.2007	4181364.292
411	412	560856.2606	4181365.951
412	421	560856.2188	4181365.098
413	436	560856.165	4181363.564
414	420	560856.1494	4181361.908
415	419	560856.1122	4181360.331
416	453	560855.9776	4181359.434
417	429	560856.0062	4181359.23
418	432	560856.2482	4181358.902
419	456	560856.729	4181360.441
420	421	560856.8523	4181362.164
421	465	560856.9605	4181363.542
422	416	560856.9991	4181364.578
423	431	560857.0406	4181365.666
424	418	560856.9842	4181364.638
425	427	560856.9311	4181362.562
426	425	560856.8864	4181360.884
427	435	560856.8681	4181359.604
428	431	560856.6114	4181358.097
429	410	560856.9802	4181358.478
430	446	560857.2084	4181359.84

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
431	427	560857.4577	4181361.349
432	414	560857.5825	4181363.024
433	435	560857.6599	4181364.013
434	438	560857.7301	4181366.113
435	445	560857.6854	4181364.846
436	420	560857.6356	4181363.443
437	443	560857.5983	4181361.904
438	442	560857.5575	4181360.454
439	431	560857.1064	4181357.759
440	461	560857.1214	4181357.788
441	449	560857.4694	4181358.391
442	436	560857.8704	4181359.688
443	433	560858.2092	4181361.147
444	453	560858.3374	4181362.644
445	433	560858.397	4181363.975
446	422	560858.4749	4181365.818
447	455	560858.4475	4181364.973
448	451	560858.4069	4181363.42
449	421	560858.3947	4181361.727
450	433	560858.3163	4181360.053
451	438	560858.2602	4181358.957
452	421	560858.2407	4181358.44
453	414	560858.2857	4181357.799
454	418	560858.8151	4181359.073
455	427	560858.9572	4181360.894
456	434	560859.0924	4181362.644
457	419	560859.1657	4181364.326
458	405	560859.2082	4181365.815
459	446	560859.2508	4181365.196
460	450	560859.1809	4181363.841
461	431	560859.1071	4181362.409
462	431	560859.0291	4181360.902
463	429	560858.9543	4181359.61
464	434	560858.4089	4181357.108
465	433	560858.4935	4181357.252
466	424	560858.9114	4181357.889
467	418	560859.2152	4181359.196
468	439	560859.4924	4181360.955
469	439	560859.619	4181362.719
470	430	560859.6481	4181363.949
471	416	560859.6903	4181365.892
472	423	560859.6814	4181365.35
473	430	560859.6635	4181364.131

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
474	439	560859.6713	4181362.787
475	447	560859.6094	4181361.493
476	444	560859.5529	4181360.201
477	441	560859.4477	4181358.916
478	443	560859.3756	4181358.249
479	413	560859.1849	4181356.376
480	433	560859.4186	4181357.33
481	436	560859.7496	4181358.697
482	423	560860.1252	4181360.49
483	412	560860.3882	4181362.335
484	422	560860.4438	4181363.95
485	419	560860.467	4181364.254
486	442	560860.5409	4181365.4
487	430	560860.53	4181364.191
488	423	560860.485	4181362.629
489	439	560860.3774	4181360.981
490	434	560860.2732	4181359.244
491	420	560860.1895	4181357.855
492	435	560860.1286	4181356.814
493	421	560859.9903	4181355.637
494	425	560860.4607	4181356.425
495	406	560860.6054	4181358.249
496	432	560860.7517	4181360.092
497	425	560860.8987	4181361.954
498	431	560860.9833	4181363.041
499	411	560861.3382	4181365.324
500	418	560861.263	4181364.923
501	416	560861.1306	4181364.063
502	438	560860.6176	4181362.839
503	420	560859.6378	4181361.096
504	426	560858.4328	4181359.256
505	443	560856.597	4181357.814
506	439	560855.2911	4181357.247
507	425	560855.2162	4181357.046
508	430	560854.9118	4181356.63
509	446	560854.7862	4181358.091
510	447	560854.9713	4181359.835
511	432	560855.1595	4181361.619
512	440	560855.3359	4181363.444
513	402	560855.4147	4181364.291
514	400	560855.6359	4181366.275
515	412	560855.5316	4181365.382
516	431	560855.4072	4181364.335

Title:	Decimated Background Data		Line B Sediment
Sample ID	Gamma Total cps	Easting	Northing
517	429	560855.2804	4181363.133
518	432	560855.1654	4181362.048
519	444	560855.0267	4181360.778
520	438	560854.7489	4181358.465
521	421	560854.5283	4181356.806
	476	**Max**	
	27.06	**Std Dev**	
	423.37	**Average**	
	504.56	**3s Investigation Level**	

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-B-01
Sample Description: 242477-001, 194706

Detector: HPGE09 50-TP42232A
Contract: Tetra Tech Alameda
Unit Number: B
Sample Time: 1/16/2013 10:15
Acquisition Time: 1/21/2013 12:56:40
Analysis Time: 1/23/2013 13:43
Analysis Quantity: 3.220E+02 g

Spectrum ID: 9_20130121_007
Sample Type: SAMPLE
Matrix: S
Live Time: 5400 sec
Real Time: 5407 sec
Dead Time: 0.13 %

Efficiency: HPGE09 S21306 9_20121230002_EffCal
Efficiency Cal Date: 12/30/2012 15:48
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		4.239E-01	21.91	9.286E-02	9.718E-02	3.666E-02
Am-241	#AB	1.611E-01	127.60	2.056E-01	2.060E-01	1.613E-01
Bi-212	#	1.235E-01	110.50	1.365E-01	1.367E-01	1.017E-01
Bi-214		3.942E-01	17.34	6.835E-02	7.325E-02	2.882E-02
Co-60	#AB	1.024E-02	192.10	1.968E-02	1.969E-02	1.521E-02
Cs-137	#	8.121E-02	32.44	2.634E-02	2.690E-02	1.656E-02
Eu-152	#AB	0.000E+00	2000.00	4.207E-02	4.207E-02	3.378E-02
Eu-154	#AB	2.373E-02	270.40	6.415E-02	6.417E-02	5.074E-02
K-40		1.100E+01	7.29	8.020E-01	1.112E+00	1.916E-01
Pa-234	#AB	8.655E-03	1250.00	1.082E-01	1.082E-01	8.828E-02
Pb-212		4.456E-01	12.24	5.451E-02	6.397E-02	2.303E-02
Pb-214	#	4.144E-01	17.49	7.248E-02	7.780E-02	3.262E-02
Ra-226		5.451E-01	71.70	3.908E-01	3.930E-01	3.013E-01
Th-234	#	1.058E+00	45.26	4.787E-01	4.880E-01	2.634E-01
Tl-208		1.300E-01	20.42	2.654E-02	2.792E-02	1.023E-02
U-235		3.553E-02	75.77	2.692E-02	2.706E-02	2.068E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.485E+01

Analyst: Isaako Tapelu

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-B-02
Sample Description: 242477-002, 194706

Detector: HPGE10 51-TP42231A
Contract: Tetra Tech Alameda
Unit Number: B
Sample Time: 1/16/2013 10:20
Acquisition Time: 1/21/2013 12:07:47
Analysis Time: 1/23/2013 12:31
Analysis Quantity: 3.110E+02 g

Spectrum ID: 10_20130121_006
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2703 sec
Dead Time: 0.09 %

Efficiency: HPGE10 S21306 10_20121230002_EffCal
Efficiency Cal Date: 12/30/2012 19:25
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228	#	2.962E-01	49.21	1.458E-01	1.471E-01	9.208E-02
Am-241	#AB	-2.399E-02	1812.00	4.346E-01	4.346E-01	3.560E-01
Bi-212	#AB	7.986E-03	2639.00	2.108E-01	2.108E-01	1.727E-01
Bi-214		4.832E-01	20.16	9.740E-02	1.026E-01	3.655E-02
Co-60	#AB	1.226E-02	132.30	1.622E-02	1.624E-02	2.637E-02
Cs-137	#	6.198E-02	58.05	3.598E-02	3.622E-02	2.321E-02
Eu-152	#AB	4.516E-03	1430.00	6.456E-02	6.456E-02	5.271E-02
Eu-154	#AB	-6.407E-03	1662.00	1.065E-01	1.065E-01	8.695E-02
K-40		1.056E+01	11.44	1.208E+00	1.416E+00	3.362E-01
Pa-234	#AB	-1.221E-03	14640.00	1.787E-01	1.787E-01	1.471E-01
Pb-212		4.752E-01	17.04	8.098E-02	8.851E-02	3.267E-02
Pb-214		5.453E-01	17.63	9.616E-02	1.031E-01	3.079E-02
Ra-226	#AB	4.032E-01	134.30	5.413E-01	5.422E-01	4.174E-01
Th-234		1.493E+00	52.11	7.782E-01	7.896E-01	4.092E-01
Tl-208		1.450E-01	31.11	4.511E-02	4.613E-02	1.818E-02
U-235	#AB	2.731E-02	135.30	3.696E-02	3.702E-02	2.856E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.451E+01

Analyst: Robin Fluty

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-B-03
Sample Description: 242477-003, 194706

Detector: HPGE12 50-TP32731A
Contract: Tetra Tech Alameda
Unit Number: B
Sample Time: 1/16/2013 10:24
Acquisition Time: 1/21/2013 12:09:31
Analysis Time: 1/23/2013 13:07
Analysis Quantity: 3.240E+02 g

Spectrum ID: 12_20130121_006
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2704 sec
Dead Time: 0.15 %

Efficiency: HPGE12 S21306 12_20121230004_EffCal
Efficiency Cal Date: 12/31/2012 13:11
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228	#	2.290E-01	55.70	1.275E-01	1.285E-01	7.923E-02
Am-241	#AB	3.685E-02	869.40	3.204E-01	3.204E-01	2.609E-01
Bi-212	#	2.144E-01	111.80	2.397E-01	2.401E-01	1.722E-01
Bi-214	#	2.460E-01	34.97	8.601E-02	8.757E-02	5.379E-02
Co-60	#AB	9.391E-03	391.40	3.676E-02	3.676E-02	2.913E-02
Cs-137	#AB	2.626E-02	140.40	3.686E-02	3.690E-02	2.780E-02
Eu-152	#AB	1.567E-02	435.90	6.832E-02	6.833E-02	5.468E-02
Eu-154	#AB	-1.881E-02	544.30	1.024E-01	1.024E-01	8.185E-02
K-40		1.143E+01	10.49	1.199E+00	1.441E+00	2.985E-01
Pa-234	#AB	0.000E+00	2000.00	4.095E-02	4.095E-02	3.374E-02
Pb-212		3.997E-01	20.63	8.246E-02	8.776E-02	3.707E-02
Pb-214		4.309E-01	22.50	9.695E-02	1.013E-01	3.727E-02
Ra-226	#AB	-2.208E-02	2737.00	6.044E-01	6.044E-01	4.965E-01
Th-234	#AB	3.275E-01	176.50	5.781E-01	5.788E-01	4.543E-01
Tl-208		1.143E-01	37.37	4.270E-02	4.337E-02	1.920E-02
U-235		6.153E-02	64.17	3.948E-02	3.976E-02	2.829E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.354E+01

Analyst: Isaako Tapelu

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-B-04
Sample Description: 242477-004, 194706

Detector: HPGE08 50-TP42229A
Contract: Tetra Tech Alameda
Unit Number: B
Sample Time: 1/16/2013 10:30
Acquisition Time: 1/21/2013 12:55:24
Analysis Time: 1/23/2013 12:29
Analysis Quantity: 3.230E+02 g

Spectrum ID: 8_20130121_006
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2703 sec
Dead Time: 0.11 %

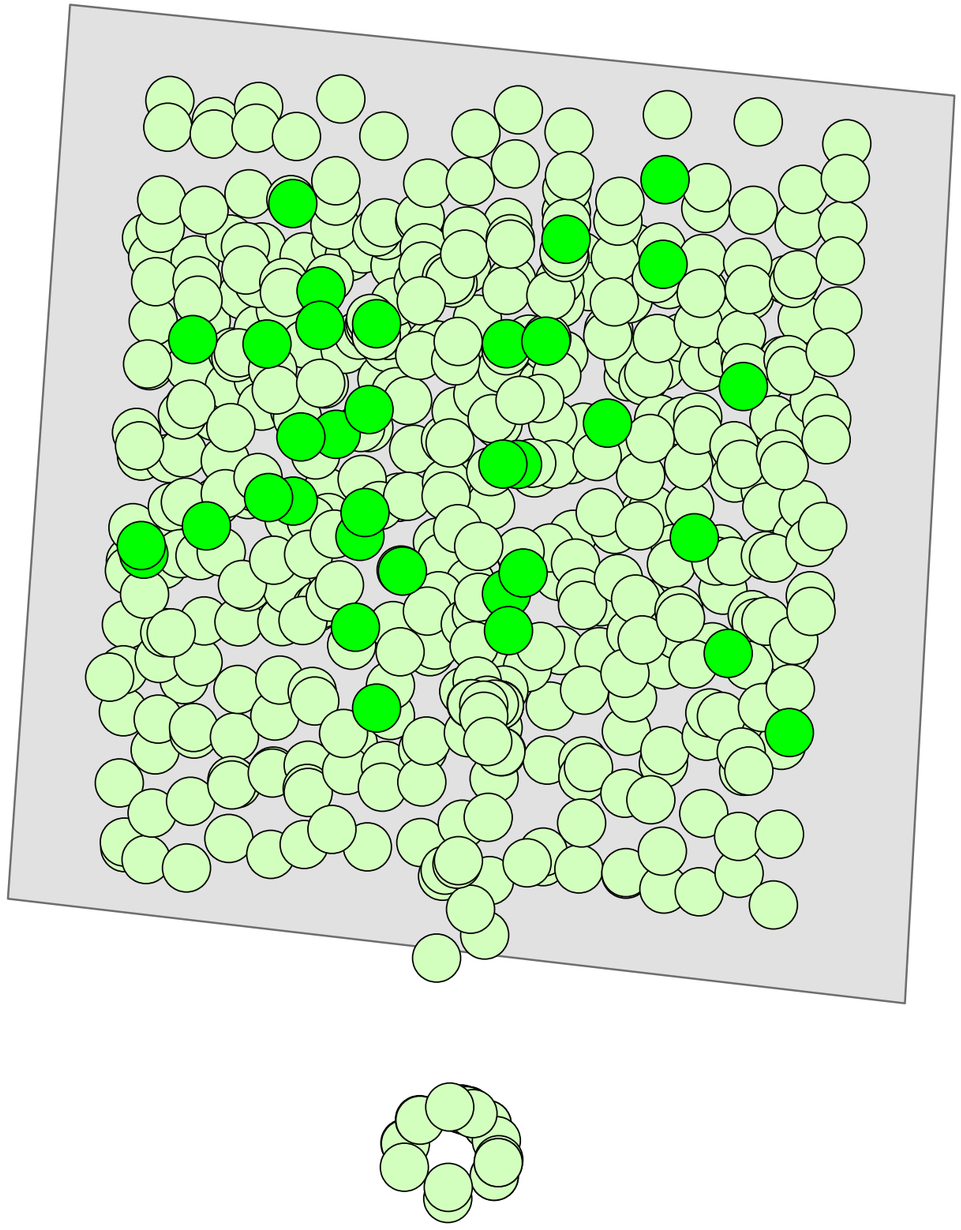
Efficiency: HPGE08 S21306 8_20121228002_EffCal
Efficiency Cal Date: 12/30/2012 10:35
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		4.701E-01	28.82	1.355E-01	1.392E-01	4.171E-02
Am-241	#AB	0.000E+00	2000.00	2.855E-01	2.855E-01	3.203E-01
Bi-212	#	1.920E-01	106.60	2.046E-01	2.051E-01	1.460E-01
Bi-214	#	3.232E-01	25.87	8.360E-02	8.634E-02	4.785E-02
Co-60	#AB	-7.867E-03	433.20	3.407E-02	3.408E-02	2.720E-02
Cs-137	#	4.333E-02	77.29	3.349E-02	3.362E-02	2.348E-02
Eu-152	#AB	-3.257E-03	1621.00	5.280E-02	5.280E-02	4.313E-02
Eu-154	#AB	0.000E+00	2000.00	1.356E-02	1.356E-02	1.424E-01
K-40		1.117E+01	10.17	1.136E+00	1.379E+00	2.845E-01
Pa-234	#AB	-7.965E-02	229.40	1.827E-01	1.828E-01	1.414E-01
Pb-212		4.129E-01	20.26	8.366E-02	8.923E-02	3.838E-02
Pb-214	#	3.570E-01	20.67	7.379E-02	7.771E-02	3.562E-02
Ra-226		4.393E-01	120.90	5.312E-01	5.322E-01	4.100E-01
Th-234	#	6.534E-01	80.52	5.261E-01	5.294E-01	3.951E-01
Tl-208	#	8.089E-02	39.02	3.157E-02	3.202E-02	1.919E-02
U-235		2.788E-02	128.00	3.568E-02	3.574E-02	2.766E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.417E+01

Analyst: Isaako Tapelu



LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6
- SCREENING PAD

0 2 4 8 12 16 Feet

Scale: 1 " = 8 '

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

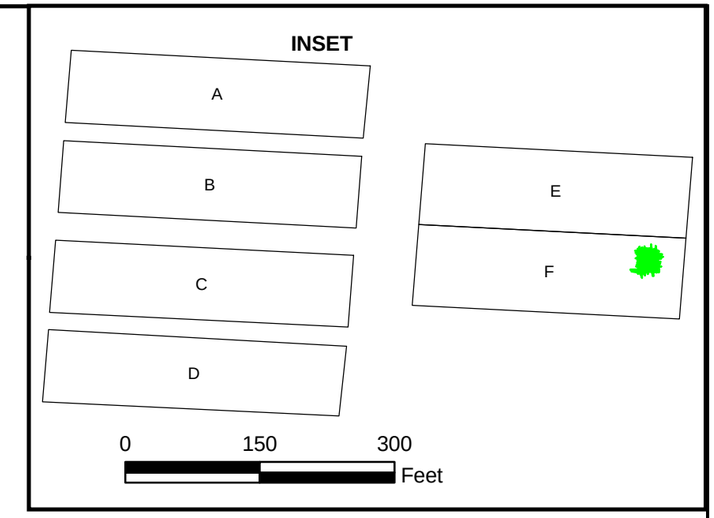
Background Pad

10/17/2012

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
DCN: ECSD-XXXX-XXXX-XXXX
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.



Legend

- >6
- 5-6
- 4-5
- 3-4
- 2-3
- 1-2
- <1

0 5 10 20 30 40 Feet

Scale: 1 " = 25 '

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Line G Sediment
10/17/2012

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
DCN: ECSD-XXXX-XXXX-XXXX
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.

Title:	Decimated Background Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
1	327	560854.8667	4181349.408
2	358	560854.8661	4181349.408
3	333	560855.0177	4181349.134
4	349	560854.545	4181349.633
5	339	560854.5445	4181349.632
6	347	560853.4828	4181349.089
7	348	560853.4935	4181349.087
8	351	560855.0608	4181348.814
9	353	560854.4359	4181349.662
10	349	560854.4352	4181349.659
11	360	560854.509	4181349.635
12	335	560854.508	4181349.632
13	337	560853.4781	4181348.688
14	351	560853.7349	4181349.478
15	342	560853.7362	4181349.476
16	338	560854.9851	4181348.533
17	352	560854.9844	4181348.534
18	349	560854.6269	4181349.579
19	349	560855.0504	4181348.764
20	349	560855.0488	4181348.764
21	347	560854.2023	4181348.163
22	347	560854.2159	4181348.345
23	351	560854.2418	4181349.689
24	386	560854.0192	4181352.191
25	422	560852.8615	4181354.052
26	431	560850.6644	4181355.115
27	446	560849.7846	4181356.853
28	435	560849.0345	4181358.773
29	444	560848.8197	4181357.781
30	459	560848.7686	4181356.317
31	436	560848.7977	4181354.038
32	452	560848.7872	4181354.133
33	452	560848.6997	4181355.123
34	432	560848.7714	4181357.017
35	435	560848.8869	4181358.842
36	459	560849.0751	4181360.6
37	437	560849.2118	4181362.112
38	445	560849.1547	4181364.261
39	462	560849.2631	4181363.933
40	435	560849.5324	4181362.373
41	457	560849.5266	4181360.554
42	422	560849.4412	4181358.775
43	446	560849.3672	4181357.202
44	441	560849.2989	4181355.671
45	422	560849.1462	4181353.831
46	420	560849.2527	4181354.616
47	430	560849.3524	4181356.186
48	459	560849.459	4181357.637
49	438	560849.602	4181359.062
50	445	560849.7555	4181360.65
51	455	560849.8808	4181362.082
52	475	560849.9266	4181362.567
53	450	560849.9737	4181363.883
54	459	560850.1607	4181362.864
55	451	560850.2913	4181361.263
56	473	560850.1596	4181359.44
57	431	560850.0231	4181357.149
58	424	560849.9509	4181355.934
59	445	560849.8272	4181353.69
60	433	560849.894	4181354.811

Title:	Decimated Background Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
61	460	560849.9479	4181356.045
62	444	560850.1252	4181357.834
63	458	560850.3252	4181359.83
64	442	560850.5503	4181361.758
65	448	560850.5955	4181362.335
66	461	560850.5567	4181364.237
67	461	560850.7662	4181363.296
68	449	560851.0297	4181361.877
69	440	560850.8562	4181359.948
70	437	560850.7103	4181357.815
71	445	560850.6279	4181355.88
72	423	560850.5911	4181355.152
73	423	560850.5421	4181354.18
74	458	560850.586	4181355.077
75	448	560850.6909	4181356.677
76	453	560850.8506	4181358.402
77	453	560850.9825	4181360.064
78	447	560851.0911	4181361.427
79	467	560851.1733	4181362.489
80	461	560851.0272	4181362.719
81	453	560851.085	4181364.098
82	447	560851.3995	4181363.045
83	452	560851.6395	4181361.36
84	461	560851.5422	4181359.531
85	445	560851.4319	4181357.813
86	457	560851.3078	4181356.229
87	452	560851.2804	4181355.304
88	437	560851.238	4181353.907
89	464	560851.2632	4181355.277
90	432	560851.3943	4181356.83
91	431	560851.5242	4181358.355
92	469	560851.6159	4181359.855
93	463	560851.6916	4181361.227
94	450	560851.8238	4181362.465
95	441	560851.8039	4181363.927
96	467	560852.0835	4181363.38
97	453	560852.1392	4181361.795
98	455	560852.1771	4181359.979
99	448	560852.0025	4181358.045
100	422	560851.9321	4181356.636
101	448	560851.8703	4181355.396
102	438	560851.8508	4181355.007
103	423	560851.8021	4181354.07
104	456	560851.8668	4181354.939
105	438	560851.9781	4181356.472
106	444	560852.081	4181358.102
107	446	560852.2096	4181359.548
108	466	560852.3343	4181360.971
109	449	560852.4873	4181362.368
110	449	560852.3283	4181364.116
111	454	560852.55	4181363.916
112	465	560852.7113	4181362.61
113	453	560852.8817	4181361.061
114	468	560852.7347	4181359.262
115	443	560852.5974	4181357.411
116	430	560852.619	4181355.762
117	432	560852.5091	4181355.309
118	431	560852.2668	4181354.314
119	436	560852.4594	4181355.921
120	472	560852.6563	4181357.739

Title:	Decimated Background Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
121	470	560852.8176	4181359.662
122	436	560853.1014	4181361.868
123	441	560853.1904	4181362.398
124	437	560853.2094	4181362.596
125	446	560852.7876	4181364.047
126	442	560852.8826	4181362.746
127	451	560852.9099	4181362.791
128	442	560853.325	4181363.771
129	458	560853.3284	4181363.155
130	448	560853.3409	4181361.647
131	455	560853.3875	4181359.883
132	462	560853.2929	4181357.728
133	431	560853.2498	4181356.224
134	428	560853.1609	4181355.38
135	443	560853.1118	4181355.02
136	464	560853.2525	4181356.721
137	467	560853.4413	4181358.681
138	436	560853.6409	4181360.682
139	457	560853.9161	4181362.385
140	461	560853.9195	4181362.453
141	450	560853.913	4181363.866
142	455	560854.0419	4181362.43
143	450	560854.1725	4181360.85
144	448	560854.034	4181359.123
145	427	560853.9048	4181357.285
146	427	560853.7878	4181355.645
147	387	560853.7767	4181355.1
148	423	560853.7584	4181354.088
149	456	560853.8486	4181355.789
150	463	560853.9896	4181357.403
151	465	560854.1155	4181358.862
152	427	560854.2438	4181360.163
153	446	560854.3491	4181361.318
154	430	560854.4783	4181362.323
155	453	560854.5267	4181363.701
156	455	560854.7078	4181362.86
157	449	560854.712	4181361.597
158	459	560854.714	4181360.129
159	434	560854.5851	4181358.461
160	422	560854.4749	4181356.62
161	404	560854.1245	4181353.52
162	407	560854.1605	4181353.62
163	449	560854.4489	4181354.392
164	457	560854.5543	4181355.928
165	453	560854.7334	4181357.974
166	443	560854.9239	4181359.732
167	439	560855.0557	4181361.107
168	438	560855.119	4181362.029
169	466	560855.1841	4181362.491
170	446	560855.2825	4181363.502
171	440	560855.5686	4181362.52
172	466	560855.3763	4181360.465
173	474	560855.1852	4181358.298
174	448	560855.049	4181356.014
175	373	560854.988	4181355.156
176	419	560854.9111	4181353.443
177	436	560855.108	4181355.606
178	448	560855.2698	4181357.184
179	467	560855.4649	4181358.641
180	453	560855.6614	4181360.278

Title:	Decimated Background Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
181	433	560855.7994	4181361.776
182	462	560855.8627	4181362.377
183	455	560855.9642	4181363.236
184	440	560856.1556	4181362.249
185	453	560856.2653	4181360.5
186	444	560856.072	4181358.544
187	445	560855.9219	4181356.362
188	442	560855.8098	4181353.754
189	437	560855.8058	4181353.917
190	443	560855.8717	4181355.46
191	449	560856.1009	4181357.295
192	456	560856.3018	4181359.244
193	442	560856.4861	4181361.04
194	443	560856.4458	4181363.901
195	459	560856.5809	4181363.398
196	457	560856.9096	4181362.675
197	453	560856.8734	4181360.686
198	441	560856.7711	4181358.112
199	422	560856.4763	4181355.442
200	447	560856.4724	4181355.168
201	434	560856.4111	4181353.627
202	430	560856.5652	4181355.329
203	443	560856.749	4181357.276
204	452	560857.01	4181359.325
205	433	560857.1088	4181360.698
206	452	560857.2361	4181361.883
207	431	560857.2405	4181362.144
208	432	560857.2372	4181363.18
209	441	560857.48	4181361.815
210	441	560857.5173	4181359.592
211	444	560857.2794	4181357.577
212	430	560857.2046	4181355.938
213	428	560857.1948	4181353.536
214	428	560857.1926	4181353.563
215	440	560857.1745	4181354.895
216	450	560857.3082	4181356.49
217	461	560857.4789	4181358.084
218	448	560857.6471	4181359.642
219	441	560857.7463	4181361.168
220	456	560857.7937	4181362.06
221	474	560857.8171	4181363.815
222	444	560857.9055	4181363.416
223	424	560858.1228	4181362.533
224	450	560858.1284	4181361.126
225	446	560858.0269	4181358.996
226	433	560857.8405	4181357.04
227	436	560857.8248	4181355.392
228	431	560857.8287	4181353.286
229	448	560857.8034	4181353.921
230	443	560857.848	4181355.606
231	445	560858.0515	4181357.541
232	436	560858.2579	4181359.694
233	443	560858.3951	4181361.191
234	436	560858.4898	4181362.031
235	446	560858.4877	4181363.305
236	422	560858.8093	4181362.266
237	433	560858.8213	4181360.62
238	435	560858.7822	4181358.978
239	424	560858.6468	4181357.341
240	428	560858.5404	4181355.843

Title:	Decimated Background Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
241	421	560858.4234	4181353.236
242	433	560858.4954	4181354.544
243	465	560858.6004	4181356.23
244	445	560858.8219	4181358.288
245	446	560859.012	4181360.169
246	489	560859.1598	4181361.771
247	452	560859.1927	4181362.144
248	449	560859.2657	4181363.223
249	455	560859.4672	4181361.832
250	435	560859.5327	4181359.955
251	444	560859.3149	4181357.871
252	417	560859.172	4181355.246
253	441	560859.0881	4181353.535
254	449	560859.0863	4181354.158
255	433	560859.2322	4181355.933
256	453	560859.3755	4181357.736
257	436	560859.5551	4181359.674
258	422	560859.6735	4181361.145
259	420	560859.8255	4181362.136
260	448	560859.8865	4181363.486
261	441	560860.1533	4181362.818
262	441	560860.1085	4181361.035
263	453	560860.054	4181359.186
264	440	560859.9085	4181357.277
265	441	560859.8044	4181355.682
266	420	560859.6717	4181353.005
267	439	560859.7699	4181354.19
268	466	560859.929	4181355.965
269	450	560860.2852	4181358.184
270	444	560860.1666	4181359.709
271	453	560860.3566	4181361.456
272	435	560858.9244	4181362.77
273	418	560857.3395	4181364.024
274	457	560855.212	4181364.449
275	444	560853.1716	4181364.228
276	444	560851.0385	4181363.421
277	460	560849.8786	4181361.372
278	467	560849.1041	4181358.956
279	467	560849.0615	4181359.105
280	447	560848.9864	4181360.923
281	431	560849.2652	4181362.783
282	431	560849.3829	4181364.339
283	426	560849.5491	4181366.488
284	448	560849.5124	4181366.04
285	435	560849.4126	4181364.82
286	446	560849.3105	4181363.445
287	440	560849.1761	4181362.068
288	447	560849.0403	4181360.694
289	435	560848.9278	4181359.321
290	458	560848.8721	4181358.603
291	420	560848.5399	4181356.813
292	456	560849.127	4181358.201
293	441	560849.5913	4181359.665
294	454	560849.7624	4181361.214
295	431	560850.0052	4181363.46
296	434	560850.3263	4181366.132
297	431	560850.2919	4181365.919
298	463	560850.1264	4181364.639
299	438	560850.02	4181363.134
300	448	560849.8996	4181361.387

Title:	Decimated Background Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
301	463	560849.8094	4181359.743
302	431	560849.7274	4181358.879
303	423	560849.5735	4181357.55
304	460	560850.0564	4181358.848
305	437	560850.4782	4181360.437
306	459	560850.6589	4181362.165
307	431	560850.8177	4181364.033
308	416	560851.0361	4181366.377
309	427	560850.9942	4181366.016
310	453	560850.8808	4181364.915
311	454	560850.8288	4181363.636
312	434	560850.6953	4181362.245
313	455	560850.5714	4181360.994
314	437	560850.482	4181359.881
315	423	560850.4085	4181358.908
316	433	560851.0296	4181360.155
317	463	560851.2769	4181361.963
318	441	560851.4588	4181363.419
319	439	560851.5832	4181364.811
320	436	560851.677	4181365.865
321	474	560851.6072	4181364.83
322	443	560851.4718	4181363.254
323	463	560851.3312	4181361.613
324	474	560851.1974	4181359.905
325	437	560850.7709	4181358.358
326	426	560851.2891	4181358.76
327	470	560851.7373	4181360.923
328	472	560852.064	4181362.795
329	446	560852.3198	4181364.379
330	454	560852.3361	4181364.787
331	414	560852.4175	4181366.495
332	456	560852.3307	4181365.119
333	450	560852.2256	4181363.492
334	456	560852.0788	4181361.729
335	463	560851.9931	4181360.522
336	433	560851.9203	4181359.42
337	433	560851.8757	4181358.853
338	462	560851.7814	4181357.745
339	436	560852.3112	4181359.197
340	459	560852.7452	4181360.981
341	449	560852.9205	4181362.809
342	455	560853.024	4181364.259
343	445	560853.1342	4181365.867
344	436	560853.1473	4181364.408
345	472	560853.0088	4181362.817
346	473	560852.8836	4181361.383
347	456	560852.775	4181360.106
348	457	560852.2406	4181358.138
349	438	560852.3961	4181358.339
350	446	560853.0647	4181359.669
351	447	560853.533	4181361.427
352	452	560853.712	4181363.413
353	438	560853.7399	4181364.444
354	439	560853.7502	4181364.503
355	447	560853.8778	4181365.07
356	461	560853.8175	4181363.989
357	443	560853.8011	4181363.682
358	448	560854.1932	4181363.498
359	449	560854.1908	4181363.494
360	458	560854.3012	4181363.398

Title:	Decimated Background Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
361	456	560853.0076	4181362.515
362	458	560853.013	4181362.518
363	427	560854.2475	4181363.453
364	452	560854.2459	4181363.451
365	438	560853.7667	4181363.098
366	446	560853.736	4181362.182
367	459	560853.5333	4181359.818
368	459	560853.4277	4181358.586
369	473	560853.0093	4181356.37
370	432	560853.4101	4181357.211
371	432	560854.0534	4181358.152
372	465	560854.1904	4181360.047
373	451	560854.3417	4181362.087
374	426	560854.5282	4181364.27
375	426	560854.6755	4181365.9
376	424	560854.5883	4181365.096
377	416	560854.4943	4181363.876
378	438	560854.3816	4181362.415
379	454	560854.2482	4181360.714
380	455	560854.1789	4181359.822
381	443	560853.87	4181357.894
382	459	560854.3784	4181359.266
383	465	560854.9526	4181361.115
384	449	560855.1971	4181363.269
385	442	560855.2531	4181364.128
386	441	560855.3911	4181366.289
387	447	560855.3362	4181365.383
388	440	560855.2569	4181364.037
389	452	560855.1885	4181362.249
390	474	560855.1257	4181360.466
391	462	560854.4981	4181357.668
392	459	560854.6862	4181357.841
393	457	560855.4428	4181358.82
394	427	560855.9684	4181361.033
395	453	560856.0947	4181363.047
396	466	560856.1833	4181364.229
397	431	560856.1973	4181364.583
398	463	560856.2013	4181364.961
399	465	560856.0894	4181363.419
400	446	560856.0372	4181361.836
401	439	560855.9891	4181360.343
402	447	560855.9278	4181358.94
403	437	560855.545	4181356.937
404	445	560855.7651	4181357.286
405	457	560856.349	4181358.687
406	449	560856.711	4181360.469
407	445	560856.8922	4181362.494
408	442	560857.0181	4181363.81
409	436	560857.0625	4181364.42
410	439	560857.0949	4181364.75
411	437	560856.9984	4181363.063
412	478	560856.8796	4181361.152
413	447	560856.7622	4181359.534
414	450	560856.4305	4181358.192
415	457	560856.469	4181357.972
416	437	560856.5036	4181356.549
417	427	560857.0665	4181358.428
418	444	560857.4402	4181360.143
419	416	560857.576	4181361.864
420	456	560857.7002	4181363.458

Title:	Decimated Background Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
421	426	560857.8895	4181366.201
422	466	560857.8438	4181365.231
423	441	560857.7847	4181363.978
424	446	560857.7199	4181362.443
425	462	560857.6036	4181360.766
426	435	560857.4241	4181359.305
427	447	560857.3561	4181358.075
428	429	560857.1751	4181356.829
429	437	560857.4668	4181357.391
430	464	560857.9568	4181358.663
431	440	560858.2475	4181360.312
432	442	560858.4082	4181362.69
433	414	560858.4833	4181363.784
434	433	560858.5302	4181364.621
435	449	560858.5536	4181364.968
436	450	560858.4575	4181363.197
437	465	560858.3936	4181360.907
438	466	560858.3395	4181359.224
439	444	560858.0817	4181357.883
440	447	560858.1113	4181357.751
441	422	560858.3185	4181356.986
442	434	560858.7038	4181358.712
443	455	560859.0047	4181360.645
444	426	560859.1327	4181362.508
445	441	560859.2326	4181363.713
446	441	560859.4127	4181366.067
447	425	560859.3303	4181364.591
448	454	560859.261	4181363.256
449	446	560859.2116	4181361.95
450	457	560859.1244	4181360.332
451	429	560858.9729	4181358.7
452	474	560858.9049	4181357.286
453	434	560858.7974	4181356.104
454	445	560859.2524	4181356.961
455	438	560859.5297	4181358.795
456	446	560859.7875	4181360.498
457	434	560859.9112	4181362.082
458	434	560860.0066	4181363.361
459	420	560860.0961	4181364.332
460	432	560860.1619	4181364.932
461	429	560860.0782	4181363.506
462	457	560859.9596	4181361.892
463	444	560859.8438	4181360.305
464	449	560859.6639	4181358.75
465	455	560859.5418	4181357.696
466	454	560859.1275	4181355.501
467	438	560859.4814	4181356.247
468	430	560860.0067	4181357.373
469	437	560860.2801	4181359.014
470	431	560860.5593	4181361.091
471	426	560860.7447	4181362.896
472	449	560860.8244	4181364.338
473	432	560860.896	4181365.695
474	420	560860.8703	4181365.116
475	430	560860.785	4181363.731
476	456	560860.6164	4181362.203
477	452	560860.5485	4181360.734
478	447	560860.4888	4181359.282
479	442	560860.2953	4181357.859
480	442	560859.9481	4181356.564

Title:	Decimated Background Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
481	419	560859.2515	4181355.181
482	412	560857.6103	4181354.697
483	408	560856.4525	4181354.306
484	408	560855.534	4181353.643
485	422	560854.8232	4181352.432
486	420	560854.5824	4181352.856
487	435	560854.8864	4181354.399
488	448	560855.0947	4181355.504
489	461	560855.146	4181356.539
490	468	560855.2184	4181357.666
491	447	560855.4183	4181358.857
492	440	560855.6085	4181360.341
493	462	560855.7468	4181361.423
494	463	560855.8664	4181362.426
495	441	560855.9344	4181363.153
496	435	560856.1686	4181363.784
497	443	560856.1943	4181364.361
498	435	560856.2405	4181365.884
499	435	560856.2442	4181365.155
500	430	560856.15	4181363.869
501	472	560855.8448	4181362.519
502	462	560855.4136	4181361.385
503	456	560854.927	4181360.194
504	456	560854.7245	4181358.937
505	464	560854.7191	4181358.088
506	454	560854.6428	4181357.276
507	433	560854.7003	4181356.676
508	435	560854.8701	4181356.358
509	445	560855.0706	4181356.282
510	454	560855.0702	4181356.281
511	454	560854.5983	4181356.3
512	446	560854.5996	4181356.295
513	432	560855.068	4181356.271
514	450	560855.0671	4181356.269
515	461	560854.9817	4181356.29
516	463	560854.8055	4181356.277
517	445	560854.8041	4181356.09
518	440	560854.8707	4181355.665
519	430	560854.3582	4181353.609
520	421	560854.3805	4181353.662
	489	**Max**	
	24.96	**Std Dev**	
	440.06	**Average**	
	514.93	**3s Investigation Level**	

Title:	Decimated Pile Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
1	368	561228.445	4181732.378
2	371	561228.4465	4181732.378
3	388	561228.7559	4181731.948
4	387	561229.2016	4181731.869
5	374	561229.2578	4181732.204
6	373	561229.429	4181733.042
7	361	561229.3083	4181734.401
8	378	561229.2392	4181735.265
9	375	561229.1241	4181736.072
10	354	561228.9909	4181737.125
11	371	561228.843	4181738.328
12	369	561228.6251	4181739.671
13	372	561228.4876	4181740.369
14	357	561228.3851	4181742.173
15	345	561228.3672	4181740.528
16	360	561228.3659	4181738.693
17	388	561228.5207	4181736.671
18	368	561228.6317	4181734.829
19	349	561229.0371	4181731.837
20	385	561228.9316	4181732.058
21	356	561228.5613	4181732.72
22	337	561228.3679	4181733.959
23	376	561228.2054	4181735.049
24	366	561228.1768	4181736.115
25	383	561228.0173	4181737.128
26	367	561227.8787	4181738.141
27	365	561227.6495	4181739.133
28	377	561227.4312	4181740.077
29	375	561227.2271	4181740.906
30	368	561227.2138	4181741.184
31	366	561227.1563	4181742.278
32	344	561227.2589	4181740.995
33	359	561227.3717	4181739.694
34	358	561227.5613	4181738.38
35	345	561227.6045	4181736.98
36	356	561227.6472	4181735.548
37	342	561227.7239	4181734.086
38	401	561227.7758	4181733.121
39	391	561227.8072	4181732.256
40	390	561228.4836	4181731.067
41	389	561227.6976	4181731.199
42	346	561227.5277	4181732.427
43	362	561227.3264	4181733.928

Title:	Decimated Pile Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
44	347	561227.1216	4181735.498
45	362	561226.9373	4181737.144
46	376	561226.7793	4181738.538
47	352	561226.661	4181739.681
48	365	561226.5908	4181740.383
49	376	561226.7579	4181739.057
50	369	561226.8761	4181737.562
51	345	561226.9989	4181736.007
52	375	561227.1107	4181734.392
53	357	561227.9065	4181733.02
54	359	561227.321	4181732.781
55	362	561226.9425	4181734.042
56	381	561226.5248	4181735.423
57	360	561226.3667	4181736.984
58	372	561226.2174	4181738.573
59	370	561225.9874	4181741.428
60	375	561226.0225	4181741.009
61	376	561226.1104	4181739.892
62	375	561226.1697	4181738.071
63	350	561226.2179	4181736.299
64	380	561226.2233	4181734.628
65	352	561226.2966	4181733.42
66	380	561226.8731	4181732.599
67	367	561226.8236	4181732.54
68	373	561226.1947	4181732.442
69	358	561225.8195	4181733.998
70	347	561225.6934	4181735.566
71	361	561225.5627	4181737.189
72	357	561225.417	4181738.866
73	363	561225.3196	4181739.822
74	358	561225.3596	4181741.872
75	355	561225.3771	4181740.509
76	355	561225.3974	4181738.92
77	367	561225.4207	4181737.104
78	350	561225.462	4181735.452
79	371	561225.5676	4181733.918
80	383	561225.5689	4181732.805
81	404	561225.6924	4181731.087
82	357	561225.4259	4181731.878
83	373	561225.0513	4181733.359
84	361	561224.8099	4181735.016
85	370	561224.6976	4181736.687
86	351	561224.5879	4181738.25

Title:	Decimated Pile Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
87	346	561224.5873	4181739.709
88	367	561224.596	4181741.02
89	372	561224.5562	4181740.229
90	349	561224.5394	4181738.666
91	361	561224.5223	4181737.085
92	373	561224.5566	4181735.486
93	354	561224.6017	4181734.042
94	371	561224.6948	4181732.723
95	374	561224.7252	4181731.865
96	377	561224.8503	4181730.373
97	373	561224.5387	4181731.375
98	369	561224.2067	4181732.756
99	359	561224.0294	4181734.277
100	354	561223.9776	4181735.941
101	360	561223.9351	4181737.692
102	353	561224.0605	4181739.529
103	363	561224.1795	4181741.175
104	371	561224.2195	4181740.663
105	352	561223.889	4181739.23
106	362	561223.5356	4181738.014
107	361	561223.567	4181736.976
108	363	561223.6072	4181735.693
109	378	561223.6767	4181734.393
110	362	561223.6708	4181733.249
111	356	561223.7791	4181731.292
112	376	561223.7001	4181731.693
113	362	561223.7987	4181732.946
114	361	561225.3105	4181735.216
115	360	561224.7918	4181734.446
116	354	561224.1862	4181733.429
117	392	561222.8574	4181733.023
118	369	561221.8921	4181732.719
119	373	561222.9821	4181732.528
120	373	561224.6549	4181732.557
121	375	561226.3165	4181732.588
122	394	561227.9604	4181732.737
123	376	561229.544	4181732.963
124	371	561228.9952	4181732.661
125	391	561227.153	4181732.816
126	384	561225.6193	4181732.939
127	364	561224.4004	4181733.089
128	364	561223.3311	4181733.216
129	365	561221.6251	4181732.52

Title:	Decimated Pile Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
130	375	561221.6284	4181732.593
131	381	561221.6663	4181733.428
132	360	561223.263	4181733.512
133	370	561224.899	4181733.547
134	363	561226.5048	4181733.472
135	388	561227.9203	4181733.467
136	376	561229.9133	4181733.487
137	368	561229.2861	4181733.453
138	369	561227.5572	4181733.568
139	388	561225.75	4181733.926
140	370	561224.5694	4181734.161
141	351	561222.8463	4181734.419
142	375	561223.7489	4181734.457
143	377	561225.3158	4181734.514
144	380	561226.9682	4181734.569
145	374	561228.3835	4181734.592
146	395	561230.1524	4181734.613
147	366	561229.0752	4181734.623
148	369	561227.3607	4181734.713
149	364	561225.6644	4181734.954
150	378	561224.6412	4181734.975
151	394	561222.8223	4181734.889
152	388	561223.3696	4181735.01
153	357	561224.7336	4181735.238
154	373	561226.3028	4181735.373
155	364	561227.9914	4181735.421
156	363	561230.2962	4181735.773
157	398	561230.1658	4181735.712
158	355	561228.7628	4181735.442
159	372	561227.0117	4181735.7
160	364	561225.1726	4181735.709
161	364	561222.8516	4181735.522
162	369	561223.17	4181735.625
163	368	561224.7439	4181735.963
164	377	561226.5643	4181736.209
165	377	561228.1647	4181736.14
166	372	561230.3525	4181736.05
167	366	561229.9302	4181736.066
168	359	561228.486	4181736.176
169	355	561226.8413	4181736.391
170	369	561225.1845	4181736.635
171	363	561224.1995	4181737.314
172	370	561224.1553	4181737.283

Title:	Decimated Pile Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
173	359	561223.5457	4181736.827
174	345	561224.6883	4181736.945
175	344	561226.4448	4181737.058
176	364	561227.8389	4181737.15
177	375	561228.8715	4181737.209
178	373	561229.4982	4181737.258
179	367	561228.1433	4181737.226
180	354	561226.8766	4181737.228
181	380	561225.5146	4181737.229
182	366	561224.0576	4181737.256
183	366	561222.5831	4181737.07
184	361	561222.8732	4181737.545
185	356	561223.3362	4181737.55
186	335	561224.9564	4181737.036
187	379	561224.9388	4181737.052
188	361	561224.8562	4181738.182
189	372	561225.0919	4181737.653
190	358	561224.9277	4181737.635
191	373	561223.9031	4181737.547
192	353	561225.2073	4181737.488
193	332	561226.3618	4181737.437
194	372	561227.4708	4181737.447
195	364	561228.4673	4181737.323
196	350	561230.121	4181737.099
197	359	561229.2683	4181737.249
198	349	561227.853	4181737.518
199	369	561226.3902	4181737.982
200	348	561225.11	4181737.936
201	366	561222.9553	4181737.706
202	361	561223.0772	4181737.736
203	342	561224.4365	4181737.942
204	356	561226.0741	4181737.963
205	366	561227.7223	4181737.976
206	397	561228.8922	4181738.028
207	368	561229.5779	4181737.968
208	361	561229.7374	4181738.035
209	347	561227.9516	4181738.411
210	360	561226.417	4181738.623
211	345	561225.159	4181738.877
212	360	561224.1748	4181738.753
213	370	561223.2889	4181738.639
214	372	561224.4703	4181738.796
215	348	561226.3562	4181738.719

Title:	Decimated Pile Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
216	355	561227.9344	4181738.652
217	362	561229.2058	4181738.619
218	381	561230.0302	4181738.618
219	359	561228.7893	4181738.768
220	345	561227.2495	4181739.037
221	364	561225.6811	4181739.309
222	362	561224.0617	4181739.237
223	379	561222.5935	4181739.062
224	364	561223.1759	4181739.412
225	365	561224.7108	4181739.429
226	364	561226.3687	4181739.445
227	360	561228.1495	4181739.428
228	372	561229.5313	4181739.405
229	368	561228.7219	4181739.399
230	377	561226.9881	4181739.634
231	356	561225.3873	4181739.859
232	357	561223.905	4181739.869
233	364	561222.6659	4181739.847
234	357	561223.5062	4181740.056
235	375	561225.0089	4181740.06
236	351	561226.5219	4181740.066
237	368	561228.0428	4181739.978
238	354	561228.6028	4181740.386
239	367	561229.7434	4181739.62
240	364	561227.9556	4181740.115
241	373	561226.2629	4181740.576
242	361	561224.6074	4181740.555
243	378	561223.1002	4181740.719
244	374	561223.7208	4181740.476
245	358	561225.5491	4181739.677
246	364	561227.2485	4181738.855
247	375	561228.0814	4181737.227
248	381	561228.5936	4181735.798
249	386	561228.6144	4181734.426
250	362	561228.638	4181733.668
251	394	561228.6723	4181732.463
252	376	561228.8133	4181734.004
253	355	561228.8939	4181735.651
254	346	561228.8573	4181737.263
255	360	561228.8086	4181738.579
256	356	561228.9353	4181740.63
257	372	561228.8308	4181740.286
258	372	561228.5531	4181739.03

Title:	Decimated Pile Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
259	371	561228.4335	4181737.505
260	358	561228.4013	4181735.735
261	379	561228.3353	4181734.38
262	388	561228.4352	4181733.449
263	372	561228.465	4181733.07
264	380	561228.215	4181734.722
265	356	561228.1362	4181736.476
266	358	561228.0653	4181738.029
267	367	561228.017	4181739.38
268	368	561228.0057	4181739.7
269	357	561228.1153	4181741.174
270	368	561227.8266	4181739.993
271	339	561227.4927	4181738.631
272	355	561227.4288	4181737.043
273	345	561227.4176	4181735.352
274	361	561227.5061	4181733.806
275	369	561227.5307	4181733.088
276	380	561227.5765	4181731.875
277	376	561227.4062	4181733.356
278	369	561227.2692	4181734.755
279	369	561227.2004	4181736.12
280	361	561227.1464	4181737.374
281	374	561227.095	4181738.539
282	382	561227.0531	4181739.617
283	365	561227.6043	4181740.164
284	375	561227.0792	4181741.238
285	361	561226.696	4181740.019
286	361	561226.2628	4181738.68
287	356	561226.3433	4181737.149
288	369	561226.4131	4181735.212
289	369	561225.6786	4181732.894
290	381	561225.7236	4181732.885
291	386	561226.5067	4181732.911
292	373	561226.2857	4181734.894
293	357	561226.0998	4181736.64
294	362	561225.9073	4181738.23
295	366	561225.8671	4181739.292
296	384	561226.0844	4181741.287
297	345	561226.0225	4181741.133
298	372	561225.6467	4181739.982
299	363	561225.2827	4181738.559
300	363	561225.3459	4181736.977
301	373	561225.4079	4181735.311

Title:	Decimated Pile Data		Line G Sediment
Sample ID	Gamma Total cps	Easting	Northing
302	364	561225.3722	4181733.561
303	374	561225.3155	4181732.854
304	354	561225.4629	4181731.107
305	378	561225.3499	4181732.67
306	377	561225.2637	4181734.072
307	370	561225.07	4181735.298
308	365	561224.8737	4181736.821
309	352	561224.7201	4181738.345
310	381	561224.7125	4181739.552
311	369	561224.8775	4181741.424
312	381	561224.6696	4181740.863
313	354	561224.3246	4181739.409
314	356	561224.2031	4181737.682
315	382	561224.2182	4181735.769
316	386	561224.2279	4181734.13
317	372	561224.2766	4181732.765
318	385	561224.2781	4181732.111
319	352	561224.1419	4181733.543
320	368	561223.9992	4181735.114
321	364	561223.8574	4181736.736
322	377	561223.9415	4181738.411
323	363	561223.9967	4181739.527
324	392	561224.0375	4181741.953
325	352	561224.0379	4181741.891
326	336	561224.0397	4181741.067
327	366	561224.8997	4181739.737
328	340	561225.5372	4181738.248
329	362	561226.099	4181736.461
330	371	561225.033	4181735.214
331	359	561224.6914	4181733.79
332	365	561224.5686	4181733.823
333	368	561224.656	4181734.554
334	363	561226.4825	4181735.635
335	362	561228.0553	4181736.529
336	345	561228.939	4181737.028
337	360	561229.1305	4181737.138
338	356	561229.0961	4181737.795
	404	**Max**	
	12.33	**Std Dev**	
	366.29	**Average**	
	514.93	**3s Investigation Level**	

Investigation Level Exceeded

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-G-01
Sample Description: 240585-001, 192025

Detector: HPGE11 51-TP32744A
Contract: Tetra Tech Alameda
Unit Number: 05-G-01
Sample Time: 10/18/2012 13:00
Acquisition Time: 10/29/2012 09:00:17
Analysis Time: 10/29/2012 09:45
Analysis Quantity: 3.830E+02 g

Spectrum ID: 11_20121029_003
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2703 sec
Dead Time: 0.12 %

Efficiency: HPGE11 S20633 11_20121019_007
Efficiency Cal Date: 10/22/2012 11:56
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		2.525E-01	41.61	1.051E-01	1.064E-01	6.180E-02
Am-241	#AB	-1.253E-02	1226.00	1.537E-01	1.537E-01	1.258E-01
Bi-212	#AB	0.000E+00	2000.00	2.051E-01	2.051E-01	1.165E-01
Bi-214		4.424E-01	17.77	7.861E-02	8.399E-02	2.093E-02
Co-60	#AB	-1.100E-02	284.80	3.131E-02	3.132E-02	2.470E-02
Cs-137	#	7.724E-02	42.60	3.290E-02	3.331E-02	2.063E-02
Eu-152	#AB	-1.025E-04	56520.00	5.792E-02	5.792E-02	4.770E-02
Eu-154	#AB	2.735E-02	244.20	6.678E-02	6.681E-02	5.112E-02
K-40		9.978E+00	9.66	9.636E-01	1.190E+00	2.592E-01
Pa-234	#AB	0.000E+00	2000.00	4.965E-02	4.965E-02	2.361E-02
Pb-212		3.387E-01	16.31	5.525E-02	6.083E-02	2.221E-02
Pb-214		4.258E-01	18.44	7.852E-02	8.372E-02	2.706E-02
Ra-226	#	6.263E-01	76.04	4.762E-01	4.786E-01	3.556E-01
Th-234	#	5.218E-01	76.94	4.015E-01	4.042E-01	3.008E-01
Tl-208	#	1.521E-01	24.23	3.686E-02	3.823E-02	1.153E-02
U-235	#AB	-9.260E-03	271.00	2.509E-02	2.510E-02	2.000E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.284E+01

Analyst: Chris Fluty

Reviewer: Philip Smith
Review Date: 10/31/2012 09:37

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-G-02
Sample Description: 240585-002, 192025

Detector: HPGE10 51-TP42231A
Contract: Tetra Tech Alameda
Unit Number: 05-G-02
Sample Time: 10/18/2012 13:04
Acquisition Time: 10/29/2012 08:59:14
Analysis Time: 10/29/2012 09:44
Analysis Quantity: 3.850E+02 g

Spectrum ID: 10_20121029_003
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2703 sec
Dead Time: 0.10 %

Efficiency: HPGE10 S20633 10_20120928_001
Efficiency Cal Date: 9/29/2012 21:01
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		5.827E-01	23.56	1.373E-01	1.428E-01	3.232E-02
Am-241	#AB	1.154E-02	3177.00	3.667E-01	3.667E-01	3.012E-01
Bi-212	#AB	9.269E-02	207.00	1.918E-01	1.919E-01	1.477E-01
Bi-214	#	4.215E-01	21.47	9.051E-02	9.480E-02	3.360E-02
Co-60	#AB	-2.585E-03	282.00	7.291E-03	7.293E-03	2.967E-02
Cs-137	#	6.327E-02	48.48	3.067E-02	3.097E-02	1.892E-02
Eu-152	#AB	0.000E+00	2000.00	6.348E-02	6.348E-02	4.818E-02
Eu-154	#AB	-4.129E-03	2006.00	8.284E-02	8.284E-02	6.773E-02
K-40	#	7.833E+00	11.76	9.212E-01	1.072E+00	3.283E-01
Pa-234	#AB	3.034E-03	5170.00	1.569E-01	1.569E-01	1.289E-01
Pb-212		4.456E-01	18.83	8.389E-02	9.032E-02	3.555E-02
Pb-214		4.358E-01	18.59	8.103E-02	8.631E-02	2.719E-02
Ra-226	AB	1.714E-01	320.10	5.485E-01	5.487E-01	4.426E-01
Th-234	#AB	1.775E-01	297.50	5.282E-01	5.285E-01	4.247E-01
Tl-208	#	1.233E-01	28.35	3.495E-02	3.590E-02	1.837E-02
U-235		6.287E-02	50.04	3.146E-02	3.181E-02	2.165E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.042E+01

Analyst: Chris Fluty

Reviewer: Philip Smith
Review Date: 10/31/2012 09:36

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-G-02DUP
Sample Description: QC662465, 192025, SDUP

Detector: HPGE10 51-TP42231A
Contract: Tetra Tech Alameda
Unit Number: 05-G-02
Sample Time: 10/18/2012 13:04
Acquisition Time: 10/29/2012 13:48:36
Analysis Time: 10/30/2012 11:49
Analysis Quantity: 3.850E+02 g

Spectrum ID: 10_20121029_004
Sample Type: DUP
Matrix: S
Live Time: 2700 sec
Real Time: 2703 sec
Dead Time: 0.10 %

Efficiency: HPGE10 S20633 10_20120928_001
Efficiency Cal Date: 9/29/2012 21:01
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228	#	3.251E-01	34.36	1.117E-01	1.139E-01	5.659E-02
Am-241	#AB	1.310E-01	287.10	3.760E-01	3.762E-01	3.000E-01
Bi-212	#	1.314E-01	130.80	1.719E-01	1.722E-01	1.249E-01
Bi-214		4.891E-01	16.43	8.036E-02	8.676E-02	2.291E-02
Co-60	#AB	0.000E+00	1414.00	5.895E-03	5.895E-03	4.856E-03
Cs-137	#	7.152E-02	47.20	3.376E-02	3.410E-02	2.136E-02
Eu-152	#AB	-1.354E-02	446.30	6.042E-02	6.043E-02	4.856E-02
Eu-154	#AB	-2.123E-03	2927.00	6.215E-02	6.215E-02	5.084E-02
K-40		9.089E+00	11.04	1.004E+00	1.188E+00	2.716E-01
Pa-234	#AB	-3.097E-02	459.00	1.421E-01	1.422E-01	1.130E-01
Pb-212		3.572E-01	21.52	7.686E-02	8.141E-02	3.539E-02
Pb-214		4.995E-01	18.22	9.098E-02	9.715E-02	3.113E-02
Ra-226		9.358E-01	48.74	4.561E-01	4.615E-01	3.096E-01
Th-234	#	5.055E-01	121.10	6.124E-01	6.141E-01	4.784E-01
Tl-208	#	6.997E-02	41.73	2.920E-02	2.957E-02	1.731E-02
U-235		6.235E-02	55.22	3.443E-02	3.475E-02	2.456E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.267E+01

Analyst: Robin Fluty

Reviewer: Philip Smith
Review Date: 10/31/2012 09:36

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-G-03
Sample Description: 240585-003, 192025

Detector: HPGE09 51-TP42227A
Contract: Tetra Tech Alameda
Unit Number: 05-G-03
Sample Time: 10/18/2012 13:08
Acquisition Time: 10/29/2012 10:38:34
Analysis Time: 10/29/2012 12:08
Analysis Quantity: 3.810E+02 g

Spectrum ID: 9_20121029_004
Sample Type: SAMPLE
Matrix: S
Live Time: 5400 sec
Real Time: 5408 sec
Dead Time: 0.15 %

Efficiency: HPGE09 S20633 9_20121001_005
Efficiency Cal Date: 10/2/2012 16:40
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		5.154E-01	16.44	8.472E-02	9.159E-02	1.970E-02
Am-241	#AB	-1.748E-02	597.80	1.045E-01	1.045E-01	8.535E-02
Bi-212		3.492E-01	35.02	1.223E-01	1.246E-01	4.733E-02
Bi-214		3.405E-01	18.14	6.177E-02	6.583E-02	2.717E-02
Co-60	AB	7.658E-03	210.00	1.608E-02	1.609E-02	1.251E-02
Cs-137	#	7.187E-02	29.67	2.132E-02	2.186E-02	1.297E-02
Eu-152	#AB	0.000E+00	2000.00	9.958E-03	9.958E-03	4.185E-02
Eu-154	#AB	-1.715E-02	317.30	5.442E-02	5.444E-02	4.339E-02
K-40	#	9.198E+00	7.43	6.834E-01	9.390E-01	1.714E-01
Pa-234	#AB	4.620E-04	12890.00	5.956E-02	5.956E-02	4.900E-02
Pb-212		3.736E-01	12.82	4.788E-02	5.551E-02	2.152E-02
Pb-214		4.272E-01	13.12	5.606E-02	6.318E-02	2.390E-02
Ra-226		4.207E-01	76.04	3.199E-01	3.215E-01	2.462E-01
Th-234	#	9.302E-01	35.18	3.272E-01	3.377E-01	1.802E-01
Tl-208		1.466E-01	19.05	2.793E-02	2.959E-02	1.003E-02
U-235		2.539E-02	83.65	2.124E-02	2.133E-02	1.645E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.281E+01

Analyst: Chris Fluty

Reviewer: Philip Smith
Review Date: 10/31/2012 09:36

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-G-04
Sample Description: 240585-004, 192025

Detector: HPGE08 51-TP42242A
Contract: Tetra Tech Alameda
Unit Number: 05-G-04
Sample Time: 10/18/2012 13:12
Acquisition Time: 10/29/2012 10:37:06
Analysis Time: 10/29/2012 12:07
Analysis Quantity: 3.650E+02 g

Spectrum ID: 8_20121029_004
Sample Type: SAMPLE
Matrix: S
Live Time: 5400 sec
Real Time: 5407 sec
Dead Time: 0.13 %

Efficiency: HPGE08 S20633 8_20120924_006
Efficiency Cal Date: 9/25/2012 15:32
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

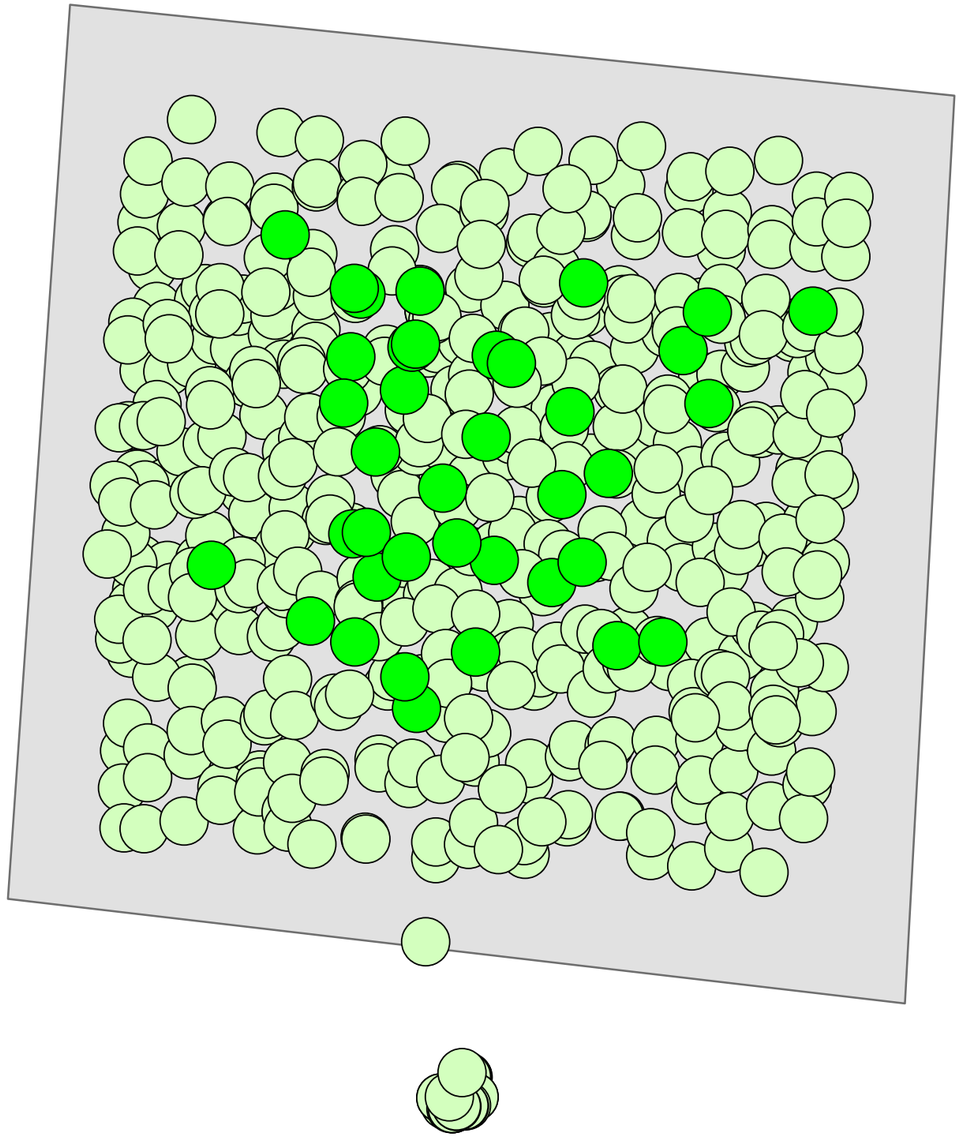
Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		4.735E-01	20.03	9.487E-02	1.001E-01	2.902E-02
Am-241	#AB	-3.362E-02	373.20	1.255E-01	1.255E-01	1.021E-01
Bi-212	#	1.493E-01	87.00	1.299E-01	1.303E-01	9.527E-02
Bi-214		4.655E-01	12.85	5.983E-02	6.744E-02	1.691E-02
Co-60	#AB	0.000E+00	2000.00	1.797E-02	1.797E-02	2.258E-03
Cs-137	#	8.240E-02	26.19	2.158E-02	2.228E-02	1.206E-02
Eu-152	#AB	-1.236E-02	345.60	4.271E-02	4.272E-02	3.446E-02
Eu-154	#AB	-1.494E-02	358.40	5.355E-02	5.356E-02	4.276E-02
K-40		9.597E+00	7.28	6.987E-01	9.694E-01	1.833E-01
Pa-234	#AB	-2.835E-02	369.50	1.047E-01	1.048E-01	8.390E-02
Pb-212		4.031E-01	14.03	5.654E-02	6.414E-02	2.420E-02
Pb-214		4.442E-01	13.01	5.776E-02	6.522E-02	2.335E-02
Ra-226		5.008E-01	62.62	3.136E-01	3.159E-01	2.361E-01
Th-234		5.402E-01	64.41	3.480E-01	3.513E-01	2.082E-01
Tl-208		1.192E-01	21.14	2.521E-02	2.643E-02	1.469E-02
U-235		2.866E-02	77.63	2.225E-02	2.236E-02	1.715E-02

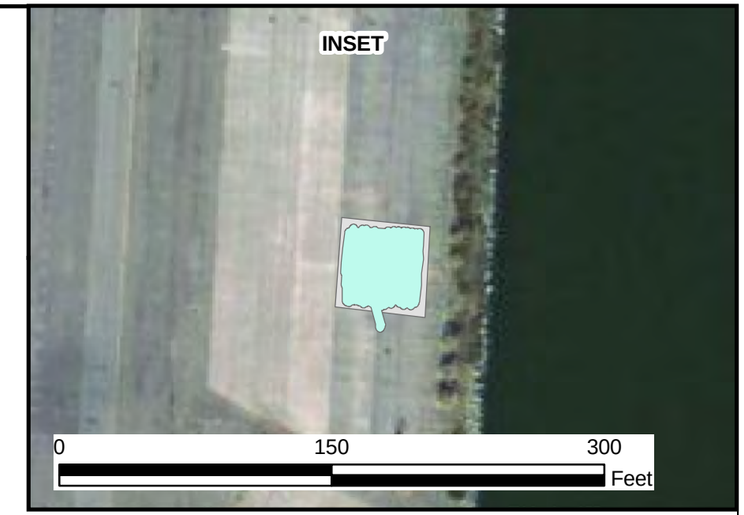
- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.280E+01

Analyst: Chris Fluty

Reviewer: Philip Smith
Review Date: 10/31/2012 09:36





LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6
- SCREENING PAD

0 2 4 8 12 16 Feet

Scale: 1 " = 8 '

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

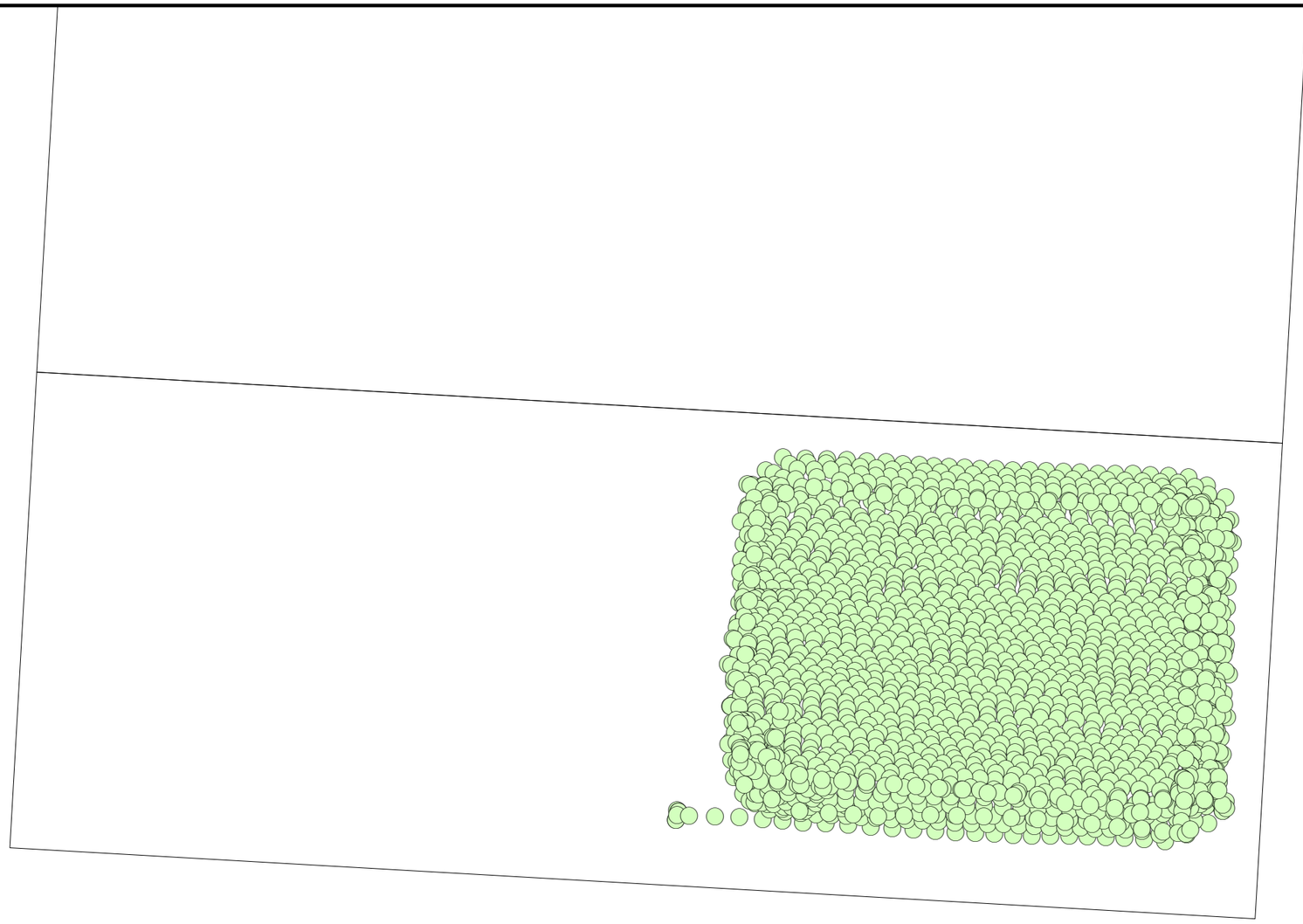
Background Pad

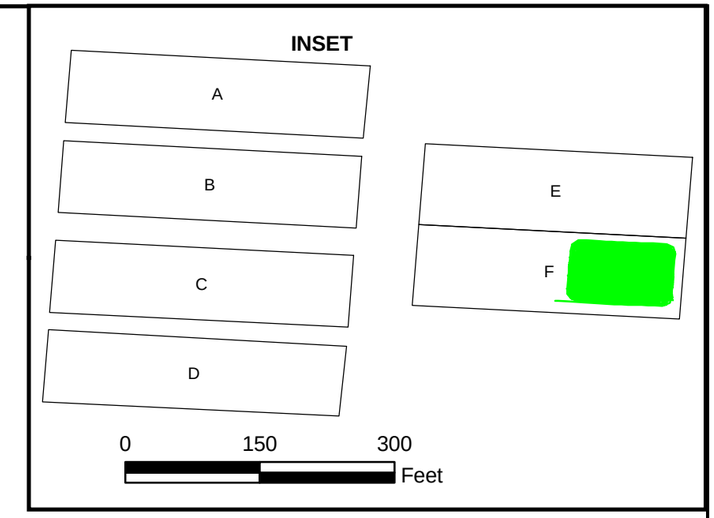
01/28/2013

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
DCN: ECSD-XXXX-XXXX-XXXX
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.





Legend

- >6
- 5-6
- 4-5
- 3-4
- 2-3
- 1-2
- <1

0 5 10 20 30 40 Feet

Scale: 1 " = 25 '

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

MH2A Hydrojetting Sediment
01/28/2013

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
DCN: ECSD-XXXX-XXXX-XXXX
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1	325	560854.2899	4181349.672
2	329	560854.29	4181349.672
3	327	560854.5423	4181350.203
4	320	560854.5407	4181350.201
5	335	560854.1632	4181349.737
6	321	560854.0846	4181349.854
7	317	560854.0855	4181349.854
8	309	560854.5237	4181350.214
9	337	560854.5205	4181350.209
10	328	560854.2582	4181349.676
11	331	560854.2826	4181349.673
12	335	560854.284	4181349.678
13	335	560854.6475	4181349.872
14	342	560854.6447	4181349.873
15	330	560854.5222	4181349.729
16	334	560854.4836	4181349.72
17	323	560854.4782	4181349.731
18	325	560854.3537	4181349.71
19	342	560854.3533	4181349.721
20	340	560854.2309	4181349.867
21	333	560854.4457	4181350.277
22	348	560853.8294	4181352.467
23	425	560852.8163	4181354.22
24	413	560851.0528	4181355.264
25	424	560849.8937	4181356.858
26	424	560849.0527	4181358.879
27	400	560848.9924	4181358.375
28	402	560848.8929	4181357.306
29	402	560848.7861	4181355.672
30	399	560848.7509	4181355.041
31	400	560848.7738	4181354.375
32	426	560848.8404	4181356.132
33	406	560848.9146	4181358.107
34	428	560848.9962	4181360.301
35	426	560849.1129	4181362.038
36	408	560849.2324	4181363.971
37	387	560849.251	4181363.765
38	411	560849.3297	4181363.114
39	421	560849.5147	4181362.023
40	436	560849.4707	4181360.159
41	416	560849.2874	4181358.079
42	413	560849.1762	4181355.717
43	403	560849.1156	4181354.362

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
44	415	560849.1779	4181355.211
45	420	560849.3279	4181356.902
46	443	560849.5044	4181358.77
47	440	560849.7347	4181360.679
48	432	560849.9121	4181362.162
49	428	560850.0327	4181363.219
50	418	560850.1402	4181363.409
51	431	560850.3054	4181362.545
52	444	560850.1781	4181360.813
53	419	560850.0468	4181358.87
54	409	560849.9203	4181356.717
55	390	560849.853	4181355.595
56	411	560849.7835	4181354.487
57	411	560849.9042	4181356.001
58	433	560850.0443	4181357.597
59	435	560850.2176	4181359.274
60	432	560850.4241	4181360.929
61	434	560850.6354	4181362.406
62	422	560850.6883	4181363.03
63	444	560850.7656	4181363.236
64	418	560850.8546	4181361.826
65	427	560850.7766	4181360.036
66	432	560850.6095	4181358.151
67	424	560850.4832	4181356.162
68	394	560850.4207	4181355.056
69	423	560850.3977	4181354.835
70	415	560850.5014	4181355.777
71	433	560850.7081	4181357.679
72	438	560850.9365	4181359.633
73	431	560851.1257	4181361.287
74	418	560851.2695	4181362.641
75	434	560851.3082	4181362.963
76	425	560851.3339	4181363.441
77	425	560851.4559	4181362.139
78	434	560851.5033	4181360.681
79	436	560851.3715	4181359.067
80	443	560851.2499	4181357.567
81	419	560851.1351	4181356.166
82	410	560851.0655	4181355.137
83	409	560851.011	4181354.338
84	421	560851.0376	4181354.965
85	440	560851.1867	4181356.271
86	446	560851.4024	4181357.738

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
87	445	560851.5948	4181359.354
88	430	560851.7766	4181360.904
89	432	560851.9443	4181362.387
90	432	560851.9958	4181362.729
91	446	560852.0219	4181363.284
92	451	560851.9885	4181362.435
93	437	560851.8782	4181361.247
94	444	560851.6108	4181359.726
95	418	560851.5153	4181358.284
96	400	560851.5171	4181356.858
97	429	560851.5171	4181355.461
98	423	560851.4984	4181354.631
99	409	560851.527	4181354.373
100	437	560851.5946	4181354.854
101	433	560851.6411	4181356.247
102	452	560851.9035	4181357.847
103	424	560852.1664	4181359.518
104	450	560852.4185	4181361.263
105	469	560852.5755	4181362.279
106	453	560852.7478	4181363.323
107	427	560852.7006	4181361.666
108	446	560852.5673	4181359.402
109	442	560852.3117	4181356.532
110	384	560852.1508	4181355.274
111	406	560851.9241	4181354.087
112	427	560852.1268	4181355.145
113	433	560852.3749	4181356.399
114	454	560853.022	4181358.585
115	440	560853.3287	4181360.266
116	454	560853.4765	4181361.716
117	453	560853.6065	4181362.436
118	439	560853.7437	4181363.387
119	454	560853.7433	4181363.381
120	463	560853.6676	4181362.489
121	418	560853.5593	4181361.363
122	448	560853.432	4181359.949
123	420	560853.3074	4181358.408
124	440	560853.2008	4181356.74
125	402	560853.0578	4181355.513
126	397	560852.8371	4181354.175
127	439	560853.057	4181355.365
128	438	560853.2842	4181356.903
129	446	560853.4674	4181358.796

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
130	426	560853.6767	4181360.676
131	442	560853.8787	4181362.315
132	437	560853.9169	4181362.777
133	432	560853.8883	4181363.02
134	437	560853.8907	4181363.03
135	427	560854.0271	4181362.394
136	420	560854.1178	4181360.75
137	441	560853.8682	4181358.259
138	453	560853.6795	4181356.379
139	407	560853.5512	4181355.108
140	420	560853.6	4181355.446
141	435	560853.7674	4181356.859
142	423	560853.935	4181358.456
143	456	560854.1173	4181360.074
144	435	560854.3281	4181361.711
145	432	560854.4386	4181362.52
146	449	560854.5658	4181363.407
147	432	560854.6192	4181361.943
148	448	560854.5853	4181360.247
149	425	560854.378	4181358.321
150	436	560854.1827	4181356.195
151	390	560853.9995	4181353.839
152	373	560854.0035	4181354.122
153	425	560854.0908	4181355.171
154	445	560854.3324	4181356.98
155	436	560854.5962	4181358.99
156	455	560854.8491	4181360.928
157	456	560855.0184	4181362.304
158	424	560855.1598	4181363.115
159	453	560855.2687	4181362.171
160	424	560855.1892	4181360.591
161	464	560854.9868	4181358.866
162	439	560854.8118	4181357.052
163	402	560854.6641	4181355.456
164	384	560854.5531	4181354.079
165	402	560854.6394	4181354.445
166	427	560854.8549	4181355.939
167	434	560855.1442	4181357.754
168	437	560855.4007	4181359.51
169	442	560855.5994	4181361.211
170	425	560855.7211	4181362.269
171	439	560855.8225	4181363.49
172	429	560855.9411	4181362.592

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
173	438	560856.0131	4181361.391
174	434	560855.9247	4181359.881
175	429	560855.8	4181358.311
176	422	560855.6556	4181356.733
177	409	560855.5574	4181355.171
178	396	560855.5007	4181353.907
179	411	560855.4866	4181354.137
180	426	560855.5786	4181355.433
181	443	560855.7566	4181356.947
182	458	560855.9494	4181358.495
183	457	560856.1201	4181359.964
184	457	560856.2507	4181361.356
185	429	560856.3515	4181362.256
186	457	560856.4825	4181363.512
187	436	560856.4828	4181363.464
188	435	560856.5068	4181362.994
189	450	560856.6374	4181362.108
190	435	560856.6053	4181360.546
191	462	560856.4551	4181358.827
192	435	560856.3374	4181357.003
193	414	560856.2489	4181355.546
194	392	560856.2029	4181354.453
195	383	560856.228	4181354.569
196	425	560856.3153	4181355.735
197	443	560856.4993	4181357.347
198	428	560856.6881	4181358.877
199	459	560856.9007	4181360.323
200	449	560857.0629	4181361.692
201	427	560857.0883	4181363.365
202	426	560857.1614	4181363.212
203	430	560857.3363	4181362.366
204	430	560857.3642	4181360.768
205	441	560857.2442	4181359.109
206	453	560857.0443	4181357.434
207	415	560856.9134	4181355.713
208	390	560857.1124	4181354.549
209	377	560857.0868	4181354.549
210	405	560856.9649	4181355.805
211	425	560857.2345	4181357.654
212	441	560857.4887	4181359.466
213	425	560857.7054	4181361.131
214	449	560857.8631	4181362.651
215	434	560857.9578	4181363.061

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
216	464	560858.1498	4181362.375
217	426	560858.0602	4181360.798
218	436	560857.9536	4181359.17
219	470	560857.8143	4181357.493
220	411	560857.7053	4181355.819
221	402	560857.6118	4181353.888
222	391	560857.6107	4181354.262
223	423	560857.6868	4181355.318
224	431	560857.9229	4181357.048
225	425	560858.1315	4181358.707
226	445	560858.3278	4181360.339
227	441	560858.4819	4181361.9
228	437	560858.46	4181363.153
229	458	560858.5591	4181363.019
230	450	560858.7901	4181361.943
231	426	560858.8578	4181360.577
232	439	560858.7081	4181359.053
233	429	560858.5627	4181357.468
234	421	560858.4334	4181355.821
235	408	560858.363	4181354.807
236	401	560858.2971	4181353.709
237	433	560858.4399	4181355.146
238	431	560858.6153	4181356.79
239	432	560858.8343	4181358.639
240	413	560859.0339	4181360.464
241	438	560859.1938	4181362.054
242	435	560859.251	4181362.478
243	445	560859.3469	4181362.511
244	433	560859.4357	4181360.958
245	410	560859.3335	4181359.126
246	432	560859.135	4181357.232
247	412	560859.0002	4181355.3
248	408	560858.911	4181354.002
249	408	560858.9268	4181354.535
250	420	560859.0991	4181356.033
251	441	560859.3438	4181357.718
252	425	560859.5397	4181359.396
253	431	560859.7443	4181361.013
254	443	560859.9771	4181362.566
255	445	560860.121	4181362.835
256	435	560860.3084	4181361.982
257	444	560860.1076	4181360.325
258	390	560859.9275	4181358.773

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
259	425	560859.779	4181357.326
260	414	560859.6331	4181355.631
261	397	560859.5045	4181353.597
262	421	560859.6142	4181354.702
263	433	560859.7721	4181356.102
264	428	560859.9984	4181357.794
265	416	560860.2283	4181359.47
266	419	560860.4494	4181361.057
267	434	560860.6052	4181362.224
268	423	560860.7396	4181362.868
269	435	560860.8154	4181361.796
270	433	560860.6849	4181360.065
271	428	560860.4414	4181358.197
272	432	560860.3096	4181356.286
273	409	560860.225	4181355.051
274	403	560860.1683	4181354.493
275	441	560860.2826	4181355.271
276	416	560860.5152	4181357.029
277	428	560860.528	4181358.793
278	427	560860.4138	4181360.662
279	442	560860.063	4181362.628
280	422	560858.7909	4181364.018
281	446	560857.1007	4181365.119
282	434	560855.1389	4181365.329
283	417	560853.2474	4181365.17
284	461	560851.4828	4181364.315
285	436	560850.2717	4181362.959
286	418	560849.3277	4181361.434
287	421	560849.1224	4181360.083
288	444	560848.9171	4181358.771
289	392	560848.7024	4181357.498
290	427	560848.6867	4181357.83
291	429	560848.8065	4181359.269
292	435	560848.8474	4181361.073
293	425	560848.9237	4181362.812
294	426	560849.0764	4181364.484
295	420	560849.1188	4181364.963
296	440	560849.177	4181365.508
297	437	560849.0006	4181364.005
298	425	560848.835	4181362.517
299	433	560848.6926	4181361.041
300	428	560848.6079	4181360.078
301	412	560848.487	4181358.92

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
302	421	560848.7506	4181359.794
303	417	560849.0996	4181361.078
304	430	560849.4965	4181362.783
305	448	560849.7336	4181364.421
306	447	560849.9053	4181366.204
307	426	560849.8137	4181365.16
308	449	560849.6943	4181363.934
309	422	560849.53	4181362.53
310	429	560849.399	4181361.138
311	435	560849.288	4181359.741
312	420	560849.1634	4181358.317
313	421	560849.1568	4181357.477
314	412	560849.5792	4181358.361
315	415	560849.9489	4181359.925
316	435	560850.2056	4181361.655
317	425	560850.3856	4181363.383
318	418	560850.5053	4181364.528
319	410	560850.5493	4181365.089
320	437	560850.5018	4181364.492
321	421	560850.3804	4181362.949
322	439	560850.2268	4181361.42
323	425	560850.0793	4181359.981
324	430	560849.9336	4181358.63
325	435	560849.9245	4181358.196
326	458	560850.244	4181358.776
327	449	560850.6067	4181360.296
328	431	560850.9422	4181361.997
329	434	560851.1889	4181363.888
330	409	560851.3047	4181364.902
331	421	560851.4019	4181365.988
332	437	560851.2846	4181364.714
333	438	560851.1483	4181363.309
334	439	560850.9843	4181361.774
335	432	560850.8438	4181360.199
336	440	560850.7314	4181358.801
337	442	560850.6967	4181358.339
338	449	560850.8531	4181358.423
339	436	560851.428	4181360.224
340	429	560851.748	4181362.14
341	417	560851.934	4181363.954
342	437	560851.9982	4181365.072
343	403	560852.0444	4181365.862
344	442	560852.0103	4181365.128

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
345	449	560851.9071	4181363.641
346	437	560851.7807	4181362.016
347	422	560851.6018	4181360.448
348	429	560851.4691	4181359.234
349	443	560851.4096	4181358.371
350	444	560851.6859	4181358.623
351	442	560852.2321	4181359.845
352	455	560852.4572	4181361.5
353	417	560852.6435	4181363.196
354	424	560852.7452	4181364.939
355	415	560852.776	4181365.447
356	433	560852.7515	4181364.83
357	453	560852.6426	4181363.419
358	433	560852.5169	4181362.017
359	434	560852.3484	4181360.628
360	446	560852.2246	4181359.501
361	431	560852.0614	4181358.22
362	455	560852.617	4181359.306
363	441	560853.0652	4181360.659
364	448	560853.1697	4181362.343
365	441	560853.3083	4181364.012
366	423	560853.4816	4181365.837
367	420	560853.3829	4181364.884
368	436	560853.2653	4181363.654
369	450	560853.1416	4181362.144
370	457	560852.9936	4181360.678
371	466	560852.842	4181359.329
372	449	560852.7493	4181358.512
373	424	560852.7031	4181358.076
374	416	560852.6965	4181358.024
375	452	560852.6475	4181357.49
376	442	560852.5546	4181356.558
377	439	560853.0513	4181357.528
378	462	560853.5098	4181358.914
379	433	560853.7257	4181360.777
380	448	560853.9527	4181362.836
381	398	560854.378	4181365.088
382	419	560854.3319	4181365.042
383	434	560854.0789	4181364.366
384	432	560854.0192	4181362.883
385	444	560853.8607	4181361.184
386	441	560853.6557	4181359.453
387	435	560853.4739	4181357.773

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
388	459	560853.4843	4181356.907
389	430	560854.016	4181357.989
390	444	560854.3676	4181359.7
391	430	560854.5627	4181361.591
392	442	560854.7244	4181363.575
393	386	560854.8099	4181364.638
394	406	560854.8222	4181364.779
395	418	560854.7625	4181364.095
396	437	560854.6254	4181362.522
397	421	560854.5031	4181360.915
398	452	560854.3537	4181359.153
399	447	560854.1636	4181357.235
400	447	560854.1999	4181356.738
401	455	560854.6743	4181357.319
402	433	560855.0055	4181359.053
403	415	560855.2835	4181360.818
404	427	560855.4513	4181362.622
405	411	560855.5822	4181364.112
406	417	560855.7119	4181365.656
407	401	560855.607	4181364.197
408	421	560855.4923	4181362.638
409	433	560855.3651	4181360.982
410	434	560855.2897	4181359.264
411	420	560855.2337	4181357.735
412	450	560855.2542	4181357.215
413	444	560855.4299	4181357.268
414	439	560855.8828	4181359.078
415	438	560856.1569	4181361.004
416	438	560856.336	4181362.911
417	425	560856.5265	4181364.55
418	433	560856.6386	4181365.507
419	421	560856.5376	4181364.588
420	422	560856.4343	4181363.233
421	447	560856.3499	4181361.794
422	440	560856.2405	4181360.376
423	437	560856.1309	4181358.896
424	427	560856.0269	4181357.353
425	443	560856.0943	4181356.974
426	450	560856.5023	4181357.647
427	428	560856.787	4181359.306
428	438	560857.0417	4181361.036
429	441	560857.226	4181362.842
430	416	560857.345	4181364.24

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
431	423	560857.4521	4181365.737
432	422	560857.3798	4181364.54
433	420	560857.2822	4181363.183
434	439	560857.1393	4181361.667
435	442	560857.0279	4181360.248
436	441	560856.9381	4181358.863
437	437	560856.7689	4181357.565
438	429	560856.6143	4181356.57
439	423	560856.8765	4181356.978
440	424	560857.3215	4181358.325
441	426	560857.6925	4181359.905
442	422	560857.8863	4181361.501
443	445	560858.0767	4181363.197
444	438	560858.248	4181364.996
445	429	560858.2751	4181365.224
446	431	560858.1994	4181364.281
447	449	560858.0345	4181362.643
448	430	560857.8901	4181361.325
449	437	560857.732	4181360.331
450	440	560857.5441	4181358.678
451	451	560857.1917	4181357.1
452	432	560857.2786	4181356.998
453	427	560857.7115	4181357.452
454	437	560858.2539	4181359.497
455	461	560858.5809	4181361.487
456	434	560858.8048	4181363.353
457	429	560858.8879	4181364.617
458	442	560858.9344	4181365.319
459	437	560858.8662	4181364.262
460	423	560858.7828	4181362.835
461	438	560858.7032	4181361.352
462	429	560858.5746	4181359.962
463	435	560858.4349	4181358.423
464	431	560858.2867	4181356.733
465	435	560858.3105	4181356.256
466	439	560858.7436	4181356.894
467	431	560859.0738	4181358.957
468	443	560859.3508	4181361.052
469	413	560859.53	4181363.182
470	396	560859.6342	4181364.334
471	429	560859.7478	4181365.493
472	431	560859.6315	4181364.09
473	430	560859.4868	4181362.575

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
474	433	560859.2915	4181360.953
475	428	560859.1134	4181359.391
476	438	560858.9484	4181357.922
477	437	560858.8564	4181356.859
478	417	560858.9253	4181356.349
479	428	560859.4483	4181357.538
480	430	560859.816	4181359.16
481	439	560860.0583	4181360.904
482	426	560860.2214	4181362.699
483	409	560860.337	4181364.028
484	393	560860.3818	4181364.89
485	424	560860.375	4181364.461
486	452	560860.3298	4181363.042
487	433	560860.1872	4181361.569
488	424	560860.0373	4181360.087
489	442	560859.8714	4181358.597
490	436	560859.7644	4181357.55
491	425	560859.6758	4181356.592
492	429	560859.6468	4181356.289
493	446	560859.6975	4181356.108
494	437	560860.093	4181357.07
495	427	560860.3956	4181358.541
496	414	560860.5931	4181360.221
497	432	560860.7545	4181362.323
498	418	560860.8694	4181363.876
499	407	560860.9247	4181364.882
500	396	560860.8772	4181364.44
501	425	560860.7573	4181362.949
502	416	560860.6138	4181361.256
503	429	560860.4415	4181359.472
504	435	560859.6477	4181357.346
505	428	560858.3459	4181356.146
506	417	560856.8008	4181355.347
507	396	560855.771	4181354.403
508	406	560855.0474	4181353.936
509	413	560855.1087	4181354.949
510	448	560855.259	4181356.685
511	439	560855.4394	4181358.56
512	435	560855.6026	4181360.414
513	426	560855.7808	4181362.125
514	432	560856.0074	4181363.691
515	418	560856.097	4181364.316
516	430	560856.1933	4181365.012

Title:	Decimated Background Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
517	425	560855.7946	4181363.479
518	431	560855.3594	4181361.754
519	447	560854.8987	4181359.835
520	446	560854.6587	4181357.884
521	430	560854.5408	4181356.136
522	442	560854.4822	4181355.479
	470	**Max**	
	25.51	**Std Dev**	
	425.50	**Average**	
	502.03	**3s Investigation Level**	

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1	395	561201.6224	4181722.991
2	383	561201.7088	4181722.925
3	379	561201.7075	4181722.924
4	399	561201.5525	4181722.426
5	402	561201.5519	4181722.429
6	401	561201.6212	4181722.719
7	380	561202.3057	4181722.702
8	421	561203.8071	4181722.647
9	423	561205.2231	4181722.584
10	403	561206.5527	4181722.494
11	376	561207.7116	4181722.4
12	393	561208.8672	4181722.288
13	350	561210.1866	4181722.222
14	362	561211.4936	4181722.151
15	352	561212.7875	4181722.063
16	360	561214.0192	4181721.979
17	341	561215.2422	4181721.896
18	345	561216.4837	4181721.806
19	336	561217.6683	4181721.73
20	326	561218.7971	4181721.691
21	328	561219.8987	4181721.64
22	351	561220.9884	4181721.572
23	349	561222.0502	4181721.559
24	343	561223.1247	4181721.545
25	337	561224.2117	4181721.524
26	320	561225.2642	4181721.491
27	325	561226.3138	4181721.447
28	332	561227.3852	4181721.405
29	358	561228.5292	4181721.342
30	363	561229.7432	4181721.221
31	361	561230.986	4181721.592
32	345	561232.2254	4181722.221
33	380	561232.5615	4181723.43
34	358	561232.823	4181724.647
35	371	561232.8731	4181725.895
36	363	561232.9373	4181727.153
37	386	561233.0104	4181728.418
38	369	561233.0995	4181729.705
39	372	561233.1699	4181730.976
40	382	561233.19	4181732.232
41	389	561233.2309	4181733.461
42	403	561233.2856	4181734.681
43	406	561233.3491	4181735.881

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
44	387	561233.4476	4181737.127
45	356	561233.6365	4181738.413
46	366	561233.5017	4181739.712
47	364	561233.2141	4181741.033
48	368	561232.1367	4181741.69
49	371	561231.075	4181742.188
50	349	561229.9419	4181742.249
51	353	561228.9	4181742.297
52	363	561227.8788	4181742.342
53	360	561226.87	4181742.363
54	375	561225.8652	4181742.39
55	387	561224.8653	4181742.445
56	387	561223.8808	4181742.489
57	359	561222.9021	4181742.525
58	346	561221.9373	4181742.552
59	381	561220.9695	4181742.581
60	371	561219.9989	4181742.622
61	362	561219.0872	4181742.663
62	380	561218.1882	4181742.706
63	386	561217.2941	4181742.758
64	371	561216.4246	4181742.81
65	375	561215.5798	4181742.86
66	371	561214.6494	4181742.939
67	374	561213.6757	4181743.05
68	373	561212.5559	4181743.086
69	385	561211.4213	4181743.133
70	372	561210.2729	4181743.208
71	374	561209.0249	4181743.25
72	395	561207.7385	4181743.321
73	374	561206.7391	4181742.548
74	380	561205.9529	4181741.712
75	390	561205.7466	4181740.587
76	355	561205.594	4181739.457
77	366	561205.4787	4181738.323
78	371	561205.4001	4181737.195
79	390	561205.3152	4181736.065
80	376	561205.2098	4181734.934
81	361	561205.1268	4181733.798
82	372	561205.0619	4181732.657
83	366	561204.9842	4181731.509
84	367	561204.9196	4181730.351
85	357	561204.8972	4181729.182
86	345	561204.8386	4181728.062

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
87	365	561204.7397	4181726.961
88	364	561204.7636	4181725.9
89	377	561204.9017	4181724.873
90	369	561205.4528	4181723.969
91	380	561206.127	4181723.396
92	382	561206.9638	4181723.029
93	372	561207.8601	4181722.917
94	353	561208.7499	4181722.814
95	336	561209.6364	4181722.753
96	332	561210.5118	4181722.703
97	355	561211.3824	4181722.669
98	359	561212.2332	4181722.599
99	358	561213.0986	4181722.532
100	354	561213.9795	4181722.484
101	336	561214.8732	4181722.432
102	343	561215.7733	4181722.377
103	334	561216.6941	4181722.336
104	342	561217.6276	4181722.292
105	311	561218.5735	4181722.24
106	326	561219.5054	4181722.204
107	322	561220.4287	4181722.187
108	322	561221.3181	4181722.136
109	334	561222.2031	4181722.088
110	315	561223.0843	4181722.053
111	314	561223.9778	4181722.013
112	325	561224.8668	4181721.97
113	333	561225.7221	4181721.935
114	312	561226.5882	4181721.903
115	322	561227.4656	4181721.89
116	326	561228.4213	4181721.803
117	355	561229.4141	4181721.593
118	294	561230.4688	4181721.938
119	359	561231.4276	4181722.389
120	365	561232.0916	4181723.232
121	363	561232.4074	4181724.143
122	366	561232.4411	4181725.146
123	347	561232.5019	4181726.16
124	362	561232.5599	4181727.173
125	349	561232.6065	4181728.186
126	354	561232.6661	4181729.236
127	358	561232.7388	4181730.285
128	360	561232.7728	4181731.293
129	388	561232.8044	4181732.275

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
130	390	561232.8288	4181733.231
131	367	561232.8629	4181734.133
132	375	561232.9051	4181735.025
133	368	561232.9686	4181735.916
134	373	561233.0494	4181736.826
135	371	561233.2043	4181737.749
136	366	561233.2511	4181738.685
137	385	561233.2648	4181739.649
138	361	561232.7658	4181740.435
139	343	561232.2284	4181741.153
140	334	561231.4498	4181741.587
141	351	561230.4996	4181741.834
142	343	561229.4685	4181741.89
143	359	561228.4293	4181741.931
144	363	561227.4091	4181741.97
145	360	561226.408	4181742.005
146	353	561225.4229	4181742.032
147	358	561224.4439	4181742.051
148	398	561223.4815	4181742.088
149	379	561222.5203	4181742.125
150	379	561221.5601	4181742.161
151	365	561220.6008	4181742.202
152	382	561219.6401	4181742.246
153	337	561218.6723	4181742.304
154	334	561217.7287	4181742.365
155	357	561216.8103	4181742.439
156	354	561215.8627	4181742.493
157	366	561214.9181	4181742.522
158	371	561214.0264	4181742.592
159	355	561213.1087	4181742.663
160	348	561212.1648	4181742.733
161	373	561211.1958	4181742.832
162	357	561210.2098	4181742.968
163	374	561209.1415	4181742.999
164	386	561208.1135	4181742.914
165	383	561207.2034	4181742.399
166	372	561206.5923	4181741.663
167	368	561206.1891	4181740.733
168	371	561206.0689	4181739.728
169	381	561205.9539	4181738.729
170	361	561205.8579	4181737.733
171	344	561205.7781	4181736.733
172	362	561205.7103	4181735.726

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
173	365	561205.6575	4181734.693
174	351	561205.6073	4181733.676
175	352	561205.5646	4181732.673
176	356	561205.5205	4181731.684
177	364	561205.4726	4181730.695
178	333	561205.4406	4181729.693
179	359	561205.3902	4181728.708
180	328	561205.2597	4181727.745
181	381	561205.1714	4181726.784
182	354	561205.0674	4181725.791
183	350	561205.4895	4181724.792
184	333	561205.9993	4181723.897
185	355	561206.866	4181723.333
186	347	561207.7116	4181723.055
187	356	561208.9936	4181722.955
188	343	561208.6344	4181723.036
189	327	561207.8066	4181723.204
190	343	561206.504	4181723.426
191	378	561205.8164	4181723.563
192	370	561206.1033	4181723.463
193	336	561207.1949	4181723.321
194	357	561208.2482	4181723.204
195	330	561209.2677	4181723.168
196	319	561210.2163	4181723.14
197	353	561211.1439	4181723.124
198	319	561212.0325	4181723.058
199	338	561212.9149	4181722.993
200	343	561213.7914	4181722.932
201	338	561214.6854	4181722.872
202	342	561215.6046	4181722.813
203	322	561216.6337	4181722.765
204	326	561217.6471	4181722.722
205	325	561218.6453	4181722.698
206	297	561219.8395	4181722.662
207	309	561221.1688	4181722.607
208	315	561222.1964	4181722.572
209	309	561223.2218	4181722.531
210	339	561224.2441	4181722.47
211	313	561225.2246	4181722.423
212	323	561226.2039	4181722.398
213	344	561227.2077	4181722.292
214	316	561228.264	4181722.204
215	335	561229.3759	4181722.184

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
216	310	561230.4084	4181722.512
217	334	561231.4108	4181723.04
218	353	561231.8285	4181723.946
219	344	561232.1695	4181724.863
220	370	561232.2031	4181725.846
221	353	561232.2108	4181726.816
222	344	561232.1871	4181727.788
223	352	561232.2293	4181728.782
224	328	561232.2708	4181729.805
225	355	561232.3058	4181730.856
226	380	561232.3528	4181731.842
227	361	561232.4166	4181732.813
228	382	561232.4423	4181733.778
229	360	561232.4712	4181734.734
230	372	561232.5148	4181735.682
231	356	561232.6065	4181736.626
232	371	561232.7652	4181737.577
233	376	561232.7491	4181738.596
234	341	561232.6196	4181739.598
235	337	561232.076	4181740.499
236	315	561231.365	4181741.133
237	336	561230.5054	4181741.626
238	378	561229.5775	4181741.6
239	325	561228.6259	4181741.582
240	361	561227.6506	4181741.603
241	343	561226.7447	4181741.616
242	351	561225.8549	4181741.617
243	348	561224.9779	4181741.644
244	347	561224.1053	4181741.67
245	368	561223.237	4181741.688
246	353	561222.3875	4181741.712
247	362	561221.5404	4181741.741
248	355	561220.6876	4181741.785
249	356	561219.8928	4181741.827
250	357	561219.1561	4181741.869
251	351	561218.2404	4181741.922
252	343	561217.1958	4181741.992
253	351	561216.3992	4181742.026
254	343	561215.5761	4181742.069
255	352	561214.7286	4181742.15
256	337	561213.9011	4181742.214
257	348	561213.0706	4181742.253
258	358	561212.2165	4181742.337

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
259	363	561211.3499	4181742.432
260	345	561210.4756	4181742.575
261	373	561209.5452	4181742.62
262	361	561208.5706	4181742.632
263	362	561207.7284	4181742.1
264	359	561206.9844	4181741.527
265	358	561206.589	4181740.691
266	360	561206.3756	4181739.825
267	353	561206.3382	4181738.919
268	361	561206.2964	4181738.017
269	349	561206.2519	4181737.105
270	347	561206.1967	4181736.184
271	372	561206.1402	4181735.273
272	344	561206.0749	4181734.366
273	333	561206.0609	4181733.463
274	365	561206.0445	4181732.564
275	365	561206.0158	4181731.669
276	357	561205.9675	4181730.766
277	333	561205.8963	4181729.86
278	348	561205.8497	4181728.937
279	365	561205.7747	4181728.009
280	344	561205.5733	4181727.088
281	339	561205.5962	4181726.165
282	328	561205.7752	4181725.21
283	339	561206.4215	4181724.465
284	348	561207.0799	4181723.812
285	361	561207.9161	4181723.484
286	328	561208.7627	4181723.34
287	317	561209.6356	4181723.393
288	322	561210.5078	4181723.358
289	320	561211.3694	4181723.286
290	334	561211.0516	4181723.392
291	312	561210.0288	4181723.569
292	316	561208.8503	4181723.679
293	317	561207.6842	4181723.8
294	326	561206.7748	4181723.893
295	344	561206.1213	4181723.952
296	358	561206.3178	4181723.899
297	327	561207.39	4181723.727
298	329	561208.4353	4181723.686
299	322	561209.4461	4181723.649
300	328	561210.4225	4181723.623
301	320	561211.3677	4181723.577

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
302	337	561212.2915	4181723.512
303	336	561213.1446	4181723.465
304	310	561213.9887	4181723.419
305	343	561214.824	4181723.379
306	321	561215.654	4181723.348
307	340	561216.4904	4181723.331
308	327	561217.3618	4181723.296
309	300	561218.3029	4181723.259
310	294	561219.3136	4181723.222
311	327	561220.4025	4181723.189
312	309	561221.4843	4181723.164
313	318	561222.4509	4181723.131
314	320	561223.3786	4181723.097
315	328	561224.2671	4181723.051
316	316	561225.0866	4181723.006
317	312	561225.9066	4181722.956
318	319	561226.7998	4181722.91
319	316	561227.7307	4181722.841
320	331	561228.6916	4181722.679
321	316	561229.6299	4181722.795
322	302	561230.5757	4181723.12
323	332	561231.3107	4181723.826
324	326	561231.9176	4181724.553
325	347	561232.0464	4181725.479
326	351	561232.0758	4181726.396
327	345	561232.0029	4181727.313
328	352	561231.9814	4181728.223
329	341	561231.9609	4181729.157
330	337	561231.9468	4181730.112
331	341	561231.9594	4181731.045
332	376	561231.9979	4181731.973
333	369	561232.0332	4181732.897
334	382	561232.0707	4181733.845
335	374	561232.1142	4181734.817
336	372	561232.1687	4181735.783
337	364	561232.2194	4181736.748
338	348	561232.38	4181737.695
339	346	561232.4457	4181738.653
340	323	561232.1213	4181739.596
341	317	561231.5642	4181740.376
342	319	561230.8432	4181741.076
343	344	561229.9354	4181741.234
344	345	561229.0115	4181741.363

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
345	334	561228.0626	4181741.353
346	354	561227.0856	4181741.337
347	365	561226.1099	4181741.313
348	335	561225.1679	4181741.312
349	353	561224.235	4181741.315
350	358	561223.3111	4181741.333
351	350	561222.4106	4181741.351
352	349	561221.5155	4181741.367
353	355	561220.6246	4181741.395
354	324	561219.733	4181741.428
355	337	561218.8414	4181741.482
356	354	561217.9649	4181741.528
357	359	561217.0946	4181741.569
358	349	561216.2408	4181741.603
359	331	561215.3435	4181741.637
360	347	561214.4023	4181741.665
361	340	561213.5057	4181741.734
362	346	561212.6435	4181741.851
363	349	561211.8867	4181741.905
364	377	561211.0287	4181741.959
365	324	561209.6868	4181742.189
366	359	561208.4744	4181742.055
367	356	561207.2531	4181741.719
368	386	561206.5941	4181740.603
369	370	561206.0747	4181739.405
370	371	561205.9418	4181738.044
371	343	561205.8403	4181736.683
372	358	561205.7588	4181735.332
373	335	561205.6889	4181734.04
374	382	561205.6202	4181732.785
375	366	561205.5507	4181731.566
376	348	561205.4871	4181730.352
377	347	561205.4412	4181729.161
378	355	561205.278	4181728.098
379	355	561205.2041	4181727.036
380	373	561205.4429	4181725.981
381	322	561206.0676	4181724.995
382	329	561206.9026	4181724.061
383	318	561208.0464	4181723.98
384	314	561208.9793	4181723.918
385	337	561209.7027	4181723.916
386	324	561209.6593	4181724.072
387	302	561208.6359	4181724.422

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
388	338	561206.8937	4181724.563
389	344	561205.8149	4181724.641
390	376	561205.4068	4181724.713
391	340	561205.7208	4181724.65
392	321	561206.8831	4181724.421
393	301	561208.0484	4181724.334
394	315	561209.175	4181724.249
395	299	561210.2626	4181724.16
396	334	561211.3263	4181724.079
397	345	561212.3813	4181724.002
398	314	561213.4175	4181723.943
399	354	561214.4429	4181723.888
400	321	561215.458	4181723.844
401	305	561216.4317	4181723.807
402	316	561217.3982	4181723.771
403	315	561218.37	4181723.768
404	325	561219.3425	4181723.759
405	329	561220.3151	4181723.717
406	324	561221.2171	4181723.674
407	331	561222.08	4181723.625
408	315	561222.8207	4181723.597
409	334	561223.6138	4181723.568
410	308	561224.6686	4181723.52
411	325	561225.4982	4181723.485
412	347	561226.2953	4181723.457
413	321	561227.1516	4181723.396
414	319	561228.0764	4181723.342
415	336	561229.071	4181723.328
416	325	561230.1815	4181723.338
417	331	561231.1736	4181723.367
418	352	561231.4591	4181723.372
419	326	561231.7631	4181723.35
420	330	561230.8995	4181723.161
421	306	561229.8646	4181723.025
422	326	561228.7835	4181722.949
423	333	561227.6766	4181722.911
424	321	561226.9553	4181722.868
425	314	561227.8159	4181722.776
426	328	561229.0588	4181722.938
427	319	561230.3948	4181723.24
428	338	561231.2469	4181724.3
429	328	561231.8761	4181725.359
430	328	561231.9374	4181726.549

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
431	354	561231.8686	4181726.81
432	308	561231.5591	4181726.066
433	327	561231.3315	4181724.587
434	341	561231.1671	4181723.614
435	334	561231.2038	4181723.143
436	350	561231.2604	4181723.749
437	307	561231.3024	4181725.23
438	326	561231.3219	4181726.417
439	343	561231.3417	4181727.51
440	350	561231.3668	4181728.509
441	341	561231.3956	4181729.707
442	358	561231.4157	4181730.94
443	354	561231.5486	4181732.139
444	363	561231.654	4181733.265
445	352	561231.6815	4181734.321
446	369	561231.7061	4181735.378
447	340	561231.7275	4181736.457
448	339	561231.7696	4181737.649
449	311	561231.7988	4181738.869
450	330	561231.7892	4181740.115
451	326	561231.5774	4181740.533
452	322	561231.9185	4181740.747
453	332	561231.9422	4181739.339
454	345	561231.9611	4181738.129
455	342	561231.9706	4181737.118
456	328	561232.0333	4181737.387
457	328	561232.1707	4181738.677
458	316	561231.3493	4181739.884
459	329	561230.6288	4181740.784
460	336	561229.7779	4181741.07
461	343	561229.859	4181741.041
462	310	561230.7548	4181740.673
463	366	561231.4779	4181740.682
464	333	561231.8257	4181740.705
465	341	561230.5991	4181740.76
466	324	561229.448	4181740.792
467	324	561228.3163	4181740.813
468	351	561227.2083	4181740.781
469	326	561226.1772	4181740.759
470	345	561225.2229	4181740.776
471	334	561224.1664	4181740.803
472	330	561223.0845	4181740.839
473	361	561221.9771	4181740.874

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
474	346	561220.9032	4181740.909
475	352	561219.8628	4181740.946
476	334	561218.9399	4181740.977
477	343	561218.0508	4181740.997
478	325	561217.2187	4181741.066
479	331	561216.3418	4181741.139
480	347	561215.4206	4181741.223
481	339	561214.461	4181741.277
482	349	561213.4716	4181741.297
483	334	561212.3823	4181741.371
484	323	561211.2556	4181741.448
485	362	561210.0917	4181741.527
486	332	561208.8254	4181741.597
487	340	561207.5917	4181741.658
488	372	561206.6248	4181741.682
489	376	561205.6596	4181741.778
490	356	561205.85	4181741.699
491	348	561206.6464	4181741.471
492	341	561207.6081	4181741.265
493	345	561208.7132	4181741.145
494	349	561209.6938	4181741.039
495	323	561210.5503	4181740.951
496	344	561211.6729	4181740.868
497	333	561212.8441	4181740.808
498	322	561213.9831	4181740.721
499	339	561215.0579	4181740.637
500	341	561216.0681	4181740.551
501	337	561217.2616	4181740.464
502	335	561218.5007	4181740.382
503	336	561219.784	4181740.327
504	340	561221.0572	4181740.28
505	338	561222.3206	4181740.258
506	332	561223.5321	4181740.235
507	352	561224.724	4181740.212
508	347	561225.8694	4181740.188
509	338	561227.004	4181740.171
510	326	561228.1279	4181740.175
511	340	561229.1934	4181740.178
512	331	561230.2465	4181740.182
513	324	561231.2956	4181740.17
514	310	561232.4108	4181740.144
515	327	561232.3931	4181740.145
516	330	561231.8863	4181740.169

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
517	353	561231.1385	4181740.2
518	321	561229.6773	4181740.145
519	319	561228.2766	4181740.109
520	345	561226.9363	4181740.12
521	343	561225.818	4181740.156
522	328	561224.7447	4181740.214
523	329	561223.252	4181740.312
524	343	561221.8688	4181740.394
525	355	561220.6773	4181740.412
526	329	561219.4713	4181740.455
527	334	561218.2671	4181740.511
528	354	561217.0869	4181740.599
529	328	561215.846	4181740.675
530	339	561214.543	4181740.713
531	327	561213.1122	4181740.773
532	345	561211.6493	4181740.848
533	343	561210.151	4181740.875
534	344	561208.7047	4181740.904
535	317	561207.3105	4181740.94
536	343	561206.8019	4181740.954
537	332	561206.0867	4181740.986
538	331	561207.0169	4181740.797
539	334	561208.109	4181740.615
540	316	561209.3731	4181740.51
541	322	561210.5356	4181740.422
542	323	561211.7205	4181740.337
543	345	561213.1208	4181740.294
544	335	561214.4685	4181740.244
545	337	561215.763	4181740.172
546	340	561217	4181740.108
547	316	561218.2394	4181740.046
548	342	561219.5493	4181740.008
549	349	561220.8632	4181739.963
550	335	561222.1807	4181739.9
551	347	561223.5089	4181739.844
552	356	561224.8113	4181739.792
553	344	561225.9746	4181739.761
554	322	561227.1776	4181739.728
555	321	561228.4203	4181739.693
556	311	561229.6569	4181739.636
557	327	561230.8623	4181739.575
558	333	561231.9091	4181739.447
559	354	561232.6683	4181739.351

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
560	361	561233.1432	4181739.32
561	373	561233.1288	4181739.335
562	346	561232.2349	4181739.44
563	318	561231.0169	4181739.346
564	324	561229.7776	4181739.277
565	343	561228.5152	4181739.279
566	328	561227.2462	4181739.283
567	341	561226.0044	4181739.285
568	343	561224.9065	4181739.318
569	350	561223.821	4181739.352
570	356	561222.748	4181739.393
571	342	561221.723	4181739.432
572	339	561220.6871	4181739.472
573	357	561219.549	4181739.517
574	338	561218.4058	4181739.561
575	341	561217.2577	4181739.606
576	344	561216.2292	4181739.658
577	339	561215.2208	4181739.721
578	331	561214.1911	4181739.773
579	323	561213.1669	4181739.827
580	327	561212.1486	4181739.883
581	329	561211.1414	4181739.97
582	351	561210.1046	4181740.089
583	319	561208.8948	4181740.184
584	336	561207.6633	4181740.263
585	373	561206.4084	4181740.297
586	380	561205.6116	4181740.3
587	349	561205.758	4181740.348
588	353	561206.5226	4181740.179
589	328	561207.3962	4181739.977
590	326	561208.8546	4181739.889
591	338	561209.9979	4181739.809
592	328	561211.0994	4181739.724
593	336	561212.3094	4181739.632
594	331	561213.62	4181739.539
595	344	561215.0319	4181739.457
596	338	561216.3828	4181739.391
597	340	561217.6791	4181739.335
598	341	561218.7615	4181739.287
599	345	561219.8589	4181739.233
600	347	561220.9707	4181739.166
601	360	561222.0795	4181739.109
602	345	561223.1837	4181739.061

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
603	365	561224.2661	4181739.009
604	357	561225.3354	4181738.962
605	352	561226.392	4181738.93
606	338	561227.4495	4181738.893
607	329	561228.4931	4181738.851
608	337	561229.4677	4181738.823
609	352	561230.4363	4181738.777
610	344	561231.3945	4181738.656
611	343	561232.2039	4181738.609
612	363	561233.4144	4181738.538
613	352	561233.284	4181738.588
614	338	561232.6755	4181738.683
615	320	561231.5552	4181738.532
616	324	561231.1949	4181738.641
617	342	561230.748	4181738.319
618	338	561231.2008	4181738.334
619	350	561231.437	4181738.356
620	332	561230.257	4181738.372
621	328	561229.1728	4181738.395
622	339	561228.1365	4181738.425
623	368	561227.2435	4181738.445
624	364	561226.3648	4181738.469
625	360	561225.501	4181738.509
626	365	561224.6061	4181738.553
627	341	561223.6785	4181738.603
628	349	561222.6159	4181738.645
629	349	561221.6049	4181738.689
630	340	561220.6462	4181738.748
631	357	561219.6917	4181738.794
632	333	561218.7405	4181738.824
633	330	561217.8056	4181738.879
634	342	561216.8601	4181738.933
635	332	561215.9039	4181738.981
636	330	561214.8804	4181739.036
637	341	561213.8809	4181739.094
638	366	561213.0677	4181739.142
639	334	561212.2622	4181739.191
640	341	561211.4653	4181739.256
641	354	561210.5394	4181739.316
642	334	561209.585	4181739.368
643	332	561208.6196	4181739.405
644	345	561207.6227	4181739.442
645	337	561206.5943	4181739.474

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
646	375	561206.0905	4181739.491
647	380	561205.2907	4181739.602
648	363	561205.9392	4181739.329
649	364	561206.6599	4181739.079
650	338	561207.4996	4181739.107
651	328	561208.5875	4181739.084
652	340	561209.7048	4181739.021
653	342	561210.7214	4181738.947
654	327	561211.7827	4181738.875
655	349	561212.8894	4181738.815
656	338	561213.909	4181738.749
657	326	561214.9076	4181738.669
658	345	561215.8943	4181738.624
659	337	561216.9618	4181738.576
660	342	561218.1101	4181738.524
661	354	561219.3664	4181738.469
662	352	561220.6163	4181738.417
663	328	561221.7249	4181738.359
664	347	561222.6972	4181738.309
665	349	561223.5334	4181738.272
666	348	561224.4421	4181738.228
667	346	561225.3737	4181738.181
668	351	561226.3476	4181738.13
669	342	561227.3126	4181738.086
670	326	561228.2692	4181738.066
671	335	561229.2072	4181738.019
672	338	561230.1386	4181737.95
673	348	561231.0568	4181737.855
674	344	561231.7618	4181737.782
675	348	561232.2545	4181737.738
676	363	561232.5894	4181737.719
677	333	561232.117	4181737.942
678	341	561231.2284	4181737.768
679	347	561230.4311	4181737.636
680	349	561230.9022	4181737.541
681	366	561231.6185	4181737.359
682	331	561231.337	4181737.53
683	341	561230.4373	4181737.541
684	335	561229.5467	4181737.554
685	328	561228.6652	4181737.58
686	357	561227.8558	4181737.602
687	348	561227.0561	4181737.615
688	355	561226.2372	4181737.674

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
689	352	561225.4351	4181737.731
690	342	561224.6493	4181737.781
691	345	561223.8083	4181737.825
692	372	561222.9509	4181737.855
693	349	561222.0705	4181737.904
694	350	561221.2142	4181737.954
695	346	561220.3824	4181738.009
696	350	561219.5381	4181738.058
697	328	561218.6884	4181738.1
698	345	561217.8252	4181738.133
699	342	561216.9768	4181738.163
700	360	561216.1431	4181738.186
701	332	561215.3168	4181738.222
702	333	561214.4965	4181738.277
703	330	561213.6941	4181738.322
704	356	561212.8894	4181738.369
705	349	561212.0828	4181738.423
706	353	561211.2864	4181738.483
707	328	561210.4402	4181738.561
708	320	561209.3278	4181738.619
709	317	561208.3019	4181738.67
710	339	561207.3621	4181738.699
711	351	561206.7162	4181738.718
712	368	561205.704	4181738.837
713	349	561206.0036	4181738.701
714	341	561206.4863	4181738.494
715	341	561207.19	4181738.328
716	345	561208.0681	4181738.229
717	341	561209.0049	4181738.233
718	329	561210.0097	4181738.174
719	343	561210.9481	4181738.118
720	340	561211.8198	4181738.061
721	344	561212.7797	4181737.995
722	346	561213.7597	4181737.929
723	345	561214.7507	4181737.847
724	353	561215.6191	4181737.779
725	324	561216.3666	4181737.759
726	329	561217.3347	4181737.733
727	365	561218.4917	4181737.697
728	349	561219.4911	4181737.662
729	341	561220.4918	4181737.62
730	344	561221.4929	4181737.556
731	343	561222.5029	4181737.502

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
732	362	561223.5092	4181737.456
733	344	561224.4866	4181737.414
734	377	561225.4688	4181737.369
735	342	561226.4552	4181737.311
736	367	561227.3983	4181737.266
737	319	561228.3276	4181737.233
738	336	561229.229	4181737.2
739	330	561230.1511	4181737.159
740	339	561231.0927	4181737.085
741	353	561232.0356	4181736.989
742	379	561232.8386	4181736.89
743	407	561232.9485	4181736.876
744	356	561233.0972	4181736.845
745	350	561232.0908	4181736.912
746	345	561231.1824	4181736.888
747	362	561230.283	4181736.765
748	345	561229.3085	4181736.729
749	348	561228.3611	4181736.711
750	349	561227.4418	4181736.771
751	350	561226.5666	4181736.833
752	351	561225.7047	4181736.902
753	347	561224.8607	4181736.948
754	356	561224.0983	4181736.987
755	353	561223.4168	4181736.991
756	346	561222.7289	4181737.014
757	337	561221.9816	4181737.073
758	356	561220.9355	4181737.13
759	337	561219.8731	4181737.181
760	350	561218.7939	4181737.208
761	328	561217.7588	4181737.245
762	346	561216.7564	4181737.291
763	359	561215.8723	4181737.328
764	343	561214.8854	4181737.376
765	334	561213.7969	4181737.452
766	357	561212.8782	4181737.522
767	357	561211.986	4181737.601
768	332	561211.052	4181737.652
769	318	561210.001	4181737.714
770	345	561208.8334	4181737.794
771	346	561207.7559	4181737.889
772	336	561206.8091	4181738.005
773	357	561206.4116	4181738.02
774	344	561205.9596	4181738.017

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
775	337	561206.6026	4181737.736
776	319	561207.5753	4181737.547
777	343	561208.6473	4181737.512
778	328	561209.734	4181737.438
779	316	561210.9105	4181737.355
780	328	561212.1767	4181737.258
781	343	561213.4182	4181737.177
782	340	561214.6707	4181737.105
783	329	561215.9987	4181737.01
784	331	561217.2924	4181736.924
785	327	561218.5525	4181736.859
786	324	561219.6986	4181736.802
787	326	561220.8458	4181736.75
788	340	561222.1101	4181736.663
789	342	561223.3459	4181736.586
790	338	561224.5542	4181736.538
791	339	561225.7699	4181736.501
792	337	561226.9863	4181736.478
793	356	561228.1927	4181736.383
794	342	561229.3779	4181736.298
795	342	561230.5429	4181736.241
796	353	561231.6552	4181736.213
797	362	561232.6849	4181736.006
798	374	561232.788	4181736.115
799	372	561232.7908	4181736.317
800	349	561231.7033	4181736.014
801	368	561230.5186	4181735.884
802	339	561229.3148	4181735.879
803	366	561228.1837	4181735.96
804	344	561227.0199	4181736.035
805	335	561225.8223	4181736.085
806	360	561224.7644	4181736.141
807	342	561223.7512	4181736.206
808	321	561222.8184	4181736.252
809	332	561221.8115	4181736.303
810	353	561220.7308	4181736.358
811	335	561219.7528	4181736.399
812	316	561218.7872	4181736.43
813	312	561217.7823	4181736.48
814	338	561216.7732	4181736.532
815	343	561215.7599	4181736.589
816	355	561214.7241	4181736.66
817	349	561213.6922	4181736.74

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
818	351	561212.6999	4181736.816
819	338	561211.7098	4181736.895
820	315	561210.7227	4181736.988
821	319	561209.736	4181737.066
822	347	561208.7251	4181737.129
823	338	561207.6025	4181737.24
824	349	561206.607	4181737.334
825	351	561205.7371	4181737.392
826	386	561205.3169	4181737.409
827	340	561205.7587	4181737.134
828	350	561206.8547	4181737.026
829	335	561207.9977	4181736.923
830	321	561209.1894	4181736.845
831	317	561210.3133	4181736.753
832	312	561211.3944	4181736.647
833	348	561212.3381	4181736.586
834	333	561213.2696	4181736.523
835	354	561214.1884	4181736.45
836	348	561215.1111	4181736.398
837	327	561216.0615	4181736.367
838	326	561217.139	4181736.3
839	316	561218.2778	4181736.232
840	344	561219.4783	4181736.172
841	311	561220.6788	4181736.104
842	337	561221.8468	4181736.032
843	337	561222.8531	4181735.976
844	332	561223.8696	4181735.914
845	332	561224.8955	4181735.838
846	347	561225.9059	4181735.789
847	341	561226.9146	4181735.767
848	358	561227.9232	4181735.7
849	348	561228.9591	4181735.631
850	350	561230.0226	4181735.564
851	358	561231.1699	4181735.487
852	364	561232.1676	4181735.444
853	382	561232.3142	4181735.42
854	381	561232.4538	4181735.373
855	355	561231.3951	4181735.434
856	338	561230.7892	4181735.441
857	350	561229.9405	4181735.344
858	353	561230.9549	4181735.168
859	354	561231.962	4181734.961
860	366	561231.8009	4181735.015

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
861	363	561230.9739	4181735.114
862	360	561229.9811	4181735.1
863	336	561228.9189	4181735.153
864	341	561227.9041	4181735.205
865	357	561226.9371	4181735.268
866	329	561225.9541	4181735.359
867	328	561224.9668	4181735.487
868	344	561223.9531	4181735.512
869	341	561222.8883	4181735.541
870	328	561221.7725	4181735.578
871	331	561220.6054	4181735.638
872	331	561219.4417	4181735.714
873	322	561218.3419	4181735.781
874	339	561217.2693	4181735.847
875	351	561216.2241	4181735.914
876	342	561215.1732	4181735.978
877	329	561214.1264	4181736.038
878	332	561213.108	4181736.112
879	330	561212.116	4181736.184
880	316	561211.15	4181736.25
881	308	561210.2129	4181736.313
882	324	561209.2808	4181736.381
883	325	561208.3416	4181736.403
884	325	561207.4087	4181736.436
885	341	561206.4843	4181736.519
886	345	561206.0335	4181736.559
887	362	561205.2572	4181736.685
888	336	561205.8809	4181736.489
889	353	561206.6821	4181736.282
890	336	561207.6853	4181736.184
891	315	561208.6701	4181736.09
892	308	561209.6695	4181735.996
893	313	561210.7612	4181735.911
894	332	561211.8532	4181735.828
895	325	561212.9457	4181735.75
896	333	561214.0984	4181735.679
897	325	561215.2394	4181735.615
898	340	561216.2608	4181735.567
899	341	561217.1575	4181735.521
900	330	561217.9276	4181735.45
901	316	561218.848	4181735.382
902	327	561219.7981	4181735.327
903	337	561220.7424	4181735.276

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
904	343	561221.6875	4181735.225
905	339	561222.6332	4181735.173
906	310	561223.5519	4181735.127
907	316	561224.4728	4181735.087
908	339	561225.4306	4181735.034
909	311	561226.3864	4181734.978
910	355	561227.3396	4181734.912
911	325	561228.3653	4181734.837
912	343	561229.4344	4181734.758
913	338	561230.6457	4181734.644
914	384	561231.6514	4181734.548
915	380	561232.4507	4181734.461
916	370	561233.0215	4181734.345
917	392	561232.7549	4181734.552
918	370	561231.7432	4181734.49
919	367	561230.7641	4181734.44
920	354	561229.8163	4181734.428
921	340	561228.8761	4181734.445
922	324	561227.9411	4181734.49
923	333	561227.022	4181734.53
924	323	561226.0859	4181734.572
925	327	561225.1328	4181734.616
926	351	561224.1687	4181734.655
927	320	561223.1895	4181734.687
928	339	561222.1499	4181734.762
929	321	561221.1242	4181734.83
930	346	561220.1115	4181734.879
931	323	561219.0126	4181734.943
932	327	561217.9169	4181735.013
933	354	561216.9222	4181735.081
934	359	561215.9393	4181735.151
935	338	561214.9688	4181735.227
936	326	561214.0006	4181735.295
937	328	561213.0362	4181735.354
938	311	561212.0933	4181735.434
939	327	561211.1721	4181735.509
940	312	561210.2721	4181735.571
941	312	561209.4695	4181735.626
942	309	561208.6845	4181735.681
943	314	561207.8893	4181735.731
944	323	561207.0874	4181735.777
945	338	561206.2777	4181735.788
946	363	561205.9035	4181735.79

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
947	360	561205.6172	4181735.809
948	371	561205.6249	4181735.615
949	339	561206.391	4181735.234
950	321	561207.2796	4181735.241
951	315	561208.0737	4181735.242
952	306	561209.199	4181735.228
953	330	561208.4763	4181735.254
954	339	561207.6998	4181735.276
955	348	561206.869	4181735.267
956	347	561206.3148	4181735.257
957	348	561205.4135	4181735.236
958	355	561206.093	4181735.193
959	308	561206.9314	4181735.159
960	320	561207.9298	4181735.188
961	316	561209.0347	4181735.176
962	318	561210.1297	4181735.128
963	325	561211.0707	4181735.105
964	332	561212.1005	4181735.061
965	333	561213.2167	4181734.954
966	334	561214.2755	4181734.864
967	333	561215.3161	4181734.783
968	338	561216.322	4181734.732
969	340	561217.3479	4181734.679
970	325	561218.3938	4181734.626
971	313	561219.4111	4181734.563
972	315	561220.4107	4181734.488
973	320	561221.3553	4181734.442
974	324	561222.2939	4181734.394
975	303	561223.2258	4181734.334
976	323	561224.163	4181734.285
977	325	561225.1132	4181734.249
978	318	561226.1212	4181734.206
979	326	561227.1303	4181734.154
980	350	561228.1387	4181734.065
981	335	561229.173	4181733.973
982	366	561230.2132	4181733.882
983	365	561231.254	4181733.768
984	385	561232.0343	4181733.683
985	390	561232.5545	4181733.628
986	407	561232.8248	4181733.626
987	364	561232.2763	4181733.871
988	349	561231.3115	4181733.732
989	352	561230.3728	4181733.622

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
990	342	561229.4544	4181733.631
991	369	561228.5232	4181733.654
992	322	561227.5826	4181733.692
993	324	561226.6058	4181733.727
994	330	561225.6342	4181733.767
995	314	561224.6689	4181733.834
996	312	561223.7649	4181733.888
997	331	561222.8807	4181733.933
998	341	561222.0347	4181733.967
999	319	561221.2231	4181734.002
1000	328	561220.4463	4181734.046
1001	321	561219.688	4181734.085
1002	304	561218.9339	4181734.119
1003	311	561218.1839	4181734.161
1004	331	561217.5064	4181734.199
1005	352	561216.9037	4181734.261
1006	347	561216.1335	4181734.326
1007	325	561215.3275	4181734.378
1008	344	561214.5163	4181734.436
1009	325	561213.7142	4181734.494
1010	327	561212.9214	4181734.553
1011	330	561212.1683	4181734.604
1012	327	561211.4146	4181734.654
1013	326	561210.6181	4181734.688
1014	322	561209.7487	4181734.725
1015	323	561208.8066	4181734.764
1016	327	561207.8978	4181734.802
1017	345	561206.9924	4181734.845
1018	343	561206.0696	4181734.86
1019	351	561205.5515	4181734.865
1020	362	561205.4384	4181734.868
1021	345	561205.5205	4181734.786
1022	330	561206.381	4181734.571
1023	318	561207.4243	4181734.512
1024	328	561208.4338	4181734.46
1025	303	561209.4101	4181734.43
1026	336	561210.4589	4181734.376
1027	334	561211.5296	4181734.304
1028	322	561212.6409	4181734.225
1029	324	561213.7156	4181734.155
1030	321	561214.7544	4181734.103
1031	352	561215.7777	4181734.033
1032	337	561216.7945	4181733.937

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1033	330	561217.8049	4181733.915
1034	317	561218.8275	4181733.875
1035	321	561219.8593	4181733.767
1036	312	561220.8683	4181733.67
1037	334	561221.8681	4181733.572
1038	319	561222.8485	4181733.529
1039	314	561223.8259	4181733.475
1040	333	561224.7976	4181733.375
1041	343	561225.7741	4181733.308
1042	324	561226.7527	4181733.277
1043	337	561227.7242	4181733.203
1044	331	561228.6812	4181733.132
1045	339	561229.624	4181733.069
1046	374	561230.5863	4181732.971
1047	384	561231.5259	4181732.844
1048	384	561232.3467	4181732.739
1049	391	561233.2253	4181732.52
1050	392	561233.087	4181732.624
1051	385	561232.3218	4181732.78
1052	366	561231.398	4181732.684
1053	352	561230.6572	4181732.698
1054	337	561229.8555	4181732.716
1055	329	561228.9934	4181732.753
1056	322	561228.127	4181732.791
1057	332	561227.2614	4181732.829
1058	311	561226.4051	4181732.877
1059	310	561225.5535	4181732.922
1060	323	561224.706	4181732.957
1061	326	561223.8962	4181733.01
1062	321	561223.0859	4181733.093
1063	322	561222.2236	4181733.124
1064	338	561221.329	4181733.164
1065	327	561220.404	4181733.245
1066	316	561219.4853	4181733.311
1067	333	561218.5735	4181733.366
1068	317	561217.6918	4181733.396
1069	347	561216.8279	4181733.435
1070	324	561215.9855	4181733.531
1071	320	561215.2345	4181733.594
1072	340	561214.4749	4181733.626
1073	316	561213.5912	4181733.656
1074	316	561212.7161	4181733.694
1075	319	561211.852	4181733.773

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1076	321	561211.1681	4181733.827
1077	321	561210.5078	4181733.863
1078	310	561209.7905	4181733.907
1079	316	561208.9885	4181733.96
1080	322	561208.1034	4181734.041
1081	322	561207.2436	4181734.11
1082	345	561206.4328	4181734.17
1083	360	561205.8434	4181734.198
1084	351	561205.4839	4181734.041
1085	354	561205.483	4181734.042
1086	343	561205.485	4181734.141
1087	323	561206.1328	4181733.865
1088	324	561207.0016	4181733.787
1089	322	561207.8705	4181733.709
1090	316	561208.7394	4181733.628
1091	321	561209.5736	4181733.558
1092	313	561210.4252	4181733.496
1093	342	561211.3944	4181733.422
1094	320	561212.3543	4181733.349
1095	340	561213.3049	4181733.279
1096	336	561214.3448	4181733.235
1097	328	561215.4073	4181733.226
1098	339	561216.4799	4181733.112
1099	336	561217.5451	4181733.012
1100	332	561218.6057	4181732.962
1101	327	561219.6303	4181732.912
1102	312	561220.645	4181732.862
1103	324	561221.6453	4181732.793
1104	334	561222.6247	4181732.725
1105	322	561223.5828	4181732.653
1106	321	561224.5674	4181732.587
1107	349	561225.5552	4181732.529
1108	323	561226.5317	4181732.472
1109	318	561227.4756	4181732.417
1110	327	561228.3869	4181732.365
1111	336	561229.2949	4181732.307
1112	358	561230.2006	4181732.258
1113	358	561231.0823	4181732.121
1114	357	561231.8858	4181732.003
1115	377	561232.6176	4181731.967
1116	388	561233.1125	4181731.932
1117	377	561232.7262	4181732.039
1118	379	561231.7079	4181731.975

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1119	333	561230.7402	4181731.927
1120	319	561229.8221	4181731.944
1121	319	561228.9386	4181731.963
1122	298	561228.0596	4181731.983
1123	334	561227.1695	4181732.027
1124	336	561226.2787	4181732.07
1125	322	561225.3869	4181732.11
1126	327	561224.4782	4181732.147
1127	320	561223.5946	4181732.17
1128	320	561222.8592	4181732.232
1129	340	561222.0361	4181732.298
1130	322	561221.1247	4181732.361
1131	310	561220.3687	4181732.413
1132	322	561219.6561	4181732.465
1133	330	561219.0031	4181732.507
1134	351	561218.3196	4181732.552
1135	341	561217.6063	4181732.607
1136	320	561216.9318	4181732.656
1137	333	561216.262	4181732.7
1138	318	561215.5794	4181732.744
1139	342	561214.7754	4181732.793
1140	303	561213.8494	4181732.833
1141	304	561213.0238	4181732.883
1142	309	561212.2208	4181732.949
1143	314	561211.427	4181733.02
1144	320	561210.6584	4181733.087
1145	329	561209.9142	4181733.138
1146	322	561209.1064	4181733.201
1147	312	561208.2872	4181733.277
1148	320	561207.4681	4181733.331
1149	328	561206.642	4181733.383
1150	355	561205.8079	4181733.412
1151	360	561205.6161	4181733.409
1152	350	561205.0736	4181733.507
1153	342	561205.6141	4181733.306
1154	328	561206.3734	4181733.085
1155	327	561207.3868	4181733.002
1156	299	561208.4452	4181732.908
1157	311	561209.5129	4181732.803
1158	334	561210.5887	4181732.737
1159	319	561211.5718	4181732.674
1160	340	561212.4617	4181732.604
1161	331	561213.4988	4181732.539

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1162	333	561214.5719	4181732.487
1163	321	561215.6712	4181732.396
1164	336	561216.7592	4181732.31
1165	340	561217.8363	4181732.238
1166	314	561218.9176	4181732.17
1167	328	561220.0027	4181732.105
1168	339	561221.1018	4181732.042
1169	326	561222.1752	4181731.976
1170	311	561223.2222	4181731.898
1171	292	561224.2743	4181731.832
1172	312	561225.3269	4181731.778
1173	313	561226.374	4181731.715
1174	313	561227.3984	4181731.66
1175	326	561228.4008	4181731.63
1176	348	561229.3552	4181731.597
1177	333	561230.2942	4181731.588
1178	348	561231.1629	4181731.394
1179	364	561232.0011	4181731.207
1180	346	561232.8094	4181731.03
1181	381	561233.4145	4181730.805
1182	371	561233.2387	4181731.016
1183	382	561232.2321	4181731.128
1184	334	561231.4002	4181731.218
1185	356	561230.7391	4181731.212
1186	323	561230.079	4181731.209
1187	317	561229.341	4181731.212
1188	313	561228.2128	4181731.216
1189	325	561227.1621	4181731.226
1190	314	561226.1892	4181731.267
1191	321	561225.326	4181731.306
1192	312	561224.493	4181731.345
1193	327	561223.7017	4181731.394
1194	329	561222.9228	4181731.442
1195	341	561222.1566	4181731.496
1196	320	561221.3378	4181731.549
1197	336	561220.5043	4181731.596
1198	315	561219.6529	4181731.659
1199	324	561218.7632	4181731.723
1200	347	561217.8345	4181731.78
1201	303	561216.8423	4181731.837
1202	348	561215.8642	4181731.89
1203	352	561215.0205	4181731.923
1204	353	561214.1768	4181731.958

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1205	343	561213.3335	4181732.005
1206	325	561212.3719	4181732.07
1207	311	561211.3872	4181732.145
1208	310	561210.4036	4181732.225
1209	334	561209.4323	4181732.304
1210	309	561208.4732	4181732.379
1211	309	561207.5305	4181732.471
1212	345	561206.6092	4181732.576
1213	341	561205.7734	4181732.678
1214	381	561204.8383	4181732.886
1215	343	561204.9255	4181732.838
1216	364	561205.7208	4181732.546
1217	338	561206.6867	4181732.266
1218	328	561207.6856	4181732.133
1219	334	561208.7079	4181732.007
1220	339	561209.7565	4181731.917
1221	343	561210.7085	4181731.83
1222	334	561211.6468	4181731.733
1223	340	561212.6205	4181731.681
1224	333	561213.6275	4181731.623
1225	345	561214.6671	4181731.551
1226	349	561215.7484	4181731.488
1227	344	561216.827	4181731.438
1228	347	561217.8461	4181731.371
1229	320	561218.8282	4181731.309
1230	341	561219.7737	4181731.255
1231	331	561220.7818	4181731.193
1232	340	561221.7804	4181731.129
1233	341	561222.6688	4181731.067
1234	332	561223.538	4181731.007
1235	321	561224.3881	4181730.947
1236	320	561225.3401	4181730.887
1237	316	561226.3116	4181730.828
1238	322	561227.2788	4181730.794
1239	311	561228.2461	4181730.755
1240	324	561229.2126	4181730.695
1241	331	561230.169	4181730.65
1242	339	561231.1113	4181730.631
1243	329	561231.982	4181730.544
1244	388	561232.7146	4181730.47
1245	355	561232.1323	4181730.625
1246	337	561231.5505	4181730.664
1247	342	561230.6764	4181730.431

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1248	342	561231.8012	4181730.258
1249	391	561232.786	4181730.11
1250	339	561232.4428	4181730.155
1251	348	561231.6397	4181730.214
1252	341	561230.7433	4181730.238
1253	339	561229.8557	4181730.262
1254	318	561228.972	4181730.291
1255	313	561228.093	4181730.347
1256	321	561227.2283	4181730.395
1257	327	561226.3677	4181730.436
1258	323	561225.5162	4181730.486
1259	322	561224.6714	4181730.536
1260	345	561223.8334	4181730.585
1261	345	561223.015	4181730.632
1262	329	561222.1942	4181730.678
1263	354	561221.343	4181730.733
1264	336	561220.5087	4181730.788
1265	332	561219.6912	4181730.842
1266	363	561218.8803	4181730.898
1267	338	561218.0751	4181730.957
1268	348	561217.2906	4181731.013
1269	327	561216.5149	4181731.067
1270	346	561215.7473	4181731.11
1271	352	561214.9946	4181731.154
1272	332	561214.2561	4181731.198
1273	341	561213.5736	4181731.244
1274	339	561212.8384	4181731.293
1275	328	561212.0508	4181731.35
1276	316	561211.2346	4181731.412
1277	325	561210.3947	4181731.481
1278	328	561209.4625	4181731.548
1279	326	561208.5161	4181731.62
1280	314	561207.5561	4181731.707
1281	325	561206.5853	4181731.801
1282	340	561205.751	4181731.907
1283	361	561205.6001	4181731.91
1284	356	561205.1649	4181731.947
1285	344	561205.5847	4181731.743
1286	330	561206.4226	4181731.514
1287	334	561207.3655	4181731.387
1288	311	561208.2566	4181731.317
1289	329	561209.1945	4181731.241
1290	343	561210.1789	4181731.156

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1291	302	561211.0069	4181731.086
1292	339	561211.8638	4181731.013
1293	339	561213.0249	4181730.95
1294	328	561214.0649	4181730.897
1295	332	561214.9843	4181730.863
1296	345	561216.0607	4181730.82
1297	329	561217.1725	4181730.773
1298	334	561218.3046	4181730.714
1299	342	561219.4417	4181730.648
1300	338	561220.5828	4181730.561
1301	345	561221.5842	4181730.492
1302	340	561222.5747	4181730.432
1303	334	561223.6472	4181730.35
1304	341	561224.6064	4181730.277
1305	327	561225.4525	4181730.22
1306	336	561226.3811	4181730.159
1307	305	561227.3405	4181730.099
1308	331	561228.3702	4181730.025
1309	339	561229.3574	4181729.956
1310	340	561230.3026	4181729.899
1311	336	561231.302	4181729.764
1312	345	561232.1827	4181729.519
1313	388	561232.477	4181729.541
1314	354	561232.7223	4181729.581
1315	347	561231.7206	4181729.605
1316	329	561230.8751	4181729.616
1317	339	561230.0547	4181729.612
1318	345	561229.2049	4181729.64
1319	322	561228.2612	4181729.677
1320	307	561227.2242	4181729.74
1321	319	561226.1437	4181729.799
1322	321	561225.0849	4181729.851
1323	339	561224.1798	4181729.902
1324	333	561223.2517	4181729.955
1325	348	561222.3009	4181730.013
1326	350	561221.3349	4181730.068
1327	338	561220.387	4181730.117
1328	336	561219.5463	4181730.17
1329	356	561218.717	4181730.221
1330	342	561217.8989	4181730.271
1331	348	561217.1576	4181730.315
1332	352	561216.4419	4181730.357
1333	358	561215.7763	4181730.381

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1334	338	561215.0963	4181730.408
1335	333	561214.4027	4181730.452
1336	336	561213.7066	4181730.497
1337	328	561213.0102	4181730.539
1338	325	561212.3157	4181730.591
1339	329	561211.675	4181730.64
1340	299	561211.0886	4181730.688
1341	317	561210.3511	4181730.754
1342	331	561209.55	4181730.836
1343	313	561208.5767	4181730.922
1344	348	561207.5798	4181731.022
1345	337	561206.563	4181731.168
1346	353	561205.7466	4181731.257
1347	372	561204.5502	4181731.411
1348	344	561204.7522	4181731.337
1349	343	561205.3188	4181731.141
1350	331	561206.2624	4181730.862
1351	320	561207.2565	4181730.694
1352	334	561208.267	4181730.629
1353	316	561209.2354	4181730.537
1354	315	561210.1394	4181730.45
1355	332	561210.9784	4181730.361
1356	329	561211.9635	4181730.256
1357	310	561212.9833	4181730.147
1358	338	561214.032	4181730.045
1359	329	561215.0301	4181729.957
1360	358	561215.9795	4181729.908
1361	332	561216.985	4181729.847
1362	346	561218.0017	4181729.771
1363	335	561219.0236	4181729.733
1364	356	561220.0699	4181729.689
1365	340	561221.1401	4181729.629
1366	337	561222.2026	4181729.575
1367	340	561223.2569	4181729.527
1368	334	561224.2762	4181729.471
1369	319	561225.2778	4181729.412
1370	343	561226.2609	4181729.335
1371	325	561227.0736	4181729.274
1372	314	561227.855	4181729.222
1373	318	561228.6486	4181729.159
1374	338	561229.4719	4181729.082
1375	334	561230.3171	4181728.928
1376	321	561231.2438	4181728.747

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1377	360	561232.107	4181728.549
1378	356	561232.6046	4181728.488
1379	382	561233.3026	4181728.352
1380	386	561233.0596	4181728.462
1381	357	561232.2743	4181728.602
1382	331	561231.366	4181728.578
1383	359	561230.5537	4181728.65
1384	357	561229.7164	4181728.721
1385	324	561228.8535	4181728.786
1386	319	561227.9551	4181728.853
1387	320	561227.0562	4181728.924
1388	332	561226.1871	4181728.958
1389	330	561225.3314	4181728.997
1390	329	561224.4906	4181729.066
1391	344	561223.6602	4181729.106
1392	344	561222.8323	4181729.106
1393	344	561222.0151	4181729.145
1394	362	561221.2019	4181729.186
1395	342	561220.3931	4181729.239
1396	345	561219.5938	4181729.289
1397	334	561218.8151	4181729.332
1398	362	561218.1328	4181729.382
1399	359	561217.3846	4181729.438
1400	354	561216.5713	4181729.511
1401	337	561215.7298	4181729.586
1402	326	561214.8631	4181729.662
1403	326	561213.8983	4181729.744
1404	329	561213.0057	4181729.82
1405	322	561212.1855	4181729.896
1406	331	561211.2461	4181729.958
1407	332	561210.2937	4181729.996
1408	334	561209.4034	4181730.053
1409	294	561208.5017	4181730.117
1410	335	561207.5902	4181730.207
1411	334	561206.6793	4181730.311
1412	328	561205.8685	4181730.407
1413	329	561205.5581	4181730.455
1414	356	561204.913	4181730.613
1415	340	561205.0726	4181730.54
1416	310	561205.8676	4181730.258
1417	313	561206.7889	4181729.951
1418	312	561207.6898	4181729.896
1419	325	561208.6199	4181729.837

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1420	307	561209.579	4181729.77
1421	320	561210.6014	4181729.683
1422	324	561211.6408	4181729.583
1423	327	561212.7054	4181729.475
1424	331	561213.7455	4181729.37
1425	316	561214.761	4181729.264
1426	334	561215.6967	4181729.161
1427	331	561216.6135	4181729.05
1428	326	561217.5258	4181728.984
1429	340	561218.4724	4181728.921
1430	326	561219.4545	4181728.882
1431	336	561220.5394	4181728.835
1432	347	561221.6304	4181728.79
1433	338	561222.6468	4181728.712
1434	322	561223.5972	4181728.647
1435	326	561224.483	4181728.625
1436	333	561225.4465	4181728.583
1437	319	561226.4166	4181728.522
1438	334	561227.3463	4181728.48
1439	332	561228.2488	4181728.434
1440	333	561229.1228	4181728.364
1441	341	561230.0954	4181728.245
1442	330	561231.0765	4181728.118
1443	365	561231.9347	4181727.81
1444	375	561232.4708	4181727.546
1445	363	561232.7191	4181727.56
1446	375	561232.6188	4181727.677
1447	345	561231.7364	4181727.904
1448	319	561230.8021	4181727.92
1449	327	561229.825	4181727.942
1450	329	561228.8058	4181727.988
1451	314	561227.7814	4181728.033
1452	307	561226.7508	4181728.077
1453	318	561225.6951	4181728.129
1454	304	561224.6245	4181728.185
1455	319	561223.5393	4181728.249
1456	330	561222.5287	4181728.302
1457	321	561221.534	4181728.347
1458	347	561220.5457	4181728.394
1459	339	561219.5552	4181728.45
1460	338	561218.5645	4181728.544
1461	336	561217.6063	4181728.629
1462	334	561216.6849	4181728.702

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1463	323	561215.9194	4181728.776
1464	334	561215.0924	4181728.856
1465	327	561213.9584	4181728.965
1466	321	561213.0749	4181729.042
1467	321	561212.2303	4181729.104
1468	322	561211.3339	4181729.177
1469	348	561210.3873	4181729.26
1470	310	561209.3924	4181729.373
1471	322	561208.307	4181729.455
1472	321	561207.2084	4181729.501
1473	346	561206.1486	4181729.595
1474	362	561205.5215	4181729.644
1475	335	561205.3293	4181729.667
1476	355	561205.324	4181729.58
1477	340	561206.0818	4181729.244
1478	321	561207.1245	4181729.17
1479	321	561208.2161	4181729.093
1480	318	561209.3564	4181729.009
1481	313	561210.3997	4181728.922
1482	333	561211.4359	4181728.828
1483	318	561212.5356	4181728.725
1484	330	561213.6422	4181728.616
1485	337	561214.7543	4181728.488
1486	328	561215.9216	4181728.367
1487	333	561217.1028	4181728.251
1488	316	561218.2972	4181728.151
1489	331	561219.4978	4181728.051
1490	342	561220.7049	4181727.952
1491	329	561221.9102	4181727.855
1492	320	561223.1133	4181727.758
1493	307	561224.3081	4181727.682
1494	333	561225.494	4181727.615
1495	332	561226.6719	4181727.575
1496	316	561227.7978	4181727.535
1497	312	561228.9198	4181727.493
1498	349	561230.0741	4181727.445
1499	347	561231.1931	4181727.535
1500	344	561232.2087	4181728.067
1501	373	561232.7174	4181728.417
1502	367	561233.145	4181729.099
1503	366	561232.1576	4181728.079
1504	352	561231.4631	4181726.837
1505	327	561231.4881	4181725.204

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1506	354	561232.0826	4181724.135
1507	364	561232.9361	4181723.479
1508	357	561232.9457	4181723.468
1509	375	561233.2449	4181723.511
1510	374	561233.0608	4181722.934
1511	376	561233.0613	4181722.936
1512	374	561233.2651	4181723.11
1513	374	561233.0695	4181723.299
1514	368	561232.5138	4181724.192
1515	335	561231.9767	4181725.241
1516	319	561231.8266	4181726.126
1517	350	561231.6963	4181727.08
1518	338	561231.6724	4181728.113
1519	330	561231.8054	4181729.189
1520	349	561232.0862	4181730.548
1521	330	561232.0961	4181729.773
1522	334	561231.9798	4181728.818
1523	333	561231.475	4181727.739
1524	330	561231.5784	4181727.294
1525	373	561232.6593	4181727.337
1526	352	561231.8778	4181727.218
1527	333	561231.005	4181727.113
1528	324	561230.034	4181727.108
1529	305	561229.0382	4181727.117
1530	307	561228.0891	4181727.136
1531	328	561227.3979	4181727.155
1532	329	561226.5616	4181727.182
1533	319	561225.5808	4181727.234
1534	322	561224.54	4181727.28
1535	325	561223.5083	4181727.314
1536	332	561222.5869	4181727.379
1537	328	561221.6833	4181727.444
1538	322	561220.7979	4181727.518
1539	325	561219.9253	4181727.593
1540	328	561219.0568	4181727.67
1541	336	561218.1947	4181727.742
1542	352	561217.3421	4181727.815
1543	330	561216.4997	4181727.9
1544	347	561215.6507	4181727.976
1545	349	561214.802	4181728.038
1546	341	561213.9689	4181728.123
1547	333	561213.1281	4181728.208
1548	305	561212.2789	4181728.286

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1549	315	561211.3813	4181728.363
1550	347	561210.4576	4181728.437
1551	312	561209.4548	4181728.523
1552	323	561208.3772	4181728.617
1553	314	561207.2253	4181728.726
1554	333	561206.1464	4181728.83
1555	328	561204.6732	4181728.999
1556	359	561204.7159	4181728.991
1557	335	561205.2229	4181728.879
1558	336	561206.1812	4181728.607
1559	328	561207.2197	4181728.406
1560	312	561208.279	4181728.269
1561	302	561209.3143	4181728.177
1562	320	561210.3863	4181728.082
1563	315	561211.4949	4181727.982
1564	334	561212.69	4181727.864
1565	330	561213.8642	4181727.741
1566	332	561214.8495	4181727.632
1567	336	561215.8138	4181727.526
1568	343	561216.7575	4181727.428
1569	340	561217.6889	4181727.349
1570	318	561218.6452	4181727.285
1571	327	561219.7333	4181727.221
1572	336	561220.7981	4181727.157
1573	351	561221.8391	4181727.085
1574	321	561222.8306	4181727.018
1575	322	561223.7987	4181726.952
1576	318	561224.6996	4181726.898
1577	306	561225.5812	4181726.848
1578	307	561226.4439	4181726.812
1579	320	561227.0942	4181726.793
1580	320	561227.7581	4181726.795
1581	311	561228.6994	4181726.748
1582	331	561229.6675	4181726.693
1583	314	561230.6608	4181726.609
1584	356	561231.6873	4181726.488
1585	381	561233.0714	4181726.19
1586	403	561232.8727	4181726.302
1587	337	561232.3138	4181726.486
1588	335	561231.3205	4181726.391
1589	344	561231.0284	4181726.496
1590	337	561230.6069	4181726.256
1591	337	561231.5593	4181726.229

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1592	371	561232.1973	4181726.209
1593	317	561231.3212	4181726.218
1594	300	561230.3657	4181726.229
1595	314	561229.3961	4181726.24
1596	295	561228.4354	4181726.263
1597	314	561227.5148	4181726.288
1598	304	561226.6347	4181726.322
1599	323	561225.8248	4181726.367
1600	336	561225.0331	4181726.431
1601	315	561224.256	4181726.477
1602	328	561223.4871	4181726.525
1603	339	561222.7278	4181726.59
1604	340	561221.9428	4181726.651
1605	320	561221.1441	4181726.702
1606	334	561220.3074	4181726.771
1607	327	561219.4621	4181726.841
1608	335	561218.608	4181726.907
1609	323	561217.7581	4181726.974
1610	336	561216.9345	4181727.035
1611	337	561216.2414	4181727.102
1612	350	561215.5361	4181727.171
1613	345	561214.8199	4181727.253
1614	325	561214.0466	4181727.339
1615	334	561213.2645	4181727.427
1616	320	561212.4932	4181727.496
1617	313	561211.6677	4181727.57
1618	303	561210.7881	4181727.649
1619	337	561209.8627	4181727.737
1620	316	561208.9217	4181727.83
1621	328	561207.9506	4181727.95
1622	309	561206.9747	4181728.062
1623	329	561205.9915	4181728.141
1624	323	561205.6123	4181728.179
1625	340	561205.3869	4181728.143
1626	328	561205.3431	4181728.148
1627	322	561205.046	4181728.174
1628	330	561205.6445	4181727.921
1629	337	561206.5136	4181727.71
1630	343	561207.4573	4181727.61
1631	324	561208.3705	4181727.516
1632	328	561209.2614	4181727.429
1633	310	561210.1318	4181727.374
1634	330	561211.0856	4181727.306

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1635	316	561212.0616	4181727.233
1636	316	561213.0609	4181727.112
1637	324	561214.126	4181726.987
1638	315	561215.2575	4181726.864
1639	332	561216.2725	4181726.767
1640	341	561217.2592	4181726.687
1641	336	561218.2139	4181726.591
1642	342	561219.1682	4181726.495
1643	313	561220.1223	4181726.401
1644	342	561221.0925	4181726.309
1645	322	561222.0721	4181726.218
1646	335	561223.0847	4181726.143
1647	314	561224.0891	4181726.078
1648	314	561225.0865	4181726.049
1649	309	561226.1005	4181726.009
1650	334	561227.1175	4181725.96
1651	319	561228.1351	4181725.917
1652	330	561229.1405	4181725.864
1653	325	561230.1311	4181725.763
1654	338	561231.1845	4181725.61
1655	350	561232.6432	4181725.318
1656	365	561232.5826	4181725.336
1657	359	561232.3495	4181725.421
1658	342	561231.1952	4181725.55
1659	323	561230.0356	4181725.58
1660	342	561228.9019	4181725.533
1661	311	561227.9123	4181725.545
1662	326	561226.9086	4181725.557
1663	311	561225.891	4181725.574
1664	324	561224.8764	4181725.615
1665	328	561223.8706	4181725.673
1666	328	561222.9043	4181725.746
1667	358	561221.9582	4181725.82
1668	322	561221.0329	4181725.901
1669	313	561220.1291	4181725.979
1670	335	561219.2323	4181726.055
1671	335	561218.3524	4181726.149
1672	317	561217.4475	4181726.242
1673	338	561216.5164	4181726.318
1674	334	561215.6167	4181726.404
1675	339	561214.7356	4181726.506
1676	322	561213.9042	4181726.56
1677	327	561213.06	4181726.616

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1678	311	561212.2037	4181726.685
1679	299	561211.3147	4181726.756
1680	315	561210.4062	4181726.824
1681	317	561209.436	4181726.915
1682	320	561208.3211	4181727.029
1683	319	561207.0635	4181727.183
1684	311	561206.0799	4181727.306
1685	336	561205.2555	4181727.274
1686	335	561205.2547	4181727.275
1687	358	561205.2447	4181727.625
1688	352	561205.2408	4181727.622
1689	368	561204.9629	4181727.455
1690	336	561205.3803	4181727.302
1691	341	561206.4033	4181726.867
1692	335	561207.121	4181726.537
1693	329	561207.5802	4181726.51
1694	317	561207.2793	4181726.567
1695	345	561206.1695	4181726.708
1696	348	561205.3509	4181726.749
1697	357	561204.5864	4181726.777
1698	350	561205.0695	4181726.846
1699	326	561206.1768	4181726.83
1700	328	561207.3562	4181726.716
1701	326	561208.2649	4181726.644
1702	315	561209.2908	4181726.563
1703	328	561210.8974	4181726.387
1704	321	561212.2135	4181726.301
1705	333	561213.4847	4181726.263
1706	331	561214.8084	4181726.167
1707	327	561216.1767	4181726.064
1708	327	561217.5893	4181725.946
1709	334	561218.87	4181725.834
1710	331	561220.1236	4181725.717
1711	342	561221.3803	4181725.669
1712	313	561222.6488	4181725.611
1713	323	561223.9283	4181725.526
1714	333	561225.1322	4181725.449
1715	330	561226.3174	4181725.37
1716	326	561227.4879	4181725.348
1717	310	561228.6663	4181725.313
1718	314	561229.8514	4181725.234
1719	327	561231.1433	4181725.079
1720	377	561232.2793	4181724.86

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1721	384	561232.5678	4181724.864
1722	369	561232.8277	4181724.879
1723	342	561231.8595	4181724.92
1724	334	561231.1502	4181724.919
1725	331	561230.4185	4181724.844
1726	317	561229.3065	4181724.88
1727	326	561228.2379	4181724.91
1728	319	561227.2127	4181724.922
1729	323	561226.2514	4181724.953
1730	332	561225.3105	4181725.003
1731	322	561224.4041	4181725.038
1732	360	561223.4601	4181725.082
1733	328	561222.4797	4181725.155
1734	359	561221.5213	4181725.239
1735	339	561220.5702	4181725.333
1736	333	561219.6316	4181725.436
1737	317	561218.7128	4181725.532
1738	330	561217.8126	4181725.611
1739	337	561216.9643	4181725.668
1740	332	561216.1273	4181725.701
1741	336	561215.3038	4181725.769
1742	336	561214.4847	4181725.833
1743	334	561213.6687	4181725.872
1744	292	561212.8486	4181725.905
1745	315	561212.0209	4181725.922
1746	313	561211.168	4181726.007
1747	328	561210.2777	4181726.09
1748	299	561209.3481	4181726.148
1749	328	561208.2815	4181726.222
1750	320	561207.1835	4181726.3
1751	335	561206.0702	4181726.422
1752	356	561205.4255	4181726.514
1753	352	561205.2459	4181726.516
1754	346	561205.2673	4181726.4
1755	327	561206.0664	4181726.098
1756	310	561207.1374	4181726.02
1757	339	561208.1854	4181725.946
1758	321	561209.2107	4181725.879
1759	321	561210.0412	4181725.812
1760	321	561210.8341	4181725.727
1761	309	561211.6438	4181725.669
1762	324	561212.5534	4181725.608
1763	317	561213.5636	4181725.554

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1764	313	561214.6254	4181725.494
1765	319	561215.6944	4181725.433
1766	346	561216.7452	4181725.35
1767	330	561217.801	4181725.267
1768	333	561218.8618	4181725.186
1769	314	561219.9654	4181725.096
1770	343	561221.0807	4181725.001
1771	318	561222.2128	4181724.901
1772	333	561223.3416	4181724.809
1773	347	561224.4685	4181724.744
1774	322	561225.5365	4181724.694
1775	320	561226.5915	4181724.658
1776	341	561227.6321	4181724.561
1777	308	561228.7088	4181724.461
1778	328	561229.8218	4181724.362
1779	362	561231.1355	4181724.23
1780	393	561232.3118	4181724.054
1781	367	561232.6056	4181724.082
1782	388	561232.8026	4181724.114
1783	341	561231.7059	4181724.074
1784	327	561230.5801	4181724.067
1785	336	561229.4409	4181724.083
1786	321	561228.2658	4181724.135
1787	334	561227.227	4181724.184
1788	344	561226.3249	4181724.237
1789	338	561225.3885	4181724.283
1790	334	561224.4422	4181724.315
1791	360	561223.4864	4181724.395
1792	330	561222.5953	4181724.47
1793	347	561221.7691	4181724.546
1794	329	561220.8545	4181724.631
1795	318	561219.9329	4181724.722
1796	317	561219.06	4181724.779
1797	334	561218.1836	4181724.839
1798	319	561217.3043	4181724.911
1799	329	561216.4487	4181724.98
1800	330	561215.6004	4181725.052
1801	345	561214.7614	4181725.093
1802	312	561213.9367	4181725.133
1803	302	561213.126	4181725.167
1804	341	561212.2735	4181725.22
1805	327	561211.4095	4181725.285
1806	312	561210.5302	4181725.379

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1807	332	561209.6243	4181725.48
1808	309	561208.6937	4181725.605
1809	325	561207.6755	4181725.754
1810	334	561206.7073	4181725.921
1811	356	561206.0545	4181725.967
1812	336	561205.5515	4181725.968
1813	339	561206.364	4181725.689
1814	320	561207.3951	4181725.458
1815	326	561208.5435	4181725.293
1816	299	561209.9843	4181725.117
1817	334	561211.3283	4181724.967
1818	332	561212.5781	4181724.87
1819	292	561213.8668	4181724.762
1820	307	561215.1283	4181724.655
1821	326	561216.2131	4181724.539
1822	325	561217.3493	4181724.417
1823	300	561218.5363	4181724.283
1824	330	561219.8842	4181724.158
1825	333	561221.2889	4181724.04
1826	332	561222.818	4181724.023
1827	339	561224.2588	4181723.981
1828	330	561225.6093	4181723.873
1829	345	561226.9906	4181723.763
1830	330	561228.3689	4181723.652
1831	313	561229.7017	4181723.558
1832	329	561230.9256	4181723.492
1833	382	561232.0418	4181723.496
1834	359	561232.0014	4181723.547
1835	331	561230.9559	4181723.655
1836	323	561229.6264	4181723.629
1837	335	561228.3259	4181723.613
1838	329	561227.0544	4181723.627
1839	319	561225.9133	4181723.647
1840	327	561224.784	4181723.669
1841	327	561223.5857	4181723.753
1842	327	561222.4002	4181723.838
1843	343	561221.228	4181723.931
1844	322	561220.1414	4181724.021
1845	308	561219.0731	4181724.122
1846	328	561218.0037	4181724.149
1847	305	561216.9153	4181724.18
1848	327	561215.808	4181724.221
1849	348	561214.6971	4181724.276

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1850	315	561213.596	4181724.337
1851	319	561212.5506	4181724.437
1852	315	561211.5039	4181724.547
1853	307	561210.4592	4181724.699
1854	312	561209.3722	4181724.887
1855	315	561208.2383	4181725.118
1856	306	561206.8662	4181725.163
1857	324	561205.8355	4181725.199
1858	367	561205.1486	4181725.263
1859	345	561205.3362	4181725.087
1860	326	561206.3773	4181724.685
1861	311	561207.4162	4181724.555
1862	317	561208.5695	4181724.436
1863	320	561209.841	4181724.369
1864	344	561210.4488	4181724.351
1865	327	561210.032	4181724.3
1866	316	561208.7482	4181724.417
1867	299	561207.4251	4181724.669
1868	346	561206.1105	4181725.243
1869	350	561205.667	4181725.407
1870	338	561205.2223	4181725.737
1871	306	561206.2815	4181726.399
1872	318	561207.1668	4181727.136
1873	328	561207.5972	4181728.184
1874	336	561207.9528	4181728.637
1875	325	561207.529	4181728.678
1876	317	561207.303	4181727.148
1877	313	561207.3112	4181726.066
1878	330	561207.0456	4181726.099
1879	340	561206.7959	4181726.01
1880	332	561207.1907	4181725.403
1881	313	561208.6572	4181724.992
1882	327	561209.9615	4181724.699
1883	326	561211.1257	4181724.669
1884	316	561212.5252	4181724.604
1885	321	561214.1021	4181724.475
1886	331	561215.3961	4181724.359
1887	337	561216.7152	4181724.243
1888	333	561218.0598	4181724.13
1889	319	561219.515	4181723.966
1890	297	561220.9941	4181723.776
1891	322	561222.4866	4181723.553
1892	313	561223.9577	4181723.361

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1893	321	561225.4117	4181723.24
1894	328	561226.8418	4181723.068
1895	325	561228.2806	4181722.834
1896	330	561229.5962	4181723.552
1897	327	561230.5732	4181724.257
1898	327	561230.5246	4181724.082
1899	312	561230.5254	4181723.923
1900	306	561230.7471	4181724.847
1901	321	561230.7799	4181724.798
1902	325	561230.9297	4181724.299
1903	321	561230.7799	4181723.256
1904	342	561230.7198	4181722.915
1905	309	561230.6816	4181722.347
1906	329	561230.8164	4181723.534
1907	320	561230.9118	4181724.712
1908	334	561230.8874	4181725.885
1909	329	561230.893	4181727.164
1910	333	561230.909	4181728.424
1911	354	561231.011	4181729.473
1912	343	561231.1077	4181730.552
1913	356	561231.18	4181731.66
1914	341	561231.2483	4181732.729
1915	363	561231.3155	4181733.782
1916	367	561231.3703	4181734.792
1917	371	561231.4433	4181735.833
1918	344	561231.5762	4181736.898
1919	341	561231.228	4181738.127
1920	334	561230.6753	4181739.305
1921	328	561230.0644	4181739.752
1922	334	561229.8734	4181740.205
1923	332	561231.1801	4181740.397
1924	345	561231.8065	4181740.498
1925	294	561231.4059	4181740.389
1926	344	561230.0438	4181740.439
1927	334	561228.8045	4181740.493
1928	343	561227.6891	4181740.571
1929	365	561226.5833	4181740.651
1930	352	561225.4585	4181740.74
1931	337	561224.2245	4181740.75
1932	348	561222.9701	4181740.766
1933	334	561221.6955	4181740.798
1934	356	561220.3303	4181740.834
1935	341	561218.941	4181740.87

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1936	343	561217.5218	4181740.922
1937	331	561216.1565	4181740.977
1938	328	561214.8454	4181741.043
1939	327	561213.5579	4181741.155
1940	334	561212.2707	4181741.295
1941	333	561210.9669	4181741.517
1942	343	561209.4981	4181741.562
1943	347	561207.8703	4181741.2
1944	355	561206.9465	4181740.588
1945	394	561206.2389	4181739.772
1946	370	561206.186	4181738.886
1947	370	561206.0869	4181737.717
1948	364	561205.9012	4181736.27
1949	367	561205.7741	4181735.011
1950	359	561205.6756	4181733.789
1951	367	561205.5552	4181731.943
1952	326	561205.4042	4181729.96
1953	341	561205.1913	4181727.969
1954	384	561205.2759	4181726.184
1955	361	561205.5049	4181724.435
1956	365	561207.0732	4181723.571
1957	352	561208.6629	4181722.951
1958	331	561210.347	4181722.82
1959	363	561211.7809	4181722.715
1960	360	561213.1855	4181722.611
1961	336	561214.6955	4181722.667
1962	330	561216.2153	4181722.695
1963	333	561217.745	4181722.658
1964	318	561219.299	4181722.605
1965	302	561220.8556	4181722.544
1966	318	561222.3983	4181722.43
1967	326	561223.9543	4181722.307
1968	318	561225.5227	4181722.166
1969	314	561226.9827	4181722.031
1970	309	561228.3867	4181721.902
1971	294	561229.6134	4181721.749
1972	332	561230.4623	4181721.639
1973	351	561230.9373	4181721.614
1974	359	561231.1856	4181721.863
	423	**Max**	
	19.70	**Std Dev**	
	338.61	**Average**	
	502.03	**3s Investigation Level**	

Title:	Decimated Pile Data		MH2A Sediment
Sample ID	Gamma Total cps	Easting	Northing

Investigation Level Exceeded

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-MH2A-01
Sample Description: 242737-001, 195312

Detector: HPGE09 50-TP42232A
Contract: Tetra Tech Alameda
Unit Number: MH2A
Sample Time: 1/29/2013 10:15
Acquisition Time: 2/7/2013 11:33:12
Analysis Time: 2/7/2013 12:18
Analysis Quantity: 3.030E+02 g

Spectrum ID: 9_20130207_005
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2701 sec
Dead Time: 0.05 %

Efficiency: HPGE09 S21306 9_20121230002_EffCal
Efficiency Cal Date: 12/30/2012 15:48
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228	#	3.077E-01	39.97	1.230E-01	1.247E-01	6.707E-02
Am-241	#AB	-4.658E-02	661.50	3.081E-01	3.081E-01	2.506E-01
Bi-212	#AB	4.210E-02	469.00	1.975E-01	1.975E-01	1.634E-01
Bi-214		3.539E-01	22.96	8.124E-02	8.462E-02	3.219E-02
Co-60	#AB	-8.037E-03	488.80	3.929E-02	3.929E-02	3.154E-02
Cs-137	#AB	-7.814E-04	3743.00	2.925E-02	2.925E-02	2.401E-02
Eu-152	#AB	0.000E+00	2000.00	3.596E-02	3.596E-02	6.860E-02
Eu-154	#AB	-1.781E-02	484.90	8.636E-02	8.636E-02	6.865E-02
K-40		1.041E+01	11.08	1.154E+00	1.365E+00	3.071E-01
Pa-234	#AB	3.005E-02	446.90	1.343E-01	1.343E-01	1.057E-01
Pb-212		3.878E-01	17.10	6.631E-02	7.243E-02	2.698E-02
Pb-214		4.379E-01	20.04	8.777E-02	9.272E-02	3.501E-02
Ra-226		8.037E-01	70.16	5.639E-01	5.672E-01	4.116E-01
Th-234	#AB	-2.095E-01	267.50	5.606E-01	5.609E-01	4.492E-01
Tl-208		1.157E-01	27.72	3.206E-02	3.297E-02	1.162E-02
U-235	AB	1.613E-02	247.30	3.989E-02	3.991E-02	3.190E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.291E+01

Analyst: Chanthachone Alexander

Reviewer: Philip Smith
Review Date: 2/8/2013 10:39

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-MH2A-02
Sample Description: 242737-002, 195312

Detector: HPGE05 51-TP42242A
Contract: Tetra Tech Alameda
Unit Number: MH2A
Sample Time: 1/29/2013 10:20
Acquisition Time: 2/7/2013 11:27:26
Analysis Time: 2/7/2013 12:12
Analysis Quantity: 3.000E+02 g

Spectrum ID: 5_20130207_006
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2701 sec
Dead Time: 0.05 %

Efficiency: HPGE05 S21306 5_20121231006_EffCal
Efficiency Cal Date: 1/1/2013 12:23
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		2.552E-01	48.04	1.226E-01	1.238E-01	7.445E-02
Am-241	#AB	2.214E-02	829.40	1.836E-01	1.836E-01	1.499E-01
Bi-212	#	1.698E-01	126.40	2.146E-01	2.149E-01	1.573E-01
Bi-214		3.202E-01	24.75	7.926E-02	8.210E-02	3.492E-02
Co-60	#AB	-2.353E-03	1230.00	2.894E-02	2.894E-02	2.352E-02
Cs-137	#AB	-6.337E-03	418.80	2.654E-02	2.654E-02	2.112E-02
Eu-152	#AB	-8.419E-04	7147.00	6.016E-02	6.016E-02	4.948E-02
Eu-154	#AB	0.000E+00	2000.00	1.410E-02	1.410E-02	1.057E-01
K-40		1.035E+01	10.22	1.058E+00	1.282E+00	2.267E-01
Pa-234	#AB	1.731E-02	1006.00	1.741E-01	1.741E-01	1.413E-01
Pb-212		4.629E-01	16.84	7.796E-02	8.536E-02	2.760E-02
Pb-214		2.476E-01	29.97	7.422E-02	7.612E-02	4.600E-02
Ra-226		5.111E-01	86.13	4.402E-01	4.419E-01	3.223E-01
Th-234	#	6.129E-01	67.18	4.117E-01	4.154E-01	2.981E-01
Tl-208		1.622E-01	22.68	3.679E-02	3.834E-02	8.223E-03
U-235	AB	2.871E-03	1138.00	3.267E-02	3.267E-02	2.672E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.313E+01

Analyst: Chanthachone Alexander

Reviewer: Philip Smith
Review Date: 2/8/2013 10:40

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-MH2A-03
Sample Description: 242737-003, 195312

Detector: HPGE10 51-TP42231A
Contract: Tetra Tech Alameda
Unit Number: MH2A
Sample Time: 1/29/2013 10:25
Acquisition Time: 2/7/2013 16:53:56
Analysis Time: 2/7/2013 18:24
Analysis Quantity: 3.000E+02 g

Spectrum ID: 10_20130207_007
Sample Type: SAMPLE
Matrix: S
Live Time: 5400 sec
Real Time: 5406 sec
Dead Time: 0.10 %

Efficiency: HPGE10 S21306 10_20121230002_EffCal
Efficiency Cal Date: 12/30/2012 19:25
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		4.849E-01	20.61	9.997E-02	1.052E-01	2.587E-02
Am-241	#AB	4.029E-02	900.90	3.630E-01	3.630E-01	2.970E-01
Bi-212	#	2.120E-01	85.21	1.807E-01	1.813E-01	1.324E-01
Bi-214		3.540E-01	22.52	7.972E-02	8.316E-02	3.641E-02
Co-60	#AB	-2.237E-03	1091.00	2.440E-02	2.440E-02	1.989E-02
Cs-137	#AB	1.033E-02	188.90	1.951E-02	1.953E-02	1.514E-02
Eu-152	#AB	-1.787E-02	285.90	5.107E-02	5.109E-02	4.084E-02
Eu-154	#AB	-9.007E-03	717.90	6.466E-02	6.466E-02	5.233E-02
K-40		1.023E+01	7.83	8.010E-01	1.074E+00	1.853E-01
Pa-234	#AB	2.648E-02	474.00	1.255E-01	1.256E-01	1.009E-01
Pb-212		4.462E-01	14.90	6.650E-02	7.448E-02	2.924E-02
Pb-214		3.650E-01	18.05	6.588E-02	7.042E-02	2.650E-02
Ra-226		4.330E-01	90.24	3.908E-01	3.921E-01	2.999E-01
Th-234	#AB	2.897E-02	1859.00	5.386E-01	5.386E-01	4.427E-01
Tl-208		1.647E-01	21.23	3.495E-02	3.663E-02	1.417E-02
U-235		2.435E-02	100.20	2.440E-02	2.447E-02	1.878E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.282E+01

Analyst: Chanthachone Alexander

Reviewer: Philip Smith
Review Date: 2/8/2013 10:39

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-MH2A-04
Sample Description: 242737-004, 195312

Detector: HPGE06 51-TP32744A
Contract: Tetra Tech Alameda
Unit Number: MH2A
Sample Time: 1/29/2013 10:30
Acquisition Time: 2/7/2013 11:28:09
Analysis Time: 2/7/2013 12:13
Analysis Quantity: 2.940E+02 g

Spectrum ID: 6_20130207_005
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2704 sec
Dead Time: 0.13 %

Efficiency: HPGE06 S21306 6_20121231003_EffCal
Efficiency Cal Date: 12/31/2012 16:37
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

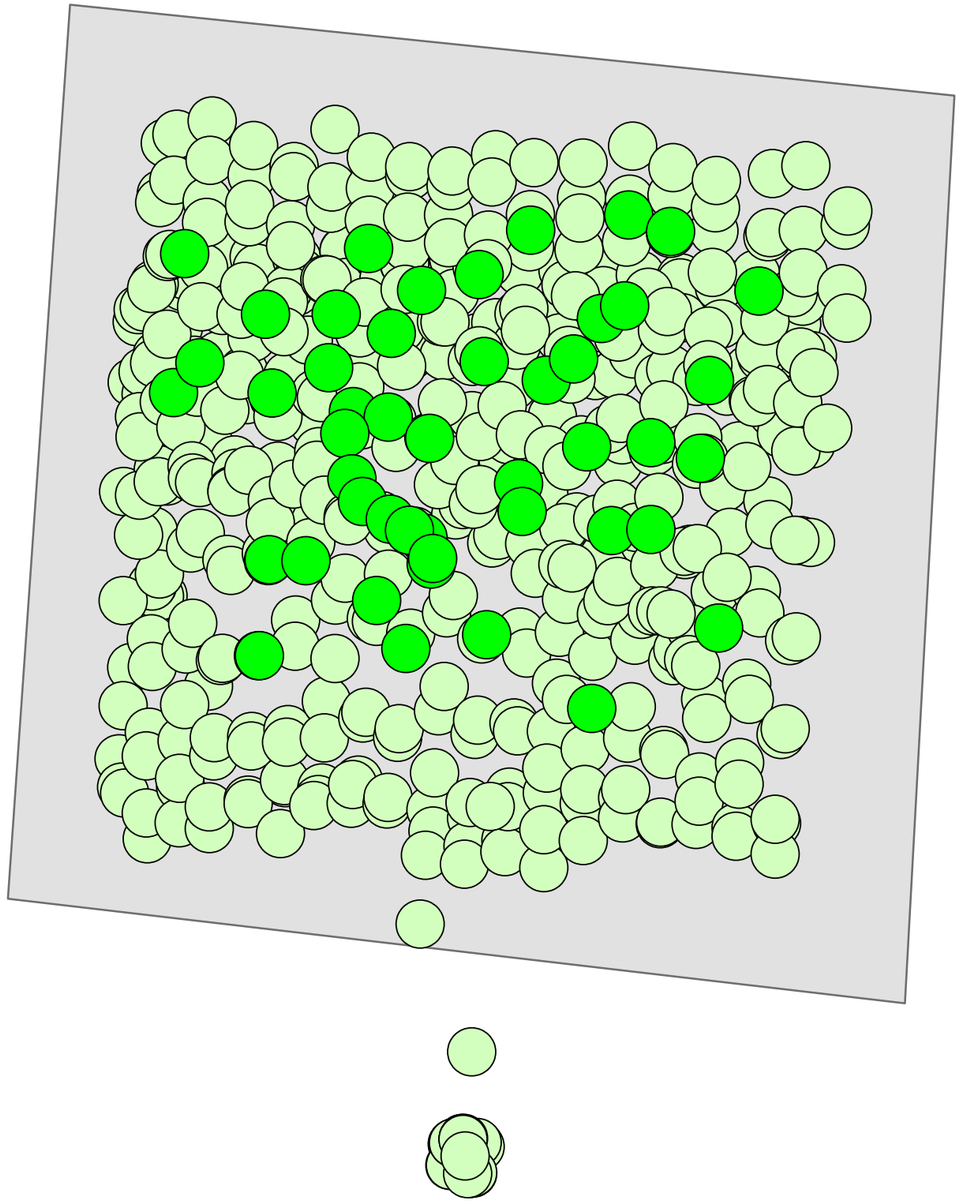
Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		2.623E-01	48.87	1.282E-01	1.294E-01	7.781E-02
Am-241	#AB	0.000E+00	2000.00	7.171E-02	7.171E-02	1.994E-01
Bi-212	#AB	1.686E-01	139.50	2.352E-01	2.355E-01	1.750E-01
Bi-214		4.355E-01	18.47	8.045E-02	8.555E-02	2.622E-02
Co-60	#AB	0.000E+00	1414.00	2.812E-02	2.812E-02	4.987E-02
Cs-137	#AB	-1.019E-02	326.60	3.329E-02	3.330E-02	2.641E-02
Eu-152	#AB	-1.411E-04	50550.00	7.134E-02	7.134E-02	5.876E-02
Eu-154	#AB	0.000E+00	2000.00	2.102E-02	2.102E-02	1.732E-02
K-40		1.123E+01	10.68	1.199E+00	1.434E+00	3.247E-01
Pa-234	#AB	-5.723E-02	378.50	2.166E-01	2.166E-01	1.724E-01
Pb-212		4.452E-01	17.67	7.866E-02	8.548E-02	3.229E-02
Pb-214		3.282E-01	24.76	8.124E-02	8.426E-02	4.708E-02
Ra-226	#	5.016E-01	107.50	5.392E-01	5.406E-01	4.099E-01
Th-234	#AB	-5.708E-03	7800.00	4.453E-01	4.453E-01	3.664E-01
Tl-208		1.713E-01	24.92	4.269E-02	4.418E-02	1.231E-02
U-235	#	3.271E-02	112.30	3.673E-02	3.681E-02	2.807E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.357E+01

Analyst: Chanthachone Alexander

Reviewer: Philip Smith
Review Date: 2/8/2013 10:40



LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6
- SCREENING PAD

0 2 4 8 12 16 Feet

Scale: 1 " = 8 '

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

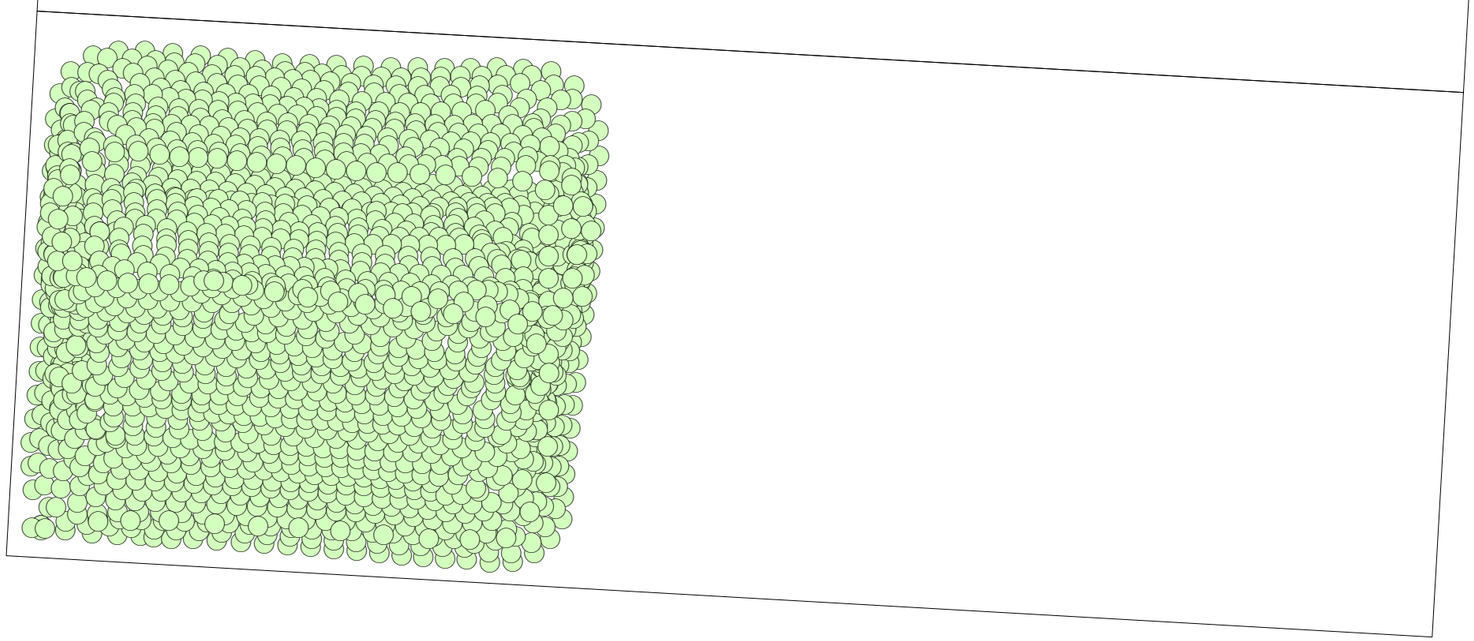
Background Pad

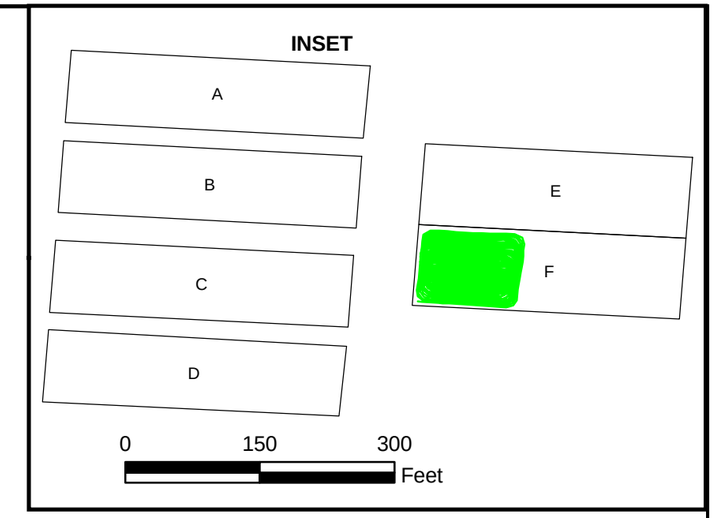
01/14/2013

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
DCN: ECSD-XXXX-XXXX-XXXX
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.





Legend

- >6
- 5-6
- 4-5
- 3-4
- 2-3
- 1-2
- <1

Note:
Sigmas calculated from Background Pad VTA data.

0 5 10 20 30 40 Feet

Scale: 1 " = 25 '

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Manhole 5A Sediment
01/14/2013

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
DCN: ECSD-XXXX-XXXX-XXXX
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1	332	560854.2781	4181349.08
2	334	560854.2799	4181349.078
3	329	560854.7343	4181349.06
4	335	560854.7336	4181349.059
5	341	560854.7515	4181349.034
6	324	560854.4443	4181349.167
7	336	560854.4445	4181349.166
8	324	560854.2427	4181348.716
9	331	560854.2442	4181348.716
10	347	560854.6943	4181349.099
11	352	560854.5783	4181348.58
12	324	560854.5778	4181348.582
13	341	560854.2959	4181349.092
14	316	560854.2966	4181349.092
15	340	560854.4696	4181349.164
16	349	560854.4572	4181349.156
17	340	560854.4575	4181349.155
18	333	560854.6239	4181348.585
19	355	560854.6225	4181348.588
20	327	560854.5379	4181348.573
21	319	560854.4966	4181348.87
22	337	560854.6002	4181350.618
23	378	560853.7433	4181352.76
24	423	560851.4758	4181355.132
25	431	560850.1887	4181356.745
26	412	560849.4309	4181358.26
27	436	560849.3677	4181358.255
28	406	560849.2522	4181358.431
29	424	560849.2447	4181358.424
30	422	560848.9006	4181357.061
31	401	560848.6906	4181355.527
32	396	560848.7385	4181355.055
33	392	560848.7855	4181354.951
34	394	560848.7611	4181356.413
35	423	560848.757	4181358.179
36	430	560848.7651	4181360.008
37	427	560848.9165	4181361.839
38	432	560849.0003	4181362.857
39	414	560849.0174	4181363.059
40	442	560849.1169	4181363.096
41	427	560849.3309	4181362.289
42	436	560849.3006	4181360.926
43	434	560849.2685	4181359.34

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
44	398	560849.2376	4181357.533
45	413	560849.2001	4181355.971
46	411	560849.1664	4181354.183
47	409	560849.1467	4181354.612
48	402	560849.1524	4181355.573
49	412	560849.2497	4181357.065
50	450	560849.3675	4181358.622
51	436	560849.4943	4181360.179
52	457	560849.6092	4181361.675
53	418	560849.6935	4181362.761
54	438	560849.7597	4181363.434
55	466	560849.7897	4181364.002
56	415	560849.8132	4181363.622
57	435	560849.9511	4181362.198
58	434	560850.0129	4181360.673
59	434	560849.899	4181359.046
60	425	560849.8146	4181357.357
61	398	560849.7528	4181355.811
62	400	560849.7239	4181355.047
63	406	560849.6993	4181354.439
64	418	560849.7108	4181355.187
65	449	560849.7961	4181356.424
66	423	560849.9287	4181357.787
67	449	560850.0596	4181359.298
68	431	560850.1985	4181360.795
69	434	560850.3577	4181362.278
70	423	560850.4301	4181363.028
71	438	560850.4463	4181363.986
72	420	560850.6501	4181363.163
73	429	560850.7802	4181362.013
74	440	560850.6335	4181360.522
75	421	560850.5065	4181358.854
76	421	560850.3965	4181357.166
77	407	560850.2871	4181355.56
78	406	560850.2122	4181354.342
79	398	560850.2115	4181354.71
80	418	560850.2927	4181355.862
81	420	560850.4309	4181357.196
82	445	560850.5695	4181358.665
83	430	560850.7045	4181360.111
84	438	560850.8343	4181361.534
85	439	560850.9284	4181362.57
86	446	560850.9582	4181363.925

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
87	438	560851.0104	4181363.732
88	459	560851.1464	4181362.985
89	462	560851.2617	4181361.667
90	433	560851.2539	4181360.345
91	416	560851.1627	4181358.959
92	465	560851.027	4181357.263
93	410	560850.9224	4181355.883
94	427	560850.8641	4181354.816
95	419	560850.861	4181354.753
96	432	560850.9135	4181355.724
97	461	560851.0503	4181357.263
98	435	560851.1971	4181358.828
99	446	560851.3633	4181360.416
100	447	560851.5234	4181361.922
101	434	560851.66	4181363.188
102	450	560851.6761	4181363.342
103	421	560851.6704	4181363.894
104	437	560851.7288	4181363.664
105	436	560851.8641	4181362.524
106	451	560851.957	4181361.147
107	454	560851.8061	4181359.548
108	441	560851.6586	4181357.832
109	434	560851.5284	4181355.996
110	404	560851.467	4181355.141
111	409	560851.4016	4181354.249
112	441	560851.5076	4181355.781
113	451	560851.6479	4181357.391
114	448	560851.8536	4181359.075
115	443	560852.0418	4181360.649
116	455	560852.2083	4181362.092
117	456	560852.3379	4181362.986
118	449	560852.4711	4181364.022
119	445	560852.4701	4181364.01
120	438	560852.5043	4181363.484
121	441	560852.7249	4181362.747
122	471	560852.6252	4181361.35
123	453	560852.4993	4181359.821
124	430	560852.3285	4181358.162
125	448	560852.1699	4181356.469
126	407	560852.0968	4181355.008
127	413	560852.0376	4181354.818
128	434	560851.9616	4181354.71
129	454	560852.14	4181355.85

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
130	438	560852.3177	4181357.175
131	434	560852.4833	4181358.528
132	429	560852.6142	4181359.832
133	438	560852.7507	4181361.095
134	445	560852.911	4181362.315
135	450	560852.9969	4181362.954
136	435	560853.0394	4181363.914
137	429	560853.1425	4181363.547
138	460	560853.2602	4181362.67
139	462	560853.2079	4181361.258
140	415	560853.0844	4181359.573
141	432	560852.9289	4181357.845
142	438	560852.7788	4181356.178
143	412	560852.7038	4181355.139
144	399	560852.5907	4181354.749
145	433	560852.6093	4181355.06
146	454	560852.8328	4181356.27
147	449	560853.0155	4181357.8
148	431	560853.2029	4181359.342
149	422	560853.3993	4181360.895
150	441	560853.5588	4181362.232
151	429	560853.4793	4181363.791
152	430	560853.4825	4181363.788
153	471	560853.7644	4181363.384
154	435	560853.9643	4181362.355
155	456	560853.9012	4181360.905
156	448	560853.6534	4181359.307
157	456	560853.5036	4181357.381
158	429	560853.3647	4181355.853
159	408	560853.1923	4181354.728
160	427	560853.2101	4181354.839
161	440	560853.3896	4181355.997
162	422	560853.5856	4181357.597
163	455	560853.7902	4181359.237
164	444	560854.0072	4181360.915
165	422	560854.1453	4181362.246
166	437	560854.3069	4181363.891
167	445	560854.3046	4181363.877
168	441	560854.3268	4181363.292
169	437	560854.6175	4181362.147
170	429	560854.5944	4181360.904
171	431	560854.339	4181359.578
172	435	560854.1927	4181357.936

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
173	425	560854.0523	4181356.287
174	379	560853.9253	4181354.629
175	366	560853.9627	4181354.276
176	403	560853.8306	4181353.867
177	415	560853.9863	4181355.244
178	447	560854.1445	4181356.695
179	444	560854.2975	4181358.221
180	431	560854.456	4181359.747
181	426	560854.6157	4181361.235
182	432	560854.7245	4181362.546
183	438	560854.6924	4181363.731
184	457	560854.7311	4181363.651
185	430	560855.0067	4181362.795
186	439	560855.2998	4181361.733
187	445	560855.1269	4181360.517
188	434	560854.9441	4181359.105
189	436	560854.7725	4181357.492
190	407	560854.6598	4181355.895
191	398	560854.6072	4181354.487
192	349	560854.5434	4181354.024
193	379	560854.4887	4181353.715
194	422	560854.5742	4181354.752
195	435	560854.7071	4181356.132
196	457	560854.8594	4181357.61
197	442	560855.0466	4181359.229
198	446	560855.218	4181360.829
199	450	560855.3571	4181362.414
200	426	560855.401	4181362.935
201	434	560855.4204	4181363.648
202	450	560855.6713	4181362.906
203	456	560855.8562	4181361.877
204	449	560855.7245	4181360.534
205	451	560855.5762	4181359.082
206	417	560855.4199	4181357.601
207	413	560855.3183	4181356.082
208	383	560855.2398	4181354.918
209	386	560855.1805	4181354.109
210	392	560855.1656	4181353.918
211	402	560855.2138	4181354.673
212	444	560855.3704	4181355.944
213	431	560855.5263	4181357.248
214	446	560855.6738	4181358.585
215	449	560855.8178	4181359.904

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
216	444	560855.9616	4181361.219
217	439	560856.0828	4181362.534
218	419	560856.1395	4181363.662
219	444	560856.1846	4181363.416
220	455	560856.3175	4181362.231
221	450	560856.4429	4181360.817
222	428	560856.2527	4181359.222
223	445	560856.0783	4181357.595
224	446	560855.9414	4181355.936
225	384	560855.8706	4181354.901
226	388	560855.8164	4181353.648
227	391	560855.8182	4181354.282
228	408	560855.8673	4181355.313
229	437	560856.03	4181356.739
230	452	560856.1971	4181358.145
231	428	560856.3633	4181359.521
232	462	560856.5321	4181360.764
233	433	560856.6785	4181361.892
234	455	560856.7835	4181362.908
235	429	560856.845	4181363.613
236	423	560856.8159	4181363.316
237	432	560857.004	4181361.924
238	435	560857.0603	4181360.434
239	403	560856.8119	4181358.846
240	430	560856.6395	4181357.183
241	405	560856.5127	4181355.63
242	384	560856.4892	4181354.718
243	403	560856.474	4181354.093
244	430	560856.5013	4181354.955
245	456	560856.6194	4181356.374
246	434	560856.7807	4181357.892
247	471	560856.9523	4181359.354
248	436	560857.1271	4181360.808
249	419	560857.3108	4181362.253
250	446	560857.3805	4181362.801
251	429	560857.4289	4181363.572
252	437	560857.6086	4181362.834
253	434	560857.7462	4181361.856
254	435	560857.6558	4181360.621
255	431	560857.5095	4181359.071
256	432	560857.3394	4181357.454
257	403	560857.2186	4181355.806
258	403	560857.1387	4181354.812

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
259	377	560857.1323	4181354.47
260	411	560857.1843	4181354.944
261	441	560857.2808	4181356.334
262	444	560857.4462	4181357.883
263	457	560857.6126	4181359.375
264	418	560857.7899	4181360.808
265	422	560857.9372	4181361.992
266	439	560858.1094	4181363.52
267	421	560858.1043	4181363.434
268	447	560858.1387	4181362.852
269	440	560858.3813	4181361.786
270	453	560858.3717	4181360.397
271	422	560858.1798	4181358.883
272	433	560857.9721	4181357.099
273	392	560857.8182	4181355.594
274	402	560857.7584	4181354.364
275	416	560857.7682	4181354.395
276	423	560857.8404	4181355.526
277	424	560858.0612	4181357.289
278	439	560858.2642	4181358.97
279	455	560858.4405	4181360.57
280	456	560858.5927	4181361.871
281	434	560858.7462	4181363.484
282	437	560858.7501	4181363.366
283	425	560858.7844	4181362.745
284	415	560858.8807	4181361.62
285	412	560858.827	4181360.001
286	420	560858.681	4181358.266
287	427	560858.5282	4181356.449
288	409	560858.4197	4181355.143
289	406	560858.3633	4181354.348
290	410	560858.4108	4181354.74
291	427	560858.5416	4181356.128
292	463	560858.7423	4181357.722
293	421	560858.9271	4181359.244
294	443	560859.0862	4181360.697
295	426	560859.2475	4181361.982
296	434	560859.3646	4181363.577
297	455	560859.4181	4181363.37
298	432	560859.5491	4181362.597
299	420	560859.653	4181361.24
300	438	560859.5682	4181359.771
301	435	560859.3682	4181358.272

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
302	429	560859.2115	4181356.714
303	435	560859.0902	4181355.387
304	409	560859.0333	4181354.289
305	394	560859.0301	4181354.146
306	442	560859.0825	4181355.023
307	445	560859.2564	4181356.439
308	448	560859.4305	4181357.89
309	417	560859.5994	4181359.376
310	421	560859.7945	4181360.897
311	440	560859.9785	4181362.25
312	421	560860.046	4181362.734
313	445	560860.1501	4181363.113
314	429	560860.3143	4181362.203
315	418	560860.2867	4181360.718
316	437	560860.1184	4181359.102
317	437	560859.9339	4181357.427
318	409	560859.7865	4181355.848
319	409	560859.7118	4181354.361
320	401	560859.6845	4181353.845
321	433	560859.6815	4181354.429
322	415	560859.8503	4181355.939
323	437	560860.0407	4181357.486
324	417	560860.2731	4181359.067
325	425	560860.0312	4181360.6
326	422	560859.4608	4181362.173
327	433	560857.5622	4181363.263
328	420	560855.5676	4181364.023
329	447	560853.3996	4181364.205
330	445	560851.5173	4181363.299
331	426	560849.8256	4181361.975
332	445	560849.3406	4181360.288
333	445	560849.016	4181359.189
334	443	560849.0329	4181359.853
335	437	560849.1409	4181361.552
336	450	560849.2798	4181363.392
337	439	560849.398	4181364.9
338	422	560849.462	4181365.755
339	445	560849.3697	4181364.759
340	453	560849.232	4181363.317
341	425	560849.0946	4181361.917
342	439	560849.0304	4181361.171
343	435	560849.0383	4181360.825
344	428	560849.2876	4181362.066

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
345	433	560849.4937	4181363.851
346	408	560849.6608	4181365.903
347	417	560849.6035	4181365.128
348	436	560849.5403	4181363.884
349	441	560849.4887	4181362.546
350	435	560849.4439	4181361.412
351	437	560849.3427	4181360.077
352	450	560849.7227	4181360.985
353	455	560850.0462	4181362.163
354	434	560850.105	4181363.657
355	429	560850.1642	4181364.772
356	425	560850.2514	4181366.125
357	437	560850.217	4181365.459
358	424	560850.1599	4181364.419
359	435	560850.0749	4181363.006
360	424	560849.9966	4181361.571
361	428	560849.9157	4181360.337
362	442	560849.9189	4181360.135
363	446	560850.0383	4181360.055
364	436	560850.4628	4181361.265
365	447	560850.7314	4181362.874
366	428	560850.8727	4181364.428
367	436	560850.9169	4181365.209
368	449	560850.9426	4181365.704
369	436	560850.8748	4181364.714
370	440	560850.7927	4181363.34
371	447	560850.7104	4181361.857
372	425	560850.6447	4181360.215
373	433	560850.5778	4181359.919
374	433	560850.5813	4181359.896
375	439	560850.8589	4181360.264
376	443	560851.2815	4181361.468
377	442	560851.4416	4181363.082
378	452	560851.5624	4181364.376
379	426	560851.6199	4181365.353
380	421	560851.6162	4181365.186
381	434	560851.5605	4181364.017
382	441	560851.4503	4181362.583
383	435	560851.3474	4181361.161
384	430	560851.261	4181359.75
385	450	560851.2236	4181359.382
386	469	560851.2042	4181358.86
387	443	560851.615	4181360.024

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
388	426	560851.9774	4181361.544
389	443	560852.1433	4181363.454
390	414	560852.2309	4181364.651
391	420	560852.3075	4181365.968
392	450	560852.2551	4181365.003
393	445	560852.1746	4181363.449
394	415	560852.0791	4181361.473
395	445	560852.0015	4181360.338
396	458	560851.8273	4181358.844
397	436	560851.8986	4181359.044
398	445	560852.1285	4181359.751
399	468	560852.4801	4181360.979
400	445	560852.7233	4181362.553
401	456	560852.8774	4181364.081
402	420	560852.903	4181364.982
403	435	560852.9166	4181365.502
404	427	560852.8804	4181364.442
405	438	560852.8095	4181363.075
406	440	560852.7234	4181361.647
407	461	560852.5963	4181360.217
408	442	560852.5313	4181359.469
409	452	560852.5251	4181359.403
410	464	560852.7779	4181359.836
411	426	560853.2692	4181361.095
412	430	560853.4114	4181362.63
413	425	560853.5206	4181363.993
414	413	560853.5627	4181365.187
415	413	560853.5655	4181365.34
416	440	560853.5283	4181364.493
417	438	560853.4864	4181363.281
418	443	560853.4284	4181361.994
419	438	560853.3331	4181360.633
420	469	560853.2434	4181359.544
421	457	560853.0122	4181358.181
422	450	560853.2083	4181358.506
423	455	560853.5583	4181359.356
424	440	560853.883	4181360.806
425	443	560854.0972	4181362.744
426	432	560854.2158	4181364.53
427	409	560854.2525	4181365.018
428	432	560854.2771	4181365.262
429	454	560854.2122	4181364.066
430	441	560854.1576	4181362.736

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
431	421	560854.1137	4181361.377
432	445	560854.046	4181360.007
433	469	560853.9234	4181358.785
434	475	560853.9541	4181358.884
435	430	560854.3186	4181360.413
436	422	560854.7198	4181362.251
437	419	560854.8843	4181364.194
438	418	560855.0005	4181365.536
439	427	560854.945	4181365.082
440	415	560854.8646	4181363.71
441	465	560854.8123	4181362.184
442	434	560854.7439	4181360.813
443	453	560854.6288	4181359.677
444	432	560854.737	4181359.925
445	451	560855.1141	4181361.325
446	427	560855.4798	4181362.957
447	397	560855.5853	4181364.529
448	412	560855.6473	4181365.405
449	459	560855.5942	4181364.388
450	443	560855.505	4181362.586
451	431	560855.4194	4181360.836
452	456	560855.3874	4181360.131
453	458	560855.4479	4181359.666
454	427	560855.8886	4181360.58
455	444	560856.2202	4181362.247
456	440	560856.4024	4181363.935
457	406	560856.4439	4181364.813
458	419	560856.4696	4181365.392
459	451	560856.4166	4181364.474
460	417	560856.3414	4181363.166
461	430	560856.2607	4181361.769
462	448	560856.1922	4181360.316
463	419	560856.1437	4181359.28
464	437	560856.1251	4181358.663
465	432	560856.2817	4181358.599
466	427	560856.712	4181359.427
467	440	560856.8897	4181360.927
468	430	560857.0561	4181362.473
469	421	560857.1914	4181364.066
470	412	560857.2479	4181364.787
471	430	560857.2963	4181365.67
472	459	560857.2404	4181364.635
473	456	560857.1684	4181363.115

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
474	454	560857.0891	4181361.108
475	451	560857.0364	4181359.668
476	429	560856.879	4181358.05
477	445	560857.0463	4181358.375
478	442	560857.3487	4181359.279
479	458	560857.6136	4181360.818
480	442	560857.7999	4181362.583
481	429	560857.9289	4181364.204
482	445	560857.9533	4181364.854
483	429	560857.9709	4181365.305
484	463	560857.9393	4181364.358
485	421	560857.8847	4181362.893
486	442	560857.8242	4181361.328
487	421	560857.7348	4181359.777
488	444	560857.6686	4181358.626
489	413	560857.6266	4181357.876
490	420	560857.7691	4181357.875
491	427	560858.1568	4181358.876
492	448	560858.3875	4181360.775
493	442	560858.5691	4181362.563
494	424	560858.6626	4181364.243
495	416	560858.6886	4181364.634
496	443	560858.7043	4181365.089
497	420	560858.6339	4181363.549
498	445	560858.562	4181361.996
499	425	560858.4876	4181360.43
500	435	560858.3842	4181358.912
501	446	560858.2751	4181357.569
502	442	560858.2373	4181357.052
503	400	560858.3577	4181356.951
504	411	560858.8796	4181358.43
505	436	560859.2139	4181360.286
506	428	560859.4291	4181362.228
507	434	560859.5651	4181364.144
508	420	560859.6454	4181365.203
509	448	560859.6004	4181364.208
510	440	560859.5119	4181362.726
511	433	560859.3245	4181361.394
512	438	560859.3348	4181361.358
513	427	560859.5595	4181361.573
514	407	560859.9876	4181363.197
515	396	560860.1551	4181364.24
516	405	560860.1991	4181365.323

Title:	Decimated Background Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
517	427	560860.1564	4181363.531
518	409	560860.1201	4181362.203
519	448	560860.0686	4181361.342
520	427	560860.336	4181361.855
521	436	560860.799	4181363.261
522	430	560860.8621	4181364.327
523	428	560860.9047	4181364.562
524	424	560860.8846	4181362.767
525	413	560860.5631	4181360.921
526	424	560860.0132	4181359.041
527	445	560857.9394	4181357.802
528	424	560856.1829	4181356.377
529	416	560854.9117	4181354.583
	475	**Max**	
	26.36	**Std Dev**	
	427.72	**Average**	
	506.78	**3s Investigation Level**	

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1	365	561164.9539	4181722.367
2	370	561164.9536	4181722.367
3	380	561164.9571	4181722.144
4	354	561164.4854	4181722.263
5	366	561165.1469	4181722.218
6	354	561166.1598	4181722.131
7	359	561167.5217	4181721.975
8	398	561168.7942	4181721.882
9	402	561169.9517	4181721.841
10	396	561170.6078	4181721.78
11	399	561171.4918	4181721.711
12	410	561172.6059	4181721.664
13	416	561173.7964	4181721.597
14	402	561174.9979	4181721.517
15	392	561176.1816	4181721.445
16	413	561177.357	4181721.371
17	394	561178.5237	4181721.285
18	382	561179.6823	4181721.186
19	412	561180.8361	4181721.078
20	387	561181.9776	4181720.972
21	397	561183.094	4181720.868
22	397	561184.1849	4181720.765
23	407	561185.2731	4181720.69
24	374	561186.3736	4181720.646
25	381	561187.5222	4181720.516
26	390	561188.6667	4181720.526
27	404	561189.7679	4181720.967
28	407	561190.5528	4181721.712
29	434	561191.168	4181722.681
30	397	561191.2415	4181723.811
31	407	561191.3271	4181724.948
32	396	561191.4501	4181726.089
33	384	561191.5754	4181727.242
34	362	561191.7008	4181728.397
35	373	561191.8391	4181729.552
36	392	561191.9797	4181730.699
37	409	561192.1299	4181731.838
38	407	561192.2742	4181732.944
39	386	561192.4145	4181734.043
40	399	561192.5689	4181735.128
41	378	561192.7076	4181736.233
42	401	561192.7899	4181737.36
43	380	561192.8571	4181738.529

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
44	366	561192.9082	4181739.714
45	383	561193.017	4181740.932
46	386	561192.9958	4181742.21
47	397	561192.6314	4181743.529
48	390	561191.7655	4181744.472
49	388	561190.5959	4181745.211
50	405	561189.2208	4181745.305
51	421	561187.8774	4181745.369
52	394	561186.5643	4181745.358
53	379	561185.2357	4181745.359
54	384	561183.9007	4181745.366
55	412	561182.5502	4181745.415
56	412	561181.188	4181745.464
57	366	561179.8139	4181745.509
58	405	561178.4543	4181745.554
59	364	561177.0926	4181745.595
60	387	561175.7147	4181745.733
61	386	561174.3388	4181745.864
62	391	561172.9639	4181745.977
63	392	561171.5716	4181746.09
64	415	561170.1847	4181746.209
65	381	561168.8359	4181746.215
66	384	561167.5512	4181745.99
67	359	561166.4478	4181745.175
68	363	561165.8928	4181744.085
69	346	561165.6688	4181742.801
70	361	561165.5951	4181741.504
71	370	561165.5129	4181740.205
72	353	561165.4076	4181738.906
73	370	561165.2974	4181737.592
74	374	561165.1835	4181736.276
75	351	561165.0915	4181734.963
76	362	561165.009	4181733.711
77	354	561164.9467	4181732.517
78	353	561164.8932	4181731.318
79	371	561164.8513	4181730.118
80	369	561164.7417	4181728.926
81	373	561164.6138	4181727.732
82	363	561164.432	4181726.539
83	361	561164.4426	4181725.353
84	376	561164.5338	4181724.142
85	369	561165.3366	4181723.267
86	350	561166.1854	4181722.571

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
87	355	561167.2679	4181722.408
88	367	561168.371	4181722.305
89	405	561169.4871	4181722.25
90	403	561170.6298	4181722.193
91	382	561171.7657	4181722.135
92	394	561172.8944	4181722.071
93	381	561174.054	4181722.018
94	415	561175.2136	4181721.98
95	413	561176.3378	4181721.905
96	404	561177.4592	4181721.82
97	407	561178.5756	4181721.7
98	397	561179.6853	4181721.607
99	415	561180.7908	4181721.536
100	399	561181.8757	4181721.468
101	391	561182.9615	4181721.404
102	381	561184.0485	4181721.351
103	386	561185.1501	4181721.293
104	373	561186.2745	4181721.244
105	384	561187.4709	4181721.018
106	412	561188.6025	4181720.975
107	403	561189.6101	4181721.508
108	382	561190.3145	4181722.274
109	412	561190.8474	4181723.227
110	383	561190.9287	4181724.304
111	398	561191.006	4181725.356
112	393	561191.0735	4181726.384
113	389	561191.1676	4181727.414
114	370	561191.2843	4181728.445
115	353	561191.3998	4181729.485
116	382	561191.5173	4181730.533
117	396	561191.6399	4181731.589
118	389	561191.754	4181732.6
119	400	561191.8512	4181733.608
120	394	561192.073	4181734.616
121	368	561192.2467	4181735.572
122	378	561192.2365	4181736.492
123	381	561192.024	4181737.312
124	361	561191.6545	4181738.1
125	390	561191.0213	4181738.58
126	391	561190.3406	4181739.02
127	375	561189.4963	4181739.142
128	368	561188.5893	4181739.221
129	381	561187.6562	4181739.245

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
130	389	561186.679	4181739.333
131	394	561185.6764	4181739.426
132	367	561184.649	4181739.529
133	378	561183.6	4181739.617
134	371	561182.5456	4181739.691
135	387	561181.4919	4181739.777
136	378	561180.4289	4181739.866
137	381	561179.3573	4181739.97
138	377	561178.3035	4181740.062
139	379	561177.252	4181740.147
140	382	561176.1955	4181740.22
141	361	561175.1526	4181740.305
142	360	561174.1264	4181740.432
143	389	561173.1304	4181740.53
144	377	561172.1362	4181740.605
145	371	561171.1292	4181740.675
146	364	561170.0467	4181740.77
147	377	561168.8926	4181740.926
148	364	561167.6902	4181740.681
149	355	561166.478	4181740.222
150	344	561165.9304	4181739.199
151	349	561165.5195	4181738.153
152	389	561165.5388	4181737.014
153	377	561165.5128	4181735.867
154	362	561165.4542	4181734.722
155	366	561165.385	4181733.587
156	358	561165.3164	4181732.448
157	385	561165.2504	4181731.303
158	351	561165.1808	4181730.153
159	372	561165.1147	4181729.007
160	360	561164.988	4181727.892
161	380	561164.8709	4181726.731
162	392	561164.7922	4181725.522
163	361	561165.1358	4181724.388
164	373	561165.7092	4181723.274
165	364	561166.7652	4181722.93
166	390	561167.8203	4181722.664
167	409	561168.9042	4181722.658
168	386	561169.9932	4181722.638
169	374	561171.0866	4181722.608
170	400	561172.1976	4181722.573
171	401	561173.3132	4181722.534
172	388	561174.4331	4181722.484

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
173	391	561175.4724	4181722.417
174	380	561176.4995	4181722.33
175	391	561177.5529	4181722.258
176	410	561178.5768	4181722.19
177	404	561179.5717	4181722.132
178	402	561180.5964	4181722.072
179	381	561181.6254	4181722.015
180	396	561182.6439	4181721.943
181	396	561183.6637	4181721.871
182	378	561184.6848	4181721.798
183	386	561185.7177	4181721.672
184	387	561186.7515	4181721.466
185	392	561187.8088	4181721.593
186	371	561188.8313	4181721.836
187	378	561189.7075	4181722.478
188	385	561190.2476	4181723.302
189	411	561190.5528	4181724.29
190	382	561190.6292	4181725.306
191	388	561190.7051	4181726.326
192	384	561190.7781	4181727.351
193	377	561190.8412	4181728.361
194	388	561190.8873	4181729.375
195	395	561191.0223	4181730.41
196	380	561191.1517	4181731.422
197	390	561191.2666	4181732.415
198	418	561191.3852	4181733.369
199	364	561191.5022	4181734.314
200	377	561191.6741	4181735.231
201	405	561191.7742	4181736.12
202	354	561191.5164	4181736.962
203	389	561191.1245	4181737.692
204	360	561190.6162	4181738.393
205	345	561189.8038	4181738.7
206	362	561188.964	4181738.954
207	362	561188.0582	4181738.927
208	370	561187.1145	4181738.933
209	359	561186.1575	4181738.97
210	357	561185.1714	4181739.01
211	367	561184.1722	4181739.058
212	400	561183.161	4181739.134
213	396	561182.1475	4181739.223
214	386	561181.1335	4181739.324
215	386	561180.1149	4181739.422

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
216	397	561179.0907	4181739.523
217	384	561178.0616	4181739.636
218	380	561177.0346	4181739.737
219	383	561176.0077	4181739.828
220	379	561174.9835	4181739.927
221	377	561173.9788	4181740.023
222	370	561172.9936	4181740.119
223	364	561172.0236	4181740.2
224	385	561171.035	4181740.259
225	364	561169.964	4181740.447
226	372	561168.8506	4181740.507
227	367	561167.7118	4181740.159
228	369	561166.7605	4181739.516
229	364	561165.8773	4181738.695
230	353	561165.8197	4181737.562
231	356	561165.7715	4181736.44
232	359	561165.7532	4181735.327
233	360	561165.7212	4181734.235
234	352	561165.6801	4181733.141
235	352	561165.6137	4181732.015
236	370	561165.5572	4181730.881
237	353	561165.5332	4181729.738
238	373	561165.4922	4181728.632
239	374	561165.4415	4181727.522
240	367	561165.3286	4181726.36
241	376	561165.384	4181725.233
242	361	561165.9624	4181724.217
243	369	561166.7764	4181723.509
244	391	561167.7603	4181722.963
245	394	561168.8113	4181723.014
246	384	561169.8705	4181723.052
247	358	561170.9387	4181723.043
248	385	561172.0244	4181723
249	372	561173.1134	4181722.929
250	391	561174.2063	4181722.882
251	397	561175.2886	4181722.831
252	392	561176.3596	4181722.762
253	399	561177.3168	4181722.703
254	395	561178.2633	4181722.645
255	383	561179.2713	4181722.606
256	401	561180.2768	4181722.563
257	381	561181.2793	4181722.5
258	397	561182.2743	4181722.423

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
259	384	561183.2686	4181722.331
260	391	561184.2717	4181722.244
261	399	561185.2903	4181722.134
262	401	561186.3165	4181721.942
263	386	561187.3455	4181721.978
264	381	561188.3989	4181722.149
265	385	561189.2091	4181722.821
266	382	561189.8854	4181723.546
267	375	561190.0857	4181724.529
268	384	561190.2085	4181725.502
269	387	561190.2628	4181726.49
270	393	561190.3395	4181727.523
271	384	561190.4141	4181728.526
272	396	561190.4875	4181729.499
273	387	561190.5846	4181730.513
274	378	561190.6989	4181731.524
275	367	561190.8051	4181732.487
276	377	561190.9244	4181733.422
277	380	561191.1163	4181734.321
278	380	561191.2053	4181735.193
279	378	561191.2649	4181736.076
280	384	561190.8993	4181736.808
281	362	561190.4692	4181737.536
282	394	561189.7824	4181738.111
283	371	561189.088	4181738.446
284	363	561188.2953	4181738.57
285	354	561187.4067	4181738.576
286	390	561186.4987	4181738.588
287	376	561185.5717	4181738.633
288	388	561184.6145	4181738.692
289	375	561183.6498	4181738.76
290	379	561182.6777	4181738.848
291	373	561181.7053	4181738.934
292	376	561180.7323	4181739.017
293	376	561179.7428	4181739.101
294	365	561178.748	4181739.183
295	381	561177.7446	4181739.276
296	381	561176.734	4181739.368
297	363	561175.7158	4181739.456
298	383	561174.7206	4181739.534
299	378	561173.7367	4181739.603
300	389	561172.7891	4181739.672
301	386	561171.8334	4181739.746

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
302	357	561170.871	4181739.842
303	381	561169.7817	4181739.911
304	366	561168.6523	4181740.01
305	367	561167.6591	4181739.494
306	341	561166.7681	4181738.873
307	371	561166.2139	4181737.904
308	376	561165.9713	4181736.872
309	380	561165.9649	4181735.79
310	362	561165.995	4181734.761
311	370	561166.0084	4181733.706
312	382	561165.9617	4181732.626
313	366	561165.9361	4181731.538
314	373	561165.9274	4181730.447
315	366	561165.9204	4181729.355
316	368	561165.8804	4181728.28
317	369	561165.7213	4181727.227
318	388	561165.8193	4181726.18
319	375	561166.0737	4181725.106
320	370	561166.8929	4181724.352
321	371	561167.7207	4181723.749
322	393	561168.7116	4181723.635
323	388	561169.7031	4181723.571
324	376	561170.7021	4181723.554
325	406	561171.7255	4181723.51
326	387	561172.7522	4181723.463
327	385	561173.7817	4181723.4
328	393	561174.8053	4181723.347
329	381	561175.8252	4181723.301
330	398	561176.8294	4181723.246
331	399	561177.829	4181723.192
332	391	561178.824	4181723.139
333	409	561179.8153	4181723.08
334	378	561180.8029	4181723.017
335	371	561181.7742	4181722.937
336	375	561182.7372	4181722.856
337	391	561183.6915	4181722.769
338	377	561184.6724	4181722.636
339	378	561185.6525	4181722.44
340	391	561186.6472	4181722.461
341	371	561187.637	4181722.576
342	393	561188.5558	4181723.049
343	382	561189.2304	4181723.701
344	389	561189.7791	4181724.516

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
345	393	561189.8342	4181725.469
346	382	561189.8882	4181726.414
347	379	561189.9385	4181727.352
348	369	561190.0093	4181728.275
349	372	561190.1086	4181729.198
350	391	561190.1517	4181730.148
351	388	561190.2091	4181731.079
352	384	561190.3379	4181731.986
353	382	561190.4551	4181732.832
354	379	561190.5616	4181733.668
355	378	561190.7069	4181734.506
356	396	561190.8072	4181735.333
357	381	561190.637	4181736.145
358	365	561190.3155	4181736.87
359	372	561189.8611	4181737.545
360	371	561189.2227	4181737.949
361	366	561188.532	4181738.315
362	366	561187.6964	4181738.342
363	370	561186.8154	4181738.351
364	390	561185.9178	4181738.338
365	390	561184.9835	4181738.348
366	362	561184.0244	4181738.373
367	387	561183.0426	4181738.459
368	363	561182.0561	4181738.539
369	380	561181.0728	4181738.614
370	388	561180.1104	4181738.67
371	394	561179.1508	4181738.729
372	376	561178.1948	4181738.805
373	378	561177.2363	4181738.886
374	370	561176.2766	4181738.972
375	364	561175.3109	4181739.051
376	381	561174.3588	4181739.129
377	369	561173.4203	4181739.205
378	396	561172.4851	4181739.264
379	376	561171.5386	4181739.29
380	374	561170.5618	4181739.465
381	367	561169.5469	4181739.551
382	354	561168.5008	4181739.302
383	386	561167.5739	4181738.778
384	344	561166.6913	4181738.088
385	364	561166.4861	4181737.063
386	370	561166.3336	4181736.056
387	360	561166.3786	4181735.055

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
388	361	561166.4056	4181734.036
389	364	561166.4192	4181733.007
390	376	561166.4088	4181731.949
391	370	561166.4003	4181730.874
392	382	561166.3992	4181729.782
393	373	561166.3071	4181728.731
394	365	561166.0975	4181727.69
395	401	561166.294	4181726.645
396	379	561166.6008	4181725.651
397	376	561167.3006	4181724.845
398	374	561168.1174	4181724.362
399	406	561169.0667	4181724.104
400	382	561170.041	4181724.064
401	376	561171.0273	4181724.026
402	372	561172.0256	4181723.998
403	375	561173.0192	4181723.955
404	395	561174.0099	4181723.898
405	386	561174.9923	4181723.845
406	408	561175.9715	4181723.789
407	399	561176.9468	4181723.721
408	385	561177.9099	4181723.654
409	387	561178.87	4181723.593
410	387	561179.8217	4181723.494
411	401	561180.7564	4181723.4
412	378	561181.6759	4181723.332
413	383	561182.5809	4181723.266
414	381	561183.4858	4181723.205
415	377	561184.3987	4181723.11
416	381	561185.331	4181723.015
417	410	561186.2834	4181722.925
418	388	561187.2257	4181723.076
419	367	561188.1982	4181723.398
420	393	561188.8462	4181724.28
421	373	561189.3578	4181725.14
422	378	561189.4117	4181726.093
423	383	561189.4841	4181727.094
424	345	561189.5681	4181728.088
425	393	561189.6544	4181729.007
426	401	561189.7363	4181729.936
427	383	561189.7949	4181730.877
428	407	561189.8775	4181731.777
429	397	561189.9636	4181732.653
430	364	561190.1598	4181733.427

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
431	399	561190.3244	4181734.226
432	367	561190.2747	4181735.068
433	374	561189.9671	4181736.032
434	374	561189.5104	4181737.013
435	380	561188.6591	4181737.571
436	364	561187.8169	4181738.019
437	384	561186.8859	4181738.043
438	381	561185.7949	4181738.052
439	392	561184.684	4181738.043
440	396	561183.6343	4181738.056
441	379	561182.5876	4181738.075
442	366	561181.5441	4181738.117
443	368	561180.5363	4181738.164
444	371	561179.5355	4181738.214
445	396	561178.535	4181738.288
446	384	561177.5356	4181738.366
447	377	561176.5384	4181738.462
448	358	561175.5315	4181738.551
449	357	561174.5305	4181738.636
450	372	561173.5685	4181738.694
451	377	561172.6152	4181738.756
452	356	561171.6715	4181738.836
453	383	561170.7141	4181738.978
454	376	561169.7444	4181739.238
455	379	561168.7313	4181738.942
456	367	561167.7592	4181738.533
457	368	561166.9787	4181737.757
458	377	561166.5474	4181736.807
459	355	561166.3778	4181735.731
460	366	561166.333	4181734.691
461	367	561166.2773	4181733.617
462	374	561166.1889	4181732.511
463	366	561166.1238	4181731.396
464	361	561166.0854	4181730.282
465	364	561165.9655	4181729.196
466	364	561165.8874	4181728.136
467	359	561165.9577	4181727.1
468	362	561166.3292	4181726.162
469	365	561166.897	4181725.257
470	369	561167.8356	4181724.912
471	382	561168.7627	4181724.631
472	383	561169.7149	4181724.602
473	383	561170.683	4181724.561

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
474	358	561171.6553	4181724.512
475	381	561172.6323	4181724.438
476	400	561173.6078	4181724.368
477	376	561174.5826	4181724.311
478	381	561175.5492	4181724.254
479	384	561176.5126	4181724.198
480	392	561177.4661	4181724.122
481	400	561178.4181	4181724.043
482	378	561179.3677	4181723.95
483	391	561180.2922	4181723.86
484	386	561181.2057	4181723.769
485	370	561182.0939	4181723.712
486	384	561182.9763	4181723.661
487	370	561183.8541	4181723.641
488	379	561184.7556	4181723.565
489	390	561185.6691	4181723.414
490	382	561186.655	4181723.398
491	391	561187.6178	4181723.482
492	367	561188.4779	4181723.975
493	396	561189.1487	4181724.659
494	381	561189.7125	4181725.535
495	377	561189.8257	4181726.77
496	396	561189.9435	4181728.049
497	384	561190.0671	4181729.373
498	367	561190.1743	4181730.587
499	387	561190.2562	4181731.732
500	397	561190.4206	4181732.62
501	384	561190.5659	4181733.562
502	392	561190.6087	4181734.568
503	390	561190.2488	4181735.675
504	378	561189.645	4181736.797
505	371	561188.4827	4181737.296
506	394	561187.2577	4181737.687
507	395	561185.9223	4181737.769
508	379	561184.5287	4181737.881
509	391	561183.1384	4181738.007
510	379	561181.8186	4181738.127
511	366	561180.5885	4181738.236
512	373	561179.4473	4181738.326
513	382	561178.3281	4181738.41
514	380	561177.2106	4181738.491
515	375	561176.081	4181738.578
516	367	561174.9654	4181738.656

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
517	371	561173.8628	4181738.712
518	379	561172.7959	4181738.772
519	380	561171.7333	4181738.819
520	369	561170.6869	4181739.026
521	378	561169.6047	4181739.103
522	371	561168.5039	4181738.75
523	365	561167.5549	4181738.07
524	373	561166.6715	4181737.193
525	388	561166.6835	4181735.976
526	346	561166.6803	4181734.753
527	360	561166.6332	4181733.525
528	380	561166.5658	4181732.258
529	368	561166.494	4181730.999
530	371	561166.3337	4181729.828
531	353	561166.2225	4181728.71
532	377	561166.2665	4181727.64
533	361	561166.6171	4181726.702
534	365	561167.1688	4181725.808
535	363	561168.0623	4181725.453
536	375	561168.9524	4181725.158
537	373	561169.8809	4181725.116
538	358	561170.8344	4181725.049
539	387	561171.7931	4181724.963
540	392	561172.7551	4181724.859
541	391	561173.7146	4181724.764
542	371	561174.6739	4181724.704
543	386	561175.6281	4181724.643
544	367	561176.5768	4181724.575
545	390	561177.5064	4181724.536
546	397	561178.438	4181724.493
547	371	561179.3709	4181724.43
548	381	561180.2796	4181724.368
549	421	561181.1776	4181724.304
550	351	561182.0478	4181724.247
551	387	561182.9	4181724.191
552	387	561183.7338	4181724.13
553	390	561184.5276	4181724.036
554	368	561185.3081	4181723.861
555	395	561186.1069	4181723.915
556	387	561186.979	4181724.07
557	389	561187.8349	4181724.604
558	380	561188.4736	4181725.334
559	382	561188.9717	4181726.211

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
560	362	561189.0484	4181727.152
561	377	561189.1284	4181728.105
562	355	561189.2197	4181729.068
563	373	561189.3171	4181730.072
564	376	561189.4158	4181731.079
565	391	561189.522	4181732.066
566	377	561189.63	4181732.995
567	373	561189.7739	4181733.862
568	390	561189.6966	4181734.757
569	361	561189.4373	4181735.703
570	352	561188.6274	4181736.495
571	354	561187.7776	4181737.148
572	371	561186.7288	4181737.361
573	386	561185.7047	4181737.452
574	373	561184.6853	4181737.436
575	383	561183.7048	4181737.496
576	355	561182.7301	4181737.561
577	367	561181.7624	4181737.647
578	394	561180.8355	4181737.728
579	387	561179.9165	4181737.807
580	381	561178.9968	4181737.884
581	372	561178.0757	4181737.959
582	361	561177.1527	4181738.026
583	356	561176.2181	4181738.099
584	383	561175.2875	4181738.178
585	375	561174.3871	4181738.249
586	397	561173.4959	4181738.318
587	367	561172.6136	4181738.381
588	368	561171.7135	4181738.51
589	377	561170.7784	4181738.75
590	384	561169.633	4181738.57
591	372	561168.5336	4181738.226
592	369	561167.6273	4181737.408
593	361	561167.152	4181736.549
594	387	561166.9368	4181735.577
595	352	561166.9317	4181734.616
596	372	561166.9223	4181733.59
597	378	561166.8991	4181732.499
598	363	561166.8807	4181731.411
599	409	561166.8782	4181730.317
600	379	561166.7427	4181729.206
601	390	561166.7332	4181728.128
602	362	561167.1545	4181727.125

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
603	370	561167.8029	4181726.358
604	367	561168.6091	4181725.702
605	369	561169.5176	4181725.631
606	387	561170.4799	4181725.553
607	381	561171.4953	4181725.464
608	375	561172.4972	4181725.374
609	366	561173.4846	4181725.283
610	393	561174.4161	4181725.221
611	415	561175.3155	4181725.16
612	383	561176.1826	4181725.096
613	368	561177.0315	4181725.034
614	376	561177.8762	4181724.973
615	369	561178.7181	4181724.913
616	371	561179.5528	4181724.854
617	403	561180.3805	4181724.803
618	385	561181.2021	4181724.752
619	398	561182.019	4181724.704
620	388	561182.8156	4181724.636
621	380	561183.6731	4181724.566
622	393	561184.5923	4181724.503
623	399	561185.66	4181724.383
624	387	561186.8246	4181724.184
625	380	561188.1742	4181724.847
626	380	561189.2437	4181725.697
627	381	561189.6796	4181727.041
628	378	561189.9427	4181728.414
629	363	561190.1	4181729.779
630	380	561190.2058	4181731.006
631	384	561190.329	4181732.138
632	395	561190.5376	4181733.164
633	379	561190.4529	4181734.254
634	395	561190.1766	4181735.398
635	389	561189.2029	4181736.207
636	381	561188.1888	4181736.832
637	373	561186.9988	4181736.947
638	374	561185.7935	4181737.025
639	378	561184.5787	4181737.075
640	381	561183.3391	4181737.147
641	371	561182.121	4181737.221
642	385	561180.9247	4181737.3
643	377	561179.7583	4181737.385
644	379	561178.5963	4181737.475
645	395	561177.4255	4181737.569

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
646	391	561176.2506	4181737.661
647	382	561175.0714	4181737.747
648	372	561173.946	4181737.843
649	371	561172.8447	4181737.937
650	373	561171.8261	4181738.117
651	364	561170.7774	4181738.225
652	368	561169.6951	4181738.073
653	381	561168.7833	4181737.669
654	375	561167.9278	4181737.084
655	368	561167.5137	4181736.153
656	370	561167.1991	4181735.169
657	376	561167.2631	4181734.08
658	360	561167.2876	4181732.935
659	359	561167.2911	4181731.786
660	362	561167.1883	4181730.673
661	369	561167.1212	4181729.553
662	372	561167.1718	4181728.423
663	365	561167.586	4181727.443
664	401	561168.2298	4181726.518
665	360	561169.2192	4181726.222
666	387	561170.2425	4181725.975
667	380	561171.324	4181725.914
668	380	561172.4114	4181725.836
669	369	561173.498	4181725.746
670	384	561174.5761	4181725.642
671	386	561175.6227	4181725.544
672	389	561176.6387	4181725.463
673	397	561177.5524	4181725.394
674	378	561178.4353	4181725.332
675	378	561179.2651	4181725.275
676	358	561180.0741	4181725.218
677	375	561180.8622	4181725.164
678	376	561181.6416	4181725.102
679	400	561182.4272	4181725.027
680	391	561183.2598	4181724.972
681	368	561184.1031	4181724.91
682	364	561184.9543	4181724.807
683	383	561185.9202	4181724.863
684	354	561186.9701	4181725.034
685	389	561187.9082	4181725.902
686	361	561188.6228	4181726.73
687	380	561188.753	4181727.704
688	395	561188.8428	4181728.663

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
689	401	561188.8924	4181729.625
690	377	561188.9858	4181730.6
691	388	561189.097	4181731.588
692	380	561189.2744	4181732.581
693	374	561189.2227	4181733.773
694	377	561189.0336	4181735.041
695	368	561188.0852	4181735.997
696	376	561187.1254	4181736.706
697	379	561185.9781	4181736.785
698	385	561184.9572	4181736.827
699	364	561183.9637	4181736.843
700	385	561182.9851	4181736.852
701	382	561181.9661	4181736.874
702	374	561180.908	4181736.946
703	369	561179.8781	4181737.011
704	383	561178.871	4181737.07
705	374	561177.9513	4181737.122
706	364	561177.0391	4181737.177
707	374	561176.1355	4181737.246
708	369	561175.2676	4181737.313
709	355	561174.4081	4181737.378
710	366	561173.5564	4181737.452
711	375	561172.6765	4181737.541
712	368	561171.775	4181737.698
713	371	561170.7589	4181737.751
714	382	561169.6748	4181737.759
715	377	561168.6996	4181737.096
716	374	561167.8709	4181736.325
717	372	561167.4906	4181735.215
718	377	561167.3209	4181734.073
719	365	561167.3108	4181732.898
720	370	561167.2252	4181731.698
721	381	561167.1183	4181730.498
722	374	561166.9482	4181729.303
723	380	561167.2159	4181728.21
724	365	561167.7419	4181727.139
725	390	561168.7447	4181726.706
726	383	561169.765	4181726.357
727	366	561170.8508	4181726.294
728	383	561171.9674	4181726.234
729	384	561173.0914	4181726.179
730	386	561174.2199	4181726.107
731	376	561175.3338	4181726.035

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
732	369	561176.4329	4181725.96
733	375	561177.4296	4181725.892
734	389	561178.3846	4181725.824
735	383	561179.2354	4181725.777
736	374	561180.0684	4181725.729
737	388	561180.883	4181725.67
738	367	561181.6966	4181725.609
739	385	561182.5052	4181725.544
740	386	561183.2914	4181725.489
741	380	561184.1341	4181725.434
742	372	561185.0342	4181725.394
743	390	561186.1841	4181725.334
744	390	561187.4368	4181725.229
745	381	561188.66	4181726.037
746	372	561189.6276	4181727.149
747	380	561189.9534	4181728.825
748	393	561190.1094	4181730.273
749	386	561190.1733	4181731.658
750	397	561190.3281	4181732.911
751	370	561190.2102	4181734.193
752	380	561189.4199	4181735.413
753	382	561188.3622	4181736.099
754	379	561187.168	4181736.509
755	367	561186.2287	4181736.467
756	372	561185.3109	4181736.432
757	375	561184.4141	4181736.424
758	367	561183.5056	4181736.431
759	384	561182.5916	4181736.453
760	369	561181.6625	4181736.483
761	377	561180.7274	4181736.517
762	371	561179.7873	4181736.575
763	394	561178.8547	4181736.633
764	368	561177.9247	4181736.689
765	391	561177.0024	4181736.767
766	377	561176.0806	4181736.843
767	388	561175.1588	4181736.911
768	374	561174.224	4181736.974
769	367	561173.2794	4181737.027
770	370	561172.3058	4181737.124
771	402	561171.289	4181737.242
772	377	561170.2347	4181737.424
773	358	561169.1033	4181737.338
774	362	561167.92	4181737.087

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
775	359	561167.055	4181736.142
776	379	561166.3797	4181735.124
777	373	561166.2258	4181733.878
778	365	561166.0555	4181732.546
779	363	561165.8693	4181731.201
780	374	561165.8839	4181729.863
781	355	561166.0961	4181728.643
782	399	561166.8747	4181727.673
783	374	561167.7241	4181727.151
784	403	561168.7016	4181726.891
785	383	561169.6715	4181726.849
786	379	561170.6346	4181726.803
787	386	561171.59	4181726.74
788	383	561172.4645	4181726.676
789	390	561173.32	4181726.604
790	355	561174.1662	4181726.548
791	376	561175.0083	4181726.494
792	379	561175.8467	4181726.445
793	386	561176.6689	4181726.396
794	393	561177.4884	4181726.345
795	367	561178.3116	4181726.295
796	397	561179.1436	4181726.241
797	398	561179.9835	4181726.17
798	396	561180.8482	4181726.111
799	390	561181.7332	4181726.063
800	382	561182.6921	4181726.038
801	389	561183.648	4181726.007
802	364	561184.6001	4181725.953
803	403	561185.5925	4181725.82
804	356	561186.6313	4181725.584
805	381	561187.9041	4181725.794
806	392	561189.075	4181726.208
807	388	561189.9562	4181727.174
808	373	561190.3642	4181728.624
809	379	561190.4411	4181730.228
810	371	561190.7681	4181731.602
811	389	561190.8707	4181732.986
812	392	561190.4261	4181734.368
813	391	561189.9081	4181735.185
814	382	561189.2058	4181735.861
815	379	561188.056	4181736.025
816	383	561187.5721	4181736.052
817	370	561188.9304	4181735.714

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
818	404	561189.5482	4181735.594
819	360	561190.3392	4181735.648
820	377	561189.0953	4181735.677
821	387	561187.9122	4181735.707
822	366	561186.7902	4181735.742
823	390	561185.6811	4181735.779
824	365	561184.5678	4181735.814
825	377	561183.4216	4181735.869
826	364	561182.2646	4181735.929
827	384	561181.0972	4181736.002
828	381	561179.9395	4181736.082
829	354	561178.7892	4181736.168
830	385	561177.6633	4181736.235
831	373	561176.563	4181736.305
832	369	561175.4889	4181736.385
833	377	561174.4443	4181736.471
834	384	561173.4057	4181736.562
835	386	561172.3661	4181736.656
836	358	561171.2615	4181736.776
837	361	561170.0975	4181736.967
838	392	561168.8773	4181736.781
839	362	561167.6359	4181736.386
840	380	561166.9357	4181735.36
841	382	561166.3782	4181734.232
842	372	561166.239	4181732.9
843	378	561166.0825	4181731.531
844	369	561165.8745	4181730.151
845	362	561166.5107	4181728.95
846	387	561167.2648	4181727.976
847	384	561168.4186	4181727.55
848	393	561169.5651	4181727.337
849	376	561170.7325	4181727.274
850	378	561171.9015	4181727.192
851	382	561173.0681	4181727.112
852	385	561174.2326	4181727.041
853	362	561175.3928	4181726.967
854	373	561176.5415	4181726.891
855	373	561177.6392	4181726.827
856	365	561178.7274	4181726.766
857	402	561179.8062	4181726.71
858	386	561180.8556	4181726.652
859	378	561181.8943	4181726.591
860	374	561182.9086	4181726.527

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
861	381	561183.9478	4181726.458
862	361	561185.0112	4181726.376
863	378	561186.1274	4181726.24
864	372	561187.2714	4181726.014
865	379	561188.4078	4181726.471
866	389	561189.3929	4181727.091
867	373	561189.9376	4181728.185
868	402	561190.2518	4181729.348
869	375	561190.3973	4181730.559
870	387	561190.6309	4181731.74
871	387	561190.6584	4181732.926
872	367	561190.0995	4181734.067
873	389	561189.2169	4181734.848
874	363	561188.1254	4181735.441
875	383	561186.9611	4181735.353
876	388	561185.7991	4181735.299
877	384	561184.6385	4181735.352
878	387	561183.4582	4181735.42
879	400	561182.2749	4181735.499
880	366	561181.0941	4181735.583
881	363	561179.9268	4181735.664
882	379	561178.7728	4181735.74
883	366	561177.6274	4181735.81
884	392	561176.4975	4181735.874
885	386	561175.4387	4181735.948
886	361	561174.407	4181736.025
887	372	561173.4033	4181736.117
888	362	561172.3574	4181736.238
889	399	561171.28	4181736.397
890	366	561170.0635	4181736.382
891	377	561168.8803	4181736.18
892	358	561167.8372	4181735.457
893	378	561167.2384	4181734.505
894	356	561166.9208	4181733.34
895	381	561166.6186	4181732.032
896	387	561166.5133	4181730.744
897	364	561166.9292	4181729.492
898	371	561167.6668	4181728.577
899	403	561168.6038	4181727.804
900	381	561169.6819	4181727.777
901	394	561170.761	4181727.742
902	367	561171.8404	4181727.682
903	365	561172.9309	4181727.623

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
904	380	561174.0212	4181727.569
905	372	561175.0971	4181727.485
906	374	561176.1688	4181727.4
907	378	561177.2364	4181727.312
908	390	561178.2935	4181727.233
909	378	561179.3481	4181727.159
910	381	561180.3983	4181727.084
911	368	561181.4435	4181727.012
912	369	561182.4844	4181726.951
913	389	561183.5184	4181726.879
914	382	561184.5631	4181726.803
915	369	561185.6609	4181726.659
916	378	561186.7827	4181726.592
917	389	561187.9262	4181726.774
918	387	561188.9197	4181727.31
919	377	561189.8514	4181728.056
920	379	561190.0344	4181729.133
921	379	561190.2146	4181730.218
922	370	561190.3829	4181731.313
923	374	561190.3025	4181732.371
924	385	561190.078	4181733.457
925	412	561189.2181	4181734.198
926	392	561188.326	4181734.783
927	382	561187.2582	4181734.869
928	387	561186.1826	4181734.91
929	363	561185.0965	4181734.91
930	379	561183.9727	4181734.961
931	394	561182.9532	4181735.01
932	378	561182.0386	4181735.07
933	381	561181.0164	4181735.134
934	378	561180.0415	4181735.191
935	374	561179.4121	4181735.231
936	375	561178.8014	4181735.271
937	367	561178.2101	4181735.319
938	367	561177.485	4181735.37
939	368	561176.7306	4181735.415
940	374	561175.9651	4181735.454
941	379	561175.1756	4181735.497
942	375	561174.3633	4181735.562
943	390	561173.3603	4181735.64
944	370	561172.3101	4181735.717
945	381	561171.22	4181735.834
946	385	561170.1154	4181735.938

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
947	367	561168.9937	4181735.995
948	367	561167.8917	4181735.646
949	367	561166.7938	4181735.038
950	375	561166.3096	4181733.824
951	347	561165.9179	4181732.563
952	379	561165.7796	4181731.216
953	373	561166.1417	4181730.053
954	363	561166.7542	4181728.957
955	387	561167.6659	4181728.626
956	379	561168.5949	4181728.353
957	398	561169.5767	4181728.321
958	388	561170.412	4181728.281
959	386	561171.2194	4181728.229
960	386	561172.0347	4181728.159
961	382	561172.8371	4181728.088
962	407	561173.6258	4181728.007
963	359	561174.3939	4181727.937
964	374	561175.1661	4181727.874
965	391	561175.9759	4181727.815
966	388	561176.7692	4181727.758
967	375	561177.5464	4181727.713
968	369	561178.3122	4181727.672
969	378	561179.0783	4181727.643
970	375	561179.8525	4181727.584
971	382	561180.6205	4181727.528
972	390	561181.3826	4181727.479
973	373	561182.1408	4181727.429
974	379	561182.9111	4181727.378
975	384	561183.7446	4181727.311
976	397	561184.6731	4181727.238
977	365	561185.697	4181727.164
978	373	561186.8716	4181727.075
979	376	561188.1109	4181726.931
980	391	561189.2328	4181727.67
981	377	561190.1205	4181728.429
982	378	561190.4652	4181729.448
983	383	561190.6615	4181730.573
984	381	561190.7914	4181731.755
985	382	561190.2144	4181732.797
986	387	561189.5634	4181733.677
987	373	561188.5807	4181734.114
988	398	561187.5796	4181734.326
989	392	561186.5591	4181734.355

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
990	378	561185.6165	4181734.407
991	361	561184.6081	4181734.462
992	380	561183.5339	4181734.522
993	376	561182.4562	4181734.582
994	386	561181.3779	4181734.644
995	379	561180.2995	4181734.694
996	381	561179.2351	4181734.749
997	370	561178.1859	4181734.826
998	372	561177.2158	4181734.898
999	378	561176.2814	4181734.971
1000	356	561175.4451	4181735.027
1001	371	561174.6013	4181735.087
1002	390	561173.7509	4181735.163
1003	378	561172.8901	4181735.234
1004	371	561171.9929	4181735.291
1005	366	561170.9454	4181735.468
1006	379	561169.8012	4181735.555
1007	376	561168.559	4181735.362
1008	363	561167.4765	4181734.678
1009	389	561166.5014	4181733.72
1010	352	561166.2024	4181732.448
1011	378	561166.1527	4181731.218
1012	379	561166.7814	4181730.09
1013	372	561167.5298	4181729.408
1014	380	561168.4188	4181728.938
1015	389	561169.2962	4181728.859
1016	386	561170.1724	4181728.779
1017	369	561171.0474	4181728.698
1018	400	561172.0414	4181728.602
1019	402	561173.0369	4181728.497
1020	358	561173.9268	4181728.439
1021	394	561174.7768	4181728.387
1022	397	561175.5877	4181728.359
1023	388	561176.5349	4181728.302
1024	380	561177.4987	4181728.22
1025	375	561178.4178	4181728.162
1026	377	561179.3508	4181728.1
1027	379	561180.2972	4181728.024
1028	379	561181.2343	4181727.952
1029	366	561182.1715	4181727.884
1030	371	561183.1174	4181727.814
1031	360	561184.0955	4181727.735
1032	374	561185.1038	4181727.624

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1033	384	561186.1726	4181727.488
1034	365	561187.2662	4181727.288
1035	372	561188.368	4181727.628
1036	390	561189.3927	4181728.149
1037	383	561190.1162	4181729.16
1038	394	561190.5007	4181730.177
1039	394	561190.7212	4181731.152
1040	368	561190.637	4181731.582
1041	380	561190.5537	4181732.06
1042	392	561190.3031	4181732.528
1043	368	561189.955	4181733.033
1044	387	561189.5537	4181733.546
1045	369	561189.0101	4181733.754
1046	378	561188.4799	4181733.96
1047	377	561187.9431	4181734.102
1048	378	561187.4433	4181734.2
1049	380	561186.8702	4181734.192
1050	385	561185.9558	4181734.147
1051	378	561185.0068	4181734.108
1052	366	561184.0225	4181734.105
1053	381	561183.0985	4181734.128
1054	387	561182.1888	4181734.175
1055	383	561181.2879	4181734.222
1056	360	561180.3469	4181734.271
1057	371	561179.3659	4181734.324
1058	372	561178.3886	4181734.394
1059	387	561177.4283	4181734.48
1060	376	561176.5431	4181734.543
1061	367	561175.6038	4181734.608
1062	362	561174.6099	4181734.672
1063	387	561173.6234	4181734.744
1064	392	561172.6081	4181734.824
1065	394	561171.4441	4181734.95
1066	388	561170.2965	4181735.078
1067	357	561169.1664	4181735.22
1068	376	561167.8763	4181734.947
1069	386	561166.5433	4181734.436
1070	361	561165.9098	4181733.13
1071	350	561165.5972	4181731.817
1072	412	561166.0639	4181730.471
1073	360	561166.3294	4181730.002
1074	361	561165.6636	4181729.952
1075	376	561165.8783	4181729.794

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1076	369	561166.5196	4181729.497
1077	373	561167.6989	4181729.334
1078	370	561168.8034	4181729.235
1079	371	561169.8943	4181729.186
1080	368	561170.9723	4181729.083
1081	375	561172.024	4181728.99
1082	390	561173.0508	4181728.922
1083	380	561173.9537	4181728.88
1084	372	561174.8651	4181728.863
1085	366	561175.9369	4181728.797
1086	388	561176.8991	4181728.738
1087	373	561177.7514	4181728.682
1088	379	561178.5994	4181728.629
1089	371	561179.4417	4181728.583
1090	385	561180.2579	4181728.528
1091	373	561181.105	4181728.468
1092	367	561181.9819	4181728.392
1093	390	561182.8983	4181728.309
1094	383	561183.8639	4181728.221
1095	368	561185.0341	4181728.095
1096	388	561186.1849	4181727.947
1097	371	561187.3089	4181727.728
1098	402	561188.6343	4181728.017
1099	381	561190.002	4181728.615
1100	398	561190.8754	4181729.911
1101	396	561191.5685	4181731.124
1102	396	561191.9077	4181732.335
1103	392	561192.0999	4181733.542
1104	383	561192.1917	4181734.742
1105	372	561192.2743	4181735.844
1106	364	561192.3513	4181736.978
1107	394	561192.4062	4181738.145
1108	383	561192.4479	4181739.325
1109	377	561192.4792	4181740.505
1110	386	561192.5171	4181741.663
1111	373	561192.3712	4181742.8
1112	395	561191.6859	4181743.814
1113	374	561190.7658	4181744.485
1114	394	561189.6516	4181744.961
1115	390	561188.3387	4181744.961
1116	382	561187.1411	4181744.952
1117	369	561186.0592	4181744.916
1118	377	561185.0575	4181744.891

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1119	413	561184.0711	4181744.873
1120	394	561183.0815	4181744.879
1121	364	561182.0827	4181744.892
1122	390	561181.0751	4181744.937
1123	383	561180.0787	4181744.996
1124	376	561179.1055	4181745.068
1125	389	561178.2324	4181745.117
1126	385	561177.2336	4181745.18
1127	379	561176.1101	4181745.274
1128	376	561174.9699	4181745.375
1129	400	561173.832	4181745.484
1130	379	561172.7173	4181745.555
1131	388	561171.6828	4181745.629
1132	405	561170.7311	4181745.736
1133	364	561169.5529	4181745.798
1134	361	561168.3087	4181745.872
1135	361	561167.3109	4181745.155
1136	357	561166.4934	4181744.388
1137	386	561166.1592	4181743.352
1138	363	561165.9678	4181742.232
1139	353	561165.8928	4181741.091
1140	356	561165.8217	4181740.016
1141	381	561165.7482	4181738.915
1142	359	561165.6705	4181737.788
1143	372	561165.6123	4181736.638
1144	369	561165.5785	4181735.501
1145	355	561165.4666	4181734.455
1146	354	561165.4282	4181733.312
1147	335	561165.6186	4181732.077
1148	359	561166.2088	4181731.048
1149	384	561167.0216	4181730.114
1150	358	561168.0785	4181729.915
1151	384	561169.156	4181729.745
1152	371	561170.2635	4181729.677
1153	382	561171.3737	4181729.596
1154	366	561172.4506	4181729.504
1155	384	561173.3635	4181729.447
1156	412	561174.2617	4181729.39
1157	383	561175.1446	4181729.327
1158	370	561176.025	4181729.268
1159	381	561176.9171	4181729.21
1160	378	561177.8696	4181729.149
1161	390	561178.8402	4181729.083

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1162	388	561179.8277	4181728.995
1163	401	561180.8022	4181728.927
1164	381	561181.7714	4181728.878
1165	356	561182.7189	4181728.801
1166	402	561183.7185	4181728.714
1167	376	561184.769	4181728.604
1168	376	561185.9419	4181728.419
1169	378	561187.1705	4181728.156
1170	379	561188.5689	4181728.468
1171	388	561189.823	4181728.995
1172	367	561190.7371	4181730.064
1173	388	561191.194	4181731.174
1174	399	561191.3817	4181732.36
1175	396	561191.5253	4181733.477
1176	384	561191.6569	4181734.602
1177	381	561191.7482	4181735.738
1178	363	561191.8293	4181736.861
1179	381	561191.9079	4181737.99
1180	385	561191.9402	4181739.169
1181	397	561191.973	4181740.367
1182	404	561192.0063	4181741.583
1183	402	561191.6649	4181742.676
1184	385	561191.1033	4181743.732
1185	395	561190.0904	4181744.204
1186	378	561189.0569	4181744.554
1187	389	561187.9475	4181744.494
1188	388	561187.0155	4181744.446
1189	368	561186.0906	4181744.392
1190	382	561185.0218	4181744.403
1191	361	561183.928	4181744.419
1192	366	561182.8094	4181744.454
1193	365	561181.6772	4181744.502
1194	372	561180.5562	4181744.555
1195	379	561179.5064	4181744.636
1196	373	561178.5257	4181744.71
1197	374	561177.6134	4181744.768
1198	388	561176.7106	4181744.834
1199	380	561175.7793	4181744.911
1200	369	561174.6907	4181744.964
1201	393	561173.555	4181745.028
1202	393	561172.3733	4181745.122
1203	392	561171.3363	4181745.244
1204	390	561170.2955	4181745.422

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1205	362	561169.061	4181745.335
1206	371	561167.878	4181745.039
1207	357	561166.8918	4181744.183
1208	363	561166.3997	4181743.059
1209	386	561166.2241	4181741.775
1210	343	561166.1962	4181740.548
1211	370	561166.1712	4181739.335
1212	358	561166.1541	4181738.137
1213	378	561166.1114	4181736.931
1214	373	561166.0618	4181735.728
1215	352	561165.8816	4181734.571
1216	347	561165.8252	4181733.4
1217	363	561166.1411	4181732.228
1218	382	561166.8451	4181731.269
1219	362	561167.7626	4181730.421
1220	364	561168.8478	4181730.334
1221	375	561169.9366	4181730.244
1222	376	561171.0286	4181730.146
1223	384	561172.1282	4181730.048
1224	369	561173.2232	4181729.95
1225	382	561174.2888	4181729.859
1226	382	561175.3587	4181729.773
1227	387	561176.4339	4181729.7
1228	390	561177.517	4181729.623
1229	371	561178.5973	4181729.54
1230	358	561179.6587	4181729.48
1231	375	561180.7373	4181729.416
1232	373	561181.8327	4181729.338
1233	392	561182.9507	4181729.236
1234	380	561184.0747	4181729.116
1235	369	561185.2117	4181728.991
1236	372	561186.3884	4181728.848
1237	383	561187.6013	4181728.659
1238	387	561188.835	4181728.896
1239	387	561190.0886	4181729.363
1240	398	561190.5437	4181730.53
1241	384	561190.915	4181731.752
1242	385	561191.0421	4181733.067
1243	395	561191.1364	4181734.273
1244	371	561191.2097	4181735.448
1245	372	561191.3076	4181736.574
1246	384	561191.3899	4181737.713
1247	388	561191.4205	4181738.868

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1248	362	561191.5068	4181740.143
1249	390	561191.6866	4181741.432
1250	382	561191.1171	4181742.456
1251	383	561190.4388	4181743.34
1252	376	561189.3939	4181743.799
1253	376	561188.1755	4181743.984
1254	362	561186.8857	4181743.962
1255	376	561185.5639	4181743.972
1256	361	561184.2661	4181743.991
1257	377	561182.9926	4181744.037
1258	374	561181.7022	4181744.094
1259	378	561180.421	4181744.155
1260	386	561179.2026	4181744.226
1261	356	561178.0777	4181744.293
1262	381	561177.0466	4181744.362
1263	384	561175.9587	4181744.436
1264	391	561174.8658	4181744.514
1265	382	561173.8023	4181744.568
1266	400	561172.7463	4181744.629
1267	396	561171.6991	4181744.716
1268	347	561170.6677	4181744.848
1269	374	561169.5953	4181745.061
1270	363	561168.3189	4181744.724
1271	365	561167.1791	4181744.17
1272	346	561166.4171	4181743.056
1273	363	561166.0961	4181741.565
1274	363	561166.0551	4181739.834
1275	373	561165.9832	4181737.593
1276	369	561165.8746	4181735.672
1277	356	561165.6733	4181734.076
1278	359	561166.0675	4181732.692
1279	383	561166.7361	4181731.379
1280	354	561167.9055	4181731.035
1281	358	561169.0095	4181730.758
1282	391	561170.0701	4181730.664
1283	360	561171.0622	4181730.577
1284	377	561172.0657	4181730.486
1285	378	561173.1975	4181730.407
1286	383	561174.2774	4181730.331
1287	371	561175.3054	4181730.257
1288	350	561176.2921	4181730.179
1289	400	561177.2504	4181730.093
1290	370	561178.112	4181730.031

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1291	372	561179.0312	4181729.964
1292	369	561180.008	4181729.893
1293	369	561181.0518	4181729.807
1294	363	561182.1197	4181729.712
1295	380	561183.2417	4181729.597
1296	377	561184.3423	4181729.484
1297	379	561185.4214	4181729.369
1298	383	561186.5995	4181729.24
1299	392	561187.8373	4181729.063
1300	384	561189.0814	4181729.714
1301	362	561190.0845	4181730.531
1302	367	561190.5016	4181731.807
1303	364	561190.7536	4181733.125
1304	376	561190.9061	4181734.473
1305	360	561190.9381	4181735.864
1306	368	561190.9642	4181737.169
1307	378	561190.9771	4181738.39
1308	389	561191.0614	4181739.44
1309	374	561191.256	4181740.509
1310	384	561190.7446	4181741.745
1311	380	561190.0997	4181742.785
1312	382	561189.0196	4181743.353
1313	357	561187.9498	4181743.569
1314	393	561186.8358	4181743.532
1315	376	561185.6969	4181743.528
1316	400	561184.5593	4181743.535
1317	375	561183.4234	4181743.576
1318	380	561182.2653	4181743.627
1319	360	561181.1056	4181743.685
1320	369	561179.9589	4181743.74
1321	373	561178.8183	4181743.795
1322	371	561177.6839	4181743.852
1323	394	561176.5421	4181743.926
1324	371	561175.3999	4181744.017
1325	375	561174.2575	4181744.069
1326	362	561173.1145	4181744.128
1327	378	561171.972	4181744.21
1328	386	561170.9667	4181744.346
1329	368	561169.9238	4181744.576
1330	379	561168.527	4181744.295
1331	359	561167.2791	4181743.738
1332	375	561166.4198	4181742.534
1333	355	561166.1463	4181741.287

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1334	360	561166.2208	4181739.965
1335	356	561166.2597	4181738.642
1336	357	561166.263	4181737.343
1337	378	561166.1688	4181736.07
1338	372	561166.0904	4181734.744
1339	371	561165.9737	4181733.385
1340	364	561166.8595	4181732.338
1341	391	561167.7465	4181731.535
1342	380	561168.8352	4181731.314
1343	376	561169.902	4181731.162
1344	384	561170.9245	4181731.065
1345	366	561171.7213	4181730.999
1346	369	561172.6545	4181730.922
1347	389	561173.724	4181730.831
1348	382	561174.8165	4181730.746
1349	369	561175.9134	4181730.673
1350	398	561176.9986	4181730.541
1351	375	561178.0533	4181730.426
1352	373	561179.0809	4181730.365
1353	364	561180.0028	4181730.304
1354	371	561180.9079	4181730.248
1355	383	561181.8229	4181730.116
1356	386	561182.7602	4181729.986
1357	368	561183.7223	4181729.882
1358	383	561184.7053	4181729.795
1359	385	561185.7041	4181729.736
1360	393	561186.7338	4181729.557
1361	358	561187.786	4181729.507
1362	395	561188.831	4181729.899
1363	408	561189.6219	4181730.591
1364	383	561190.2688	4181731.496
1365	377	561190.3888	4181732.554
1366	369	561190.4812	4181733.651
1367	378	561190.4754	4181734.792
1368	379	561190.4738	4181735.882
1369	375	561190.4751	4181736.947
1370	378	561190.4782	4181737.943
1371	383	561190.5044	4181739.007
1372	365	561190.6052	4181740.136
1373	338	561190.2666	4181741.342
1374	380	561189.686	4181742.563
1375	390	561188.4746	4181742.962
1376	373	561187.2934	4181743.24

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1377	369	561186.1132	4181743.176
1378	385	561185.0688	4181743.14
1379	388	561184.0487	4181743.119
1380	380	561183.017	4181743.129
1381	381	561181.9347	4181743.144
1382	383	561180.802	4181743.176
1383	374	561179.8469	4181743.227
1384	379	561178.9512	4181743.296
1385	356	561178.1708	4181743.361
1386	392	561177.3484	4181743.427
1387	373	561176.4834	4181743.485
1388	384	561175.6109	4181743.545
1389	384	561174.7447	4181743.605
1390	354	561173.9174	4181743.664
1391	390	561173.085	4181743.722
1392	373	561172.247	4181743.773
1393	392	561171.4029	4181743.863
1394	384	561170.5529	4181744.019
1395	370	561169.641	4181744.009
1396	373	561168.6791	4181743.883
1397	382	561167.746	4181743.351
1398	357	561167.0084	4181742.434
1399	371	561166.425	4181741.322
1400	377	561166.4812	4181740.18
1401	369	561166.5279	4181739.045
1402	371	561166.5443	4181737.918
1403	373	561166.4266	4181736.783
1404	384	561166.1821	4181735.658
1405	367	561166.2448	4181734.53
1406	359	561166.4888	4181733.433
1407	378	561167.267	4181732.508
1408	373	561168.1829	4181731.96
1409	381	561169.2128	4181731.648
1410	377	561170.1569	4181731.562
1411	371	561171.1255	4181731.475
1412	387	561172.1193	4181731.397
1413	382	561173.1059	4181731.312
1414	362	561174.0872	4181731.22
1415	374	561175.0532	4181731.144
1416	383	561176.0163	4181731.064
1417	406	561176.9755	4181730.968
1418	383	561177.8949	4181730.882
1419	375	561178.7961	4181730.806

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1420	380	561179.6413	4181730.719
1421	364	561180.6032	4181730.624
1422	381	561181.6824	4181730.525
1423	378	561182.6482	4181730.439
1424	365	561183.5891	4181730.356
1425	363	561184.5191	4181730.281
1426	372	561185.4916	4181730.191
1427	352	561186.5028	4181730.051
1428	379	561187.7261	4181729.933
1429	382	561189.0249	4181729.797
1430	379	561190.1389	4181730.602
1431	387	561191.0462	4181731.618
1432	384	561191.4037	4181733.076
1433	388	561191.5963	4181734.537
1434	366	561191.6905	4181735.972
1435	373	561191.7909	4181737.228
1436	373	561191.883	4181738.435
1437	396	561191.9576	4181739.594
1438	388	561191.524	4181740.817
1439	392	561190.8438	4181742.028
1440	372	561189.7422	4181742.305
1441	383	561188.6706	4181742.516
1442	357	561187.6109	4181742.51
1443	351	561186.6644	4181742.497
1444	387	561185.7324	4181742.465
1445	373	561184.7603	4181742.511
1446	374	561183.7793	4181742.563
1447	382	561182.7904	4181742.638
1448	391	561181.78	4181742.715
1449	381	561180.7727	4181742.795
1450	356	561179.7999	4181742.856
1451	359	561178.8269	4181742.917
1452	378	561177.8538	4181742.983
1453	396	561176.8569	4181743.047
1454	361	561175.8558	4181743.107
1455	387	561174.8577	4181743.164
1456	371	561173.8692	4181743.219
1457	363	561172.8901	4181743.267
1458	376	561171.8758	4181743.318
1459	371	561170.8365	4181743.36
1460	368	561169.7288	4181743.541
1461	373	561168.5952	4181743.589
1462	346	561167.4559	4181743.226

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1463	370	561166.5603	4181742.469
1464	365	561165.8072	4181741.476
1465	376	561165.7116	4181740.313
1466	366	561165.619	4181739.096
1467	363	561165.5429	4181737.822
1468	357	561165.4483	4181736.588
1469	377	561165.3	4181735.368
1470	369	561165.653	4181734.25
1471	376	561166.0895	4181733.272
1472	370	561166.9026	4181732.64
1473	369	561167.8092	4181732.281
1474	370	561168.8003	4181732.146
1475	371	561169.7653	4181732.077
1476	389	561170.7354	4181732.005
1477	389	561171.7099	4181731.92
1478	385	561172.7033	4181731.822
1479	385	561173.7014	4181731.708
1480	373	561174.7126	4181731.626
1481	376	561175.7496	4181731.539
1482	371	561176.8115	4181731.438
1483	379	561177.6984	4181731.357
1484	375	561178.5824	4181731.285
1485	384	561179.6223	4181731.176
1486	370	561180.7274	4181731.062
1487	382	561181.8979	4181730.942
1488	378	561182.9445	4181730.843
1489	385	561183.9536	4181730.751
1490	381	561184.8974	4181730.67
1491	365	561185.8422	4181730.58
1492	376	561186.7845	4181730.449
1493	365	561187.8232	4181730.335
1494	380	561188.9097	4181730.187
1495	371	561189.9612	4181730.686
1496	377	561190.8653	4181731.266
1497	397	561191.3607	4181732.201
1498	399	561191.6698	4181733.134
1499	390	561191.8487	4181734.116
1500	393	561191.9082	4181735.187
1501	370	561191.9916	4181736.408
1502	379	561192.1232	4181737.778
1503	364	561192.0121	4181739.053
1504	400	561191.7942	4181740.315
1505	372	561190.9566	4181741.168

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1506	367	561190.1458	4181741.83
1507	381	561189.1865	4181741.943
1508	372	561188.0675	4181742.017
1509	377	561186.9438	4181742.054
1510	382	561185.9666	4181742.077
1511	379	561184.9278	4181742.112
1512	359	561183.8286	4181742.183
1513	366	561182.7203	4181742.253
1514	373	561181.6167	4181742.323
1515	398	561180.5443	4181742.375
1516	367	561179.4868	4181742.43
1517	362	561178.445	4181742.501
1518	393	561177.3765	4181742.57
1519	379	561176.2957	4181742.639
1520	389	561175.1806	4181742.707
1521	367	561174.0702	4181742.771
1522	378	561172.9644	4181742.827
1523	393	561171.8643	4181742.889
1524	378	561170.7505	4181742.948
1525	367	561169.576	4181743.114
1526	362	561168.3581	4181743.113
1527	346	561167.1291	4181742.652
1528	365	561166.285	4181741.714
1529	368	561165.6714	4181740.444
1530	355	561165.5538	4181738.816
1531	358	561165.4316	4181737.368
1532	361	561165.2739	4181736.103
1533	373	561165.477	4181734.88
1534	369	561165.8546	4181733.658
1535	370	561166.8447	4181733.123
1536	382	561167.8281	4181732.693
1537	374	561168.8747	4181732.6
1538	382	561169.9351	4181732.523
1539	374	561171.0038	4181732.462
1540	378	561172.0925	4181732.366
1541	382	561173.0876	4181732.279
1542	382	561173.9894	4181732.204
1543	372	561174.7772	4181732.138
1544	401	561175.5467	4181732.073
1545	377	561176.3395	4181732.008
1546	397	561177.2491	4181731.936
1547	359	561178.276	4181731.866
1548	376	561179.2466	4181731.74

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1549	379	561180.1918	4181731.551
1550	380	561181.1142	4181731.456
1551	397	561182.0279	4181731.363
1552	362	561182.9335	4181731.274
1553	384	561183.8206	4181731.183
1554	378	561184.7309	4181731.082
1555	385	561185.7781	4181730.972
1556	405	561186.8957	4181730.84
1557	392	561188.0793	4181730.653
1558	388	561189.2709	4181730.746
1559	393	561190.4789	4181730.971
1560	386	561191.1833	4181731.83
1561	402	561191.7587	4181732.754
1562	394	561191.8993	4181733.875
1563	390	561192.0045	4181735.052
1564	396	561192.0771	4181736.232
1565	378	561192.1812	4181737.356
1566	383	561192.2051	4181738.443
1567	369	561191.9496	4181739.479
1568	369	561191.3308	4181740.455
1569	406	561190.54	4181741.383
1570	380	561189.554	4181741.484
1571	375	561188.5651	4181741.57
1572	373	561187.5702	4181741.593
1573	398	561186.5758	4181741.614
1574	358	561185.5707	4181741.629
1575	354	561184.5162	4181741.703
1576	378	561183.4505	4181741.77
1577	395	561182.3724	4181741.812
1578	371	561181.3038	4181741.89
1579	388	561180.2542	4181742.002
1580	365	561179.2759	4181742.06
1581	395	561178.2978	4181742.118
1582	355	561177.3198	4181742.173
1583	367	561176.3322	4181742.228
1584	359	561175.3459	4181742.282
1585	392	561174.3765	4181742.338
1586	379	561173.4178	4181742.395
1587	369	561172.4699	4181742.456
1588	369	561171.5297	4181742.511
1589	368	561170.5749	4181742.548
1590	364	561169.5562	4181742.694
1591	371	561168.3885	4181742.654

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1592	380	561167.1144	4181742.107
1593	351	561166.3048	4181741.142
1594	351	561165.7493	4181739.921
1595	358	561165.7274	4181738.633
1596	360	561165.6846	4181737.33
1597	362	561165.5862	4181736.012
1598	349	561165.8824	4181734.793
1599	376	561166.7002	4181733.467
1600	386	561166.3617	4181733.595
1601	372	561166.1525	4181733.681
1602	386	561167.1992	4181733.31
1603	375	561168.2481	4181733.099
1604	391	561169.2796	4181733.008
1605	377	561170.1276	4181732.958
1606	385	561171.0572	4181732.897
1607	392	561172.0669	4181732.804
1608	380	561173.1136	4181732.726
1609	383	561174.1668	4181732.666
1610	366	561175.2054	4181732.559
1611	392	561176.2518	4181732.451
1612	368	561177.3059	4181732.341
1613	401	561178.3577	4181732.222
1614	380	561179.4456	4181732.091
1615	392	561180.7218	4181731.961
1616	372	561182.0084	4181731.839
1617	372	561183.3069	4181731.741
1618	383	561184.617	4181731.629
1619	376	561185.9133	4181731.523
1620	390	561187.0955	4181731.258
1621	380	561188.3474	4181731.123
1622	384	561189.6749	4181731.354
1623	385	561190.848	4181732.702
1624	376	561191.7777	4181734.446
1625	403	561191.9087	4181735.963
1626	388	561192.0026	4181737.201
1627	392	561192.0163	4181738.163
1628	383	561191.7259	4181739.114
1629	386	561191.1848	4181740.088
1630	361	561189.9497	4181740.661
1631	368	561188.7198	4181741.101
1632	375	561187.4411	4181741.2
1633	368	561186.2149	4181741.264
1634	381	561184.9836	4181741.303

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1635	377	561183.6804	4181741.364
1636	384	561182.4244	4181741.424
1637	376	561181.2156	4181741.48
1638	393	561180.1558	4181741.538
1639	372	561179.1152	4181741.602
1640	364	561178.0198	4181741.663
1641	365	561176.9518	4181741.723
1642	387	561175.9113	4181741.785
1643	378	561174.9554	4181741.84
1644	361	561173.9868	4181741.889
1645	382	561172.8745	4181741.988
1646	380	561171.7656	4181742.098
1647	398	561170.6631	4181742.249
1648	384	561169.7461	4181742.343
1649	376	561168.7831	4181742.447
1650	385	561167.609	4181741.851
1651	357	561166.6223	4181741.056
1652	368	561166.1518	4181739.771
1653	353	561165.8654	4181738.594
1654	353	561165.6634	4181737.391
1655	357	561165.7739	4181736.021
1656	353	561166.0402	4181734.832
1657	358	561166.8183	4181733.978
1658	364	561167.6618	4181733.535
1659	365	561168.6415	4181733.374
1660	387	561169.6872	4181733.315
1661	396	561170.7798	4181733.247
1662	370	561171.9183	4181733.157
1663	401	561173.149	4181733.068
1664	370	561174.3982	4181732.984
1665	375	561175.6466	4181732.897
1666	377	561176.8824	4181732.804
1667	372	561178.1046	4181732.689
1668	383	561179.2841	4181732.588
1669	368	561180.444	4181732.494
1670	405	561181.5478	4181732.416
1671	368	561182.6419	4181732.33
1672	373	561183.7241	4181732.21
1673	367	561184.8279	4181732.088
1674	376	561185.9336	4181731.978
1675	380	561186.9959	4181731.743
1676	393	561188.1776	4181731.609
1677	373	561189.4874	4181731.79

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1678	370	561190.5189	4181732.461
1679	380	561191.4106	4181733.453
1680	384	561191.768	4181734.828
1681	383	561192.0866	4181736.159
1682	383	561192.3233	4181737.456
1683	378	561192.1156	4181738.629
1684	390	561191.6429	4181739.792
1685	376	561190.5446	4181740.426
1686	385	561189.4496	4181740.875
1687	364	561188.2788	4181740.802
1688	353	561187.089	4181740.786
1689	368	561185.8781	4181740.812
1690	380	561184.584	4181740.843
1691	376	561183.2828	4181740.889
1692	382	561181.9756	4181740.974
1693	367	561181.0404	4181741.031
1694	382	561180.1583	4181741.076
1695	384	561179.175	4181741.161
1696	374	561178.1171	4181741.245
1697	359	561176.9836	4181741.313
1698	377	561175.85	4181741.383
1699	369	561174.7222	4181741.455
1700	381	561173.6229	4181741.528
1701	367	561172.5364	4181741.597
1702	385	561171.4623	4181741.657
1703	369	561170.3584	4181741.786
1704	374	561169.186	4181741.997
1705	368	561167.7123	4181741.622
1706	353	561166.4782	4181740.991
1707	365	561165.7728	4181739.728
1708	368	561165.4126	4181738.549
1709	364	561165.2184	4181737.312
1710	351	561165.5745	4181735.955
1711	356	561166.0749	4181734.812
1712	369	561167.0571	4181734.117
1713	381	561168.1212	4181733.805
1714	349	561169.2569	4181733.77
1715	380	561170.3353	4181733.689
1716	379	561171.4263	4181733.615
1717	378	561172.5311	4181733.57
1718	382	561173.5508	4181733.54
1719	374	561174.5485	4181733.535
1720	364	561175.5064	4181733.415

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1721	378	561176.5016	4181733.293
1722	381	561177.5352	4181733.181
1723	384	561178.6686	4181733.082
1724	387	561179.8099	4181733.002
1725	391	561180.8811	4181732.9
1726	376	561181.9927	4181732.794
1727	396	561183.1444	4181732.681
1728	370	561184.2848	4181732.543
1729	393	561185.4053	4181732.387
1730	384	561186.4437	4181732.231
1731	363	561187.5404	4181732.053
1732	387	561188.6912	4181731.831
1733	367	561189.7651	4181731.887
1734	387	561190.8599	4181732.103
1735	397	561191.6021	4181732.95
1736	408	561192.1918	4181733.835
1737	389	561192.2865	4181734.903
1738	394	561192.413	4181736.013
1739	373	561192.6036	4181737.157
1740	380	561192.2111	4181738.364
1741	386	561191.6207	4181739.452
1742	376	561190.5172	4181740.179
1743	357	561189.3314	4181740.429
1744	387	561188.0913	4181740.362
1745	374	561186.9548	4181740.382
1746	386	561185.9734	4181740.403
1747	379	561185.1477	4181740.439
1748	371	561184.3182	4181740.469
1749	374	561183.4503	4181740.488
1750	385	561182.3969	4181740.536
1751	394	561181.349	4181740.584
1752	384	561180.3068	4181740.636
1753	371	561179.2293	4181740.706
1754	366	561178.1509	4181740.788
1755	367	561177.099	4181740.855
1756	365	561176.0347	4181740.929
1757	377	561174.9592	4181741.023
1758	379	561173.8813	4181741.107
1759	384	561172.8106	4181741.185
1760	373	561171.7784	4181741.236
1761	374	561170.7439	4181741.312
1762	371	561169.7137	4181741.475
1763	366	561168.5877	4181741.45

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1764	365	561167.381	4181741.305
1765	362	561166.3639	4181740.308
1766	364	561165.594	4181739.288
1767	359	561165.4096	4181738.072
1768	342	561165.5111	4181736.855
1769	374	561165.7523	4181735.617
1770	359	561166.6948	4181734.884
1771	375	561167.655	4181734.324
1772	351	561168.7591	4181734.281
1773	375	561169.8346	4181734.218
1774	380	561170.899	4181734.135
1775	371	561171.9433	4181734.087
1776	375	561172.9893	4181734.031
1777	382	561174.0359	4181733.947
1778	378	561175.0948	4181733.844
1779	384	561176.1598	4181733.724
1780	389	561177.2515	4181733.628
1781	385	561178.3468	4181733.53
1782	363	561179.4455	4181733.431
1783	376	561180.5377	4181733.333
1784	378	561181.6624	4181733.236
1785	375	561182.9483	4181733.068
1786	368	561184.1798	4181732.917
1787	381	561185.3593	4181732.805
1788	386	561186.5831	4181732.605
1789	378	561187.8236	4181732.317
1790	391	561189.1556	4181732.503
1791	404	561190.3467	4181732.869
1792	376	561191.2233	4181733.76
1793	396	561191.6819	4181734.777
1794	387	561191.8915	4181735.947
1795	382	561191.6334	4181737.258
1796	371	561191.2119	4181738.414
1797	359	561190.2933	4181739.226
1798	377	561189.1682	4181739.64
1799	365	561187.9069	4181739.779
1800	366	561186.6075	4181739.885
1801	369	561185.3083	4181739.973
1802	391	561184.0073	4181740.012
1803	369	561182.8929	4181740.056
1804	380	561181.8255	4181740.103
1805	395	561180.807	4181740.17
1806	374	561179.7888	4181740.24

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1807	378	561178.772	4181740.328
1808	384	561177.7768	4181740.42
1809	387	561176.7858	4181740.523
1810	384	561175.7874	4181740.595
1811	360	561174.7938	4181740.672
1812	374	561173.8062	4181740.769
1813	396	561172.8538	4181740.841
1814	374	561171.9001	4181740.881
1815	381	561170.9252	4181741.018
1816	365	561169.8421	4181741.124
1817	364	561168.645	4181741.109
1818	354	561167.5098	4181740.662
1819	381	561166.4147	4181739.977
1820	353	561166.0392	4181738.867
1821	374	561165.8026	4181737.746
1822	364	561165.9968	4181736.59
1823	361	561166.5116	4181735.655
1824	364	561167.2388	4181734.795
1825	374	561168.2838	4181734.649
1826	391	561169.3203	4181734.523
1827	396	561170.3531	4181734.467
1828	382	561171.4114	4181734.416
1829	369	561172.4754	4181734.37
1830	386	561173.5395	4181734.308
1831	394	561174.6056	4181734.242
1832	400	561175.6732	4181734.162
1833	388	561176.7787	4181734.06
1834	394	561177.8895	4181733.94
1835	395	561178.9964	4181733.838
1836	380	561180.0859	4181733.732
1837	367	561181.1567	4181733.608
1838	395	561182.2329	4181733.48
1839	373	561183.3127	4181733.345
1840	382	561184.4145	4181733.263
1841	391	561185.5663	4181733.182
1842	377	561186.769	4181733.111
1843	370	561188.1516	4181732.996
1844	386	561189.4917	4181732.871
1845	366	561190.4379	4181732.749
1846	391	561191.211	4181732.649
1847	382	561190.6738	4181732.904
1848	367	561189.6609	4181733.118
1849	383	561188.5203	4181733.182

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
1850	385	561187.4065	4181733.369
1851	364	561186.2085	4181733.557
1852	372	561184.9229	4181733.725
1853	394	561183.6038	4181733.85
1854	379	561182.2679	4181733.949
1855	372	561180.8896	4181734.025
1856	365	561179.5033	4181734.113
1857	390	561178.1103	4181734.228
1858	380	561176.7296	4181734.344
1859	378	561175.3712	4181734.46
1860	380	561174.11	4181734.557
1861	380	561173.1293	4181734.629
1862	387	561173.6274	4181734.628
1863	375	561175.056	4181734.406
1864	382	561176.6719	4181734.063
1865	394	561178.3516	4181733.811
1866	390	561179.8815	4181733.594
1867	387	561181.264	4181733.432
1868	383	561182.643	4181733.271
1869	374	561184.0607	4181733.106
1870	390	561185.6817	4181732.987
1871	364	561187.3075	4181732.794
1872	370	561188.9262	4181732.443
1873	382	561189.8717	4181731.449
1874	407	561190.4952	4181730.018
1875	389	561190.4665	4181728.162
1876	376	561190.4226	4181726.315
1877	395	561190.3485	4181724.479
1878	398	561189.5393	4181723.019
1879	384	561188.342	4181721.722
1880	383	561186.5036	4181721.619
1881	390	561184.4486	4181721.639
1882	383	561182.1793	4181721.878
1883	406	561180.0219	4181722.052
1884	419	561177.9023	4181722.198
1885	396	561175.8642	4181722.302
1886	399	561173.6872	4181722.42
1887	399	561171.3717	4181722.556
1888	376	561169.4378	4181722.591
1889	391	561167.8125	4181722.53
	434	**Max**	
	13.18	**Std Dev**	
	378.11	**Average**	

Title:	Decimated Pile Data		MH5A Sediment
Sample ID	Gamma Total cps	Easting	Northing
	506.78	**3s Investigation Level**	
		Investigation Level Exceeded	

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-MH5A-01
Sample Description: 242480-001, 194706

Detector: HPGE12 50-TP32731A
Contract: Tetra Tech Alameda
Unit Number: MH5A
Sample Time: 1/16/2013 09:20
Acquisition Time: 1/21/2013 09:56:12
Analysis Time: 1/23/2013 13:05
Analysis Quantity: 3.080E+02 g

Spectrum ID: 12_20130121_004
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2705 sec
Dead Time: 0.17 %

Efficiency: HPGE12 S21306 12_20121230004_EffCal
Efficiency Cal Date: 12/31/2012 13:11
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228	#	2.494E-01	55.64	1.388E-01	1.398E-01	8.726E-02
Am-241	#AB	9.024E-02	407.60	3.678E-01	3.679E-01	2.962E-01
Bi-212	#	2.362E-01	106.20	2.508E-01	2.513E-01	1.786E-01
Bi-214		4.571E-01	22.72	1.038E-01	1.082E-01	3.755E-02
Co-60	#AB	1.336E-02	255.00	3.407E-02	3.408E-02	2.617E-02
Cs-137	#AB	-1.024E-02	315.70	3.232E-02	3.233E-02	2.545E-02
Eu-152	#AB	3.381E-03	2291.00	7.747E-02	7.747E-02	6.350E-02
Eu-154	#AB	-1.814E-02	567.90	1.030E-01	1.030E-01	8.236E-02
K-40	#	9.043E+00	12.93	1.170E+00	1.330E+00	4.503E-01
Pa-234	#AB	5.162E-02	316.30	1.633E-01	1.633E-01	1.263E-01
Pb-212		5.079E-01	18.14	9.213E-02	9.972E-02	3.988E-02
Pb-214		6.360E-01	15.27	9.709E-02	1.063E-01	1.938E-02
Ra-226		8.265E-01	76.43	6.317E-01	6.348E-01	4.649E-01
Th-234	#AB	3.647E-01	166.50	6.074E-01	6.083E-01	4.758E-01
Tl-208		1.732E-01	27.93	4.836E-02	4.972E-02	1.977E-02
U-235	AB	2.890E-02	154.10	4.454E-02	4.460E-02	3.491E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.268E+01

Analyst: Isaako Tapelu

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-MH5A-02
Sample Description: 242480-002, 194706

Detector: HPGE05 51-TP42242A
Contract: Tetra Tech Alameda
Unit Number: MH5A
Sample Time: 1/16/2013 09:25
Acquisition Time: 1/21/2013 10:30:49
Analysis Time: 1/23/2013 12:30
Analysis Quantity: 3.150E+02 g

Spectrum ID: 5_20130121_005
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2702 sec
Dead Time: 0.06 %

Efficiency: HPGE05 S21306 5_20121231006_EffCal
Efficiency Cal Date: 1/1/2013 12:23
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228		3.604E-01	36.04	1.299E-01	1.322E-01	7.201E-02
Am-241	#AB	-2.591E-02	677.20	1.755E-01	1.755E-01	1.429E-01
Bi-212	#AB	1.548E-01	151.90	2.352E-01	2.355E-01	1.786E-01
Bi-214		4.077E-01	23.36	9.522E-02	9.904E-02	3.840E-02
Co-60	#AB	5.253E-03	263.50	1.384E-02	1.385E-02	2.025E-02
Cs-137	#AB	1.675E-02	179.90	3.013E-02	3.015E-02	2.316E-02
Eu-152	AB	3.855E-02	170.40	6.568E-02	6.573E-02	5.057E-02
Eu-154	#AB	6.615E-03	1290.00	8.535E-02	8.536E-02	6.945E-02
K-40		1.165E+01	9.41	1.096E+00	1.366E+00	2.371E-01
Pa-234	#AB	3.707E-02	451.60	1.674E-01	1.674E-01	1.334E-01
Pb-212		5.291E-01	15.16	8.023E-02	8.954E-02	3.187E-02
Pb-214		5.583E-01	17.27	9.642E-02	1.037E-01	3.427E-02
Ra-226		7.194E-01	75.28	5.415E-01	5.442E-01	4.025E-01
Th-234		5.120E-01	88.59	4.536E-01	4.559E-01	3.446E-01
Tl-208	#	1.611E-01	23.10	3.723E-02	3.874E-02	1.242E-02
U-235		3.257E-02	110.20	3.590E-02	3.599E-02	2.763E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.519E+01

Analyst: Chanthachone Alexander

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-MH5A-03
Sample Description: 242480-003, 194706

Detector: HPGE06 51-TP32744A
Contract: Tetra Tech Alameda
Unit Number: MH5A
Sample Time: 1/16/2013 09:32
Acquisition Time: 1/21/2013 10:32:07
Analysis Time: 1/23/2013 12:34
Analysis Quantity: 3.190E+02 g

Spectrum ID: 6_20130121_005
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2703 sec
Dead Time: 0.11 %

Efficiency: HPGE06 S21306 6_20121231003_EffCal
Efficiency Cal Date: 12/31/2012 16:37
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228	#	3.545E-01	36.60	1.297E-01	1.319E-01	7.459E-02
Am-241	#AB	-6.722E-02	309.30	2.079E-01	2.080E-01	1.673E-01
Bi-212		2.318E-01	104.40	2.419E-01	2.424E-01	1.760E-01
Bi-214		3.460E-01	25.60	8.858E-02	9.155E-02	4.246E-02
Co-60	#AB	-3.667E-04	9171.00	3.363E-02	3.363E-02	2.767E-02
Cs-137	#AB	3.794E-04	7455.00	2.828E-02	2.828E-02	2.326E-02
Eu-152	#AB	4.848E-03	1416.00	6.863E-02	6.863E-02	5.611E-02
Eu-154	#	5.873E-02	138.10	8.110E-02	8.120E-02	5.806E-02
K-40		1.101E+01	10.22	1.125E+00	1.363E+00	2.975E-01
Pa-234	#AB	4.753E-02	355.40	1.689E-01	1.690E-01	1.332E-01
Pb-212		4.783E-01	17.43	8.336E-02	9.078E-02	3.594E-02
Pb-214		5.243E-01	20.29	1.064E-01	1.122E-01	4.229E-02
Ra-226	AB	3.964E-01	150.00	5.946E-01	5.954E-01	4.675E-01
Th-234	#	5.031E-01	96.38	4.848E-01	4.869E-01	3.705E-01
Tl-208	#	1.171E-01	31.15	3.648E-02	3.730E-02	1.953E-02
U-235		4.684E-02	81.60	3.822E-02	3.838E-02	2.869E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.412E+01

Analyst: Chanthachone Alexander

Curtis & Tompkins Hunters Point Lab

Sample ID: 05-MH5A-04
Sample Description: 242480-004, 194706

Detector: HPGE08 50-TP42229A
Contract: Tetra Tech Alameda
Unit Number: MH5A
Sample Time: 1/16/2013 09:39
Acquisition Time: 1/21/2013 11:17:12
Analysis Time: 1/23/2013 12:27
Analysis Quantity: 3.420E+02 g

Spectrum ID: 8_20130121_004
Sample Type: SAMPLE
Matrix: S
Live Time: 2700 sec
Real Time: 2705 sec
Dead Time: 0.19 %

Efficiency: HPGE08 S21306 8_20121228002_EffCal
Efficiency Cal Date: 12/30/2012 10:35
Library: GenericAnalysisReduced.lib
Analysis Engine: Env32 G53W4.26

Nuclide	Flags	Activity pCi/g	2-Sigma Counting Uncert %	2-Sigma Counting Uncert pCi/g	2-Sigma Total Uncert pCi/g	Minimum Detectable Activity pCi/g
Ac-228	#	3.134E-01	39.86	1.249E-01	1.267E-01	7.331E-02
Am-241	#AB	-3.576E-01	118.90	4.251E-01	4.263E-01	3.359E-01
Bi-212	#	1.663E-01	117.10	1.948E-01	1.952E-01	1.412E-01
Bi-214		3.902E-01	20.01	7.808E-02	8.232E-02	2.848E-02
Co-60	#AB	1.252E-03	987.70	1.237E-02	1.237E-02	2.649E-02
Cs-137	#AB	8.325E-03	325.50	2.710E-02	2.710E-02	2.145E-02
Eu-152	#AB	4.518E-02	136.00	6.145E-02	6.153E-02	4.634E-02
Eu-154	#AB	-1.869E-02	426.60	7.974E-02	7.975E-02	6.317E-02
K-40		1.099E+01	9.95	1.094E+00	1.337E+00	2.693E-01
Pa-234	#AB	9.009E-04	15480.00	1.395E-01	1.395E-01	1.148E-01
Pb-212		4.249E-01	16.86	7.162E-02	7.842E-02	3.096E-02
Pb-214	#	3.726E-01	20.85	7.769E-02	8.174E-02	4.113E-02
Ra-226		6.897E-01	80.12	5.526E-01	5.550E-01	4.154E-01
Th-234	#AB	4.016E-01	136.00	5.462E-01	5.474E-01	4.290E-01
Tl-208		1.756E-01	23.35	4.099E-02	4.263E-02	1.520E-02
U-235		3.413E-02	112.00	3.824E-02	3.832E-02	2.963E-02

- All peaks for activity calculation had bad shape.
A - Activity < MDA
B - Activity < Critical Level

Total Activity 1.402E+01

Analyst: Isaako Tapelu

APPENDIX C

POTENTIAL INDUSTRIAL WASTE LINE FIGURES
(on CD only)

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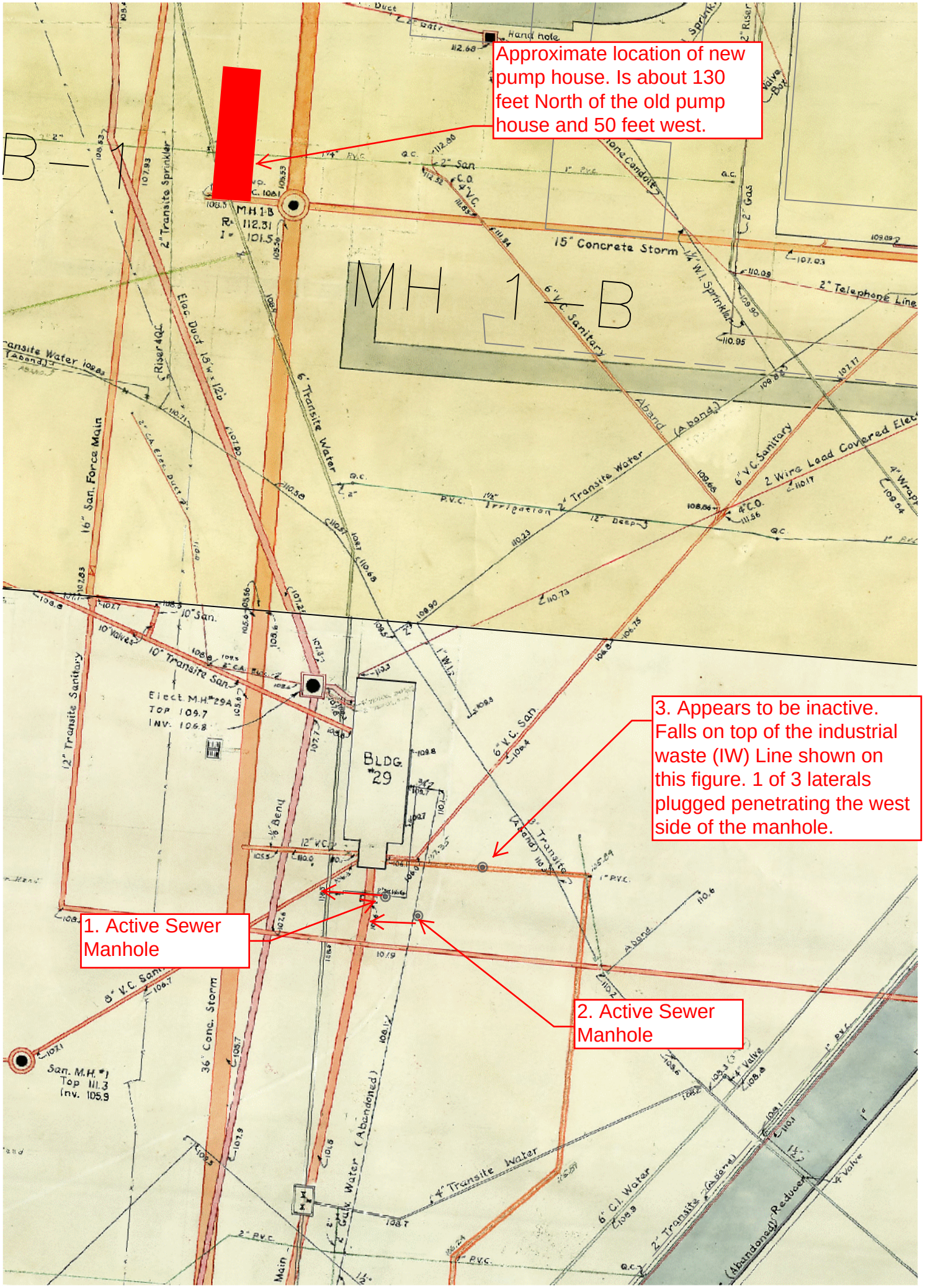
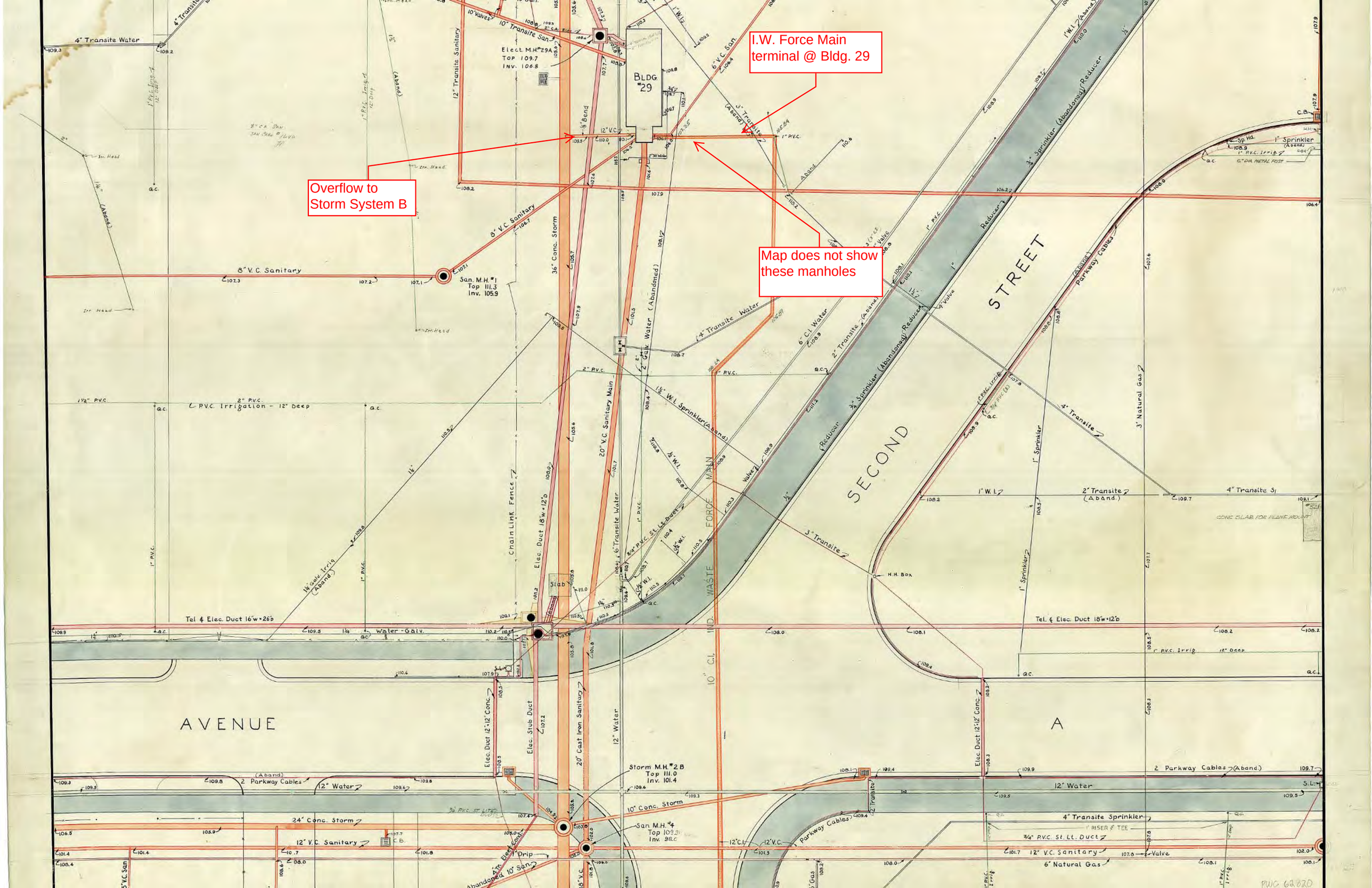
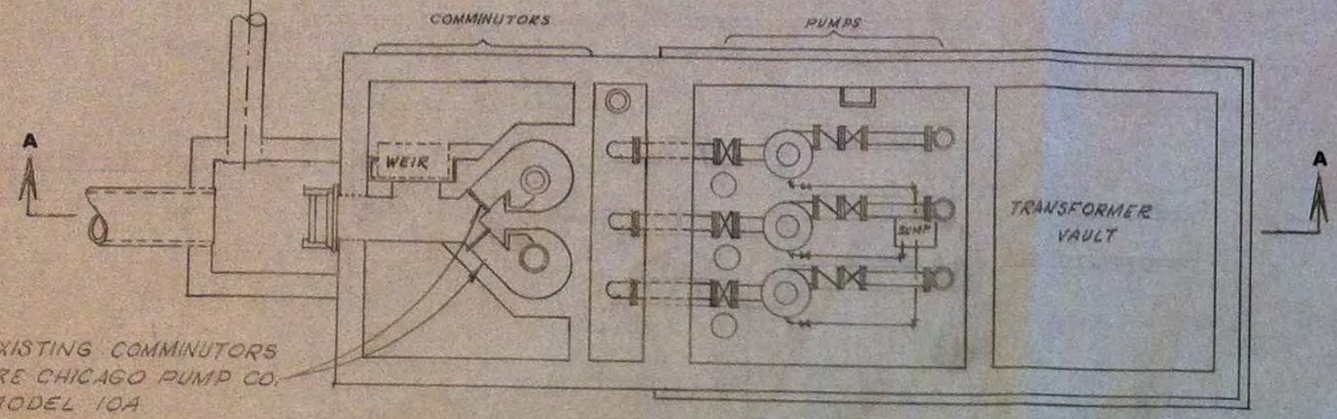

Approximate location of new pump house. Is about 130 feet North of the old pump house and 50 feet west.
MH 1-B
15" Concrete Storm
6" V.C. Sanitary
2" Telephone Line
2" Transite Sprinkler
6" Transite Water
16" San. Force Main
10" San.
10" Transite San.
12" Transite Sanitary
BLDG. #29
6" V.C. San.
36" Conc. Storm
4" Transite Water
2" Transite Water
2 Wire Lead Covered Elec
San. M.H. #1
Top 111.3
Inv. 105.9
Elect M.H. #29A
TOP 109.7
INV. 106.8
1. Active Sewer Manhole
2. Active Sewer Manhole
3. Appears to be inactive. Falls on top of the industrial waste (IW) Line shown on this figure. 1 of 3 laterals plugged penetrating the west side of the manhole.

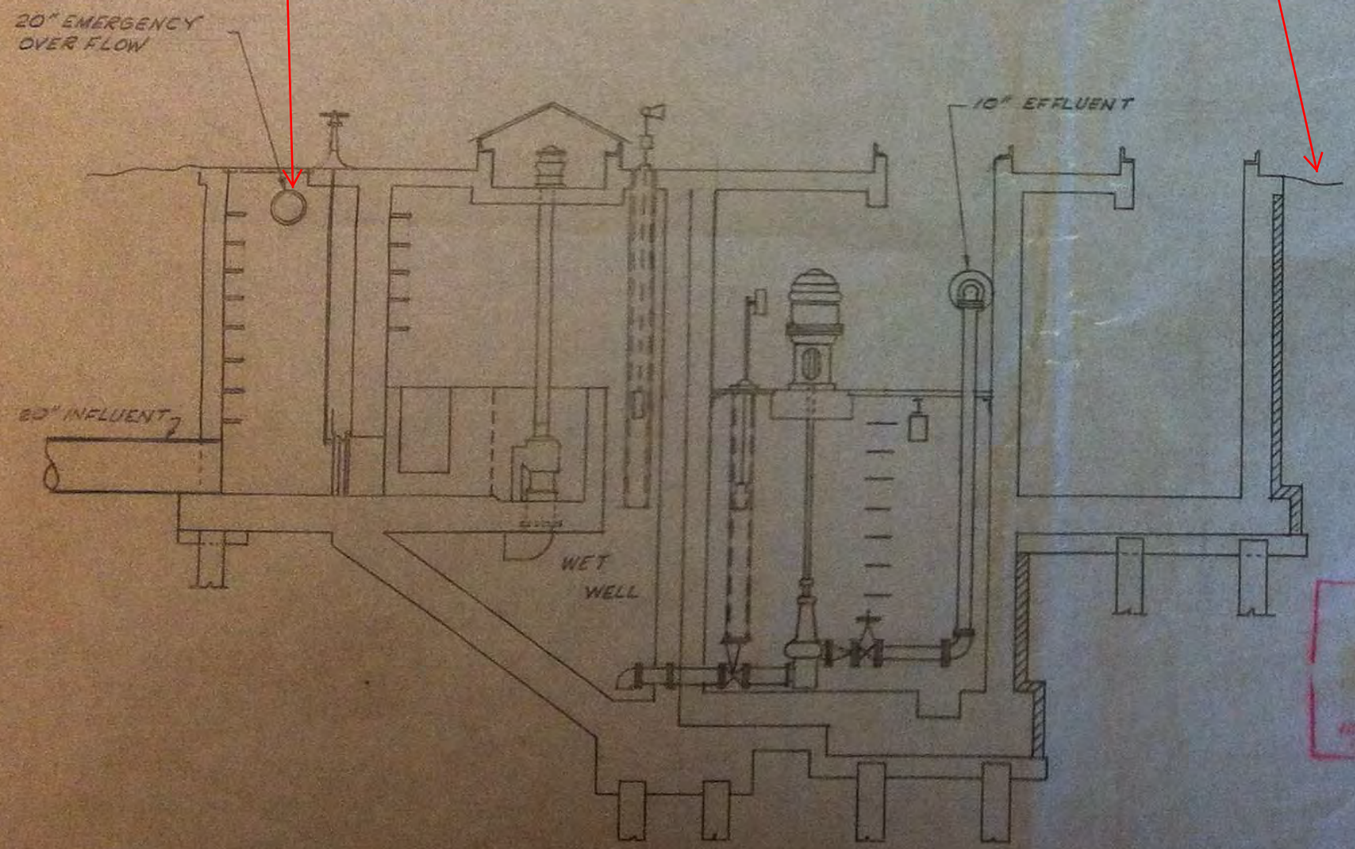

I.W. Force Main terminal @ Bldg. 29
Overflow to Storm System B
Map does not show these manholes
BLDG. #29
Elect. M.H. #29A Top 109.7 Inv. 106.8
San. M.H. #1 Top 111.3 Inv. 105.9
Storm M.H. #2B Top 111.0 Inv. 101.4
San. M.H. #4 Top 109.9 Inv. 98.0
4" Transite Water
8" V.C. Sanitary
10" Transite San.
12" Transite Sanitary
6" V.C. San.
36" Conc. Storm
20" V.C. Sanitary Main
20" Cast Iron Sanitary
12" Water
10" C.I. IND. WASTE FORCE MAIN
Tel & Elec. Duct 16"w x 26"d
Tel. & Elec. Duct 18"w x 12"d
Elec. Duct 18"w x 12"d
Elec. Stub Duct
Elec. Duct 12"x12" Conc.
Chain Link Fence
24" Conc. Storm
10" Conc. Storm
12" V.C. Sanitary
6" Natural Gas
4" Transite Sprinkler
2 Parkway Cables (Aband.)
3" Natural Gas
SECOND STREET
AVENUE A



PLAN VIEW - COMMINUTORS, PUMPS & PIPING

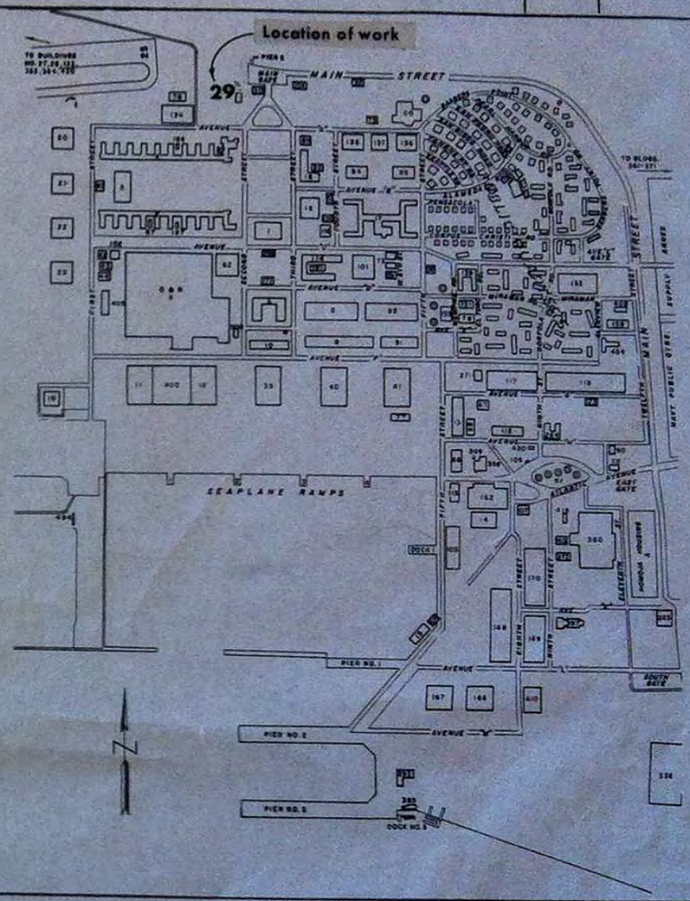
OVERFLOW TO STORM SYSTEM B

GROUND LEVEL



SECTION A-A
EXISTING CONDITIONS AT STRUCTURE 29
SCALE 1/4" = 1'-0"

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED



LOCATION PLAN

GRAPHIC SCALE 0 1000 2000 3000 IN FEET

PROPERTY U S NAVY
OFFICER IN CHARGE OF CONSTRUCTION
U. S. NAVAL AIR STATION
ALAMEDA, CALIFORNIA

All copies other than those to be used during construction and/or as part of contractural documents, are to be returned not later than 15 days after bid opening

PWC 62026

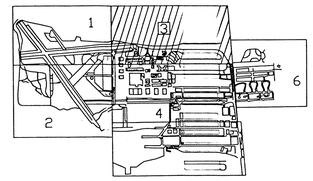
DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL AIR STATION — ALAMEDA, CALIF.

DES SR
DRWN S.F. Ristrom
SUPV R.E.H.
CHK H.A.
IN CHARGE REYNOLDS 4/8/70
SATISFACTORY TO
TITLE DATE

REPAIRS TO SEWAGE LIFT STATION

STRUCTURE No. 29

REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED
A	REVISED GRID SYSTEM	C.S.Abad	10-31-87	
B	DELETED IW LINES AND ADDED MH NO'S	C.S.Abad	6-23-90	
C	REVISED HOUSE NUMBERS	C.S.Abad	4-1-91	
D	DRAWING CONVERTED TO DIGITAL FORMAT.	C.S.Abad	9-8-95	



KEY PLAN
(NO SANITARY SEWER IN AREA 2)

LEGEND

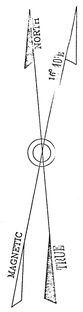
10	SANITARY SEWER MANHOLE (MH NO.
4-1	INDUSTRIAL WASTE SEWER MANHOLE (MH NO.
	PUMP STATION
	GREAS TRAP
	VALVE
	SEWER LINE (SANITARY)
	SEWER LINE (INDUSTRIAL WASTE)
F.M.	FORCE MAIN
C.O.	CLEANOUT
	CAPPED
	CATCH BASIN

MATERIALS:

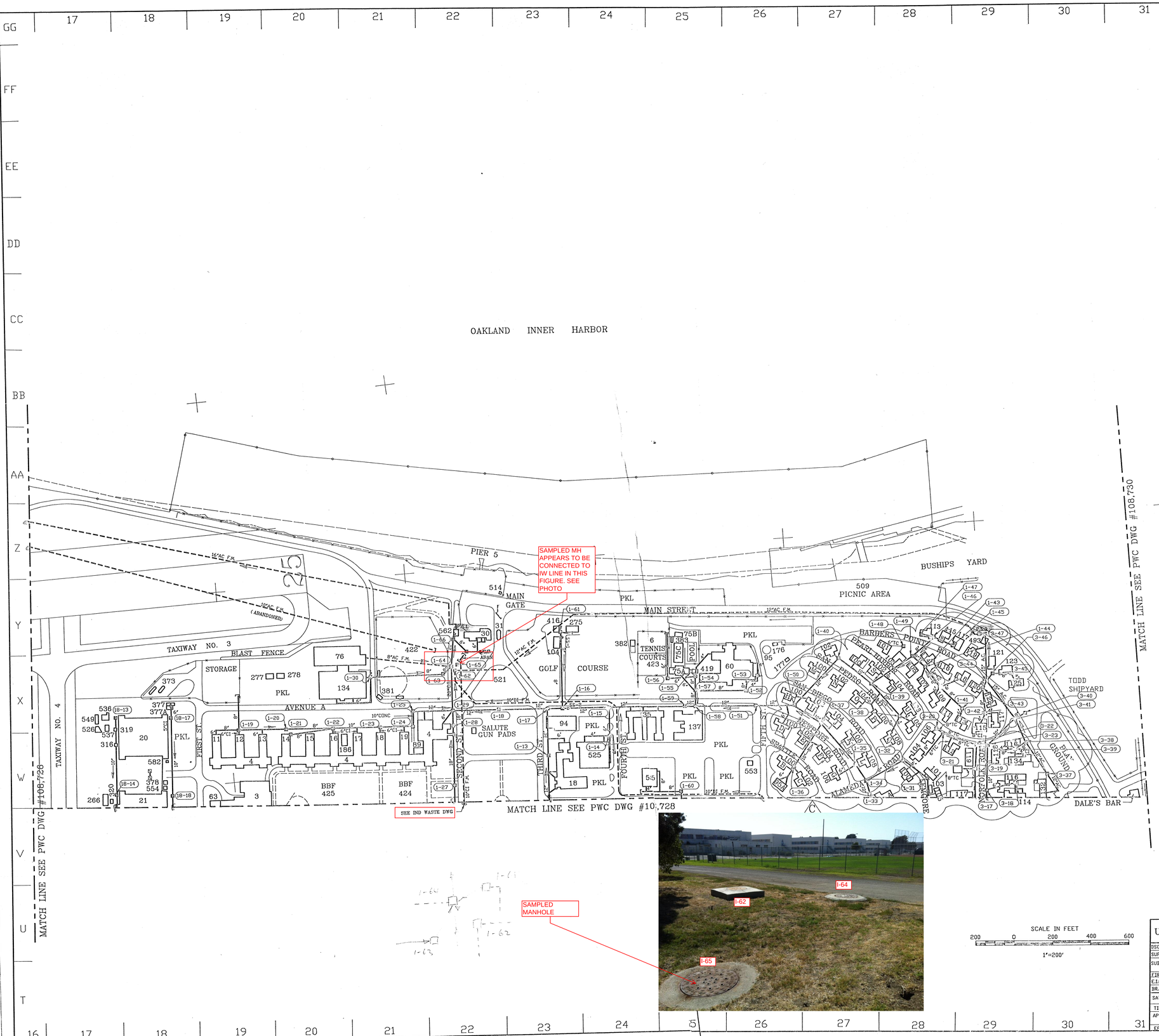
AC - ASBESTOS CEMENT
CI - CAST IRON
DI - DUCTILE IRON
VC - VITRIFIED CLAY
CONC - CONCRETE
TC - TERRA COTTA

NOTES:

1. ALL SANITARY SEWERS ARE VITRIFIED CLAY PIPE UNLESS NOTED OTHERWISE.



IF SHEET IS LESS THAN 28" X 40" IT IS A REDUCED PRINT SCALE REDUCED ACCORDINGLY



SCALE IN FEET
200 0 200 400 600
1"=200'

UTILITIES CODE 600		
DSGN.	DR. CAD	CHK.
SUPV.		CH. ENGR.
SUBMITTED BY		DATE
FIRM MEMBER (TITLE)		
E.I.C.		FIRE PROT.
BR. HD.		DIR.
SATISFACTORY TO		DATE
TITLE		
APPROVED		DATE
REP FOR COMMANDER NAVFAC		

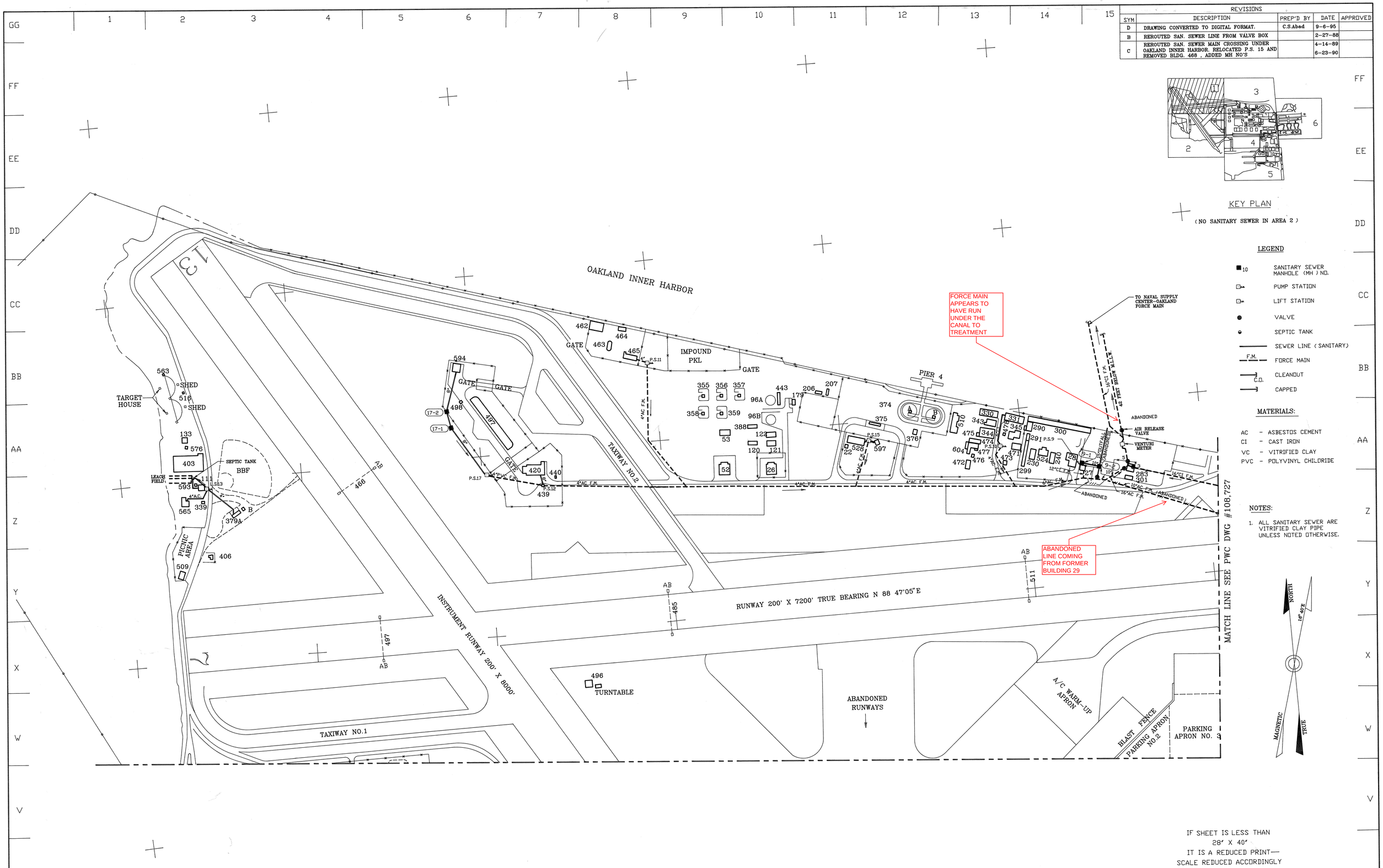
DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVY PUBLIC WORKKS CENTER — SAN FRANCISCO BAY

NAVAL AIR STATION, ALAMEDA
SANITARY SEWER SYSTEM
(AREA 3)

EXISTING — NAV FAC DRAWING NO. 6249431 — CONDITIONS

SIZE	CODE IDENT. No.	WC# 108,727
F	80091	CONST. CONTR. NO. N62474- 83 -C- 3038
SCALE AS NOTED	SPEC.	SHEET 40 OF 50

REVISIONS				
SYM	DESCRIPTION	PREP'D BY	DATE	APPROVED
D	DRAWING CONVERTED TO DIGITAL FORMAT.	C.S.Abad	9-6-95	
B	REROUTED SAN. SEWER LINE FROM VALVE BOX		2-27-88	
C	REROUTED SAN. SEWER MAIN CROSSING UNDER OAKLAND INNER HARBOR. RELOCATED P.S. 15 AND REMOVED BLDG. 468 , ADDED MH NO'S		4-14-89 6-23-90	

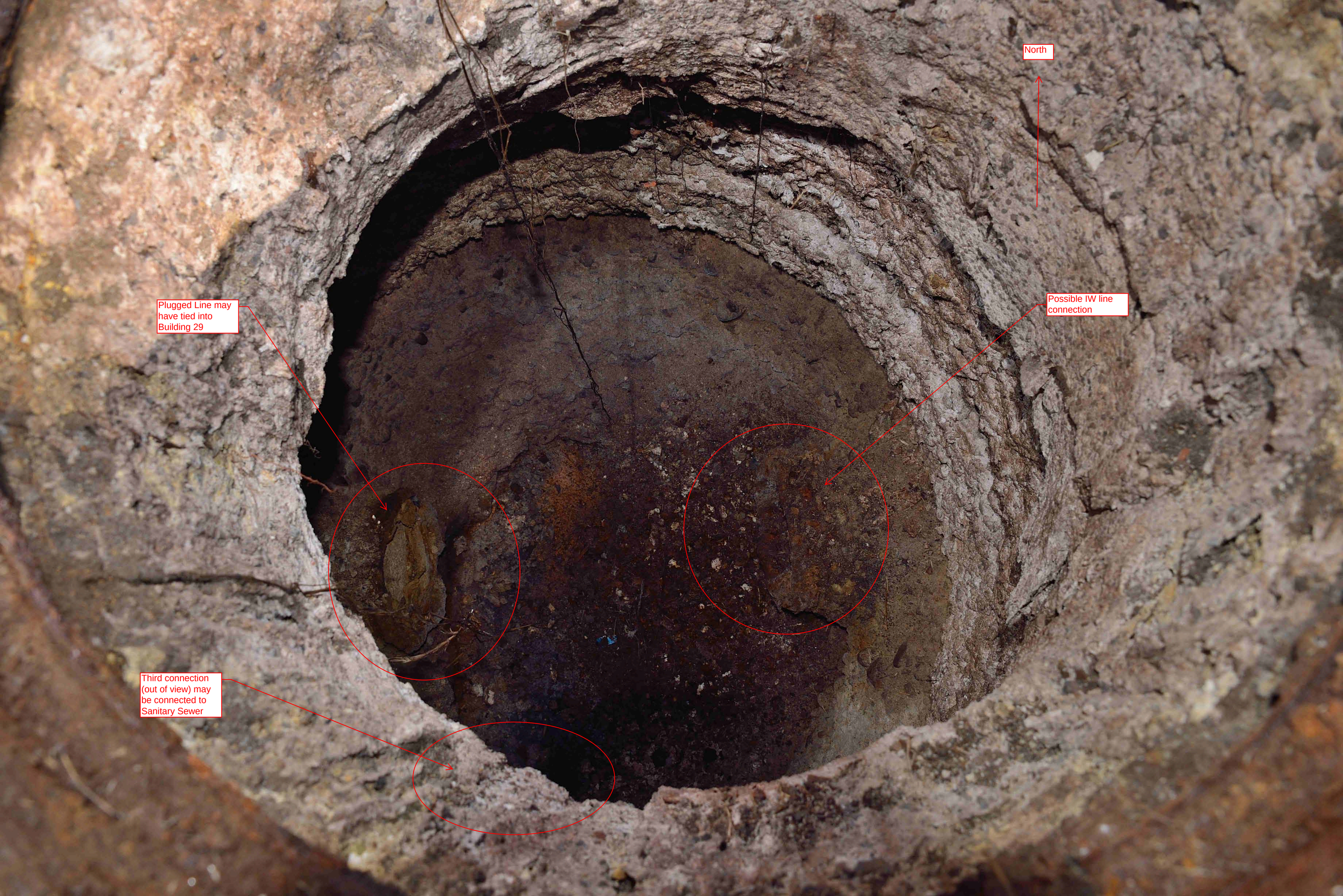


IF SHEET IS LESS THAN
28" X 40"
IT IS A REDUCED PRINT—
SCALE REDUCED ACCORDINGLY

UTILITIES CODE 600	DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND	
DSGN. / DR. CAD / CHK.	NAVY PUBLIC WORKS CENTER	SAN FRANCISCO BAY	
SUPV. / CH. ENGR.	NAVAL AIR STATION, ALAMEDA		
SUBMITTED BY / DATE	SANITARY SEWER SYSTEM		
FIRM MEMBER (TITLE)	(AREA 1)		
E.I.C. / FIRE PRDT.	EXISTING NAV FAC DRAWING NO. 6249430	CONDITIONS	
BR. HD. / DIR.	SIZE F	CODE IDENT. No. 80091	PWC# 108,726
SATISFACTORY TO / DATE		CONST. CONTR. NO. N62474- 83 -C- 3038	
TITLE	SCALE AS NOTED	SPEC.	SHEET 39 OF 50
APPROVED / DATE			
EFD FOR COMMANDER NAVFAC			

1. Active Sanitary Sewer
2. Active Sanitary Sewer
3. Appears to be inactive. Possible industrial waste line manhole.
North

North
Possible IW
manhole
PHOENIX IRON WO


North
Plugged Line may have tied into Building 29
Possible IW line connection
Third connection (out of view) may be connected to Sanitary Sewer

Plugged Line may have tied into Building 29
Third connection, may be connected to Sanitary Sewer
North

Possible IW line connection
North

APPENDIX D

GAMMA SCAN SURVEY DATA
(on CD only)

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Gamma Scan Summary Statistics

Storm System	Main / Lateral	Length (feet)	Pipe Diameter (inches)	Total Points	Average (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)	Max (cpm)	Total Points in Each Sigma Range						
									<1	1	2	3	4	5	>6
A	Lateral	89	15	86	5687.56	320.24	6648.29	6640.00	73	12	1				
A	Main	299	21	311	6244.05	523.77	7815.35	7880.00	266	35	9	1			
A	Lateral	56	12	118	5621.53	384.69	6775.61	6770.00	106	7	5				
A	Main	300	24	260	6932.00	646.15	8870.46	9370.00	220	33	6	1			
A	Lateral	56	12	96	6005.94	481.37	7450.03	7430.00	80	11	5				
A	Main	89	24	111	6700.81	669.82	8710.26	8550.00	93	14	4				
A	Lateral	105	10	127	7665.12	1002.02	10671.19	11000.00	107	14	5	1			
A	Main	238	24	204	6780.44	544.93	8415.24	8120.00	170	29	5				
A	Lateral	30	8	33	8196.97	467.18	9598.52	9310.00	27	5	1				
A	Lateral	76	8	91	4638.46	451.53	5993.05	5730.00	77	13	1				
A	Lateral	144	12	171	5610.94	373.61	6731.78	7050.00	149	18	2	2			
A	Main	150	30	139	7929.71	1856.58	13499.47	17300.00	123	8	4	3		1	
A	Main	191	30	165	7027.76	515.33	8573.75	8590.00	138	23	3	1			
A	Lateral	31	30	50	5535.60	385.24	6691.33	6580.00	43	5	2				
A	Lateral	144	12	145	5490.07	417.25	6741.82	7070.00	126	14	3	2			
A	Main	331	30	296	4627.03	376.87	5757.62	5890.00	251	37	6	2			
A	Lateral	104	24	109	6908.35	599.65	8707.31	8440.00	92	14	3				
A	Lateral	24	10	28	4652.50	280.35	5493.56	5440.00	24	3	1				
A	Lateral	303	24	278	6395.90	576.10	8124.19	8170.00	233	36	8	1			
A	Main	207	36	146	4670.48	289.27	5538.29	5590.00	120	24	1	1			
A	Lateral	148	30	115	5989.65	460.02	7369.71	7340.00	99	10	6				
A	Main	197	36	169	4766.69	296.67	5656.68	5790.00	143	21	4	1			
A	Main	403	36	374	4656.52	308.76	5582.80	5540.00	317	48	9				
A	Lateral	8	10	9	5375.56	930.07	8165.76	6610.00	7	2					
A	Main	236	36	235	4533.19	354.37	5596.31	5720.00	203	26	5	1			
B	Main	273	18	308	8683.34	682.49	10730.82	11200.00	265	37	5	1			
B	Lateral	209	12	248	5380.16	336.24	6388.88	6630.00	211	30	5	2			
B	Lateral	88	21	85	5819.06	401.07	7022.27	7210.00	75	6	3	1			
B	Main	315	24	277	7159.53	614.28	9002.39	8840.00	229	44	4				
B	Lateral	58	12	122	5285.66	329.83	6275.15	6000.00	104	16	2				
B	Lateral	62	10	77	4931.43	347.34	5973.44	5740.00	64	11	2				
B	Main	310	27	280	6510.25	620.98	8373.20	9110.00	232	41	6		1		
B	Lateral	25	12	40	5339.75	287.36	6201.84	5950.00	34	5	1				
B	Lateral	100	18	92	6174.67	449.53	7523.27	7360.00	76	13	3				

Gamma Scan Summary Statistics

Storm System	Main / Lateral	Length (feet)	Pipe Diameter (inches)	Total Points	Average (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)	Max (cpm)	Total Points in Each Sigma Range						
									<1	1	2	3	4	5	>6
B	Main	384	30	327	4808.90	317.41	5761.12	6010.00	283	37	3	4			
B	Lateral	102	18	99	6337.17	540.13	7957.56	7900.00	88	6	5				
B	Main	309	36	263	4798.33	302.01	5704.35	5460.00	225	32	6				
B	Lateral	24	10	36	5228.33	306.88	6148.97	5720.00	31	5					
B	Lateral	215	24	171	6407.95	523.34	7977.97	7890.00	142	23	6				
B	Lateral	25	10	45	5332.00	330.14	6322.43	6190.00	36	8	1				
B	Main	358	36	346	4726.16	291.98	5602.10	5790.00	298	37	10	1			
B	Lateral	224	15	239	5658.49	526.64	7238.42	7420.00	209	25	4	1			
B	Main	355	36	255	4795.84	384.34	5948.88	5800.00	210	40	5				
B	Main	46	36	56	4793.93	553.24	6453.64	5580.00	52	4					
G	Main	247	27	178	4808.26	338.79	5824.64	5750.00	150	24	4				
G	Lateral	34	12	102	5245.00	401.90	6450.71	6170.00	87	12	3				
G	Lateral	98	12	85	4964.00	367.65	6066.96	5870.00	69	14	2				
G	Main	94	27	110	4500.82	340.49	5522.28	5360.00	94	12	4				
G	Main	54	27	64	4810.31	311.49	5744.78	5450.00	51	12	1				
G	Lateral	67	10	65	5672.62	438.21	6987.26	7150.00	61	1	2	1			
G	Main	405	15	443	6030.97	601.53	7835.56	7920.00	369	61	12	1			
G	Lateral	48	10	87	4383.22	375.57	5509.92	5270.00	70	15	2				
G	Main	305	18	285	5747.33	422.39	7014.51	7130.00	242	32	10	1			
G	Lateral	20	8	21	4560.00	532.01	6156.02	5760.00	18	2	1				
G	Main	306	18	298	6549.09	586.80	8309.48	8160.00	253	34	11				
G	Lateral	19	12	13	5900.00	293.03	6779.09	6400.00	10	3					
G	Main	306	18	356	6194.80	805.18	8610.35	9020.00	298	52	5	1			
G	Lateral	19	12	16	5245.63	443.03	6574.73	6190.00	14	1	1				
G	Main	229	24	214	6788.69	642.94	8717.52	8790.00	176	34	3	1			
G	Main	341	24	352	6511.45	608.30	8336.34	8440.00	286	57	8	1			
G	Lateral	18	12	23	5780.00	423.18	7049.54	6490.00	18	5					
G	Lateral	235	24	206	6453.01	559.20	8130.62	9000.00	175	24	6		1		
G	Lateral	211	18	211	5506.49	699.85	7606.04	8160.00	184	17	7	3			
G	Main	311	36	506	5051.50	453.23	6411.20	6970.00	443	46	11	5	1		
G	Lateral	34	12	58	5791.55	414.56	7035.23	6870.00	47	10	1				
G	Lateral	62	12	97	5679.07	426.66	6959.06	7200.00	84	10	2	1			
G	Lateral	65	12	102	5839.31	650.56	7791.01	7820.00	87	9	5	1			
G	Lateral	205	27	321	6675.86	682.35	8722.90	8700.00	272	39	10				

Gamma Scan Summary Statistics

Storm System	Main / Lateral	Length (feet)	Pipe Diameter (inches)	Total Points	Average (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)	Max (cpm)	Total Points in Each Sigma Range						
									<1	1	2	3	4	5	>6
G	Main	404	36	350	4363.54	309.20	5291.15	5270.00	288	54	8				
G	Lateral	205	21	201	5800.70	720.51	7962.22	7990.00	167	31	2	1			
G	Lateral	49	10	12	4830.83	351.01	5883.86	5500.00	10	2					
G	Main	274	36	194	4462.47	282.92	5311.24	5200.00	159	31	4				
G	Lateral	467	18	572	6147.81	553.64	7808.74	8020.00	467	89	13	3			
G	Main	274	36	240	4455.04	268.41	5260.26	5090.00	203	31	6				
G	Lateral	230	15	241	4934.36	339.76	5953.64	6010.00	200	38	2	1			
G	Main	275	36	227	4724.19	582.53	6471.77	6190.00	182	33	12				
G	Lateral	13	15	14	4925.71	442.09	6251.98	5450.00	11	3					
G	Main	25	36	31	4720.00	274.94	5544.83	5380.00	28	2	1				

*cmp= Counts per Minute

Summary Statistics
Elevated Readings

Point	Greater than 3 Sigma and/or 9000 cpm	Reach	Sigma	Mean (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)
165	7880	2	3	6244.05	523.77	7815.35
87	9370	4	3	6932.00	646.15	8870.46
3	9000	7	1	7665.12	1002.02	10671.19
4	9320	7	1	7665.12	1002.02	10671.19
5	9120	7	1	7665.12	1002.02	10671.19
6	10100	7	2	7665.12	1002.02	10671.19
7	9950	7	2	7665.12	1002.02	10671.19
8	9060	7	1	7665.12	1002.02	10671.19
9	9710	7	2	7665.12	1002.02	10671.19
10	9060	7	1	7665.12	1002.02	10671.19
11	9470	7	1	7665.12	1002.02	10671.19
15	11000	7	3	7665.12	1002.02	10671.19
16	10500	7	2	7665.12	1002.02	10671.19
18	9200	7	1	7665.12	1002.02	10671.19
31	9310	7	1	7665.12	1002.02	10671.19
121	10300	7	2	7665.12	1002.02	10671.19
127	9200	7	1	7665.12	1002.02	10671.19
16	9310	9	2	8196.97	467.18	9598.52
108	6920	11	3	5610.94	373.61	6731.78
139	7050	11	3	5610.94	373.61	6731.78
3	14000	12	3	7929.71	1856.58	13499.47
4	13400	12	2	7929.71	1856.58	13499.47
7	11500	12	1	7929.71	1856.58	13499.47
13	9420	12	< 1	7929.71	1856.58	13499.47
14	10100	12	1	7929.71	1856.58	13499.47
16	10700	12	1	7929.71	1856.58	13499.47
17	10700	12	1	7929.71	1856.58	13499.47
20	10100	12	1	7929.71	1856.58	13499.47
22	11000	12	1	7929.71	1856.58	13499.47
24	15300	12	3	7929.71	1856.58	13499.47
25	9120	12	< 1	7929.71	1856.58	13499.47
26	12300	12	2	7929.71	1856.58	13499.47
27	9930	12	1	7929.71	1856.58	13499.47
29	14800	12	3	7929.71	1856.58	13499.47
30	17300	12	5	7929.71	1856.58	13499.47
60	11700	12	2	7929.71	1856.58	13499.47
84	13100	12	2	7929.71	1856.58	13499.47
87	10000	12	1	7929.71	1856.58	13499.47
95	9020	12	< 1	7929.71	1856.58	13499.47
108	9730	12	< 1	7929.71	1856.58	13499.47
14	8590	13	3	7027.76	515.33	8573.75
5	7010	15	3	5490.07	417.25	6741.82
6	7070	15	3	5490.07	417.25	6741.82
1	5890	16	3	4627.03	376.87	5757.62

Summary Statistics
Elevated Readings

Point	Greater than 3 Sigma and/or 9000 cpm	Reach	Sigma	Mean (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)
29	5780	16	3	4627.03	376.87	5757.62
17	8170	20	3	6395.90	576.10	8124.19
61	5590	21	3	4670.48	289.27	5538.29
162	5790	23	3	4766.69	296.67	5656.68
231	5720	26	3	4533.19	354.37	5596.31
5	9190	27	< 1	8683.34	682.49	10730.82
6	9060	27	< 1	8683.34	682.49	10730.82
10	9280	27	< 1	8683.34	682.49	10730.82
17	9180	27	< 1	8683.34	682.49	10730.82
18	9300	27	< 1	8683.34	682.49	10730.82
20	9020	27	< 1	8683.34	682.49	10730.82
21	9210	27	< 1	8683.34	682.49	10730.82
23	9240	27	< 1	8683.34	682.49	10730.82
29	9970	27	1	8683.34	682.49	10730.82
49	9600	27	1	8683.34	682.49	10730.82
61	9190	27	< 1	8683.34	682.49	10730.82
62	9230	27	< 1	8683.34	682.49	10730.82
63	9770	27	1	8683.34	682.49	10730.82
67	9650	27	1	8683.34	682.49	10730.82
68	9930	27	1	8683.34	682.49	10730.82
69	9740	27	1	8683.34	682.49	10730.82
72	9900	27	1	8683.34	682.49	10730.82
79	9690	27	1	8683.34	682.49	10730.82
80	9920	27	1	8683.34	682.49	10730.82
81	9900	27	1	8683.34	682.49	10730.82
82	9110	27	< 1	8683.34	682.49	10730.82
83	9340	27	< 1	8683.34	682.49	10730.82
94	9220	27	< 1	8683.34	682.49	10730.82
96	9120	27	< 1	8683.34	682.49	10730.82
98	9460	27	1	8683.34	682.49	10730.82
104	9220	27	< 1	8683.34	682.49	10730.82
111	9210	27	< 1	8683.34	682.49	10730.82
112	9550	27	1	8683.34	682.49	10730.82
113	9130	27	< 1	8683.34	682.49	10730.82
114	9540	27	1	8683.34	682.49	10730.82
120	9540	27	1	8683.34	682.49	10730.82
126	9940	27	1	8683.34	682.49	10730.82
131	9010	27	< 1	8683.34	682.49	10730.82
135	9130	27	< 1	8683.34	682.49	10730.82
140	9480	27	1	8683.34	682.49	10730.82
144	9690	27	1	8683.34	682.49	10730.82
153	9020	27	< 1	8683.34	682.49	10730.82
161	9310	27	< 1	8683.34	682.49	10730.82
168	10100	27	2	8683.34	682.49	10730.82

Summary Statistics
Elevated Readings

Point	Greater than 3 Sigma and/or 9000 cpm	Reach	Sigma	Mean (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)
169	9000	27	< 1	8683.34	682.49	10730.82
171	9000	27	< 1	8683.34	682.49	10730.82
172	9310	27	< 1	8683.34	682.49	10730.82
175	9070	27	< 1	8683.34	682.49	10730.82
178	9120	27	< 1	8683.34	682.49	10730.82
180	9160	27	< 1	8683.34	682.49	10730.82
182	9440	27	1	8683.34	682.49	10730.82
185	9150	27	< 1	8683.34	682.49	10730.82
194	9370	27	1	8683.34	682.49	10730.82
195	9210	27	< 1	8683.34	682.49	10730.82
196	9310	27	< 1	8683.34	682.49	10730.82
199	9110	27	< 1	8683.34	682.49	10730.82
200	9440	27	1	8683.34	682.49	10730.82
201	9850	27	1	8683.34	682.49	10730.82
203	9130	27	< 1	8683.34	682.49	10730.82
205	9480	27	1	8683.34	682.49	10730.82
207	9110	27	< 1	8683.34	682.49	10730.82
208	9260	27	< 1	8683.34	682.49	10730.82
212	9340	27	< 1	8683.34	682.49	10730.82
213	9180	27	< 1	8683.34	682.49	10730.82
215	9210	27	< 1	8683.34	682.49	10730.82
218	11200	27	3	8683.34	682.49	10730.82
219	9050	27	< 1	8683.34	682.49	10730.82
220	9710	27	1	8683.34	682.49	10730.82
221	9580	27	1	8683.34	682.49	10730.82
224	9310	27	< 1	8683.34	682.49	10730.82
225	9430	27	1	8683.34	682.49	10730.82
226	9350	27	< 1	8683.34	682.49	10730.82
227	10000	27	1	8683.34	682.49	10730.82
229	9240	27	< 1	8683.34	682.49	10730.82
232	9580	27	1	8683.34	682.49	10730.82
235	9720	27	1	8683.34	682.49	10730.82
237	9170	27	< 1	8683.34	682.49	10730.82
240	9860	27	1	8683.34	682.49	10730.82
241	10400	27	2	8683.34	682.49	10730.82
242	9000	27	< 1	8683.34	682.49	10730.82
246	9080	27	< 1	8683.34	682.49	10730.82
247	9300	27	< 1	8683.34	682.49	10730.82
249	9260	27	< 1	8683.34	682.49	10730.82
250	9720	27	1	8683.34	682.49	10730.82
252	9080	27	< 1	8683.34	682.49	10730.82
255	9050	27	< 1	8683.34	682.49	10730.82
256	9360	27	< 1	8683.34	682.49	10730.82
258	9130	27	< 1	8683.34	682.49	10730.82

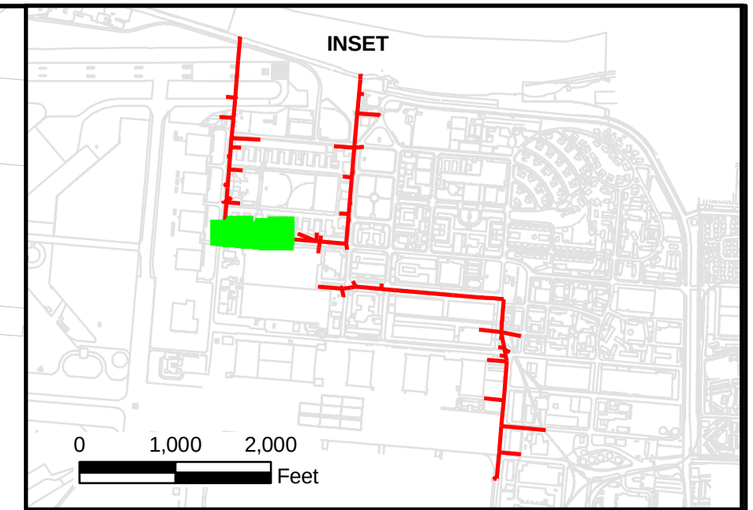
Summary Statistics
Elevated Readings

Point	Greater than 3 Sigma and/or 9000 cpm	Reach	Sigma	Mean (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)
259	9480	27	1	8683.34	682.49	10730.82
260	9200	27	< 1	8683.34	682.49	10730.82
265	9810	27	1	8683.34	682.49	10730.82
266	9460	27	1	8683.34	682.49	10730.82
267	9700	27	1	8683.34	682.49	10730.82
269	10500	27	2	8683.34	682.49	10730.82
270	9130	27	< 1	8683.34	682.49	10730.82
272	9050	27	< 1	8683.34	682.49	10730.82
274	10100	27	2	8683.34	682.49	10730.82
277	9950	27	1	8683.34	682.49	10730.82
278	9370	27	1	8683.34	682.49	10730.82
281	9260	27	< 1	8683.34	682.49	10730.82
285	9290	27	< 1	8683.34	682.49	10730.82
287	9610	27	1	8683.34	682.49	10730.82
290	9290	27	< 1	8683.34	682.49	10730.82
291	10100	27	2	8683.34	682.49	10730.82
293	9130	27	< 1	8683.34	682.49	10730.82
297	9330	27	< 1	8683.34	682.49	10730.82
303	9110	27	< 1	8683.34	682.49	10730.82
304	9110	27	< 1	8683.34	682.49	10730.82
33	6560	28	3	5380.16	336.24	6388.88
241	6630	28	3	5380.16	336.24	6388.88
50	7210	29	3	5819.06	401.07	7022.27
217	9110	34	4	6510.25	620.98	8373.20
1	5900	37	3	4808.90	317.41	5761.12
2	5770	37	3	4808.90	317.41	5761.12
59	6010	37	3	4808.90	317.41	5761.12
60	6010	37	3	4808.90	317.41	5761.12
2	5790	45	3	4726.16	291.98	5602.10
48	7420	47	3	5658.49	526.64	7238.42
64	7150	56	3	5672.62	438.21	6987.26
132	7920	57	3	6030.97	601.53	7835.56
226	7130	59	3	5747.33	422.39	7014.51
94	9020	63	3	6194.80	805.18	8610.35
83	8790	65	3	6788.69	642.94	8717.52
13	8440	66	3	6511.45	608.30	8336.34
30	9000	68	4	6453.01	559.20	8130.62
96	7850	69	3	5506.49	699.85	7606.04
154	8160	69	3	5506.49	699.85	7606.04
159	7740	69	3	5506.49	699.85	7606.04
42	6580	70	3	5051.50	453.23	6411.20
44	6630	70	3	5051.50	453.23	6411.20
282	6460	70	3	5051.50	453.23	6411.20
283	6730	70	3	5051.50	453.23	6411.20

Summary Statistics
Elevated Readings

Point	Greater than 3 Sigma and/or 9000 cpm	Reach	Sigma	Mean (cpm)	Std Dev (cpm)	Mean + 3 Sigma (cpm)
284	6970	70	4	5051.50	453.23	6411.20
289	6470	70	3	5051.50	453.23	6411.20
27	7200	72	3	5679.07	426.66	6959.06
23	7820	73	3	5839.31	650.56	7791.01
53	7990	77	3	5800.70	720.51	7962.22
83	8020	80	3	6147.81	553.64	7808.74
306	7850	80	3	6147.81	553.64	7808.74
408	7810	80	3	6147.81	553.64	7808.74
49	6010	82	3	4934.36	339.76	5953.64

*cmp= Counts per Minute



Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
1	6648
2	7815
3	6776
4	8870
5	7450

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0510203040
Feet

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 01 thru 05

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_01-05_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 1
Line: A

Main/Lateral: Lateral
Length (ft): 89
Pipe Diameter (in): 15

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 1 Data Set

Gamma Total CPS	
5687.56	Average
320.24	Std Dev
6648.29	3 Sigma
6640.00	Max

Sigma	Total Points
<1	73
1	12
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 1 Data Set	Comments
6039777.456	2113816.99	5840.00	<1	
6039777.375	2113816.00	6110.00	1	
6039777.294	2113815.01	6300.00	1	
6039777.213	2113814.02	5840.00	<1	
6039777.132	2113813.03	5550.00	<1	
6039777.051	2113812.04	6190.00	1	
6039776.969	2113811.05	5680.00	<1	
6039776.888	2113810.06	4910.00	<1	
6039776.807	2113809.07	5150.00	<1	
6039776.726	2113808.07	5880.00	<1	
6039776.645	2113807.08	5680.00	<1	
6039776.564	2113806.09	5880.00	<1	
6039776.482	2113805.10	5770.00	<1	
6039776.401	2113804.11	6000.00	<1	
6039776.32	2113803.12	5230.00	<1	
6039776.239	2113802.13	6070.00	1	
6039776.158	2113801.14	6070.00	1	
6039776.077	2113800.15	5730.00	<1	
6039775.995	2113799.15	5840.00	<1	
6039775.914	2113798.16	5680.00	<1	

Easting	Northing	Reading	Reach 1 Data Set	Comments
6039775.833	2113797.17	5940.00	<1	
6039775.752	2113796.18	5810.00	<1	
6039775.671	2113795.19	5710.00	<1	
6039775.59	2113794.20	5830.00	<1	
6039775.508	2113793.21	5960.00	<1	
6039775.427	2113792.22	5990.00	<1	
6039775.346	2113791.23	5570.00	<1	
6039775.265	2113790.23	5670.00	<1	
6039775.184	2113789.24	5620.00	<1	
6039775.103	2113788.25	5450.00	<1	
6039775.021	2113787.26	5550.00	<1	
6039774.94	2113786.27	6640.00	2	
6039774.859	2113785.28	5950.00	<1	
6039774.778	2113784.29	5640.00	<1	
6039774.697	2113783.30	5720.00	<1	
6039774.616	2113782.31	5650.00	<1	
6039774.534	2113781.31	5750.00	<1	
6039774.453	2113780.32	5110.00	<1	
6039774.372	2113779.33	5350.00	<1	
6039774.291	2113778.34	5350.00	<1	
6039774.21	2113777.35	6100.00	1	
6039774.129	2113776.36	5650.00	<1	
6039774.047	2113775.37	5350.00	<1	
6039773.966	2113774.38	5820.00	<1	
6039773.885	2113773.39	6180.00	1	
6039773.804	2113772.39	5620.00	<1	
6039773.723	2113771.40	5770.00	<1	
6039773.642	2113770.41	5290.00	<1	
6039773.56	2113769.42	4970.00	<1	
6039773.479	2113768.43	5780.00	<1	
6039773.398	2113767.44	5480.00	<1	
6039773.317	2113766.45	5530.00	<1	
6039773.236	2113765.46	5320.00	<1	
6039773.155	2113764.47	6120.00	1	
6039773.074	2113763.47	5660.00	<1	
6039772.992	2113762.48	5350.00	<1	
6039772.911	2113761.49	5910.00	<1	
6039772.83	2113760.50	5420.00	<1	
6039772.749	2113759.51	5540.00	<1	
6039772.668	2113758.52	5690.00	<1	
6039772.587	2113757.53	5580.00	<1	

Easting	Northing	Reading	Reach 1 Data Set	Comments
6039772.505	2113756.54	5820.00	<1	
6039772.424	2113755.55	5890.00	<1	
6039772.343	2113754.55	5400.00	<1	
6039772.262	2113753.56	5670.00	<1	
6039772.181	2113752.57	5620.00	<1	
6039772.1	2113751.58	5660.00	<1	
6039772.018	2113750.59	5660.00	<1	
6039771.937	2113749.60	5650.00	<1	
6039771.856	2113748.61	5710.00	<1	
6039771.775	2113747.62	5630.00	<1	
6039771.694	2113746.63	6080.00	1	
6039771.613	2113745.63	5030.00	<1	
6039771.531	2113744.64	6220.00	1	
6039771.45	2113743.65	5310.00	<1	
6039771.369	2113742.66	6060.00	1	
6039771.288	2113741.67	5710.00	<1	
6039771.207	2113740.68	5450.00	<1	
6039771.126	2113739.69	5360.00	<1	
6039771.044	2113738.70	5600.00	<1	
6039770.963	2113737.71	6310.00	1	
6039770.882	2113736.71	5950.00	<1	
6039770.801	2113735.72	5440.00	<1	
6039770.72	2113734.73	5670.00	<1	
6039770.639	2113733.74	5300.00	<1	
6039770.557	2113732.75	5140.00	<1	

5687.56	Average
320.24	Std Dev
6648.29	3 Sigma
6640.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 2
Line: A

Main/Lateral: Main
Length (ft): 299
Pipe Diameter (in): 21

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 2 Data Set

Gamma Total CPS	
6244.05	Average
523.77	Std Dev
7815.35	3 Sigma
7880.00	Max

Sigma	Total Points
<1	266
1	35
2	9
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 2 Data Set	Comments
6039768.401	2113730.92	6980.00	1	
6039767.433	2113731.00	6340.00	<1	
6039766.465	2113731.09	7310.00	2	
6039765.496	2113731.17	5310.00	<1	
6039764.528	2113731.25	5630.00	<1	
6039763.56	2113731.33	5090.00	<1	
6039762.592	2113731.41	5140.00	<1	
6039761.624	2113731.49	5160.00	<1	
6039760.655	2113731.57	5160.00	<1	
6039759.687	2113731.65	6100.00	<1	
6039758.719	2113731.73	5960.00	<1	
6039757.751	2113731.82	5870.00	<1	
6039756.782	2113731.90	5960.00	<1	
6039755.814	2113731.98	6490.00	<1	
6039754.846	2113732.06	6910.00	1	
6039753.878	2113732.14	6340.00	<1	
6039752.91	2113732.22	6250.00	<1	
6039751.941	2113732.30	6800.00	1	
6039750.973	2113732.38	6800.00	1	
6039750.005	2113732.46	5600.00	<1	

Easting	Northing	Reading	Reach 2 Data Set	Comments
6039749.037	2113732.55	5960.00	<1	
6039748.068	2113732.63	6120.00	<1	
6039747.1	2113732.71	6260.00	<1	
6039746.132	2113732.79	6720.00	<1	
6039745.164	2113732.87	6670.00	<1	
6039744.196	2113732.95	7050.00	1	
6039743.227	2113733.03	6110.00	<1	
6039742.259	2113733.11	6110.00	<1	
6039741.291	2113733.19	6730.00	<1	
6039740.323	2113733.28	6440.00	<1	
6039739.354	2113733.36	5830.00	<1	
6039738.386	2113733.44	5920.00	<1	
6039737.418	2113733.52	5310.00	<1	
6039736.45	2113733.60	5070.00	<1	
6039735.482	2113733.68	5210.00	<1	
6039734.513	2113733.76	5900.00	<1	
6039733.545	2113733.84	5540.00	<1	
6039732.577	2113733.92	5540.00	<1	
6039731.609	2113734.01	5840.00	<1	
6039730.64	2113734.09	6830.00	1	
6039729.672	2113734.17	6110.00	<1	
6039728.704	2113734.25	5340.00	<1	
6039727.736	2113734.33	7160.00	1	
6039726.768	2113734.41	5790.00	<1	
6039725.799	2113734.49	5790.00	<1	
6039724.831	2113734.57	7390.00	2	
6039723.863	2113734.65	6330.00	<1	
6039722.895	2113734.74	6710.00	<1	
6039721.926	2113734.82	5700.00	<1	
6039720.958	2113734.90	5590.00	<1	
6039719.99	2113734.98	5660.00	<1	
6039719.022	2113735.06	5650.00	<1	
6039718.054	2113735.14	5550.00	<1	
6039717.085	2113735.22	6110.00	<1	
6039716.117	2113735.30	6210.00	<1	
6039715.149	2113735.38	5470.00	<1	
6039714.181	2113735.47	6180.00	<1	
6039713.212	2113735.55	6180.00	<1	
6039712.244	2113735.63	6710.00	<1	
6039711.276	2113735.71	6240.00	<1	
6039710.308	2113735.79	6680.00	<1	

Easting	Northing	Reading	Reach 2 Data Set	Comments
6039709.34	2113735.87	6410.00	<1	
6039708.371	2113735.95	6410.00	<1	
6039707.403	2113736.03	6270.00	<1	
6039706.435	2113736.11	5920.00	<1	
6039705.467	2113736.20	6680.00	<1	
6039704.498	2113736.28	6010.00	<1	
6039703.53	2113736.36	6350.00	<1	
6039702.562	2113736.44	5920.00	<1	
6039701.594	2113736.52	5930.00	<1	
6039700.626	2113736.60	5820.00	<1	
6039699.657	2113736.68	6600.00	<1	
6039698.689	2113736.76	6500.00	<1	
6039697.721	2113736.84	6160.00	<1	
6039696.753	2113736.93	6110.00	<1	
6039695.784	2113737.01	6110.00	<1	
6039694.816	2113737.09	5810.00	<1	
6039693.848	2113737.17	5680.00	<1	
6039692.88	2113737.25	6090.00	<1	
6039691.912	2113737.33	5960.00	<1	
6039690.943	2113737.41	5960.00	<1	
6039689.975	2113737.49	5990.00	<1	
6039689.007	2113737.57	5940.00	<1	
6039688.039	2113737.66	6260.00	<1	
6039687.07	2113737.74	6610.00	<1	
6039686.102	2113737.82	6070.00	<1	
6039685.134	2113737.90	6190.00	<1	
6039684.166	2113737.98	6760.00	<1	
6039683.198	2113738.06	6200.00	<1	
6039682.229	2113738.14	5870.00	<1	
6039681.261	2113738.22	6270.00	<1	
6039680.293	2113738.30	5710.00	<1	
6039679.325	2113738.38	6480.00	<1	
6039678.356	2113738.47	6300.00	<1	
6039677.388	2113738.55	5040.00	<1	
6039676.42	2113738.63	6130.00	<1	
6039675.452	2113738.71	6290.00	<1	
6039674.484	2113738.79	7050.00	1	
6039673.515	2113738.87	6390.00	<1	
6039672.547	2113738.95	6770.00	1	
6039671.579	2113739.03	6450.00	<1	
6039670.611	2113739.11	6730.00	<1	

Easting	Northing	Reading	Reach 2 Data Set	Comments
6039669.642	2113739.20	7130.00	1	
6039668.674	2113739.28	6310.00	<1	
6039667.706	2113739.36	5480.00	<1	
6039666.738	2113739.44	5650.00	<1	
6039665.77	2113739.52	5600.00	<1	
6039664.801	2113739.60	5490.00	<1	
6039663.833	2113739.68	6520.00	<1	
6039662.865	2113739.76	6570.00	<1	
6039661.897	2113739.84	6230.00	<1	
6039660.928	2113739.93	6570.00	<1	
6039659.96	2113740.01	7360.00	2	
6039658.992	2113740.09	7010.00	1	
6039658.024	2113740.17	6850.00	1	
6039657.056	2113740.25	6500.00	<1	
6039656.087	2113740.33	5570.00	<1	
6039655.119	2113740.41	5920.00	<1	
6039654.151	2113740.49	6140.00	<1	
6039653.183	2113740.57	6640.00	<1	
6039652.214	2113740.66	6400.00	<1	
6039651.246	2113740.74	6640.00	<1	
6039650.278	2113740.82	5980.00	<1	
6039649.31	2113740.90	6400.00	<1	
6039648.342	2113740.98	7020.00	1	
6039647.373	2113741.06	5910.00	<1	
6039646.405	2113741.14	5860.00	<1	
6039645.437	2113741.22	6640.00	<1	
6039644.469	2113741.30	6640.00	<1	
6039643.5	2113741.39	5570.00	<1	
6039642.532	2113741.47	5530.00	<1	
6039641.564	2113741.55	5880.00	<1	
6039640.596	2113741.63	5850.00	<1	
6039639.627	2113741.71	6340.00	<1	
6039638.659	2113741.79	6440.00	<1	
6039637.691	2113741.87	6210.00	<1	
6039636.723	2113741.95	7030.00	1	
6039635.755	2113742.03	6780.00	1	
6039634.786	2113742.12	5840.00	<1	
6039633.818	2113742.20	6200.00	<1	
6039632.85	2113742.28	5960.00	<1	
6039631.882	2113742.36	5960.00	<1	
6039630.913	2113742.44	5560.00	<1	

Easting	Northing	Reading	Reach 2 Data Set	Comments
6039629.945	2113742.52	5180.00	<1	
6039628.977	2113742.60	6370.00	<1	
6039628.009	2113742.68	6390.00	<1	
6039627.041	2113742.76	6390.00	<1	
6039626.072	2113742.85	6270.00	<1	
6039625.104	2113742.93	7760.00	2	
6039624.136	2113743.01	7140.00	1	
6039623.168	2113743.09	7120.00	1	
6039622.199	2113743.17	6710.00	<1	
6039621.231	2113743.25	7010.00	1	
6039620.263	2113743.33	6530.00	<1	
6039619.295	2113743.41	6150.00	<1	
6039618.327	2113743.49	6250.00	<1	
6039617.358	2113743.58	6380.00	<1	
6039616.39	2113743.66	5760.00	<1	
6039615.422	2113743.74	5570.00	<1	
6039614.454	2113743.82	5720.00	<1	
6039613.485	2113743.90	5870.00	<1	
6039612.517	2113743.98	6130.00	<1	
6039611.549	2113744.06	5850.00	<1	
6039610.581	2113744.14	6270.00	<1	
6039609.613	2113744.22	7880.00	3	
6039608.644	2113744.31	6500.00	<1	
6039607.676	2113744.39	6500.00	<1	
6039606.708	2113744.47	6320.00	<1	
6039605.74	2113744.55	7030.00	1	
6039604.771	2113744.63	5520.00	<1	
6039603.803	2113744.71	6440.00	<1	
6039602.835	2113744.79	6440.00	<1	
6039601.867	2113744.87	6910.00	1	
6039600.899	2113744.95	6630.00	<1	
6039599.93	2113745.04	6430.00	<1	
6039598.962	2113745.12	6510.00	<1	
6039597.994	2113745.20	6510.00	<1	
6039597.026	2113745.28	5600.00	<1	
6039596.057	2113745.36	5840.00	<1	
6039595.089	2113745.44	6220.00	<1	
6039594.121	2113745.52	6100.00	<1	
6039593.153	2113745.60	6100.00	<1	
6039592.185	2113745.68	5880.00	<1	
6039591.216	2113745.77	6000.00	<1	

Easting	Northing	Reading	Reach 2 Data Set	Comments
6039590.248	2113745.85	7010.00	1	
6039589.28	2113745.93	6520.00	<1	
6039588.312	2113746.01	6520.00	<1	
6039587.343	2113746.09	7230.00	1	
6039586.375	2113746.17	7230.00	1	
6039585.407	2113746.25	6440.00	<1	
6039584.439	2113746.33	5970.00	<1	
6039583.471	2113746.41	6700.00	<1	
6039582.502	2113746.50	6250.00	<1	
6039581.534	2113746.58	6000.00	<1	
6039580.566	2113746.66	7090.00	1	
6039579.598	2113746.74	5890.00	<1	
6039578.629	2113746.82	5960.00	<1	
6039577.661	2113746.90	5840.00	<1	
6039576.693	2113746.98	6340.00	<1	
6039575.725	2113747.06	6280.00	<1	
6039574.757	2113747.14	6280.00	<1	
6039573.788	2113747.23	6280.00	<1	
6039572.82	2113747.31	5840.00	<1	
6039571.852	2113747.39	6580.00	<1	
6039570.884	2113747.47	7150.00	1	
6039569.915	2113747.55	6600.00	<1	
6039568.947	2113747.63	6600.00	<1	
6039567.979	2113747.71	6080.00	<1	
6039567.011	2113747.79	6420.00	<1	
6039566.043	2113747.87	5550.00	<1	
6039565.074	2113747.96	6440.00	<1	
6039564.106	2113748.04	7690.00	2	
6039563.138	2113748.12	7090.00	1	
6039562.17	2113748.20	7360.00	2	
6039561.201	2113748.28	5420.00	<1	
6039560.233	2113748.36	5770.00	<1	
6039559.265	2113748.44	5720.00	<1	
6039558.297	2113748.52	5490.00	<1	
6039557.329	2113748.60	5500.00	<1	
6039556.36	2113748.69	5990.00	<1	
6039555.392	2113748.77	6140.00	<1	
6039554.424	2113748.85	6610.00	<1	
6039553.456	2113748.93	6540.00	<1	
6039552.487	2113749.01	5610.00	<1	
6039551.519	2113749.09	6050.00	<1	

Easting	Northing	Reading	Reach 2 Data Set	Comments
6039550.551	2113749.17	6390.00	<1	
6039549.583	2113749.25	6890.00	1	
6039548.615	2113749.33	5960.00	<1	
6039547.646	2113749.42	5610.00	<1	
6039546.678	2113749.50	6430.00	<1	
6039545.71	2113749.58	6290.00	<1	
6039544.742	2113749.66	5990.00	<1	
6039543.773	2113749.74	5950.00	<1	
6039542.805	2113749.82	5300.00	<1	
6039541.837	2113749.90	5560.00	<1	
6039540.869	2113749.98	5860.00	<1	
6039539.901	2113750.06	6740.00	<1	
6039538.932	2113750.15	6080.00	<1	
6039537.964	2113750.23	5920.00	<1	
6039536.996	2113750.31	6150.00	<1	
6039536.028	2113750.39	6040.00	<1	
6039535.059	2113750.47	6090.00	<1	
6039534.091	2113750.55	5900.00	<1	
6039533.123	2113750.63	7310.00	2	
6039532.155	2113750.71	6490.00	<1	
6039531.187	2113750.79	5890.00	<1	
6039530.218	2113750.88	6390.00	<1	
6039529.25	2113750.96	6020.00	<1	
6039528.282	2113751.04	5990.00	<1	
6039527.314	2113751.12	6110.00	<1	
6039526.345	2113751.20	5680.00	<1	
6039525.377	2113751.28	5890.00	<1	
6039524.409	2113751.36	6530.00	<1	
6039523.441	2113751.44	7240.00	1	
6039522.473	2113751.52	7240.00	1	
6039521.504	2113751.61	6920.00	1	
6039520.536	2113751.69	5780.00	<1	
6039519.568	2113751.77	6220.00	<1	
6039518.6	2113751.85	5690.00	<1	
6039517.631	2113751.93	5690.00	<1	
6039516.663	2113752.01	6520.00	<1	
6039515.695	2113752.09	6840.00	1	
6039514.727	2113752.17	6530.00	<1	
6039513.759	2113752.25	5510.00	<1	
6039512.79	2113752.34	5510.00	<1	
6039511.822	2113752.42	6320.00	<1	

Easting	Northing	Reading	Reach 2 Data Set	Comments
6039510.854	2113752.50	6470.00	<1	
6039509.886	2113752.58	6270.00	<1	
6039508.917	2113752.66	6750.00	<1	
6039507.949	2113752.74	6750.00	<1	
6039506.981	2113752.82	6330.00	<1	
6039506.013	2113752.90	6250.00	<1	
6039505.044	2113752.98	6450.00	<1	
6039504.076	2113753.07	6550.00	<1	
6039503.108	2113753.15	6550.00	<1	
6039502.14	2113753.23	5760.00	<1	
6039501.172	2113753.31	6390.00	<1	
6039500.203	2113753.39	5640.00	<1	
6039499.235	2113753.47	6240.00	<1	
6039498.267	2113753.55	6240.00	<1	
6039497.299	2113753.63	6140.00	<1	
6039496.33	2113753.71	5460.00	<1	
6039495.362	2113753.80	5740.00	<1	
6039494.394	2113753.88	5930.00	<1	
6039493.426	2113753.96	5930.00	<1	
6039492.458	2113754.04	6740.00	<1	
6039491.489	2113754.12	6470.00	<1	
6039490.521	2113754.20	5870.00	<1	
6039489.553	2113754.28	7010.00	1	
6039488.585	2113754.36	7010.00	1	
6039487.616	2113754.44	7030.00	1	
6039486.648	2113754.53	6360.00	<1	
6039485.68	2113754.61	7000.00	1	
6039484.712	2113754.69	6590.00	<1	
6039483.744	2113754.77	6590.00	<1	
6039482.775	2113754.85	7430.00	2	
6039481.807	2113754.93	7450.00	2	
6039480.839	2113755.01	6260.00	<1	
6039479.871	2113755.09	6740.00	<1	
6039478.902	2113755.17	6740.00	<1	
6039477.934	2113755.25	6660.00	<1	
6039476.966	2113755.34	6510.00	<1	
6039475.998	2113755.42	5820.00	<1	
6039475.03	2113755.50	6240.00	<1	
6039474.061	2113755.58	6240.00	<1	
6039473.093	2113755.66	5570.00	<1	
6039472.125	2113755.74	5970.00	<1	

Easting	Northing	Reading	Reach 2 Data Set	Comments
6039471.157	2113755.82	6380.00	<1	
6039470.188	2113755.90	6290.00	<1	
6039469.22	2113755.98	6290.00	<1	
6039468.252	2113756.07	5800.00	<1	

6244.05	Average
523.77	Std Dev
7815.35	3 Sigma
7880.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 3
Line: A

Main/Lateral: Lateral
Length (ft): 56
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 3 Data Set

Gamma Total CPS	
5621.53	Average
384.69	Std Dev
6775.61	3 Sigma
6770.00	Max

Sigma	Total Points
<1	106
1	7
2	5
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 3 Data Set	Comments
6039645.243	2113799.21	5330.00	<1	
6039645.201	2113798.74	5090.00	<1	
6039645.158	2113798.27	5600.00	<1	
6039645.115	2113797.81	5770.00	<1	
6039645.073	2113797.34	5970.00	<1	
6039645.03	2113796.87	5440.00	<1	
6039644.987	2113796.40	5440.00	<1	
6039644.945	2113795.93	5290.00	<1	
6039644.902	2113795.47	5110.00	<1	
6039644.859	2113795.00	5470.00	<1	
6039644.816	2113794.53	5670.00	<1	
6039644.774	2113794.06	5630.00	<1	
6039644.731	2113793.60	5680.00	<1	
6039644.688	2113793.13	5430.00	<1	
6039644.646	2113792.66	5550.00	<1	
6039644.603	2113792.19	6350.00	1	
6039644.56	2113791.72	5750.00	<1	
6039644.518	2113791.26	5630.00	<1	
6039644.475	2113790.79	5840.00	<1	
6039644.432	2113790.32	6070.00	1	

Easting	Northing	Reading	Reach 3 Data Set	Comments
6039644.39	2113789.85	5840.00	<1	
6039644.347	2113789.39	5620.00	<1	
6039644.304	2113788.92	6750.00	2	
6039644.261	2113788.45	5420.00	<1	
6039644.219	2113787.98	5770.00	<1	
6039644.176	2113787.51	5190.00	<1	
6039644.133	2113787.05	5190.00	<1	
6039644.091	2113786.58	5330.00	<1	
6039644.048	2113786.11	5790.00	<1	
6039644.005	2113785.64	6400.00	2	
6039643.963	2113785.17	5360.00	<1	
6039643.92	2113784.71	5810.00	<1	
6039643.877	2113784.24	6400.00	2	
6039643.835	2113783.77	5550.00	<1	
6039643.792	2113783.30	5450.00	<1	
6039643.749	2113782.84	5130.00	<1	
6039643.707	2113782.37	5130.00	<1	
6039643.664	2113781.90	6340.00	1	
6039643.621	2113781.43	5320.00	<1	
6039643.578	2113780.96	4960.00	<1	
6039643.536	2113780.50	5090.00	<1	
6039643.493	2113780.03	5360.00	<1	
6039643.45	2113779.56	5700.00	<1	
6039643.408	2113779.09	6770.00	2	
6039643.365	2113778.62	5970.00	<1	
6039643.322	2113778.16	5970.00	<1	
6039643.28	2113777.69	5350.00	<1	
6039643.237	2113777.22	5990.00	<1	
6039643.194	2113776.75	5610.00	<1	
6039643.152	2113776.29	5720.00	<1	
6039643.109	2113775.82	6150.00	1	
6039643.066	2113775.35	5240.00	<1	
6039643.023	2113774.88	5890.00	<1	
6039642.981	2113774.41	6330.00	1	
6039642.938	2113773.95	6160.00	1	
6039642.895	2113773.48	5250.00	<1	
6039642.853	2113773.01	5950.00	<1	
6039642.81	2113772.54	5950.00	<1	
6039642.767	2113772.08	5580.00	<1	
6039642.725	2113771.61	5410.00	<1	
6039642.682	2113771.14	5590.00	<1	

Easting	Northing	Reading	Reach 3 Data Set	Comments
6039642.639	2113770.67	5850.00	<1	
6039642.597	2113770.20	5850.00	<1	
6039642.554	2113769.74	6010.00	1	
6039642.511	2113769.27	5600.00	<1	
6039642.469	2113768.80	5780.00	<1	
6039642.426	2113768.33	5740.00	<1	
6039642.383	2113767.86	5920.00	<1	
6039642.34	2113767.40	5900.00	<1	
6039642.298	2113766.93	5330.00	<1	
6039642.255	2113766.46	5810.00	<1	
6039642.212	2113765.99	5990.00	<1	
6039642.17	2113765.53	5960.00	<1	
6039642.127	2113765.06	5820.00	<1	
6039642.084	2113764.59	5370.00	<1	
6039642.042	2113764.12	5580.00	<1	
6039641.999	2113763.65	5070.00	<1	
6039641.956	2113763.19	5250.00	<1	
6039641.914	2113762.72	5080.00	<1	
6039641.871	2113762.25	5600.00	<1	
6039641.828	2113761.78	5600.00	<1	
6039641.785	2113761.31	5670.00	<1	
6039641.743	2113760.85	5560.00	<1	
6039641.7	2113760.38	5760.00	<1	
6039641.657	2113759.91	5920.00	<1	
6039641.615	2113759.44	5920.00	<1	
6039641.572	2113758.98	5500.00	<1	
6039641.529	2113758.51	5630.00	<1	
6039641.487	2113758.04	5960.00	<1	
6039641.444	2113757.57	5610.00	<1	
6039641.401	2113757.10	5460.00	<1	
6039641.359	2113756.64	5410.00	<1	
6039641.316	2113756.17	5670.00	<1	
6039641.273	2113755.70	5620.00	<1	
6039641.23	2113755.23	5580.00	<1	
6039641.188	2113754.76	5890.00	<1	
6039641.145	2113754.30	5810.00	<1	
6039641.102	2113753.83	5840.00	<1	
6039641.06	2113753.36	5840.00	<1	
6039641.017	2113752.89	6670.00	2	
6039640.974	2113752.43	5670.00	<1	
6039640.932	2113751.96	5590.00	<1	

Easting	Northing	Reading	Reach 3 Data Set	Comments
6039640.889	2113751.49	5210.00	<1	
6039640.846	2113751.02	5210.00	<1	
6039640.804	2113750.55	5500.00	<1	
6039640.761	2113750.09	5450.00	<1	
6039640.718	2113749.62	5170.00	<1	
6039640.676	2113749.15	4790.00	<1	
6039640.633	2113748.68	4790.00	<1	
6039640.59	2113748.22	5490.00	<1	
6039640.547	2113747.75	5730.00	<1	
6039640.505	2113747.28	5470.00	<1	
6039640.462	2113746.81	5170.00	<1	
6039640.419	2113746.34	5170.00	<1	
6039640.377	2113745.88	5150.00	<1	
6039640.334	2113745.41	4770.00	<1	
6039639.109	2113743.65	5290.00	<1	
6039638.454	2113742.70	5400.00	<1	

5621.53	Average
384.69	Std Dev
6775.61	3 Sigma
6770.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 4
Line: A

Main/Lateral: Main
Length (ft): 300
Pipe Diameter (in): 24

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 4 Data Set

Gamma Total CPS	
6932.00	Average
646.15	Std Dev
8870.46	3 Sigma
9370.00	Max

Sigma	Total Points
<1	220
1	33
2	6
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 4 Data Set	Comments
6039464.266	2113756.40	6520.00	<1	
6039463.149	2113756.49	7390.00	<1	
6039462.031	2113756.58	7750.00	1	
6039460.914	2113756.68	8150.00	1	
6039459.796	2113756.77	7160.00	<1	
6039458.679	2113756.86	7390.00	<1	
6039457.562	2113756.96	6770.00	<1	
6039456.444	2113757.05	6120.00	<1	
6039455.327	2113757.14	6120.00	<1	
6039454.21	2113757.23	6950.00	<1	
6039453.092	2113757.33	7150.00	<1	
6039451.975	2113757.42	7550.00	<1	
6039450.858	2113757.51	6700.00	<1	
6039449.74	2113757.60	6770.00	<1	
6039448.623	2113757.70	6420.00	<1	
6039447.506	2113757.79	7070.00	<1	
6039446.388	2113757.88	7410.00	<1	
6039445.271	2113757.98	7410.00	<1	
6039444.154	2113758.07	7330.00	<1	
6039443.036	2113758.16	7500.00	<1	

Easting	Northing	Reading	Reach 4 Data Set	Comments
6039441.919	2113758.25	6870.00	<1	
6039440.802	2113758.35	7490.00	<1	
6039439.684	2113758.44	7610.00	1	
6039438.567	2113758.53	7140.00	<1	
6039437.45	2113758.62	6250.00	<1	
6039436.332	2113758.72	7650.00	1	
6039435.215	2113758.81	7650.00	1	
6039434.098	2113758.90	8710.00	2	
6039432.98	2113759.00	7160.00	<1	
6039431.863	2113759.09	7000.00	<1	
6039430.745	2113759.18	8030.00	1	
6039429.628	2113759.27	6790.00	<1	
6039428.511	2113759.37	8050.00	1	
6039427.393	2113759.46	7640.00	1	
6039426.276	2113759.55	7200.00	<1	
6039425.159	2113759.65	7200.00	<1	
6039424.041	2113759.74	6450.00	<1	
6039422.924	2113759.83	6450.00	<1	
6039421.807	2113759.92	7080.00	<1	
6039420.689	2113760.02	7080.00	<1	
6039419.572	2113760.11	7150.00	<1	
6039418.455	2113760.20	7650.00	1	
6039417.337	2113760.29	7460.00	<1	
6039416.22	2113760.39	7800.00	1	
6039415.103	2113760.48	7070.00	<1	
6039413.985	2113760.57	7020.00	<1	
6039412.868	2113760.67	6780.00	<1	
6039411.751	2113760.76	6780.00	<1	
6039410.633	2113760.85	7970.00	1	
6039409.516	2113760.94	6540.00	<1	
6039408.399	2113761.04	7750.00	1	
6039407.281	2113761.13	7890.00	1	
6039406.164	2113761.22	7890.00	1	
6039405.047	2113761.32	7110.00	<1	
6039403.929	2113761.41	6600.00	<1	
6039402.812	2113761.50	8030.00	1	
6039401.694	2113761.59	6870.00	<1	
6039400.577	2113761.69	6870.00	<1	
6039399.46	2113761.78	7190.00	<1	
6039398.342	2113761.87	7170.00	<1	
6039397.225	2113761.96	7110.00	<1	

Easting	Northing	Reading	Reach 4 Data Set	Comments
6039396.108	2113762.06	7740.00	1	
6039394.99	2113762.15	8030.00	1	
6039393.873	2113762.24	7490.00	<1	
6039392.756	2113762.34	6760.00	<1	
6039391.638	2113762.43	6910.00	<1	
6039390.521	2113762.52	6570.00	<1	
6039389.404	2113762.61	6150.00	<1	
6039388.286	2113762.71	7310.00	<1	
6039387.169	2113762.80	7510.00	<1	
6039386.052	2113762.89	7510.00	<1	
6039384.934	2113762.98	7040.00	<1	
6039383.817	2113763.08	7780.00	1	
6039382.7	2113763.17	6910.00	<1	
6039381.582	2113763.26	7030.00	<1	
6039380.465	2113763.36	7030.00	<1	
6039379.348	2113763.45	7570.00	<1	
6039378.23	2113763.54	6770.00	<1	
6039377.113	2113763.63	8100.00	1	
6039375.996	2113763.73	6330.00	<1	
6039374.878	2113763.82	6330.00	<1	
6039373.761	2113763.91	7190.00	<1	
6039372.643	2113764.01	8620.00	2	
6039371.526	2113764.10	8770.00	2	
6039370.409	2113764.19	6530.00	<1	
6039369.291	2113764.28	6530.00	<1	
6039368.174	2113764.38	9370.00	3	
6039367.057	2113764.47	6950.00	<1	
6039365.939	2113764.56	7270.00	<1	
6039364.822	2113764.65	7200.00	<1	
6039363.705	2113764.75	7200.00	<1	
6039362.587	2113764.84	6730.00	<1	
6039361.47	2113764.93	8550.00	2	
6039360.353	2113765.03	7630.00	1	
6039359.235	2113765.12	7590.00	1	
6039358.118	2113765.21	7590.00	1	
6039357.001	2113765.30	7100.00	<1	
6039355.883	2113765.40	7290.00	<1	
6039354.766	2113765.49	7330.00	<1	
6039353.649	2113765.58	8320.00	2	
6039352.531	2113765.68	8320.00	2	
6039351.414	2113765.77	8200.00	1	

Easting	Northing	Reading	Reach 4 Data Set	Comments
6039350.297	2113765.86	6740.00	<1	
6039349.179	2113765.95	6860.00	<1	
6039348.062	2113766.05	7480.00	<1	
6039346.945	2113766.14	7480.00	<1	
6039345.827	2113766.23	6910.00	<1	
6039344.71	2113766.32	6900.00	<1	
6039343.592	2113766.42	6350.00	<1	
6039342.475	2113766.51	5690.00	<1	
6039341.358	2113766.60	6590.00	<1	
6039340.24	2113766.70	6670.00	<1	
6039339.123	2113766.79	5980.00	<1	
6039338.006	2113766.88	6560.00	<1	
6039336.888	2113766.97	6140.00	<1	
6039335.771	2113767.07	6750.00	<1	
6039334.654	2113767.16	6080.00	<1	
6039333.536	2113767.25	7020.00	<1	
6039332.419	2113767.35	6370.00	<1	
6039331.302	2113767.44	8180.00	1	
6039330.184	2113767.53	6560.00	<1	
6039329.067	2113767.62	6750.00	<1	
6039327.95	2113767.72	6800.00	<1	
6039326.832	2113767.81	5440.00	<1	
6039325.715	2113767.90	6370.00	<1	
6039324.598	2113767.99	7310.00	<1	
6039323.48	2113768.09	7110.00	<1	
6039322.363	2113768.18	6110.00	<1	
6039321.246	2113768.27	7120.00	<1	
6039320.128	2113768.37	6840.00	<1	
6039319.011	2113768.46	7210.00	<1	
6039317.894	2113768.55	7310.00	<1	
6039316.776	2113768.64	6710.00	<1	
6039315.659	2113768.74	6390.00	<1	
6039314.542	2113768.83	6970.00	<1	
6039313.424	2113768.92	8200.00	1	
6039312.307	2113769.01	7810.00	1	
6039311.189	2113769.11	6400.00	<1	
6039310.072	2113769.20	6400.00	<1	
6039308.955	2113769.29	7190.00	<1	
6039307.837	2113769.39	7600.00	1	
6039306.72	2113769.48	6390.00	<1	
6039305.603	2113769.57	6790.00	<1	

Easting	Northing	Reading	Reach 4 Data Set	Comments
6039304.485	2113769.66	6390.00	<1	
6039303.368	2113769.76	7600.00	1	
6039302.251	2113769.85	7370.00	<1	
6039301.133	2113769.94	6420.00	<1	
6039300.016	2113770.04	7210.00	<1	
6039298.899	2113770.13	6880.00	<1	
6039297.781	2113770.22	7200.00	<1	
6039296.664	2113770.31	6940.00	<1	
6039295.547	2113770.41	7800.00	1	
6039294.429	2113770.50	6880.00	<1	
6039293.312	2113770.59	6140.00	<1	
6039292.195	2113770.68	6530.00	<1	
6039291.077	2113770.78	6740.00	<1	
6039289.96	2113770.87	7490.00	<1	
6039288.843	2113770.96	6260.00	<1	
6039287.725	2113771.06	5970.00	<1	
6039286.608	2113771.15	6680.00	<1	
6039285.491	2113771.24	7510.00	<1	
6039284.373	2113771.33	5630.00	<1	
6039283.256	2113771.43	6520.00	<1	
6039282.138	2113771.52	6610.00	<1	
6039281.021	2113771.61	6490.00	<1	
6039279.904	2113771.71	6130.00	<1	
6039278.786	2113771.80	7010.00	<1	
6039277.669	2113771.89	6490.00	<1	
6039276.552	2113771.98	6140.00	<1	
6039275.434	2113772.08	5720.00	<1	
6039274.317	2113772.17	5720.00	<1	
6039273.2	2113772.26	7580.00	1	
6039272.082	2113772.35	6380.00	<1	
6039270.965	2113772.45	6710.00	<1	
6039269.848	2113772.54	7250.00	<1	
6039268.73	2113772.63	7250.00	<1	
6039267.613	2113772.73	7350.00	<1	
6039266.496	2113772.82	7260.00	<1	
6039265.378	2113772.91	6940.00	<1	
6039264.261	2113773.00	6860.00	<1	
6039263.144	2113773.10	6860.00	<1	
6039262.026	2113773.19	6460.00	<1	
6039260.909	2113773.28	7420.00	<1	
6039259.792	2113773.37	5590.00	<1	

Easting	Northing	Reading	Reach 4 Data Set	Comments
6039258.674	2113773.47	6220.00	<1	
6039257.557	2113773.56	6830.00	<1	
6039256.44	2113773.65	6760.00	<1	
6039255.322	2113773.75	6610.00	<1	
6039254.205	2113773.84	6860.00	<1	
6039253.087	2113773.93	6260.00	<1	
6039251.97	2113774.02	5610.00	<1	
6039250.853	2113774.12	5590.00	<1	
6039249.735	2113774.21	5590.00	<1	
6039248.618	2113774.30	6200.00	<1	
6039247.501	2113774.40	6070.00	<1	
6039246.383	2113774.49	6910.00	<1	
6039245.266	2113774.58	6640.00	<1	
6039244.149	2113774.67	6640.00	<1	
6039243.031	2113774.77	7230.00	<1	
6039241.914	2113774.86	7020.00	<1	
6039240.797	2113774.95	7080.00	<1	
6039239.679	2113775.04	6400.00	<1	
6039238.562	2113775.14	6400.00	<1	
6039237.445	2113775.23	7370.00	<1	
6039236.327	2113775.32	7340.00	<1	
6039235.21	2113775.42	6890.00	<1	
6039234.093	2113775.51	6470.00	<1	
6039232.975	2113775.60	6050.00	<1	
6039231.858	2113775.69	5960.00	<1	
6039230.741	2113775.79	7380.00	<1	
6039229.623	2113775.88	6550.00	<1	
6039228.506	2113775.97	7310.00	<1	
6039227.389	2113776.07	6600.00	<1	
6039226.271	2113776.16	6950.00	<1	
6039225.154	2113776.25	7000.00	<1	
6039224.036	2113776.34	5810.00	<1	
6039222.919	2113776.44	6870.00	<1	
6039221.802	2113776.53	6870.00	<1	
6039220.684	2113776.62	7000.00	<1	
6039219.567	2113776.71	6770.00	<1	
6039218.45	2113776.81	6530.00	<1	
6039217.332	2113776.90	6310.00	<1	
6039216.215	2113776.99	6310.00	<1	
6039215.098	2113777.09	6450.00	<1	
6039213.98	2113777.18	7150.00	<1	

Easting	Northing	Reading	Reach 4 Data Set	Comments
6039212.863	2113777.27	7080.00	<1	
6039211.746	2113777.36	6530.00	<1	
6039210.628	2113777.46	6530.00	<1	
6039209.511	2113777.55	6120.00	<1	
6039208.394	2113777.64	5810.00	<1	
6039207.276	2113777.74	7790.00	1	
6039206.159	2113777.83	7270.00	<1	
6039205.042	2113777.92	7270.00	<1	
6039203.924	2113778.01	6380.00	<1	
6039202.807	2113778.11	5980.00	<1	
6039201.69	2113778.20	6140.00	<1	
6039200.572	2113778.29	5970.00	<1	
6039199.455	2113778.38	5970.00	<1	
6039198.338	2113778.48	6300.00	<1	
6039197.22	2113778.57	6650.00	<1	
6039196.103	2113778.66	7090.00	<1	
6039194.985	2113778.76	7040.00	<1	
6039193.868	2113778.85	7040.00	<1	
6039192.751	2113778.94	7040.00	<1	
6039191.633	2113779.03	6470.00	<1	
6039190.516	2113779.13	6960.00	<1	
6039189.399	2113779.22	7210.00	<1	
6039188.281	2113779.31	5990.00	<1	
6039187.164	2113779.40	7590.00	1	
6039186.047	2113779.50	6910.00	<1	
6039184.929	2113779.59	6820.00	<1	
6039183.812	2113779.68	6460.00	<1	
6039182.695	2113779.78	6640.00	<1	
6039181.577	2113779.87	5900.00	<1	
6039180.46	2113779.96	5890.00	<1	
6039179.343	2113780.05	6330.00	<1	
6039178.225	2113780.15	6830.00	<1	
6039177.108	2113780.24	6830.00	<1	
6039175.991	2113780.33	7100.00	<1	
6039174.873	2113780.43	7640.00	1	

6932.00	Average
646.15	Std Dev
8870.46	3 Sigma
9370.00	Max

Easting	Northing	Reading	Reach 4 Data Set	Comments

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 5
Line: A

Main/Lateral: Lateral
Length (ft): 56
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 5 Data Set

Gamma Total CPS	
6005.94	Average
481.37	Std Dev
7450.03	3 Sigma
7430.00	Max

Sigma	Total Points
<1	80
1	11
2	5
3	0
4	0
5	0
>6	0

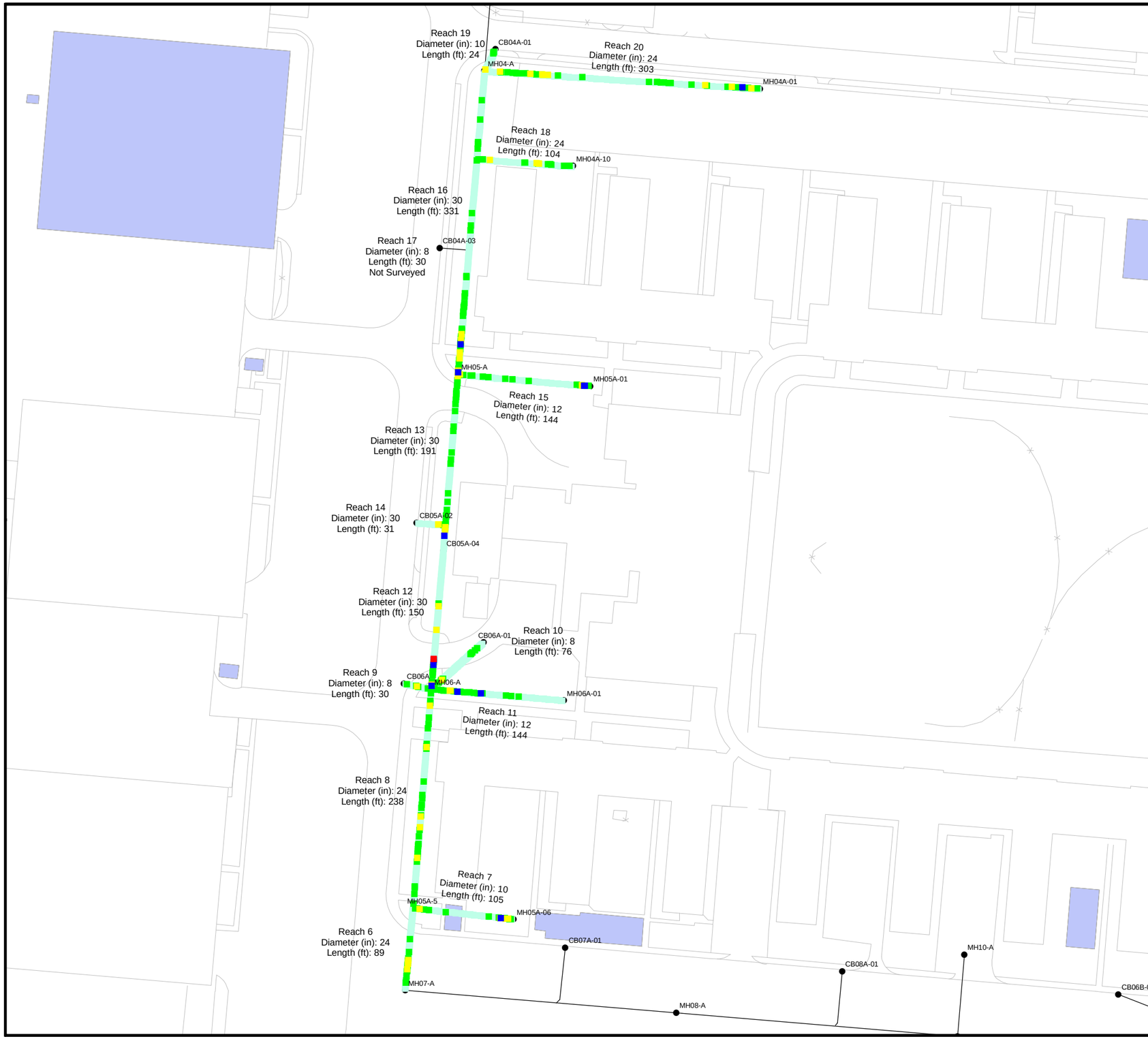
Easting	Northing	Reading	Reach 5 Data Set	Comments
6039345.908	2113824.50	5170.00	<1	
6039345.844	2113823.90	6330.00	<1	
6039345.78	2113823.30	6010.00	<1	
6039345.715	2113822.70	6000.00	<1	
6039345.651	2113822.10	6040.00	<1	
6039345.586	2113821.50	5520.00	<1	
6039345.522	2113820.90	6610.00	1	
6039345.458	2113820.30	5840.00	<1	
6039345.393	2113819.70	6200.00	<1	
6039345.329	2113819.10	6410.00	<1	
6039345.265	2113818.50	5880.00	<1	
6039345.2	2113817.90	5830.00	<1	
6039345.136	2113817.30	6390.00	<1	
6039345.071	2113816.69	5900.00	<1	
6039345.007	2113816.09	6450.00	<1	
6039344.943	2113815.49	5920.00	<1	
6039344.878	2113814.89	7430.00	2	
6039344.814	2113814.29	6060.00	<1	
6039344.75	2113813.69	6960.00	1	
6039344.685	2113813.09	6080.00	<1	

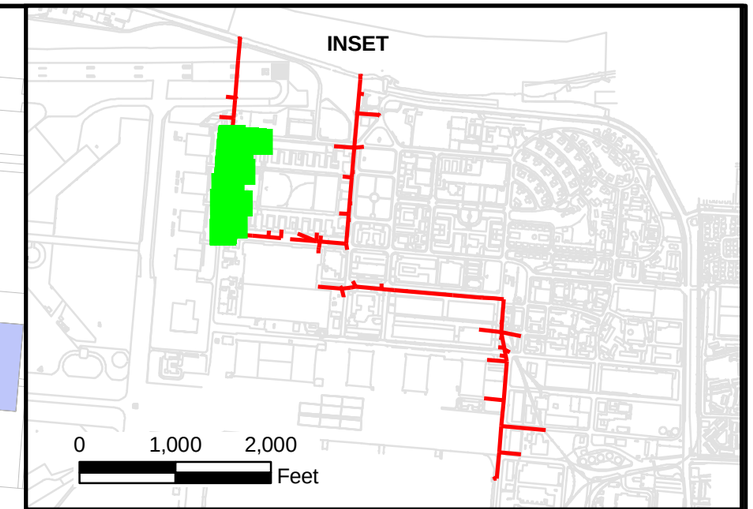
Easting	Northing	Reading	Reach 5 Data Set	Comments
6039344.621	2113812.49	5800.00	<1	
6039344.556	2113811.89	6570.00	1	
6039344.492	2113811.29	6680.00	1	
6039344.428	2113810.69	5890.00	<1	
6039344.363	2113810.09	5710.00	<1	
6039344.299	2113809.49	5920.00	<1	
6039344.235	2113808.89	5970.00	<1	
6039344.17	2113808.29	5780.00	<1	
6039344.106	2113807.69	5620.00	<1	
6039344.042	2113807.09	6030.00	<1	
6039343.977	2113806.49	6810.00	1	
6039343.913	2113805.89	5830.00	<1	
6039343.848	2113805.29	5910.00	<1	
6039343.784	2113804.69	5290.00	<1	
6039343.72	2113804.09	6410.00	<1	
6039343.655	2113803.49	6030.00	<1	
6039343.591	2113802.89	6600.00	1	
6039343.527	2113802.29	6490.00	1	
6039343.462	2113801.69	6720.00	1	
6039343.398	2113801.09	6260.00	<1	
6039343.333	2113800.49	6210.00	<1	
6039343.269	2113799.89	5830.00	<1	
6039343.205	2113799.28	6200.00	<1	
6039343.14	2113798.68	7050.00	2	
6039343.076	2113798.08	5590.00	<1	
6039343.012	2113797.48	5880.00	<1	
6039342.947	2113796.88	5760.00	<1	
6039342.883	2113796.28	5430.00	<1	
6039342.819	2113795.68	5830.00	<1	
6039342.754	2113795.08	6190.00	<1	
6039342.69	2113794.48	6550.00	1	
6039342.625	2113793.88	7200.00	2	
6039342.561	2113793.28	7030.00	2	
6039342.497	2113792.68	7110.00	2	
6039342.432	2113792.08	6210.00	<1	
6039342.368	2113791.48	6800.00	1	
6039342.304	2113790.88	6720.00	1	
6039342.239	2113790.28	6090.00	<1	
6039342.175	2113789.68	5360.00	<1	
6039342.11	2113789.08	5500.00	<1	
6039342.046	2113788.48	5940.00	<1	

Easting	Northing	Reading	Reach 5 Data Set	Comments
6039341.982	2113787.88	5910.00	<1	
6039341.917	2113787.28	5510.00	<1	
6039341.853	2113786.68	5370.00	<1	
6039341.789	2113786.08	5490.00	<1	
6039341.724	2113785.48	5960.00	<1	
6039341.66	2113784.88	5890.00	<1	
6039341.595	2113784.28	5980.00	<1	
6039341.531	2113783.68	6260.00	<1	
6039341.467	2113783.08	6140.00	<1	
6039341.402	2113782.47	5920.00	<1	
6039341.338	2113781.87	5660.00	<1	
6039341.274	2113781.27	5690.00	<1	
6039341.209	2113780.67	5380.00	<1	
6039341.145	2113780.07	5570.00	<1	
6039341.081	2113779.47	6060.00	<1	
6039341.016	2113778.87	5990.00	<1	
6039340.952	2113778.27	6240.00	<1	
6039340.887	2113777.67	5880.00	<1	
6039340.823	2113777.07	5910.00	<1	
6039340.759	2113776.47	5650.00	<1	
6039340.694	2113775.87	6080.00	<1	
6039340.63	2113775.27	5420.00	<1	
6039340.566	2113774.67	6160.00	<1	
6039340.501	2113774.07	5960.00	<1	
6039340.437	2113773.47	5310.00	<1	
6039340.372	2113772.87	5580.00	<1	
6039340.308	2113772.27	5190.00	<1	
6039340.244	2113771.67	5380.00	<1	
6039340.179	2113771.07	5430.00	<1	
6039340.115	2113770.47	5720.00	<1	
6039339.378	2113769.79	5390.00	<1	
6039338.804	2113769.27	5380.00	<1	
6039338.23	2113768.74	5700.00	<1	
6039337.656	2113768.22	5510.00	<1	
6039337.082	2113767.69	6070.00	<1	

6005.94	Average
481.37	Std Dev
7450.03	3 Sigma
7430.00	Max

Easting	Northing	Reading	Reach 5 Data Set	Comments





Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
6	8710
7	10671
8	8415
9	9599
10	5993
11	6732
12	13499
13	8574
14	6691
15	6742
16	5758
17	NA
18	8707
19	5494
20	8124

0 12.25 50 75 100
Feet

N

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 6 thru 20

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_06-20_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 6
Line: A

Main/Lateral: Main
Length (ft): 89
Pipe Diameter (in): 24

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 6 Data Set

Gamma Total CPS	
6700.81	Average
669.82	Std Dev
8710.26	3 Sigma
8550.00	Max

Sigma	Total Points
<1	93
1	14
2	4
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 6 Data Set	Comments
6039173.074	2113782.58	6720.00	<1	
6039173.149	2113783.35	6140.00	<1	
6039173.224	2113784.12	6510.00	<1	
6039173.299	2113784.89	7310.00	<1	
6039173.374	2113785.66	6700.00	<1	
6039173.449	2113786.43	6590.00	<1	
6039173.524	2113787.20	7100.00	<1	
6039173.599	2113787.96	6790.00	<1	
6039173.674	2113788.73	7620.00	1	
6039173.75	2113789.50	6450.00	<1	
6039173.825	2113790.27	6410.00	<1	
6039173.9	2113791.04	7680.00	1	
6039173.975	2113791.81	6570.00	<1	
6039174.05	2113792.58	6700.00	<1	
6039174.125	2113793.35	6700.00	<1	
6039174.2	2113794.12	6750.00	<1	
6039174.275	2113794.89	6440.00	<1	
6039174.35	2113795.65	7380.00	1	
6039174.425	2113796.42	7180.00	<1	
6039174.5	2113797.19	6310.00	<1	

Easting	Northing	Reading	Reach 6 Data Set	Comments
6039174.575	2113797.96	7350.00	<1	
6039174.65	2113798.73	6840.00	<1	
6039174.725	2113799.50	5960.00	<1	
6039174.8	2113800.27	6920.00	<1	
6039174.875	2113801.04	7440.00	1	
6039174.95	2113801.81	7580.00	1	
6039175.025	2113802.58	7640.00	1	
6039175.1	2113803.34	8440.00	2	
6039175.175	2113804.11	7160.00	<1	
6039175.25	2113804.88	6900.00	<1	
6039175.325	2113805.65	7050.00	<1	
6039175.4	2113806.42	7250.00	<1	
6039175.475	2113807.19	7410.00	1	
6039175.55	2113807.96	7570.00	1	
6039175.625	2113808.73	7670.00	1	
6039175.7	2113809.50	8550.00	2	
6039175.775	2113810.27	7400.00	1	
6039175.85	2113811.04	8440.00	2	
6039175.925	2113811.80	7290.00	<1	
6039176	2113812.57	7830.00	1	
6039176.075	2113813.34	8430.00	2	
6039176.15	2113814.11	7300.00	<1	
6039176.225	2113814.88	7510.00	1	
6039176.3	2113815.65	6390.00	<1	
6039176.375	2113816.42	6420.00	<1	
6039176.45	2113817.19	6220.00	<1	
6039176.525	2113817.96	5910.00	<1	
6039176.6	2113818.73	6260.00	<1	
6039176.675	2113819.49	5310.00	<1	
6039176.75	2113820.26	5930.00	<1	
6039176.825	2113821.03	6730.00	<1	
6039176.9	2113821.80	7500.00	1	
6039176.975	2113822.57	6440.00	<1	
6039177.051	2113823.34	7350.00	<1	
6039177.126	2113824.11	6440.00	<1	
6039177.201	2113824.88	5740.00	<1	
6039177.276	2113825.65	6990.00	<1	
6039177.351	2113826.42	6300.00	<1	
6039177.426	2113827.18	6960.00	<1	
6039177.501	2113827.95	6710.00	<1	
6039177.576	2113828.72	7270.00	<1	

Easting	Northing	Reading	Reach 6 Data Set	Comments
6039177.651	2113829.49	6930.00	<1	
6039177.726	2113830.26	6130.00	<1	
6039177.801	2113831.03	6890.00	<1	
6039177.876	2113831.80	5690.00	<1	
6039177.951	2113832.57	6390.00	<1	
6039178.026	2113833.34	6620.00	<1	
6039178.101	2113834.11	5670.00	<1	
6039178.176	2113834.87	5830.00	<1	
6039178.251	2113835.64	7540.00	1	
6039178.326	2113836.41	6250.00	<1	
6039178.401	2113837.18	5840.00	<1	
6039178.476	2113837.95	5530.00	<1	
6039178.551	2113838.72	6470.00	<1	
6039178.626	2113839.49	6180.00	<1	
6039178.701	2113840.26	6460.00	<1	
6039178.776	2113841.03	6230.00	<1	
6039178.851	2113841.80	6580.00	<1	
6039178.926	2113842.56	6190.00	<1	
6039179.001	2113843.33	6060.00	<1	
6039179.076	2113844.10	6170.00	<1	
6039179.151	2113844.87	6630.00	<1	
6039179.226	2113845.64	7090.00	<1	
6039179.301	2113846.41	7110.00	<1	
6039179.376	2113847.18	6560.00	<1	
6039179.451	2113847.95	6560.00	<1	
6039179.526	2113848.72	6320.00	<1	
6039179.601	2113849.49	6100.00	<1	
6039179.676	2113850.26	5450.00	<1	
6039179.751	2113851.02	6170.00	<1	
6039179.826	2113851.79	6930.00	<1	
6039179.901	2113852.56	6130.00	<1	
6039179.976	2113853.33	6070.00	<1	
6039180.051	2113854.10	7130.00	<1	
6039180.126	2113854.87	6250.00	<1	
6039180.201	2113855.64	7080.00	<1	
6039180.276	2113856.41	6440.00	<1	
6039180.352	2113857.18	5700.00	<1	
6039180.427	2113857.95	5900.00	<1	
6039180.502	2113858.71	5650.00	<1	
6039180.577	2113859.48	5790.00	<1	
6039180.652	2113860.25	6050.00	<1	

Easting	Northing	Reading	Reach 6 Data Set	Comments
6039180.727	2113861.02	6840.00	<1	
6039180.802	2113861.79	6070.00	<1	
6039180.877	2113862.56	6350.00	<1	
6039180.952	2113863.33	6610.00	<1	
6039181.027	2113864.10	6370.00	<1	
6039181.102	2113864.87	7300.00	<1	
6039181.177	2113865.64	6710.00	<1	
6039181.252	2113866.40	7250.00	<1	
6039181.327	2113867.17	6680.00	<1	

6700.81	Average
669.82	Std Dev
8710.26	3 Sigma
8550.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 7
Line: A

Main/Lateral: Lateral
Length (ft): 105
Pipe Diameter (in): 10

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 7 Data Set

Gamma Total CPS	
7665.12	Average
1002.02	Std Dev
10671.19	3 Sigma
11000.00	Max

Sigma	Total Points
<1	107
1	14
2	5
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 7 Data Set	Comments
6039288.172	2113857.52	8460.00	<1	
6039287.342	2113857.61	8790.00	1	
6039286.511	2113857.70	9000.00	1	
6039285.68	2113857.79	9320.00	1	
6039284.85	2113857.88	9120.00	1	
6039284.019	2113857.97	10100.00	2	
6039283.188	2113858.07	9950.00	2	
6039282.358	2113858.16	9060.00	1	
6039281.527	2113858.25	9710.00	2	
6039280.696	2113858.34	9060.00	1	
6039279.866	2113858.43	9470.00	1	
6039279.035	2113858.52	8330.00	<1	
6039278.204	2113858.61	8280.00	<1	
6039277.374	2113858.70	8480.00	<1	
6039276.543	2113858.79	11000.00	3	
6039275.712	2113858.88	10500.00	2	
6039274.882	2113858.97	7850.00	<1	
6039274.051	2113859.06	9200.00	1	
6039273.22	2113859.15	8080.00	<1	
6039272.39	2113859.24	8210.00	<1	

Easting	Northing	Reading	Reach 7 Data Set	Comments
6039271.559	2113859.33	7960.00	<1	
6039270.728	2113859.43	7310.00	<1	
6039269.898	2113859.52	8290.00	<1	
6039269.067	2113859.61	6490.00	<1	
6039268.236	2113859.70	7460.00	<1	
6039267.406	2113859.79	6750.00	<1	
6039266.575	2113859.88	6830.00	<1	
6039265.744	2113859.97	8590.00	<1	
6039264.914	2113860.06	7510.00	<1	
6039264.083	2113860.15	7880.00	<1	
6039263.252	2113860.24	9310.00	1	
6039262.422	2113860.33	6620.00	<1	
6039261.591	2113860.42	6830.00	<1	
6039260.76	2113860.51	6430.00	<1	
6039259.93	2113860.60	7770.00	<1	
6039259.099	2113860.70	6610.00	<1	
6039258.268	2113860.79	5930.00	<1	
6039257.438	2113860.88	7160.00	<1	
6039256.607	2113860.97	6370.00	<1	
6039255.776	2113861.06	6970.00	<1	
6039254.946	2113861.15	6170.00	<1	
6039254.115	2113861.24	7820.00	<1	
6039253.285	2113861.33	7340.00	<1	
6039252.454	2113861.42	6940.00	<1	
6039251.623	2113861.51	6680.00	<1	
6039250.793	2113861.60	6740.00	<1	
6039249.962	2113861.69	6680.00	<1	
6039249.131	2113861.78	7510.00	<1	
6039248.301	2113861.87	7290.00	<1	
6039247.47	2113861.96	6310.00	<1	
6039246.639	2113862.06	7000.00	<1	
6039245.809	2113862.15	7910.00	<1	
6039244.978	2113862.24	7810.00	<1	
6039244.147	2113862.33	6780.00	<1	
6039243.317	2113862.42	5960.00	<1	
6039242.486	2113862.51	8470.00	<1	
6039241.655	2113862.60	6680.00	<1	
6039240.825	2113862.69	7680.00	<1	
6039239.994	2113862.78	6070.00	<1	
6039239.163	2113862.87	8230.00	<1	
6039238.333	2113862.96	8040.00	<1	

Easting	Northing	Reading	Reach 7 Data Set	Comments
6039237.502	2113863.05	7480.00	<1	
6039236.671	2113863.14	7830.00	<1	
6039235.841	2113863.23	7310.00	<1	
6039235.01	2113863.32	7030.00	<1	
6039234.179	2113863.42	7590.00	<1	
6039233.349	2113863.51	7570.00	<1	
6039232.518	2113863.60	6830.00	<1	
6039231.687	2113863.69	7390.00	<1	
6039230.857	2113863.78	6330.00	<1	
6039230.026	2113863.87	6930.00	<1	
6039229.195	2113863.96	6900.00	<1	
6039228.365	2113864.05	7050.00	<1	
6039227.534	2113864.14	7610.00	<1	
6039226.703	2113864.23	7100.00	<1	
6039225.873	2113864.32	7760.00	<1	
6039225.042	2113864.41	6890.00	<1	
6039224.211	2113864.50	8040.00	<1	
6039223.381	2113864.59	7590.00	<1	
6039222.55	2113864.68	6420.00	<1	
6039221.719	2113864.78	6630.00	<1	
6039220.889	2113864.87	6800.00	<1	
6039220.058	2113864.96	7870.00	<1	
6039219.228	2113865.05	6880.00	<1	
6039218.397	2113865.14	6930.00	<1	
6039217.566	2113865.23	7010.00	<1	
6039216.736	2113865.32	8730.00	1	
6039215.905	2113865.41	7310.00	<1	
6039215.074	2113865.50	7290.00	<1	
6039214.244	2113865.59	6070.00	<1	
6039213.413	2113865.68	6560.00	<1	
6039212.582	2113865.77	7750.00	<1	
6039211.752	2113865.86	7450.00	<1	
6039210.921	2113865.95	7190.00	<1	
6039210.09	2113866.05	7060.00	<1	
6039209.26	2113866.14	7760.00	<1	
6039208.429	2113866.23	6980.00	<1	
6039207.598	2113866.32	8080.00	<1	
6039206.768	2113866.41	6640.00	<1	
6039205.937	2113866.50	7050.00	<1	
6039205.106	2113866.59	7270.00	<1	
6039204.276	2113866.68	7180.00	<1	

Easting	Northing	Reading	Reach 7 Data Set	Comments
6039203.445	2113866.77	7640.00	<1	
6039202.614	2113866.86	8450.00	<1	
6039201.784	2113866.95	7170.00	<1	
6039200.953	2113867.04	7030.00	<1	
6039200.122	2113867.13	7130.00	<1	
6039199.292	2113867.22	8010.00	<1	
6039198.461	2113867.31	8800.00	1	
6039197.63	2113867.41	8160.00	<1	
6039196.8	2113867.50	7040.00	<1	
6039195.969	2113867.59	7800.00	<1	
6039195.138	2113867.68	7440.00	<1	
6039194.308	2113867.77	6890.00	<1	
6039193.477	2113867.86	8690.00	1	
6039192.646	2113867.95	8010.00	<1	
6039191.816	2113868.04	7560.00	<1	
6039190.985	2113868.13	6680.00	<1	
6039190.154	2113868.22	7690.00	<1	
6039189.324	2113868.31	8130.00	<1	
6039188.493	2113868.40	10300.00	2	
6039187.662	2113868.49	8390.00	<1	
6039186.832	2113868.58	8280.00	<1	
6039186.001	2113868.67	8860.00	1	
6039185.171	2113868.77	8410.00	<1	
6039184.34	2113868.86	8420.00	<1	
6039183.509	2113868.95	9200.00	1	

7665.12	Average
1002.02	Std Dev
10671.19	3 Sigma
11000.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 8
Line: A

Main/Lateral: Main
Length (ft): 238
Pipe Diameter (in): 24

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 8 Data Set

Gamma Total CPS	
6780.44	Average
544.93	Std Dev
8415.24	3 Sigma
8120.00	Max

Sigma	Total Points
<1	170
1	29
2	5
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 8 Data Set	Comments
6039181.686	2113871.16	6510.00	<1	
6039181.781	2113872.30	6750.00	<1	
6039181.876	2113873.45	6640.00	<1	
6039181.971	2113874.60	7410.00	1	
6039182.066	2113875.75	6670.00	<1	
6039182.161	2113876.89	6870.00	<1	
6039182.256	2113878.04	6160.00	<1	
6039182.351	2113879.19	6730.00	<1	
6039182.446	2113880.33	6170.00	<1	
6039182.541	2113881.48	6810.00	<1	
6039182.636	2113882.63	7210.00	<1	
6039182.731	2113883.78	6710.00	<1	
6039182.826	2113884.92	7510.00	1	
6039182.921	2113886.07	6850.00	<1	
6039183.016	2113887.22	7090.00	<1	
6039183.111	2113888.37	7000.00	<1	
6039183.206	2113889.51	6960.00	<1	
6039183.301	2113890.66	7140.00	<1	
6039183.396	2113891.81	7590.00	1	
6039183.491	2113892.95	7450.00	1	

Easting	Northing	Reading	Reach 8 Data Set	Comments
6039183.586	2113894.10	6870.00	<1	
6039183.681	2113895.25	7030.00	<1	
6039183.776	2113896.40	5950.00	<1	
6039183.871	2113897.54	6170.00	<1	
6039183.966	2113898.69	6460.00	<1	
6039184.061	2113899.84	6130.00	<1	
6039184.156	2113900.98	6350.00	<1	
6039184.251	2113902.13	6750.00	<1	
6039184.346	2113903.28	5840.00	<1	
6039184.441	2113904.43	6960.00	<1	
6039184.536	2113905.57	6770.00	<1	
6039184.631	2113906.72	6510.00	<1	
6039184.726	2113907.87	5920.00	<1	
6039184.821	2113909.02	6270.00	<1	
6039184.916	2113910.16	6310.00	<1	
6039185.011	2113911.31	6780.00	<1	
6039185.106	2113912.46	6780.00	<1	
6039185.201	2113913.60	6200.00	<1	
6039185.296	2113914.75	6640.00	<1	
6039185.391	2113915.90	6140.00	<1	
6039185.486	2113917.05	6520.00	<1	
6039185.581	2113918.19	5580.00	<1	
6039185.676	2113919.34	7370.00	1	
6039185.771	2113920.49	6530.00	<1	
6039185.866	2113921.63	7110.00	<1	
6039185.961	2113922.78	7130.00	<1	
6039186.056	2113923.93	8020.00	2	
6039186.151	2113925.08	7770.00	1	
6039186.246	2113926.22	6100.00	<1	
6039186.341	2113927.37	6790.00	<1	
6039186.436	2113928.52	7530.00	1	
6039186.531	2113929.67	6940.00	<1	
6039186.626	2113930.81	7360.00	1	
6039186.721	2113931.96	7020.00	<1	
6039186.816	2113933.11	7860.00	1	
6039186.911	2113934.25	7310.00	<1	
6039187.006	2113935.40	7210.00	<1	
6039187.101	2113936.55	7730.00	1	
6039187.196	2113937.70	7630.00	1	
6039187.291	2113938.84	7610.00	1	
6039187.386	2113939.99	7140.00	<1	

Easting	Northing	Reading	Reach 8 Data Set	Comments
6039187.481	2113941.14	6660.00	<1	
6039187.576	2113942.28	6880.00	<1	
6039187.671	2113943.43	7300.00	<1	
6039187.766	2113944.58	6420.00	<1	
6039187.861	2113945.73	6960.00	<1	
6039187.956	2113946.87	7470.00	1	
6039188.051	2113948.02	6820.00	<1	
6039188.146	2113949.17	7320.00	<1	
6039188.241	2113950.32	6780.00	<1	
6039188.336	2113951.46	6770.00	<1	
6039188.431	2113952.61	7140.00	<1	
6039188.526	2113953.76	7330.00	1	
6039188.621	2113954.90	6590.00	<1	
6039188.716	2113956.05	7220.00	<1	
6039188.811	2113957.20	8120.00	2	
6039188.906	2113958.35	6300.00	<1	
6039189.001	2113959.49	6320.00	<1	
6039189.096	2113960.64	6240.00	<1	
6039189.191	2113961.79	7160.00	<1	
6039189.286	2113962.93	6630.00	<1	
6039189.381	2113964.08	7170.00	<1	
6039189.476	2113965.23	7310.00	<1	
6039189.571	2113966.38	6910.00	<1	
6039189.666	2113967.52	7150.00	<1	
6039189.761	2113968.67	7980.00	2	
6039189.856	2113969.82	7680.00	1	
6039189.951	2113970.97	6250.00	<1	
6039190.046	2113972.11	6370.00	<1	
6039190.141	2113973.26	6800.00	<1	
6039190.236	2113974.41	7150.00	<1	
6039190.331	2113975.55	7090.00	<1	
6039190.426	2113976.70	6830.00	<1	
6039190.521	2113977.85	7510.00	1	
6039190.616	2113979.00	6300.00	<1	
6039190.711	2113980.14	7020.00	<1	
6039190.806	2113981.29	7480.00	1	
6039190.901	2113982.44	6230.00	<1	
6039190.996	2113983.58	6920.00	<1	
6039191.091	2113984.73	5930.00	<1	
6039191.186	2113985.88	6420.00	<1	
6039191.281	2113987.03	7010.00	<1	

Easting	Northing	Reading	Reach 8 Data Set	Comments
6039191.376	2113988.17	7340.00	1	
6039191.471	2113989.32	6960.00	<1	
6039191.566	2113990.47	6350.00	<1	
6039191.661	2113991.61	7620.00	1	
6039191.756	2113992.76	6680.00	<1	
6039191.851	2113993.91	6250.00	<1	
6039191.946	2113995.06	6260.00	<1	
6039192.041	2113996.20	6250.00	<1	
6039192.136	2113997.35	6660.00	<1	
6039192.231	2113998.50	6110.00	<1	
6039192.326	2113999.65	7240.00	<1	
6039192.421	2114000.79	6390.00	<1	
6039192.516	2114001.94	6760.00	<1	
6039192.611	2114003.09	6840.00	<1	
6039192.706	2114004.23	6720.00	<1	
6039192.801	2114005.38	7260.00	<1	
6039192.896	2114006.53	7400.00	1	
6039192.991	2114007.68	5930.00	<1	
6039193.086	2114008.82	5980.00	<1	
6039193.181	2114009.97	6740.00	<1	
6039193.276	2114011.12	6040.00	<1	
6039193.371	2114012.26	6490.00	<1	
6039193.466	2114013.41	6480.00	<1	
6039193.561	2114014.56	6740.00	<1	
6039193.656	2114015.71	7040.00	<1	
6039193.751	2114016.85	6740.00	<1	
6039193.846	2114018.00	6680.00	<1	
6039193.941	2114019.15	6900.00	<1	
6039194.036	2114020.30	6810.00	<1	
6039194.131	2114021.44	7220.00	<1	
6039194.226	2114022.59	7280.00	<1	
6039194.321	2114023.74	5500.00	<1	
6039194.416	2114024.88	6670.00	<1	
6039194.511	2114026.03	7140.00	<1	
6039194.606	2114027.18	6090.00	<1	
6039194.701	2114028.33	5950.00	<1	
6039194.796	2114029.47	6400.00	<1	
6039194.891	2114030.62	7010.00	<1	
6039194.986	2114031.77	5540.00	<1	
6039195.081	2114032.91	6720.00	<1	
6039195.176	2114034.06	6590.00	<1	

Easting	Northing	Reading	Reach 8 Data Set	Comments
6039195.271	2114035.21	6110.00	<1	
6039195.366	2114036.36	5690.00	<1	
6039195.461	2114037.50	5980.00	<1	
6039195.556	2114038.65	6210.00	<1	
6039195.651	2114039.80	6160.00	<1	
6039195.746	2114040.95	6120.00	<1	
6039195.841	2114042.09	7630.00	1	
6039195.936	2114043.24	8000.00	2	
6039196.031	2114044.39	7600.00	1	
6039196.126	2114045.53	6730.00	<1	
6039196.22	2114046.68	7330.00	1	
6039196.315	2114047.83	7040.00	<1	
6039196.41	2114048.98	6000.00	<1	
6039196.505	2114050.12	5660.00	<1	
6039196.6	2114051.27	6040.00	<1	
6039196.695	2114052.42	6400.00	<1	
6039196.79	2114053.56	6090.00	<1	
6039196.885	2114054.71	6780.00	<1	
6039196.98	2114055.86	6200.00	<1	
6039197.075	2114057.01	7070.00	<1	
6039197.17	2114058.15	5980.00	<1	
6039197.265	2114059.30	6410.00	<1	
6039197.36	2114060.45	7080.00	<1	
6039197.455	2114061.60	6230.00	<1	
6039197.55	2114062.74	6590.00	<1	
6039197.645	2114063.89	7420.00	1	
6039197.74	2114065.04	7190.00	<1	
6039197.835	2114066.18	6620.00	<1	
6039197.93	2114067.33	5570.00	<1	
6039198.025	2114068.48	7430.00	1	
6039198.12	2114069.63	6560.00	<1	
6039198.215	2114070.77	7120.00	<1	
6039198.31	2114071.92	6280.00	<1	
6039198.405	2114073.07	7040.00	<1	
6039198.5	2114074.21	6830.00	<1	
6039198.595	2114075.36	7330.00	1	
6039198.69	2114076.51	6720.00	<1	
6039198.785	2114077.66	5870.00	<1	
6039198.88	2114078.80	6680.00	<1	
6039198.975	2114079.95	6830.00	<1	
6039199.07	2114081.10	6770.00	<1	

Easting	Northing	Reading	Reach 8 Data Set	Comments
6039199.165	2114082.25	6770.00	<1	
6039199.26	2114083.39	7020.00	<1	
6039199.355	2114084.54	6960.00	<1	
6039199.45	2114085.69	6830.00	<1	
6039199.545	2114086.83	7190.00	<1	
6039199.64	2114087.98	7930.00	2	
6039199.735	2114089.13	6630.00	<1	
6039199.83	2114090.28	7170.00	<1	
6039199.925	2114091.42	7360.00	1	
6039200.02	2114092.57	7040.00	<1	
6039200.115	2114093.72	7770.00	1	
6039200.21	2114094.86	6730.00	<1	
6039200.305	2114096.01	6770.00	<1	
6039200.4	2114097.16	6440.00	<1	
6039200.495	2114098.31	6180.00	<1	
6039200.59	2114099.45	7060.00	<1	
6039200.685	2114100.60	7160.00	<1	
6039200.78	2114101.75	7360.00	1	
6039200.875	2114102.89	6390.00	<1	
6039200.97	2114104.04	6030.00	<1	

6780.44	Average
544.93	Std Dev
8415.24	3 Sigma
8120.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 9
Line: A

Main/Lateral: Lateral
Length (ft): 30
Pipe Diameter (in): 8

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 9 Data Set

Gamma Total CPS	
8196.97	Average
467.18	Std Dev
9598.52	3 Sigma
9310.00	Max

Sigma	Total Points
<1	27
1	5
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 9 Data Set	Comments
6039173.319	2114111.91	7800.00	<1	
6039174.127	2114111.74	7560.00	<1	
6039174.935	2114111.57	8990.00	1	
6039175.743	2114111.40	7870.00	<1	
6039176.552	2114111.23	7500.00	<1	
6039177.36	2114111.06	7550.00	<1	
6039178.168	2114110.89	8610.00	<1	
6039178.976	2114110.72	8390.00	<1	
6039179.784	2114110.55	7920.00	<1	
6039180.592	2114110.38	7900.00	<1	
6039181.4	2114110.21	7990.00	<1	
6039182.208	2114110.04	7410.00	<1	
6039183.016	2114109.87	8390.00	<1	
6039183.825	2114109.69	8140.00	<1	
6039184.633	2114109.52	8980.00	1	
6039185.441	2114109.35	9310.00	2	
6039186.249	2114109.18	8390.00	<1	
6039187.057	2114109.01	8800.00	1	
6039187.865	2114108.84	8060.00	<1	
6039188.673	2114108.67	8200.00	<1	

Easting	Northing	Reading	Reach 9 Data Set	Comments
6039189.481	2114108.50	8340.00	<1	
6039190.289	2114108.33	8320.00	<1	
6039191.098	2114108.16	8450.00	<1	
6039191.906	2114107.99	7950.00	<1	
6039192.714	2114107.82	7770.00	<1	
6039193.522	2114107.64	8140.00	<1	
6039194.33	2114107.47	8410.00	<1	
6039195.138	2114107.30	8180.00	<1	
6039195.946	2114107.13	8220.00	<1	
6039196.754	2114106.96	7870.00	<1	
6039197.562	2114106.79	8730.00	1	
6039198.37	2114106.62	8750.00	1	
6039199.179	2114106.45	7610.00	<1	

8196.97	Average
467.18	Std Dev
9598.52	3 Sigma
9310.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 10
Line: A

Main/Lateral: Lateral
Length (ft): 76
Pipe Diameter (in): 8

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 10 Data Set

Gamma Total CPS	
4638.46	Average
451.53	Std Dev
5993.05	3 Sigma
5730.00	Max

Sigma	Total Points
<1	77
1	13
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 10 Data Set	Comments
6039256.21	2114155.42	3240.00	<1	
6039255.614	2114154.89	3820.00	<1	
6039255.019	2114154.35	3690.00	<1	
6039254.423	2114153.82	4310.00	<1	
6039253.828	2114153.29	4440.00	<1	
6039253.233	2114152.75	4440.00	<1	
6039252.637	2114152.22	4560.00	<1	
6039252.042	2114151.69	4710.00	<1	
6039251.446	2114151.15	4720.00	<1	
6039250.851	2114150.62	5170.00	1	
6039250.256	2114150.08	5000.00	<1	
6039249.66	2114149.55	4910.00	<1	
6039249.065	2114149.02	4800.00	<1	
6039248.47	2114148.48	5150.00	1	
6039247.874	2114147.95	4680.00	<1	
6039247.279	2114147.41	4790.00	<1	
6039246.683	2114146.88	4980.00	<1	
6039246.088	2114146.35	4780.00	<1	
6039245.493	2114145.81	5170.00	1	
6039244.897	2114145.28	4830.00	<1	

Easting	Northing	Reading	Reach 10 Data Set	Comments
6039244.302	2114144.74	5420.00	1	
6039243.706	2114144.21	5250.00	1	
6039243.111	2114143.68	4830.00	<1	
6039242.516	2114143.14	4820.00	<1	
6039241.92	2114142.61	4380.00	<1	
6039241.325	2114142.07	4360.00	<1	
6039240.729	2114141.54	4610.00	<1	
6039240.134	2114141.01	4660.00	<1	
6039239.539	2114140.47	4740.00	<1	
6039238.943	2114139.94	4940.00	<1	
6039238.348	2114139.41	4500.00	<1	
6039237.752	2114138.87	4940.00	<1	
6039237.157	2114138.34	4380.00	<1	
6039236.562	2114137.80	4620.00	<1	
6039235.966	2114137.27	4240.00	<1	
6039235.371	2114136.74	4270.00	<1	
6039234.775	2114136.20	4630.00	<1	
6039234.18	2114135.67	4770.00	<1	
6039233.585	2114135.13	4300.00	<1	
6039232.989	2114134.60	4450.00	<1	
6039232.394	2114134.07	4020.00	<1	
6039231.799	2114133.53	3850.00	<1	
6039231.203	2114133.00	3920.00	<1	
6039230.608	2114132.46	3880.00	<1	
6039230.012	2114131.93	4070.00	<1	
6039229.417	2114131.40	4330.00	<1	
6039228.822	2114130.86	4350.00	<1	
6039228.226	2114130.33	4550.00	<1	
6039227.631	2114129.79	4020.00	<1	
6039227.035	2114129.26	3870.00	<1	
6039226.44	2114128.73	4090.00	<1	
6039225.845	2114128.19	4810.00	<1	
6039225.249	2114127.66	4520.00	<1	
6039224.654	2114127.13	4700.00	<1	
6039224.058	2114126.59	4190.00	<1	
6039223.463	2114126.06	3860.00	<1	
6039222.868	2114125.52	3830.00	<1	
6039222.272	2114124.99	4090.00	<1	
6039221.677	2114124.46	4380.00	<1	
6039221.081	2114123.92	4420.00	<1	
6039220.486	2114123.39	4960.00	<1	

Easting	Northing	Reading	Reach 10 Data Set	Comments
6039219.891	2114122.85	4280.00	<1	
6039219.295	2114122.32	4550.00	<1	
6039218.7	2114121.79	4550.00	<1	
6039218.105	2114121.25	4740.00	<1	
6039217.509	2114120.72	4830.00	<1	
6039216.914	2114120.18	4620.00	<1	
6039216.318	2114119.65	4860.00	<1	
6039215.723	2114119.12	5070.00	<1	
6039215.128	2114118.58	4980.00	<1	
6039214.532	2114118.05	4890.00	<1	
6039213.937	2114117.51	5410.00	1	
6039213.341	2114116.98	5310.00	1	
6039212.746	2114116.45	5730.00	2	
6039212.151	2114115.91	5160.00	1	
6039211.555	2114115.38	5150.00	1	
6039210.96	2114114.85	4540.00	<1	
6039210.364	2114114.31	4360.00	<1	
6039209.769	2114113.78	4900.00	<1	
6039209.174	2114113.24	5090.00	1	
6039208.578	2114112.71	4690.00	<1	
6039207.983	2114112.18	5080.00	<1	
6039207.387	2114111.64	5040.00	<1	
6039206.792	2114111.11	4980.00	<1	
6039206.197	2114110.57	4960.00	<1	
6039205.601	2114110.04	4960.00	<1	
6039205.006	2114109.51	5010.00	<1	
6039204.411	2114108.97	5340.00	1	
6039203.815	2114108.44	4790.00	<1	
6039203.22	2114107.90	5120.00	1	
6039202.624	2114107.37	5100.00	1	

4638.46	Average
451.53	Std Dev
5993.05	3 Sigma
5730.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 11
Line: A

Main/Lateral: Lateral
Length (ft): 144
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 11 Data Set

Gamma Total CPS	
5610.94	Average
373.61	Std Dev
6731.78	3 Sigma
7050.00	Max

Sigma	Total Points
<1	149
1	18
2	2
3	2
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 11 Data Set	Comments
6039342.647	2114094.08	5480.00	<1	
6039341.826	2114094.15	5530.00	<1	
6039341.005	2114094.22	5890.00	<1	
6039340.185	2114094.29	5870.00	<1	
6039339.364	2114094.36	5810.00	<1	
6039338.543	2114094.42	4990.00	<1	
6039337.723	2114094.49	5280.00	<1	
6039336.902	2114094.56	5650.00	<1	
6039336.081	2114094.63	5570.00	<1	
6039335.261	2114094.70	5130.00	<1	
6039334.44	2114094.77	5120.00	<1	
6039333.619	2114094.84	5410.00	<1	
6039332.798	2114094.91	5600.00	<1	
6039331.978	2114094.98	5270.00	<1	
6039331.157	2114095.05	5760.00	<1	
6039330.336	2114095.12	5800.00	<1	
6039329.516	2114095.19	5550.00	<1	
6039328.695	2114095.26	5160.00	<1	
6039327.874	2114095.33	5490.00	<1	
6039327.054	2114095.40	5510.00	<1	

Easting	Northing	Reading	Reach 11 Data Set	Comments
6039326.233	2114095.47	5300.00	<1	
6039325.412	2114095.53	5360.00	<1	
6039324.591	2114095.60	5410.00	<1	
6039323.771	2114095.67	5780.00	<1	
6039322.95	2114095.74	5020.00	<1	
6039322.129	2114095.81	5390.00	<1	
6039321.309	2114095.88	5790.00	<1	
6039320.488	2114095.95	4980.00	<1	
6039319.667	2114096.02	5470.00	<1	
6039318.847	2114096.09	5330.00	<1	
6039318.026	2114096.16	5320.00	<1	
6039317.205	2114096.23	5470.00	<1	
6039316.385	2114096.30	4920.00	<1	
6039315.564	2114096.37	4960.00	<1	
6039314.743	2114096.44	5290.00	<1	
6039313.922	2114096.51	5620.00	<1	
6039313.102	2114096.57	5440.00	<1	
6039312.281	2114096.64	5440.00	<1	
6039311.46	2114096.71	5670.00	<1	
6039310.64	2114096.78	5600.00	<1	
6039309.819	2114096.85	5330.00	<1	
6039308.998	2114096.92	5500.00	<1	
6039308.178	2114096.99	5130.00	<1	
6039307.357	2114097.06	5700.00	<1	
6039306.536	2114097.13	5250.00	<1	
6039305.715	2114097.20	4960.00	<1	
6039304.895	2114097.27	5340.00	<1	
6039304.074	2114097.34	5670.00	<1	
6039303.253	2114097.41	5690.00	<1	
6039302.433	2114097.48	5290.00	<1	
6039301.612	2114097.55	5040.00	<1	
6039300.791	2114097.61	5550.00	<1	
6039299.971	2114097.68	5460.00	<1	
6039299.15	2114097.75	5380.00	<1	
6039298.329	2114097.82	5410.00	<1	
6039297.508	2114097.89	5330.00	<1	
6039296.688	2114097.96	5320.00	<1	
6039295.867	2114098.03	6050.00	1	
6039295.046	2114098.10	5670.00	<1	
6039294.226	2114098.17	5650.00	<1	
6039293.405	2114098.24	5140.00	<1	

Easting	Northing	Reading	Reach 11 Data Set	Comments
6039292.584	2114098.31	5170.00	<1	
6039291.764	2114098.38	5330.00	<1	
6039290.943	2114098.45	5090.00	<1	
6039290.122	2114098.52	5240.00	<1	
6039289.302	2114098.59	4830.00	<1	
6039288.481	2114098.65	5280.00	<1	
6039287.66	2114098.72	6070.00	1	
6039286.839	2114098.79	5830.00	<1	
6039286.019	2114098.86	5550.00	<1	
6039285.198	2114098.93	5400.00	<1	
6039284.377	2114099.00	4700.00	<1	
6039283.557	2114099.07	4680.00	<1	
6039282.736	2114099.14	5380.00	<1	
6039281.915	2114099.21	6090.00	1	
6039281.095	2114099.28	5300.00	<1	
6039280.274	2114099.35	4780.00	<1	
6039279.453	2114099.42	5840.00	<1	
6039278.632	2114099.49	5850.00	<1	
6039277.812	2114099.56	5600.00	<1	
6039276.991	2114099.63	5530.00	<1	
6039276.17	2114099.70	5490.00	<1	
6039275.35	2114099.76	5290.00	<1	
6039274.529	2114099.83	5380.00	<1	
6039273.708	2114099.90	5580.00	<1	
6039272.888	2114099.97	5850.00	<1	
6039272.067	2114100.04	5510.00	<1	
6039271.246	2114100.11	5430.00	<1	
6039270.425	2114100.18	5740.00	<1	
6039269.605	2114100.25	5500.00	<1	
6039268.784	2114100.32	5760.00	<1	
6039267.963	2114100.39	5480.00	<1	
6039267.143	2114100.46	5920.00	<1	
6039266.322	2114100.53	5500.00	<1	
6039265.501	2114100.60	5850.00	<1	
6039264.681	2114100.67	5980.00	<1	
6039263.86	2114100.74	5970.00	<1	
6039263.039	2114100.80	5930.00	<1	
6039262.218	2114100.87	5810.00	<1	
6039261.398	2114100.94	5520.00	<1	
6039260.577	2114101.01	5690.00	<1	
6039259.756	2114101.08	5700.00	<1	

Easting	Northing	Reading	Reach 11 Data Set	Comments
6039258.936	2114101.15	5650.00	<1	
6039258.115	2114101.22	5380.00	<1	
6039257.294	2114101.29	5980.00	<1	
6039256.474	2114101.36	6080.00	1	
6039255.653	2114101.43	6230.00	1	
6039254.832	2114101.50	6920.00	3	
6039254.012	2114101.57	6310.00	1	
6039253.191	2114101.64	5440.00	<1	
6039252.37	2114101.71	6000.00	1	
6039251.549	2114101.78	6260.00	1	
6039250.729	2114101.84	5810.00	<1	
6039249.908	2114101.91	5760.00	<1	
6039249.087	2114101.98	5670.00	<1	
6039248.267	2114102.05	5830.00	<1	
6039247.446	2114102.12	6130.00	1	
6039246.625	2114102.19	5750.00	<1	
6039245.805	2114102.26	5680.00	<1	
6039244.984	2114102.33	5960.00	<1	
6039244.163	2114102.40	5490.00	<1	
6039243.342	2114102.47	5540.00	<1	
6039242.522	2114102.54	5990.00	1	
6039241.701	2114102.61	5610.00	<1	
6039240.88	2114102.68	5450.00	<1	
6039240.06	2114102.75	5710.00	<1	
6039239.239	2114102.82	5740.00	<1	
6039238.418	2114102.89	5680.00	<1	
6039237.598	2114102.95	5710.00	<1	
6039236.777	2114103.02	6010.00	1	
6039235.956	2114103.09	5550.00	<1	
6039235.135	2114103.16	5330.00	<1	
6039234.315	2114103.23	5870.00	<1	
6039233.494	2114103.30	5860.00	<1	
6039232.673	2114103.37	6060.00	1	
6039231.853	2114103.44	6330.00	1	
6039231.032	2114103.51	5390.00	<1	
6039230.211	2114103.58	5850.00	<1	
6039229.391	2114103.65	7050.00	3	
6039228.57	2114103.72	5870.00	<1	
6039227.749	2114103.79	5320.00	<1	
6039226.928	2114103.86	5450.00	<1	
6039226.108	2114103.93	5130.00	<1	

Easting	Northing	Reading	Reach 11 Data Set	Comments
6039225.287	2114103.99	5990.00	1	
6039224.466	2114104.06	5770.00	<1	
6039223.646	2114104.13	5590.00	<1	
6039222.825	2114104.20	5370.00	<1	
6039222.004	2114104.27	6410.00	2	
6039221.184	2114104.34	6490.00	2	
6039220.363	2114104.41	5550.00	<1	
6039219.542	2114104.48	5730.00	<1	
6039218.722	2114104.55	5640.00	<1	
6039217.901	2114104.62	5980.00	<1	
6039217.08	2114104.69	5970.00	<1	
6039216.259	2114104.76	5880.00	<1	
6039215.439	2114104.83	5750.00	<1	
6039214.618	2114104.90	6100.00	1	
6039213.797	2114104.97	5750.00	<1	
6039212.977	2114105.03	5750.00	<1	
6039212.156	2114105.10	6170.00	1	
6039211.335	2114105.17	5970.00	<1	
6039210.515	2114105.24	5910.00	<1	
6039209.694	2114105.31	5840.00	<1	
6039208.873	2114105.38	5200.00	<1	
6039208.052	2114105.45	6090.00	1	
6039207.232	2114105.52	5130.00	<1	
6039206.411	2114105.59	5640.00	<1	
6039205.59	2114105.66	5810.00	<1	
6039204.77	2114105.73	5450.00	<1	
6039203.949	2114105.80	6350.00	1	
6039203.128	2114105.87	5650.00	<1	

5610.94	Average
373.61	Std Dev
6731.78	3 Sigma
7050.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 12
Line: A

Main/Lateral: Main
Length (ft): 150
Pipe Diameter (in): 30

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 12 Data Set

Gamma Total CPS	
7929.71	Average
1856.58	Std Dev
13499.47	3 Sigma
17300.00	Max

Sigma	Total Points
<1	123
1	8
2	4
3	3
4	0
5	1
>6	0

Easting	Northing	Reading	Reach 12 Data Set	Comments
6039201.308	2114108.03	6810.00	<1	
6039201.4	2114109.08	7110.00	<1	
6039201.491	2114110.14	14000.00	3	
6039201.583	2114111.19	13400.00	2	
6039201.674	2114112.25	7830.00	<1	
6039201.765	2114113.30	6570.00	<1	
6039201.857	2114114.36	11500.00	1	
6039201.948	2114115.42	6710.00	<1	
6039202.04	2114116.47	6260.00	<1	
6039202.131	2114117.53	6160.00	<1	
6039202.223	2114118.58	5840.00	<1	
6039202.314	2114119.64	6340.00	<1	
6039202.406	2114120.69	9420.00	<1	
6039202.497	2114121.75	10100.00	1	
6039202.589	2114122.80	7680.00	<1	
6039202.68	2114123.86	10700.00	1	
6039202.772	2114124.91	10700.00	1	
6039202.863	2114125.97	8850.00	<1	
6039202.955	2114127.02	8660.00	<1	
6039203.046	2114128.08	10100.00	1	

Easting	Northing	Reading	Reach 12 Data Set	Comments
6039203.138	2114129.14	7870.00	<1	
6039203.229	2114130.19	11000.00	1	
6039203.321	2114131.25	8350.00	<1	
6039203.412	2114132.30	15300.00	3	
6039203.504	2114133.36	9120.00	<1	
6039203.595	2114134.41	12300.00	2	
6039203.686	2114135.47	9930.00	1	
6039203.778	2114136.52	8380.00	<1	
6039203.869	2114137.58	14800.00	3	
6039203.961	2114138.63	17300.00	5	
6039204.052	2114139.69	8690.00	<1	
6039204.144	2114140.74	7200.00	<1	
6039204.235	2114141.80	6620.00	<1	
6039204.327	2114142.85	7340.00	<1	
6039204.418	2114143.91	6910.00	<1	
6039204.51	2114144.97	6520.00	<1	
6039204.601	2114146.02	7900.00	<1	
6039204.693	2114147.08	6910.00	<1	
6039204.784	2114148.13	7320.00	<1	
6039204.876	2114149.19	6320.00	<1	
6039204.967	2114150.24	7200.00	<1	
6039205.059	2114151.30	7070.00	<1	
6039205.15	2114152.35	6700.00	<1	
6039205.242	2114153.41	7630.00	<1	
6039205.333	2114154.46	6450.00	<1	
6039205.425	2114155.52	7100.00	<1	
6039205.516	2114156.57	7100.00	<1	
6039205.607	2114157.63	7000.00	<1	
6039205.699	2114158.69	6520.00	<1	
6039205.79	2114159.74	7730.00	<1	
6039205.882	2114160.80	7260.00	<1	
6039205.973	2114161.85	7260.00	<1	
6039206.065	2114162.91	6990.00	<1	
6039206.156	2114163.96	6860.00	<1	
6039206.248	2114165.02	6540.00	<1	
6039206.339	2114166.07	6810.00	<1	
6039206.431	2114167.13	7050.00	<1	
6039206.522	2114168.18	7150.00	<1	
6039206.614	2114169.24	7530.00	<1	
6039206.705	2114170.29	11700.00	2	
6039206.797	2114171.35	7900.00	<1	

Easting	Northing	Reading	Reach 12 Data Set	Comments
6039206.888	2114172.41	8810.00	<1	
6039206.98	2114173.46	7000.00	<1	
6039207.071	2114174.52	6290.00	<1	
6039207.163	2114175.57	6870.00	<1	
6039207.254	2114176.63	7300.00	<1	
6039207.346	2114177.68	7210.00	<1	
6039207.437	2114178.74	7570.00	<1	
6039207.528	2114179.79	6440.00	<1	
6039207.62	2114180.85	6640.00	<1	
6039207.711	2114181.90	7210.00	<1	
6039207.803	2114182.96	6290.00	<1	
6039207.894	2114184.01	6690.00	<1	
6039207.986	2114185.07	7890.00	<1	
6039208.077	2114186.12	6390.00	<1	
6039208.169	2114187.18	7160.00	<1	
6039208.26	2114188.24	6950.00	<1	
6039208.352	2114189.29	7030.00	<1	
6039208.443	2114190.35	7790.00	<1	
6039208.535	2114191.40	7120.00	<1	
6039208.626	2114192.46	6320.00	<1	
6039208.718	2114193.51	6810.00	<1	
6039208.809	2114194.57	7910.00	<1	
6039208.901	2114195.62	13100.00	2	
6039208.992	2114196.68	7820.00	<1	
6039209.084	2114197.73	8700.00	<1	
6039209.175	2114198.79	10000.00	1	
6039209.267	2114199.84	7990.00	<1	
6039209.358	2114200.90	7710.00	<1	
6039209.449	2114201.96	8050.00	<1	
6039209.541	2114203.01	7040.00	<1	
6039209.632	2114204.07	7680.00	<1	
6039209.724	2114205.12	7670.00	<1	
6039209.815	2114206.18	6550.00	<1	
6039209.907	2114207.23	9020.00	<1	
6039209.998	2114208.29	8180.00	<1	
6039210.09	2114209.34	7980.00	<1	
6039210.181	2114210.40	7530.00	<1	
6039210.273	2114211.45	7330.00	<1	
6039210.364	2114212.51	7070.00	<1	
6039210.456	2114213.56	6610.00	<1	
6039210.547	2114214.62	6810.00	<1	

Easting	Northing	Reading	Reach 12 Data Set	Comments
6039210.639	2114215.68	8570.00	<1	
6039210.73	2114216.73	8490.00	<1	
6039210.822	2114217.79	7600.00	<1	
6039210.913	2114218.84	8380.00	<1	
6039211.005	2114219.90	7840.00	<1	
6039211.096	2114220.95	9730.00	<1	
6039211.188	2114222.01	7770.00	<1	
6039211.279	2114223.06	7790.00	<1	
6039211.37	2114224.12	6490.00	<1	
6039211.462	2114225.17	7880.00	<1	
6039211.553	2114226.23	7720.00	<1	
6039211.645	2114227.28	7430.00	<1	
6039211.736	2114228.34	7400.00	<1	
6039211.828	2114229.39	7180.00	<1	
6039211.919	2114230.45	7000.00	<1	
6039212.011	2114231.51	6600.00	<1	
6039212.102	2114232.56	7200.00	<1	
6039212.194	2114233.62	6300.00	<1	
6039212.285	2114234.67	7010.00	<1	
6039212.377	2114235.73	7920.00	<1	
6039212.468	2114236.78	7120.00	<1	
6039212.56	2114237.84	7790.00	<1	
6039212.651	2114238.89	7480.00	<1	
6039212.743	2114239.95	7190.00	<1	
6039212.834	2114241.00	7380.00	<1	
6039212.926	2114242.06	7620.00	<1	
6039213.017	2114243.11	6890.00	<1	
6039213.109	2114244.17	7130.00	<1	
6039213.2	2114245.23	7240.00	<1	
6039213.291	2114246.28	8190.00	<1	
6039213.383	2114247.34	7360.00	<1	
6039213.474	2114248.39	8130.00	<1	
6039213.566	2114249.45	8100.00	<1	
6039213.657	2114250.50	7010.00	<1	
6039213.749	2114251.56	7410.00	<1	
6039213.84	2114252.61	7510.00	<1	
6039213.932	2114253.67	7480.00	<1	

7929.71	Average
1856.58	Std Dev
13499.47	3 Sigma
17300.00	Max

Easting	Northing	Reading	Reach 12 Data Set	Comments

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 13
Line: A

Main/Lateral: Main
Length (ft): 191
Pipe Diameter (in): 30

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 13 Data Set

Gamma Total CPS	
7027.76	Average
515.33	Std Dev
8573.75	3 Sigma
8590.00	Max

Sigma	Total Points
<1	138
1	23
2	3
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 13 Data Set	Comments
6039214.271	2114257.65	6190.00	<1	
6039214.366	2114258.79	7400.00	<1	
6039214.461	2114259.93	7170.00	<1	
6039214.556	2114261.07	7320.00	<1	
6039214.651	2114262.21	6580.00	<1	
6039214.746	2114263.35	6580.00	<1	
6039214.842	2114264.49	6130.00	<1	
6039214.937	2114265.63	6560.00	<1	
6039215.032	2114266.77	6560.00	<1	
6039215.127	2114267.91	6640.00	<1	
6039215.222	2114269.05	6900.00	<1	
6039215.317	2114270.19	7230.00	<1	
6039215.412	2114271.33	6790.00	<1	
6039215.507	2114272.47	8590.00	3	
6039215.603	2114273.61	6450.00	<1	
6039215.698	2114274.75	6550.00	<1	
6039215.793	2114275.89	6800.00	<1	
6039215.888	2114277.03	6280.00	<1	
6039215.983	2114278.17	8160.00	2	
6039216.078	2114279.31	7110.00	<1	

Easting	Northing	Reading	Reach 13 Data Set	Comments
6039216.173	2114280.45	7710.00	1	
6039216.268	2114281.59	8240.00	2	
6039216.364	2114282.73	7240.00	<1	
6039216.459	2114283.87	7970.00	1	
6039216.554	2114285.01	7520.00	<1	
6039216.649	2114286.15	7230.00	<1	
6039216.744	2114287.29	7780.00	1	
6039216.839	2114288.43	6310.00	<1	
6039216.934	2114289.57	7250.00	<1	
6039217.029	2114290.71	6590.00	<1	
6039217.125	2114291.85	7120.00	<1	
6039217.22	2114292.99	7870.00	1	
6039217.315	2114294.13	7980.00	1	
6039217.41	2114295.27	6550.00	<1	
6039217.505	2114296.41	7540.00	<1	
6039217.6	2114297.55	7000.00	<1	
6039217.695	2114298.69	7000.00	<1	
6039217.79	2114299.83	7560.00	1	
6039217.885	2114300.97	7050.00	<1	
6039217.981	2114302.11	6770.00	<1	
6039218.076	2114303.25	7090.00	<1	
6039218.171	2114304.39	7450.00	<1	
6039218.266	2114305.52	6860.00	<1	
6039218.361	2114306.66	7030.00	<1	
6039218.456	2114307.80	6990.00	<1	
6039218.551	2114308.94	7610.00	1	
6039218.646	2114310.08	6390.00	<1	
6039218.742	2114311.22	6110.00	<1	
6039218.837	2114312.36	6490.00	<1	
6039218.932	2114313.50	7130.00	<1	
6039219.027	2114314.64	7030.00	<1	
6039219.122	2114315.78	7290.00	<1	
6039219.217	2114316.92	7480.00	<1	
6039219.312	2114318.06	7560.00	1	
6039219.407	2114319.20	7510.00	<1	
6039219.503	2114320.34	6160.00	<1	
6039219.598	2114321.48	6210.00	<1	
6039219.693	2114322.62	7200.00	<1	
6039219.788	2114323.76	7070.00	<1	
6039219.883	2114324.90	6680.00	<1	
6039219.978	2114326.04	5810.00	<1	

Easting	Northing	Reading	Reach 13 Data Set	Comments
6039220.073	2114327.18	6350.00	<1	
6039220.168	2114328.32	6720.00	<1	
6039220.264	2114329.46	6720.00	<1	
6039220.359	2114330.60	7390.00	<1	
6039220.454	2114331.74	6990.00	<1	
6039220.549	2114332.88	7390.00	<1	
6039220.644	2114334.02	6960.00	<1	
6039220.739	2114335.16	6460.00	<1	
6039220.834	2114336.30	6820.00	<1	
6039220.929	2114337.44	7110.00	<1	
6039221.024	2114338.58	6590.00	<1	
6039221.12	2114339.72	6450.00	<1	
6039221.215	2114340.86	6460.00	<1	
6039221.31	2114342.00	6480.00	<1	
6039221.405	2114343.14	7260.00	<1	
6039221.5	2114344.28	7030.00	<1	
6039221.595	2114345.42	6000.00	<1	
6039221.69	2114346.56	6870.00	<1	
6039221.785	2114347.70	6540.00	<1	
6039221.881	2114348.84	6440.00	<1	
6039221.976	2114349.98	7660.00	1	
6039222.071	2114351.12	7100.00	<1	
6039222.166	2114352.26	7240.00	<1	
6039222.261	2114353.40	6360.00	<1	
6039222.356	2114354.54	7790.00	1	
6039222.451	2114355.68	7400.00	<1	
6039222.546	2114356.82	7270.00	<1	
6039222.642	2114357.95	6670.00	<1	
6039222.737	2114359.09	7110.00	<1	
6039222.832	2114360.23	7110.00	<1	
6039222.927	2114361.37	7090.00	<1	
6039223.022	2114362.51	7770.00	1	
6039223.117	2114363.65	6850.00	<1	
6039223.212	2114364.79	6760.00	<1	
6039223.307	2114365.93	7280.00	<1	
6039223.403	2114367.07	7050.00	<1	
6039223.498	2114368.21	6730.00	<1	
6039223.593	2114369.35	7160.00	<1	
6039223.688	2114370.49	6820.00	<1	
6039223.783	2114371.63	7120.00	<1	
6039223.878	2114372.77	6870.00	<1	

Easting	Northing	Reading	Reach 13 Data Set	Comments
6039223.973	2114373.91	6980.00	<1	
6039224.068	2114375.05	6960.00	<1	
6039224.164	2114376.19	6530.00	<1	
6039224.259	2114377.33	7020.00	<1	
6039224.354	2114378.47	7240.00	<1	
6039224.449	2114379.61	6890.00	<1	
6039224.544	2114380.75	6640.00	<1	
6039224.639	2114381.89	6060.00	<1	
6039224.734	2114383.03	7250.00	<1	
6039224.829	2114384.17	6470.00	<1	
6039224.924	2114385.31	7610.00	1	
6039225.02	2114386.45	7180.00	<1	
6039225.115	2114387.59	6960.00	<1	
6039225.21	2114388.73	7350.00	<1	
6039225.305	2114389.87	7610.00	1	
6039225.4	2114391.01	6800.00	<1	
6039225.495	2114392.15	6560.00	<1	
6039225.59	2114393.29	6850.00	<1	
6039225.685	2114394.43	7070.00	<1	
6039225.781	2114395.57	6960.00	<1	
6039225.876	2114396.71	7340.00	<1	
6039225.971	2114397.85	7340.00	<1	
6039226.066	2114398.99	7250.00	<1	
6039226.161	2114400.13	7280.00	<1	
6039226.256	2114401.27	6670.00	<1	
6039226.351	2114402.41	6580.00	<1	
6039226.446	2114403.55	7310.00	<1	
6039226.542	2114404.69	6920.00	<1	
6039226.637	2114405.83	6730.00	<1	
6039226.732	2114406.97	7780.00	1	
6039226.827	2114408.11	6810.00	<1	
6039226.922	2114409.25	7210.00	<1	
6039227.017	2114410.39	6670.00	<1	
6039227.112	2114411.52	7170.00	<1	
6039227.207	2114412.66	7380.00	<1	
6039227.303	2114413.80	6980.00	<1	
6039227.398	2114414.94	7830.00	1	
6039227.493	2114416.08	6720.00	<1	
6039227.588	2114417.22	7480.00	<1	
6039227.683	2114418.36	7540.00	<1	
6039227.778	2114419.50	7980.00	1	

Easting	Northing	Reading	Reach 13 Data Set	Comments
6039227.873	2114420.64	6930.00	<1	
6039227.968	2114421.78	7830.00	1	
6039228.063	2114422.92	6550.00	<1	
6039228.159	2114424.06	6760.00	<1	
6039228.254	2114425.20	7770.00	1	
6039228.349	2114426.34	7810.00	1	
6039228.444	2114427.48	6920.00	<1	
6039228.539	2114428.62	7880.00	1	
6039228.634	2114429.76	5830.00	<1	
6039228.729	2114430.90	5780.00	<1	
6039228.824	2114432.04	6820.00	<1	
6039228.92	2114433.18	6390.00	<1	
6039229.015	2114434.32	7610.00	1	
6039229.11	2114435.46	6600.00	<1	
6039229.205	2114436.60	6950.00	<1	
6039229.3	2114437.74	7840.00	1	
6039229.395	2114438.88	7040.00	<1	
6039229.49	2114440.02	7690.00	1	
6039229.585	2114441.16	7220.00	<1	
6039229.681	2114442.30	6800.00	<1	
6039229.776	2114443.44	6800.00	<1	
6039229.871	2114444.58	8140.00	2	

7027.76	Average
515.33	Std Dev
8573.75	3 Sigma
8590.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 14
Line: A

Main/Lateral: Lateral
Length (ft): 31
Pipe Diameter (in): 30

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 14 Data Set

Gamma Total CPS	
5535.60	Average
385.24	Std Dev
6691.33	3 Sigma
6580.00	Max

Sigma	Total Points
<1	43
1	5
2	2
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 14 Data Set	Comments
6039187.026	2114285.98	4760.00	<1	
6039187.606	2114285.94	5700.00	<1	
6039188.186	2114285.90	5650.00	<1	
6039188.766	2114285.86	5330.00	<1	
6039189.346	2114285.82	5830.00	<1	
6039189.926	2114285.77	5750.00	<1	
6039190.506	2114285.73	5720.00	<1	
6039191.086	2114285.69	5520.00	<1	
6039191.666	2114285.65	5570.00	<1	
6039192.247	2114285.61	5780.00	<1	
6039192.827	2114285.57	5770.00	<1	
6039193.407	2114285.52	5570.00	<1	
6039193.987	2114285.48	5560.00	<1	
6039194.567	2114285.44	5870.00	<1	
6039195.147	2114285.40	5190.00	<1	
6039195.727	2114285.36	5490.00	<1	
6039196.307	2114285.32	5350.00	<1	
6039196.887	2114285.28	5510.00	<1	
6039197.467	2114285.23	4950.00	<1	
6039198.048	2114285.19	5480.00	<1	

Easting	Northing	Reading	Reach 14 Data Set	Comments
6039198.628	2114285.15	5290.00	<1	
6039199.208	2114285.11	5330.00	<1	
6039199.788	2114285.07	5010.00	<1	
6039200.368	2114285.03	5050.00	<1	
6039200.948	2114284.98	5900.00	<1	
6039201.528	2114284.94	5140.00	<1	
6039202.108	2114284.90	5000.00	<1	
6039202.688	2114284.86	5410.00	<1	
6039203.268	2114284.82	5310.00	<1	
6039203.849	2114284.78	5460.00	<1	
6039204.429	2114284.74	5570.00	<1	
6039205.009	2114284.69	5100.00	<1	
6039205.589	2114284.65	5550.00	<1	
6039206.169	2114284.61	5410.00	<1	
6039206.749	2114284.57	5300.00	<1	
6039207.329	2114284.53	5290.00	<1	
6039207.909	2114284.49	5540.00	<1	
6039208.489	2114284.44	6580.00	2	
6039209.069	2114284.40	6400.00	2	
6039209.65	2114284.36	5420.00	<1	
6039210.23	2114284.32	5630.00	<1	
6039210.81	2114284.28	6100.00	1	
6039211.39	2114284.24	4790.00	<1	
6039211.97	2114284.19	5320.00	<1	
6039212.55	2114284.15	5550.00	<1	
6039213.13	2114284.11	6130.00	1	
6039213.71	2114284.07	6260.00	1	
6039214.29	2114284.03	5980.00	1	
6039214.87	2114283.99	6030.00	1	
6039215.451	2114283.95	5580.00	<1	

5535.60	Average
385.24	Std Dev
6691.33	3 Sigma
6580.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 15
Line: A

Main/Lateral: Lateral
Length (ft): 144
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 15 Data Set

Gamma Total CPS	
5490.07	Average
417.25	Std Dev
6741.82	3 Sigma
7070.00	Max

Sigma	Total Points
<1	126
1	14
2	3
3	2
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 15 Data Set	Comments
6039371.15	2114434.19	5960.00	1	
6039370.183	2114434.27	5320.00	<1	
6039369.217	2114434.35	5310.00	<1	
6039368.251	2114434.44	6250.00	1	
6039367.285	2114434.52	7010.00	3	
6039366.319	2114434.61	7070.00	3	
6039365.353	2114434.69	6570.00	2	
6039364.387	2114434.78	6540.00	2	
6039363.421	2114434.86	5530.00	<1	
6039362.455	2114434.95	5910.00	1	
6039361.488	2114435.03	5220.00	<1	
6039360.522	2114435.12	5220.00	<1	
6039359.556	2114435.20	5830.00	<1	
6039358.59	2114435.29	6070.00	1	
6039357.624	2114435.37	5620.00	<1	
6039356.658	2114435.46	4860.00	<1	
6039355.692	2114435.54	4990.00	<1	
6039354.726	2114435.63	5230.00	<1	
6039353.76	2114435.71	5060.00	<1	
6039352.793	2114435.80	5180.00	<1	

Easting	Northing	Reading	Reach 15 Data Set	Comments
6039351.827	2114435.88	5190.00	<1	
6039350.861	2114435.97	5460.00	<1	
6039349.895	2114436.05	5210.00	<1	
6039348.929	2114436.14	5060.00	<1	
6039347.963	2114436.22	4290.00	<1	
6039346.997	2114436.31	4710.00	<1	
6039346.031	2114436.39	5250.00	<1	
6039345.065	2114436.47	5510.00	<1	
6039344.098	2114436.56	5130.00	<1	
6039343.132	2114436.64	5390.00	<1	
6039342.166	2114436.73	5050.00	<1	
6039341.2	2114436.81	5050.00	<1	
6039340.234	2114436.90	5070.00	<1	
6039339.268	2114436.98	5000.00	<1	
6039338.302	2114437.07	5420.00	<1	
6039337.336	2114437.15	5650.00	<1	
6039336.37	2114437.24	5020.00	<1	
6039335.403	2114437.32	5750.00	<1	
6039334.437	2114437.41	5350.00	<1	
6039333.471	2114437.49	5420.00	<1	
6039332.505	2114437.58	5820.00	<1	
6039331.539	2114437.66	5880.00	<1	
6039330.573	2114437.75	5820.00	<1	
6039329.607	2114437.83	5480.00	<1	
6039328.641	2114437.92	5130.00	<1	
6039327.675	2114438.00	5330.00	<1	
6039326.708	2114438.09	5170.00	<1	
6039325.742	2114438.17	5620.00	<1	
6039324.776	2114438.26	5650.00	<1	
6039323.81	2114438.34	5860.00	<1	
6039322.844	2114438.43	5380.00	<1	
6039321.878	2114438.51	5430.00	<1	
6039320.912	2114438.60	5190.00	<1	
6039319.946	2114438.68	5460.00	<1	
6039318.98	2114438.76	5460.00	<1	
6039318.013	2114438.85	5460.00	<1	
6039317.047	2114438.93	5290.00	<1	
6039316.081	2114439.02	5670.00	<1	
6039315.115	2114439.10	5460.00	<1	
6039314.149	2114439.19	4840.00	<1	
6039313.183	2114439.27	5640.00	<1	

Easting	Northing	Reading	Reach 15 Data Set	Comments
6039312.217	2114439.36	5140.00	<1	
6039311.251	2114439.44	5120.00	<1	
6039310.285	2114439.53	5510.00	<1	
6039309.318	2114439.61	5490.00	<1	
6039308.352	2114439.70	5820.00	<1	
6039307.386	2114439.78	5810.00	<1	
6039306.42	2114439.87	5960.00	1	
6039305.454	2114439.95	5360.00	<1	
6039304.488	2114440.04	5380.00	<1	
6039303.522	2114440.12	5340.00	<1	
6039302.556	2114440.21	4920.00	<1	
6039301.59	2114440.29	5170.00	<1	
6039300.623	2114440.38	5080.00	<1	
6039299.657	2114440.46	5090.00	<1	
6039298.691	2114440.55	5170.00	<1	
6039297.725	2114440.63	5160.00	<1	
6039296.759	2114440.72	5220.00	<1	
6039295.793	2114440.80	5400.00	<1	
6039294.827	2114440.88	5400.00	<1	
6039293.861	2114440.97	5470.00	<1	
6039292.895	2114441.05	5300.00	<1	
6039291.928	2114441.14	5650.00	<1	
6039290.962	2114441.22	5090.00	<1	
6039289.996	2114441.31	5350.00	<1	
6039289.03	2114441.39	5920.00	1	
6039288.064	2114441.48	5430.00	<1	
6039287.098	2114441.56	5550.00	<1	
6039286.132	2114441.65	5390.00	<1	
6039285.166	2114441.73	4800.00	<1	
6039284.2	2114441.82	5100.00	<1	
6039283.233	2114441.90	5650.00	<1	
6039282.267	2114441.99	5650.00	<1	
6039281.301	2114442.07	6240.00	1	
6039280.335	2114442.16	5320.00	<1	
6039279.369	2114442.24	5090.00	<1	
6039278.403	2114442.33	5190.00	<1	
6039277.437	2114442.41	5410.00	<1	
6039276.471	2114442.50	5640.00	<1	
6039275.505	2114442.58	5460.00	<1	
6039274.538	2114442.67	5580.00	<1	
6039273.572	2114442.75	5040.00	<1	

Easting	Northing	Reading	Reach 15 Data Set	Comments
6039272.606	2114442.84	5470.00	<1	
6039271.64	2114442.92	5260.00	<1	
6039270.674	2114443.00	5260.00	<1	
6039269.708	2114443.09	5730.00	<1	
6039268.742	2114443.17	5840.00	<1	
6039267.776	2114443.26	5290.00	<1	
6039266.81	2114443.34	5320.00	<1	
6039265.843	2114443.43	5280.00	<1	
6039264.877	2114443.51	5850.00	<1	
6039263.911	2114443.60	5890.00	<1	
6039262.945	2114443.68	6000.00	1	
6039261.979	2114443.77	5740.00	<1	
6039261.013	2114443.85	5100.00	<1	
6039260.047	2114443.94	5030.00	<1	
6039259.081	2114444.02	5120.00	<1	
6039258.114	2114444.11	5020.00	<1	
6039257.148	2114444.19	6080.00	1	
6039256.182	2114444.28	5870.00	<1	
6039255.216	2114444.36	5230.00	<1	
6039254.25	2114444.45	5240.00	<1	
6039253.284	2114444.53	5870.00	<1	
6039252.318	2114444.62	5530.00	<1	
6039251.352	2114444.70	5150.00	<1	
6039250.386	2114444.79	5710.00	<1	
6039249.419	2114444.87	5300.00	<1	
6039248.453	2114444.96	5390.00	<1	
6039247.487	2114445.04	5700.00	<1	
6039246.521	2114445.12	5600.00	<1	
6039245.555	2114445.21	6270.00	1	
6039244.589	2114445.29	5910.00	1	
6039243.623	2114445.38	6070.00	1	
6039242.657	2114445.46	5260.00	<1	
6039241.691	2114445.55	5260.00	<1	
6039240.724	2114445.63	5750.00	<1	
6039239.758	2114445.72	5870.00	<1	
6039238.792	2114445.80	5510.00	<1	
6039237.826	2114445.89	5840.00	<1	
6039236.86	2114445.97	5780.00	<1	
6039235.894	2114446.06	6010.00	1	
6039234.928	2114446.14	5810.00	<1	
6039233.962	2114446.23	6150.00	1	

Easting	Northing	Reading	Reach 15 Data Set	Comments
6039232.996	2114446.31	5620.00	<1	
6039232.029	2114446.40	6450.00	2	

5490.07	Average
417.25	Std Dev
6741.82	3 Sigma
7070.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 16
Line: A

Main/Lateral: Main
Length (ft): 331
Pipe Diameter (in): 30

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 16 Data Set

Gamma Total CPS	
4627.03	Average
376.87	Std Dev
5757.62	3 Sigma
5890.00	Max

Sigma	Total Points
<1	251
1	37
2	6
3	2
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 16 Data Set	Comments
6039230.211	2114448.56	5890.00	3	
6039230.307	2114449.66	5660.00	2	
6039230.402	2114450.76	5450.00	2	
6039230.498	2114451.86	5240.00	1	
6039230.594	2114452.96	5310.00	1	
6039230.69	2114454.06	4740.00	<1	
6039230.786	2114455.16	4950.00	<1	
6039230.882	2114456.26	4860.00	<1	
6039230.977	2114457.36	4940.00	<1	
6039231.073	2114458.46	5090.00	1	
6039231.169	2114459.56	4880.00	<1	
6039231.265	2114460.66	4910.00	<1	
6039231.361	2114461.76	5070.00	1	
6039231.457	2114462.86	5200.00	1	
6039231.552	2114463.96	5480.00	2	
6039231.648	2114465.06	4820.00	<1	
6039231.744	2114466.16	4630.00	<1	
6039231.84	2114467.26	4870.00	<1	
6039231.936	2114468.36	4940.00	<1	
6039232.032	2114469.46	4920.00	<1	

Easting	Northing	Reading	Reach 16 Data Set	Comments
6039232.127	2114470.56	5470.00	2	
6039232.223	2114471.66	4990.00	<1	
6039232.319	2114472.76	4800.00	<1	
6039232.415	2114473.86	5250.00	1	
6039232.511	2114474.96	4970.00	<1	
6039232.607	2114476.06	4320.00	<1	
6039232.702	2114477.16	4950.00	<1	
6039232.798	2114478.26	5050.00	1	
6039232.894	2114479.36	5780.00	3	
6039232.99	2114480.46	5290.00	1	
6039233.086	2114481.56	5180.00	1	
6039233.182	2114482.66	5260.00	1	
6039233.277	2114483.76	5580.00	2	
6039233.373	2114484.86	5380.00	1	
6039233.469	2114485.96	5290.00	1	
6039233.565	2114487.06	5280.00	1	
6039233.661	2114488.16	5090.00	1	
6039233.757	2114489.25	4970.00	<1	
6039233.853	2114490.35	5500.00	2	
6039233.948	2114491.45	4820.00	<1	
6039234.044	2114492.55	4600.00	<1	
6039234.14	2114493.65	5060.00	1	
6039234.236	2114494.75	5090.00	1	
6039234.332	2114495.85	5200.00	1	
6039234.428	2114496.95	4610.00	<1	
6039234.523	2114498.05	4400.00	<1	
6039234.619	2114499.15	4550.00	<1	
6039234.715	2114500.25	4820.00	<1	
6039234.811	2114501.35	4740.00	<1	
6039234.907	2114502.45	4590.00	<1	
6039235.003	2114503.55	4100.00	<1	
6039235.098	2114504.65	4340.00	<1	
6039235.194	2114505.75	4450.00	<1	
6039235.29	2114506.85	4650.00	<1	
6039235.386	2114507.95	4810.00	<1	
6039235.482	2114509.05	4870.00	<1	
6039235.578	2114510.15	5050.00	1	
6039235.673	2114511.25	4790.00	<1	
6039235.769	2114512.35	4950.00	<1	
6039235.865	2114513.45	5200.00	1	
6039235.961	2114514.55	5190.00	1	

Easting	Northing	Reading	Reach 16 Data Set	Comments
6039236.057	2114515.65	4580.00	<1	
6039236.153	2114516.75	4870.00	<1	
6039236.248	2114517.85	4770.00	<1	
6039236.344	2114518.95	5010.00	1	
6039236.44	2114520.05	5070.00	1	
6039236.536	2114521.15	5140.00	1	
6039236.632	2114522.25	4480.00	<1	
6039236.728	2114523.35	4610.00	<1	
6039236.823	2114524.45	5030.00	1	
6039236.919	2114525.55	5000.00	<1	
6039237.015	2114526.65	4970.00	<1	
6039237.111	2114527.75	4810.00	<1	
6039237.207	2114528.85	4790.00	<1	
6039237.303	2114529.95	4810.00	<1	
6039237.398	2114531.05	5020.00	1	
6039237.494	2114532.15	4750.00	<1	
6039237.59	2114533.24	4690.00	<1	
6039237.686	2114534.34	5180.00	1	
6039237.782	2114535.44	4820.00	<1	
6039237.878	2114536.54	4650.00	<1	
6039237.973	2114537.64	4680.00	<1	
6039238.069	2114538.74	4390.00	<1	
6039238.165	2114539.84	4730.00	<1	
6039238.261	2114540.94	4890.00	<1	
6039238.357	2114542.04	4960.00	<1	
6039238.453	2114543.14	4780.00	<1	
6039238.548	2114544.24	4700.00	<1	
6039238.644	2114545.34	4710.00	<1	
6039238.74	2114546.44	4660.00	<1	
6039238.836	2114547.54	4560.00	<1	
6039238.932	2114548.64	4610.00	<1	
6039239.028	2114549.74	4410.00	<1	
6039239.123	2114550.84	5000.00	<1	
6039239.219	2114551.94	5110.00	1	
6039239.315	2114553.04	5290.00	1	
6039239.411	2114554.14	4900.00	<1	
6039239.507	2114555.24	4810.00	<1	
6039239.603	2114556.34	4120.00	<1	
6039239.698	2114557.44	4150.00	<1	
6039239.794	2114558.54	4760.00	<1	
6039239.89	2114559.64	4980.00	<1	

Easting	Northing	Reading	Reach 16 Data Set	Comments
6039239.986	2114560.74	4970.00	<1	
6039240.082	2114561.84	4700.00	<1	
6039240.178	2114562.94	4680.00	<1	
6039240.273	2114564.04	4560.00	<1	
6039240.369	2114565.14	4650.00	<1	
6039240.465	2114566.24	4860.00	<1	
6039240.561	2114567.34	3980.00	<1	
6039240.657	2114568.44	4630.00	<1	
6039240.753	2114569.54	4630.00	<1	
6039240.849	2114570.64	4240.00	<1	
6039240.944	2114571.74	4360.00	<1	
6039241.04	2114572.84	3960.00	<1	
6039241.136	2114573.94	4180.00	<1	
6039241.232	2114575.04	4460.00	<1	
6039241.328	2114576.14	4520.00	<1	
6039241.424	2114577.23	4610.00	<1	
6039241.519	2114578.33	4190.00	<1	
6039241.615	2114579.43	4650.00	<1	
6039241.711	2114580.53	4230.00	<1	
6039241.807	2114581.63	3990.00	<1	
6039241.903	2114582.73	4690.00	<1	
6039241.999	2114583.83	4380.00	<1	
6039242.094	2114584.93	4510.00	<1	
6039242.19	2114586.03	4640.00	<1	
6039242.286	2114587.13	4320.00	<1	
6039242.382	2114588.23	4330.00	<1	
6039242.478	2114589.33	4240.00	<1	
6039242.574	2114590.43	4020.00	<1	
6039242.669	2114591.53	4040.00	<1	
6039242.765	2114592.63	3670.00	<1	
6039242.861	2114593.73	3930.00	<1	
6039242.957	2114594.83	3950.00	<1	
6039243.053	2114595.93	4450.00	<1	
6039243.149	2114597.03	4180.00	<1	
6039243.244	2114598.13	4510.00	<1	
6039243.34	2114599.23	4510.00	<1	
6039243.436	2114600.33	4430.00	<1	
6039243.532	2114601.43	4670.00	<1	
6039243.628	2114602.53	5310.00	1	
6039243.724	2114603.63	4470.00	<1	
6039243.819	2114604.73	4520.00	<1	

Easting	Northing	Reading	Reach 16 Data Set	Comments
6039243.915	2114605.83	4790.00	<1	
6039244.011	2114606.93	4440.00	<1	
6039244.107	2114608.03	5060.00	1	
6039244.203	2114609.13	4470.00	<1	
6039244.299	2114610.23	4590.00	<1	
6039244.394	2114611.33	4660.00	<1	
6039244.49	2114612.43	4530.00	<1	
6039244.586	2114613.53	4780.00	<1	
6039244.682	2114614.63	4590.00	<1	
6039244.778	2114615.73	4350.00	<1	
6039244.874	2114616.83	4500.00	<1	
6039244.969	2114617.93	4770.00	<1	
6039245.065	2114619.03	4580.00	<1	
6039245.161	2114620.12	4510.00	<1	
6039245.257	2114621.22	5050.00	1	
6039245.353	2114622.32	4710.00	<1	
6039245.449	2114623.42	4460.00	<1	
6039245.544	2114624.52	4300.00	<1	
6039245.64	2114625.62	4470.00	<1	
6039245.736	2114626.72	4940.00	<1	
6039245.832	2114627.82	4210.00	<1	
6039245.928	2114628.92	4510.00	<1	
6039246.024	2114630.02	4410.00	<1	
6039246.119	2114631.12	4270.00	<1	
6039246.215	2114632.22	3980.00	<1	
6039246.311	2114633.32	4420.00	<1	
6039246.407	2114634.42	4580.00	<1	
6039246.503	2114635.52	4200.00	<1	
6039246.599	2114636.62	4410.00	<1	
6039246.694	2114637.72	4400.00	<1	
6039246.79	2114638.82	4710.00	<1	
6039246.886	2114639.92	4280.00	<1	
6039246.982	2114641.02	4920.00	<1	
6039247.078	2114642.12	4630.00	<1	
6039247.174	2114643.22	4760.00	<1	
6039247.269	2114644.32	4470.00	<1	
6039247.365	2114645.42	4370.00	<1	
6039247.461	2114646.52	4350.00	<1	
6039247.557	2114647.62	4380.00	<1	
6039247.653	2114648.72	4130.00	<1	
6039247.749	2114649.82	4170.00	<1	

Easting	Northing	Reading	Reach 16 Data Set	Comments
6039247.845	2114650.92	4360.00	<1	
6039247.94	2114652.02	4760.00	<1	
6039248.036	2114653.12	4650.00	<1	
6039248.132	2114654.22	4130.00	<1	
6039248.228	2114655.32	4830.00	<1	
6039248.324	2114656.42	4410.00	<1	
6039248.42	2114657.52	4360.00	<1	
6039248.515	2114658.62	4450.00	<1	
6039248.611	2114659.72	4400.00	<1	
6039248.707	2114660.82	3850.00	<1	
6039248.803	2114661.92	3840.00	<1	
6039248.899	2114663.02	3930.00	<1	
6039248.995	2114664.11	4120.00	<1	
6039249.09	2114665.21	4380.00	<1	
6039249.186	2114666.31	4370.00	<1	
6039249.282	2114667.41	4540.00	<1	
6039249.378	2114668.51	4270.00	<1	
6039249.474	2114669.61	4260.00	<1	
6039249.57	2114670.71	4160.00	<1	
6039249.665	2114671.81	4590.00	<1	
6039249.761	2114672.91	4910.00	<1	
6039249.857	2114674.01	4400.00	<1	
6039249.953	2114675.11	4830.00	<1	
6039250.049	2114676.21	4630.00	<1	
6039250.145	2114677.31	4760.00	<1	
6039250.24	2114678.41	5040.00	1	
6039250.336	2114679.51	4840.00	<1	
6039250.432	2114680.61	4600.00	<1	
6039250.528	2114681.71	4470.00	<1	
6039250.624	2114682.81	4510.00	<1	
6039250.72	2114683.91	4870.00	<1	
6039250.815	2114685.01	4700.00	<1	
6039250.911	2114686.11	4860.00	<1	
6039251.007	2114687.21	4930.00	<1	
6039251.103	2114688.31	4770.00	<1	
6039251.199	2114689.41	4530.00	<1	
6039251.295	2114690.51	5010.00	1	
6039251.39	2114691.61	4100.00	<1	
6039251.486	2114692.71	4290.00	<1	
6039251.582	2114693.81	4520.00	<1	
6039251.678	2114694.91	4860.00	<1	

Easting	Northing	Reading	Reach 16 Data Set	Comments
6039251.774	2114696.01	5040.00	1	
6039251.87	2114697.11	4920.00	<1	
6039251.965	2114698.21	5060.00	1	
6039252.061	2114699.31	4660.00	<1	
6039252.157	2114700.41	4300.00	<1	
6039252.253	2114701.51	4430.00	<1	
6039252.349	2114702.61	4590.00	<1	
6039252.445	2114703.71	4240.00	<1	
6039252.54	2114704.81	4520.00	<1	
6039252.636	2114705.91	4030.00	<1	
6039252.732	2114707.01	4480.00	<1	
6039252.828	2114708.10	4500.00	<1	
6039252.924	2114709.20	4570.00	<1	
6039253.02	2114710.30	4710.00	<1	
6039253.115	2114711.40	4370.00	<1	
6039253.211	2114712.50	4490.00	<1	
6039253.307	2114713.60	4160.00	<1	
6039253.403	2114714.70	4740.00	<1	
6039253.499	2114715.80	4870.00	<1	
6039253.595	2114716.90	4980.00	<1	
6039253.69	2114718.00	4690.00	<1	
6039253.786	2114719.10	4530.00	<1	
6039253.882	2114720.20	4620.00	<1	
6039253.978	2114721.30	4710.00	<1	
6039254.074	2114722.40	5190.00	1	
6039254.17	2114723.50	4970.00	<1	
6039254.265	2114724.60	4540.00	<1	
6039254.361	2114725.70	4620.00	<1	
6039254.457	2114726.80	4790.00	<1	
6039254.553	2114727.90	4120.00	<1	
6039254.649	2114729.00	4390.00	<1	
6039254.745	2114730.10	4460.00	<1	
6039254.84	2114731.20	4240.00	<1	
6039254.936	2114732.30	4420.00	<1	
6039255.032	2114733.40	3910.00	<1	
6039255.128	2114734.50	4170.00	<1	
6039255.224	2114735.60	4410.00	<1	
6039255.32	2114736.70	4280.00	<1	
6039255.416	2114737.80	4580.00	<1	
6039255.511	2114738.90	4360.00	<1	
6039255.607	2114740.00	4090.00	<1	

Easting	Northing	Reading	Reach 16 Data Set	Comments
6039255.703	2114741.10	4330.00	<1	
6039255.799	2114742.20	4850.00	<1	
6039255.895	2114743.30	5080.00	1	
6039255.991	2114744.40	4160.00	<1	
6039256.086	2114745.50	4470.00	<1	
6039256.182	2114746.60	4280.00	<1	
6039256.278	2114747.70	4580.00	<1	
6039256.374	2114748.80	4250.00	<1	
6039256.47	2114749.90	4380.00	<1	
6039256.566	2114751.00	4880.00	<1	
6039256.661	2114752.09	4680.00	<1	
6039256.757	2114753.19	4100.00	<1	
6039256.853	2114754.29	4370.00	<1	
6039256.949	2114755.39	4480.00	<1	
6039257.045	2114756.49	4550.00	<1	
6039257.141	2114757.59	4400.00	<1	
6039257.236	2114758.69	4710.00	<1	
6039257.332	2114759.79	4810.00	<1	
6039257.428	2114760.89	4480.00	<1	
6039257.524	2114761.99	4020.00	<1	
6039257.62	2114763.09	4600.00	<1	
6039257.716	2114764.19	3930.00	<1	
6039257.811	2114765.29	4070.00	<1	
6039257.907	2114766.39	4200.00	<1	
6039258.003	2114767.49	4560.00	<1	
6039258.099	2114768.59	3890.00	<1	
6039258.195	2114769.69	4240.00	<1	
6039258.291	2114770.79	3860.00	<1	
6039258.386	2114771.89	4130.00	<1	
6039258.482	2114772.99	4110.00	<1	

4627.03	Average
376.87	Std Dev
5757.62	3 Sigma
5890.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 18
Line: A

Main/Lateral: Lateral
Length (ft): 104
Pipe Diameter (in): 24

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 18 Data Set

Gamma Total CPS	
6908.35	Average
599.65	Std Dev
8707.31	3 Sigma
8440.00	Max

Sigma	Total Points
<1	92
1	14
2	3
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 18 Data Set	Comments
6039352.501	2114672.01	7220.00	<1	
6039351.565	2114672.08	7300.00	<1	
6039350.629	2114672.15	7510.00	1	
6039349.692	2114672.22	7560.00	1	
6039348.756	2114672.29	6810.00	<1	
6039347.819	2114672.37	6390.00	<1	
6039346.883	2114672.44	7640.00	1	
6039345.947	2114672.51	7410.00	<1	
6039345.01	2114672.58	7890.00	1	
6039344.074	2114672.65	7230.00	<1	
6039343.138	2114672.72	7130.00	<1	
6039342.201	2114672.79	6430.00	<1	
6039341.265	2114672.86	7420.00	<1	
6039340.328	2114672.93	6770.00	<1	
6039339.392	2114673.01	7280.00	<1	
6039338.456	2114673.08	6640.00	<1	
6039337.519	2114673.15	6870.00	<1	
6039336.583	2114673.22	7290.00	<1	
6039335.647	2114673.29	7240.00	<1	
6039334.71	2114673.36	7290.00	<1	

Easting	Northing	Reading	Reach 18 Data Set	Comments
6039333.774	2114673.43	7340.00	<1	
6039332.837	2114673.50	6360.00	<1	
6039331.901	2114673.57	6810.00	<1	
6039330.965	2114673.64	7630.00	1	
6039330.028	2114673.72	8010.00	1	
6039329.092	2114673.79	7720.00	1	
6039328.155	2114673.86	6410.00	<1	
6039327.219	2114673.93	7680.00	1	
6039326.283	2114674.00	7420.00	<1	
6039325.346	2114674.07	6520.00	<1	
6039324.41	2114674.14	7300.00	<1	
6039323.474	2114674.21	7150.00	<1	
6039322.537	2114674.28	7230.00	<1	
6039321.601	2114674.36	6900.00	<1	
6039320.664	2114674.43	7480.00	<1	
6039319.728	2114674.50	7030.00	<1	
6039318.792	2114674.57	6830.00	<1	
6039317.855	2114674.64	8180.00	2	
6039316.919	2114674.71	7820.00	1	
6039315.982	2114674.78	7100.00	<1	
6039315.046	2114674.85	8440.00	2	
6039314.11	2114674.92	6190.00	<1	
6039313.173	2114675.00	6800.00	<1	
6039312.237	2114675.07	7180.00	<1	
6039311.301	2114675.14	6140.00	<1	
6039310.364	2114675.21	6160.00	<1	
6039309.428	2114675.28	7430.00	<1	
6039308.491	2114675.35	7190.00	<1	
6039307.555	2114675.42	6640.00	<1	
6039306.619	2114675.49	6020.00	<1	
6039305.682	2114675.56	7130.00	<1	
6039304.746	2114675.63	7200.00	<1	
6039303.81	2114675.71	7160.00	<1	
6039302.873	2114675.78	7540.00	1	
6039301.937	2114675.85	7540.00	1	
6039301	2114675.92	7360.00	<1	
6039300.064	2114675.99	5900.00	<1	
6039299.128	2114676.06	6510.00	<1	
6039298.191	2114676.13	7450.00	<1	
6039297.255	2114676.20	6890.00	<1	
6039296.318	2114676.27	6210.00	<1	

Easting	Northing	Reading	Reach 18 Data Set	Comments
6039295.382	2114676.35	6270.00	<1	
6039294.446	2114676.42	5670.00	<1	
6039293.509	2114676.49	5570.00	<1	
6039292.573	2114676.56	6160.00	<1	
6039291.637	2114676.63	6360.00	<1	
6039290.7	2114676.70	6150.00	<1	
6039289.764	2114676.77	6650.00	<1	
6039288.827	2114676.84	6690.00	<1	
6039287.891	2114676.91	5870.00	<1	
6039286.955	2114676.98	5870.00	<1	
6039286.018	2114677.06	6550.00	<1	
6039285.082	2114677.13	7170.00	<1	
6039284.145	2114677.20	6010.00	<1	
6039283.209	2114677.27	6860.00	<1	
6039282.273	2114677.34	7450.00	<1	
6039281.336	2114677.41	6860.00	<1	
6039280.4	2114677.48	7130.00	<1	
6039279.464	2114677.55	6580.00	<1	
6039278.527	2114677.62	6090.00	<1	
6039277.591	2114677.70	6330.00	<1	
6039276.654	2114677.77	5980.00	<1	
6039275.718	2114677.84	6710.00	<1	
6039274.782	2114677.91	7300.00	<1	
6039273.845	2114677.98	6640.00	<1	
6039272.909	2114678.05	6450.00	<1	
6039271.973	2114678.12	6550.00	<1	
6039271.036	2114678.19	7050.00	<1	
6039270.1	2114678.26	6230.00	<1	
6039269.163	2114678.34	6620.00	<1	
6039268.227	2114678.41	6350.00	<1	
6039267.291	2114678.48	6940.00	<1	
6039266.354	2114678.55	5860.00	<1	
6039265.418	2114678.62	6230.00	<1	
6039264.481	2114678.69	8350.00	2	
6039263.545	2114678.76	6710.00	<1	
6039262.609	2114678.83	7300.00	<1	
6039261.672	2114678.90	6970.00	<1	
6039260.736	2114678.97	6640.00	<1	
6039259.8	2114679.05	7310.00	<1	
6039258.863	2114679.12	6540.00	<1	
6039257.927	2114679.19	6080.00	<1	

Easting	Northing	Reading	Reach 18 Data Set	Comments
6039256.99	2114679.26	7590.00	1	
6039256.054	2114679.33	7170.00	<1	
6039255.118	2114679.40	6750.00	<1	
6039254.181	2114679.47	7710.00	1	
6039253.245	2114679.54	6840.00	<1	
6039252.309	2114679.61	7530.00	1	
6039251.372	2114679.69	7000.00	<1	

6908.35	Average
599.65	Std Dev
8707.31	3 Sigma
8440.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 19
Line: A

Main/Lateral: Lateral
Length (ft): 24
Pipe Diameter (in): 10

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 19 Data Set

Gamma Total CPS	
4652.50	Average
280.35	Std Dev
5493.56	3 Sigma
5440.00	Max

Sigma	Total Points
<1	24
1	3
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 19 Data Set	Comments
6039269.45	2114796.28	4240.00	<1	
6039269.084	2114795.55	5060.00	1	
6039268.717	2114794.83	5150.00	1	
6039268.351	2114794.11	5170.00	1	
6039267.985	2114793.39	4590.00	<1	
6039267.618	2114792.66	4670.00	<1	
6039267.252	2114791.94	4700.00	<1	
6039266.886	2114791.22	4590.00	<1	
6039266.52	2114790.50	4170.00	<1	
6039266.153	2114789.77	4660.00	<1	
6039265.787	2114789.05	4500.00	<1	
6039265.421	2114788.33	4520.00	<1	
6039265.054	2114787.61	4500.00	<1	
6039264.688	2114786.88	4600.00	<1	
6039264.322	2114786.16	4430.00	<1	
6039263.956	2114785.44	4710.00	<1	
6039263.589	2114784.71	4500.00	<1	
6039263.223	2114783.99	4370.00	<1	
6039262.857	2114783.27	4610.00	<1	
6039262.49	2114782.55	4550.00	<1	

Easting	Northing	Reading	Reach 19 Data Set	Comments
6039262.124	2114781.82	4300.00	<1	
6039261.758	2114781.10	4790.00	<1	
6039261.392	2114780.38	4580.00	<1	
6039261.025	2114779.66	4650.00	<1	
6039260.659	2114778.93	4720.00	<1	
6039260.293	2114778.21	4760.00	<1	
6039259.926	2114777.49	4740.00	<1	
6039259.56	2114776.77	5440.00	2	

4652.50	Average
280.35	Std Dev
5493.56	3 Sigma
5440.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 20
Line: A

Main/Lateral: Lateral
Length (ft): 303
Pipe Diameter (in): 24

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 20 Data Set

Gamma Total CPS	
6395.90	Average
576.10	Std Dev
8124.19	3 Sigma
8170.00	Max

Sigma	Total Points
<1	233
1	36
2	8
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 20 Data Set	Comments
6039554.587	2114755.71	6790.00	<1	
6039553.526	2114755.78	7480.00	1	
6039552.465	2114755.85	6500.00	<1	
6039551.404	2114755.92	6500.00	<1	
6039550.343	2114755.99	5990.00	<1	
6039549.282	2114756.05	6060.00	<1	
6039548.221	2114756.12	6320.00	<1	
6039547.16	2114756.19	7750.00	2	
6039546.098	2114756.26	5850.00	<1	
6039545.037	2114756.33	6920.00	<1	
6039543.976	2114756.40	7210.00	1	
6039542.915	2114756.47	6290.00	<1	
6039541.854	2114756.54	6580.00	<1	
6039540.793	2114756.61	6160.00	<1	
6039539.732	2114756.68	5850.00	<1	
6039538.67	2114756.75	7260.00	1	
6039537.609	2114756.81	8170.00	3	
6039536.548	2114756.88	6230.00	<1	
6039535.487	2114756.95	6710.00	<1	
6039534.426	2114757.02	6410.00	<1	

Easting	Northing	Reading	Reach 20 Data Set	Comments
6039533.365	2114757.09	6650.00	<1	
6039532.304	2114757.16	6630.00	<1	
6039531.242	2114757.23	7080.00	1	
6039530.181	2114757.30	7080.00	1	
6039529.12	2114757.37	6760.00	<1	
6039528.059	2114757.44	6130.00	<1	
6039526.998	2114757.51	6240.00	<1	
6039525.937	2114757.57	8080.00	2	
6039524.876	2114757.64	6340.00	<1	
6039523.814	2114757.71	6070.00	<1	
6039522.753	2114757.78	5880.00	<1	
6039521.692	2114757.85	7040.00	1	
6039520.631	2114757.92	6660.00	<1	
6039519.57	2114757.99	6500.00	<1	
6039518.509	2114758.06	5850.00	<1	
6039517.448	2114758.13	6810.00	<1	
6039516.386	2114758.20	5320.00	<1	
6039515.325	2114758.27	6740.00	<1	
6039514.264	2114758.33	5970.00	<1	
6039513.203	2114758.40	5640.00	<1	
6039512.142	2114758.47	6800.00	<1	
6039511.081	2114758.54	6850.00	<1	
6039510.02	2114758.61	6950.00	<1	
6039508.958	2114758.68	5720.00	<1	
6039507.897	2114758.75	6480.00	<1	
6039506.836	2114758.82	5550.00	<1	
6039505.775	2114758.89	5770.00	<1	
6039504.714	2114758.96	6690.00	<1	
6039503.653	2114759.03	6690.00	<1	
6039502.592	2114759.10	6370.00	<1	
6039501.53	2114759.16	5950.00	<1	
6039500.469	2114759.23	5940.00	<1	
6039499.408	2114759.30	7220.00	1	
6039498.347	2114759.37	6280.00	<1	
6039497.286	2114759.44	7660.00	2	
6039496.225	2114759.51	6370.00	<1	
6039495.164	2114759.58	6230.00	<1	
6039494.102	2114759.65	6850.00	<1	
6039493.041	2114759.72	6500.00	<1	
6039491.98	2114759.79	6040.00	<1	
6039490.919	2114759.86	6020.00	<1	

Easting	Northing	Reading	Reach 20 Data Set	Comments
6039489.858	2114759.92	6070.00	<1	
6039488.797	2114759.99	6370.00	<1	
6039487.736	2114760.06	5730.00	<1	
6039486.675	2114760.13	5840.00	<1	
6039485.613	2114760.20	6630.00	<1	
6039484.552	2114760.27	6030.00	<1	
6039483.491	2114760.34	6030.00	<1	
6039482.43	2114760.41	7360.00	1	
6039481.369	2114760.48	6680.00	<1	
6039480.308	2114760.55	5830.00	<1	
6039479.247	2114760.62	6340.00	<1	
6039478.185	2114760.68	6420.00	<1	
6039477.124	2114760.75	5420.00	<1	
6039476.063	2114760.82	5770.00	<1	
6039475.002	2114760.89	5840.00	<1	
6039473.941	2114760.96	6090.00	<1	
6039472.88	2114761.03	6090.00	<1	
6039471.819	2114761.10	6610.00	<1	
6039470.757	2114761.17	6230.00	<1	
6039469.696	2114761.24	6110.00	<1	
6039468.635	2114761.31	6230.00	<1	
6039467.574	2114761.38	6570.00	<1	
6039466.513	2114761.44	6080.00	<1	
6039465.452	2114761.51	6910.00	<1	
6039464.391	2114761.58	6800.00	<1	
6039463.329	2114761.65	6350.00	<1	
6039462.268	2114761.72	6790.00	<1	
6039461.207	2114761.79	6060.00	<1	
6039460.146	2114761.86	7070.00	1	
6039459.085	2114761.93	7540.00	1	
6039458.024	2114762.00	7180.00	1	
6039456.963	2114762.07	6440.00	<1	
6039455.901	2114762.14	6830.00	<1	
6039454.84	2114762.21	6310.00	<1	
6039453.779	2114762.27	6790.00	<1	
6039452.718	2114762.34	7080.00	1	
6039451.657	2114762.41	6150.00	<1	
6039450.596	2114762.48	6410.00	<1	
6039449.535	2114762.55	7380.00	1	
6039448.473	2114762.62	5930.00	<1	
6039447.412	2114762.69	6100.00	<1	

Easting	Northing	Reading	Reach 20 Data Set	Comments
6039446.351	2114762.76	6250.00	<1	
6039445.29	2114762.83	7090.00	1	
6039444.229	2114762.90	6950.00	<1	
6039443.168	2114762.97	5600.00	<1	
6039442.107	2114763.03	5990.00	<1	
6039441.045	2114763.10	5990.00	<1	
6039439.984	2114763.17	6740.00	<1	
6039438.923	2114763.24	6370.00	<1	
6039437.862	2114763.31	6660.00	<1	
6039436.801	2114763.38	7340.00	1	
6039435.74	2114763.45	6270.00	<1	
6039434.679	2114763.52	6820.00	<1	
6039433.618	2114763.59	5710.00	<1	
6039432.556	2114763.66	6310.00	<1	
6039431.495	2114763.73	5670.00	<1	
6039430.434	2114763.79	5650.00	<1	
6039429.373	2114763.86	5430.00	<1	
6039428.312	2114763.93	5550.00	<1	
6039427.251	2114764.00	5510.00	<1	
6039426.19	2114764.07	5760.00	<1	
6039425.128	2114764.14	5030.00	<1	
6039424.067	2114764.21	5710.00	<1	
6039423.006	2114764.28	6840.00	<1	
6039421.945	2114764.35	5890.00	<1	
6039420.884	2114764.42	6030.00	<1	
6039419.823	2114764.49	6490.00	<1	
6039418.762	2114764.55	6760.00	<1	
6039417.7	2114764.62	5840.00	<1	
6039416.639	2114764.69	5870.00	<1	
6039415.578	2114764.76	5940.00	<1	
6039414.517	2114764.83	6110.00	<1	
6039413.456	2114764.90	6000.00	<1	
6039412.395	2114764.97	6700.00	<1	
6039411.334	2114765.04	6700.00	<1	
6039410.272	2114765.11	6770.00	<1	
6039409.211	2114765.18	6180.00	<1	
6039408.15	2114765.25	6130.00	<1	
6039407.089	2114765.32	5710.00	<1	
6039406.028	2114765.38	5720.00	<1	
6039404.967	2114765.45	6310.00	<1	
6039403.906	2114765.52	5550.00	<1	

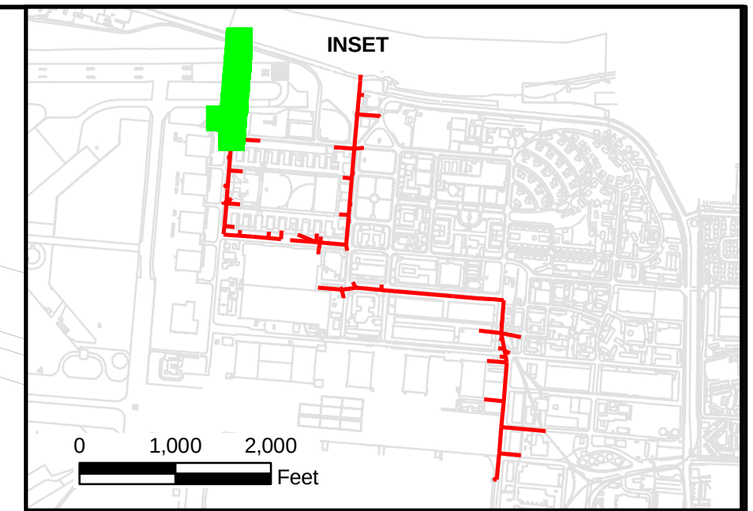
Easting	Northing	Reading	Reach 20 Data Set	Comments
6039402.844	2114765.59	5770.00	<1	
6039401.783	2114765.66	5540.00	<1	
6039400.722	2114765.73	6230.00	<1	
6039399.661	2114765.80	5980.00	<1	
6039398.6	2114765.87	6330.00	<1	
6039397.539	2114765.94	6430.00	<1	
6039396.478	2114766.01	5580.00	<1	
6039395.416	2114766.08	6220.00	<1	
6039394.355	2114766.14	5920.00	<1	
6039393.294	2114766.21	6490.00	<1	
6039392.233	2114766.28	6730.00	<1	
6039391.172	2114766.35	6020.00	<1	
6039390.111	2114766.42	5900.00	<1	
6039389.05	2114766.49	5630.00	<1	
6039387.988	2114766.56	5350.00	<1	
6039386.927	2114766.63	6180.00	<1	
6039385.866	2114766.70	5740.00	<1	
6039384.805	2114766.77	5970.00	<1	
6039383.744	2114766.84	6540.00	<1	
6039382.683	2114766.90	5560.00	<1	
6039381.622	2114766.97	5450.00	<1	
6039380.56	2114767.04	5450.00	<1	
6039379.499	2114767.11	5980.00	<1	
6039378.438	2114767.18	6000.00	<1	
6039377.377	2114767.25	5880.00	<1	
6039376.316	2114767.32	6250.00	<1	
6039375.255	2114767.39	5890.00	<1	
6039374.194	2114767.46	5890.00	<1	
6039373.133	2114767.53	5690.00	<1	
6039372.071	2114767.60	5530.00	<1	
6039371.01	2114767.66	5800.00	<1	
6039369.949	2114767.73	6190.00	<1	
6039368.888	2114767.80	6630.00	<1	
6039367.827	2114767.87	6710.00	<1	
6039366.766	2114767.94	6220.00	<1	
6039365.705	2114768.01	5820.00	<1	
6039364.643	2114768.08	7180.00	1	
6039363.582	2114768.15	5950.00	<1	
6039362.521	2114768.22	5910.00	<1	
6039361.46	2114768.29	5330.00	<1	
6039360.399	2114768.36	6220.00	<1	

Easting	Northing	Reading	Reach 20 Data Set	Comments
6039359.338	2114768.43	6490.00	<1	
6039358.277	2114768.49	6040.00	<1	
6039357.215	2114768.56	6480.00	<1	
6039356.154	2114768.63	5890.00	<1	
6039355.093	2114768.70	6150.00	<1	
6039354.032	2114768.77	6800.00	<1	
6039352.971	2114768.84	6800.00	<1	
6039351.91	2114768.91	5710.00	<1	
6039350.849	2114768.98	6070.00	<1	
6039349.787	2114769.05	5780.00	<1	
6039348.726	2114769.12	5660.00	<1	
6039347.665	2114769.19	5760.00	<1	
6039346.604	2114769.25	5990.00	<1	
6039345.543	2114769.32	5970.00	<1	
6039344.482	2114769.39	5840.00	<1	
6039343.421	2114769.46	6410.00	<1	
6039342.359	2114769.53	6160.00	<1	
6039341.298	2114769.60	6180.00	<1	
6039340.237	2114769.67	6180.00	<1	
6039339.176	2114769.74	6940.00	<1	
6039338.115	2114769.81	7340.00	1	
6039337.054	2114769.88	6260.00	<1	
6039335.993	2114769.95	5850.00	<1	
6039334.931	2114770.01	6180.00	<1	
6039333.87	2114770.08	6320.00	<1	
6039332.809	2114770.15	6310.00	<1	
6039331.748	2114770.22	6900.00	<1	
6039330.687	2114770.29	6900.00	<1	
6039329.626	2114770.36	6960.00	<1	
6039328.565	2114770.43	6810.00	<1	
6039327.503	2114770.50	7600.00	2	
6039326.442	2114770.57	7500.00	1	
6039325.381	2114770.64	7320.00	1	
6039324.32	2114770.71	6560.00	<1	
6039323.259	2114770.77	7530.00	1	
6039322.198	2114770.84	7550.00	2	
6039321.137	2114770.91	7970.00	2	
6039320.076	2114770.98	7210.00	1	
6039319.014	2114771.05	7390.00	1	
6039317.953	2114771.12	6680.00	<1	
6039316.892	2114771.19	6760.00	<1	

Easting	Northing	Reading	Reach 20 Data Set	Comments
6039315.831	2114771.26	6570.00	<1	
6039314.77	2114771.33	7150.00	1	
6039313.709	2114771.40	6620.00	<1	
6039312.648	2114771.47	6710.00	<1	
6039311.586	2114771.54	6740.00	<1	
6039310.525	2114771.60	7280.00	1	
6039309.464	2114771.67	7330.00	1	
6039308.403	2114771.74	7710.00	2	
6039307.342	2114771.81	6170.00	<1	
6039306.281	2114771.88	6170.00	<1	
6039305.22	2114771.95	6700.00	<1	
6039304.158	2114772.02	6610.00	<1	
6039303.097	2114772.09	7120.00	1	
6039302.036	2114772.16	7020.00	1	
6039300.975	2114772.23	7270.00	1	
6039299.914	2114772.30	7160.00	1	
6039298.853	2114772.36	7290.00	1	
6039297.792	2114772.43	6750.00	<1	
6039296.73	2114772.50	6210.00	<1	
6039295.669	2114772.57	6860.00	<1	
6039294.608	2114772.64	7010.00	1	
6039293.547	2114772.71	6990.00	1	
6039292.486	2114772.78	7220.00	1	
6039291.425	2114772.85	6510.00	<1	
6039290.364	2114772.92	6350.00	<1	
6039289.302	2114772.99	7150.00	1	
6039288.241	2114773.06	6750.00	<1	
6039287.18	2114773.12	5980.00	<1	
6039286.119	2114773.19	6490.00	<1	
6039285.058	2114773.26	6490.00	<1	
6039283.997	2114773.33	7010.00	1	
6039282.936	2114773.40	6370.00	<1	
6039281.874	2114773.47	6300.00	<1	
6039280.813	2114773.54	6700.00	<1	
6039279.752	2114773.61	6400.00	<1	
6039278.691	2114773.68	5790.00	<1	
6039277.63	2114773.75	6660.00	<1	
6039276.569	2114773.82	7110.00	1	
6039275.508	2114773.88	7860.00	2	
6039274.446	2114773.95	6940.00	<1	
6039273.385	2114774.02	6100.00	<1	

Easting	Northing	Reading	Reach 20 Data Set	Comments
6039272.324	2114774.09	6400.00	<1	
6039271.263	2114774.16	6400.00	<1	
6039270.202	2114774.23	5930.00	<1	
6039269.141	2114774.30	6560.00	<1	
6039268.08	2114774.37	5900.00	<1	
6039267.018	2114774.44	6070.00	<1	
6039265.957	2114774.51	5960.00	<1	
6039264.896	2114774.58	6680.00	<1	
6039263.835	2114774.65	5900.00	<1	
6039262.774	2114774.71	5720.00	<1	
6039261.713	2114774.78	6210.00	<1	
6039260.652	2114774.85	5570.00	<1	

6395.90	Average
576.10	Std Dev
8124.19	3 Sigma
8170.00	Max



Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
21	5538
22	7370
23	5657
24	5583
25	8166
26	5596

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0 15 30 60 90 120
Feet

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 21 thru 26

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_21-26_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 21
Line: A

Main/Lateral: Main
Length (ft): 207
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 21 Data Set

Gamma Total CPS	
4670.48	Average
289.27	Std Dev
5538.29	3 Sigma
5590.00	Max

Sigma	Total Points
<1	120
1	24
2	1
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 21 Data Set	Comments
6039258.812	2114776.98	4660.00	<1	
6039258.922	2114778.38	4960.00	1	
6039259.032	2114779.79	5050.00	1	
6039259.142	2114781.20	5050.00	1	
6039259.252	2114782.61	4290.00	<1	
6039259.362	2114784.01	4590.00	<1	
6039259.472	2114785.42	4990.00	1	
6039259.582	2114786.83	4550.00	<1	
6039259.692	2114788.24	4790.00	<1	
6039259.802	2114789.64	4260.00	<1	
6039259.912	2114791.05	4460.00	<1	
6039260.022	2114792.46	4590.00	<1	
6039260.132	2114793.87	4440.00	<1	
6039260.242	2114795.28	4050.00	<1	
6039260.352	2114796.68	4520.00	<1	
6039260.462	2114798.09	4590.00	<1	
6039260.571	2114799.50	4590.00	<1	
6039260.681	2114800.91	5050.00	1	
6039260.791	2114802.31	4470.00	<1	
6039260.901	2114803.72	4590.00	<1	

Easting	Northing	Reading	Reach 21 Data Set	Comments
6039261.011	2114805.13	4270.00	<1	
6039261.121	2114806.54	4940.00	<1	
6039261.231	2114807.94	4630.00	<1	
6039261.341	2114809.35	4460.00	<1	
6039261.451	2114810.76	4260.00	<1	
6039261.561	2114812.17	4330.00	<1	
6039261.671	2114813.57	4590.00	<1	
6039261.781	2114814.98	4110.00	<1	
6039261.891	2114816.39	4600.00	<1	
6039262.001	2114817.80	4820.00	<1	
6039262.111	2114819.20	4680.00	<1	
6039262.221	2114820.61	4680.00	<1	
6039262.331	2114822.02	4370.00	<1	
6039262.441	2114823.43	4730.00	<1	
6039262.551	2114824.83	5040.00	1	
6039262.661	2114826.24	4670.00	<1	
6039262.771	2114827.65	4620.00	<1	
6039262.881	2114829.06	4760.00	<1	
6039262.991	2114830.47	4370.00	<1	
6039263.101	2114831.87	4600.00	<1	
6039263.211	2114833.28	4590.00	<1	
6039263.321	2114834.69	4830.00	<1	
6039263.431	2114836.10	4610.00	<1	
6039263.541	2114837.50	5060.00	1	
6039263.651	2114838.91	4650.00	<1	
6039263.761	2114840.32	4850.00	<1	
6039263.871	2114841.73	5270.00	2	
6039263.981	2114843.13	4750.00	<1	
6039264.091	2114844.54	4970.00	1	
6039264.201	2114845.95	4970.00	1	
6039264.311	2114847.36	5140.00	1	
6039264.421	2114848.76	4800.00	<1	
6039264.531	2114850.17	4670.00	<1	
6039264.641	2114851.58	4750.00	<1	
6039264.751	2114852.99	4460.00	<1	
6039264.861	2114854.39	4440.00	<1	
6039264.971	2114855.80	4240.00	<1	
6039265.081	2114857.21	4720.00	<1	
6039265.191	2114858.62	4710.00	<1	
6039265.301	2114860.02	5040.00	1	
6039265.411	2114861.43	5590.00	3	

Easting	Northing	Reading	Reach 21 Data Set	Comments
6039265.521	2114862.84	4980.00	1	
6039265.631	2114864.25	5100.00	1	
6039265.741	2114865.66	4840.00	<1	
6039265.851	2114867.06	4590.00	<1	
6039265.961	2114868.47	4560.00	<1	
6039266.071	2114869.88	4380.00	<1	
6039266.181	2114871.29	3990.00	<1	
6039266.291	2114872.69	4340.00	<1	
6039266.401	2114874.10	4800.00	<1	
6039266.511	2114875.51	4800.00	<1	
6039266.621	2114876.92	4640.00	<1	
6039266.731	2114878.32	4560.00	<1	
6039266.841	2114879.73	4550.00	<1	
6039266.951	2114881.14	4690.00	<1	
6039267.061	2114882.55	4870.00	<1	
6039267.171	2114883.95	4660.00	<1	
6039267.281	2114885.36	4890.00	<1	
6039267.391	2114886.77	5010.00	1	
6039267.501	2114888.18	4890.00	<1	
6039267.611	2114889.58	4390.00	<1	
6039267.721	2114890.99	4930.00	<1	
6039267.831	2114892.40	4910.00	<1	
6039267.941	2114893.81	4640.00	<1	
6039268.051	2114895.21	4700.00	<1	
6039268.161	2114896.62	4700.00	<1	
6039268.271	2114898.03	4690.00	<1	
6039268.381	2114899.44	4980.00	1	
6039268.491	2114900.85	4940.00	<1	
6039268.601	2114902.25	4360.00	<1	
6039268.711	2114903.66	4530.00	<1	
6039268.821	2114905.07	4580.00	<1	
6039268.931	2114906.48	4590.00	<1	
6039269.041	2114907.88	4750.00	<1	
6039269.151	2114909.29	4790.00	<1	
6039269.261	2114910.70	5150.00	1	
6039269.371	2114912.11	5100.00	1	
6039269.481	2114913.51	4620.00	<1	
6039269.591	2114914.92	4470.00	<1	
6039269.701	2114916.33	4440.00	<1	
6039269.811	2114917.74	4260.00	<1	
6039269.921	2114919.14	4690.00	<1	

Easting	Northing	Reading	Reach 21 Data Set	Comments
6039270.031	2114920.55	4830.00	<1	
6039270.141	2114921.96	4830.00	<1	
6039270.251	2114923.37	4570.00	<1	
6039270.36	2114924.77	4720.00	<1	
6039270.47	2114926.18	4780.00	<1	
6039270.58	2114927.59	4720.00	<1	
6039270.69	2114929.00	4450.00	<1	
6039270.8	2114930.40	4390.00	<1	
6039270.91	2114931.81	4300.00	<1	
6039271.02	2114933.22	3990.00	<1	
6039271.13	2114934.63	4200.00	<1	
6039271.24	2114936.04	3930.00	<1	
6039271.35	2114937.44	4240.00	<1	
6039271.46	2114938.85	4410.00	<1	
6039271.57	2114940.26	4360.00	<1	
6039271.68	2114941.67	4140.00	<1	
6039271.79	2114943.07	4700.00	<1	
6039271.9	2114944.48	4880.00	<1	
6039272.01	2114945.89	4930.00	<1	
6039272.12	2114947.30	4900.00	<1	
6039272.23	2114948.70	4620.00	<1	
6039272.34	2114950.11	4740.00	<1	
6039272.45	2114951.52	4590.00	<1	
6039272.56	2114952.93	5160.00	1	
6039272.67	2114954.33	5160.00	1	
6039272.78	2114955.74	4900.00	<1	
6039272.89	2114957.15	4280.00	<1	
6039273	2114958.56	4530.00	<1	
6039273.11	2114959.96	4440.00	<1	
6039273.22	2114961.37	4410.00	<1	
6039273.33	2114962.78	4930.00	<1	
6039273.44	2114964.19	4700.00	<1	
6039273.55	2114965.59	4710.00	<1	
6039273.66	2114967.00	5050.00	1	
6039273.77	2114968.41	5050.00	1	
6039273.88	2114969.82	5120.00	1	
6039273.99	2114971.23	4640.00	<1	
6039274.1	2114972.63	5230.00	1	
6039274.21	2114974.04	4770.00	<1	
6039274.32	2114975.45	4730.00	<1	
6039274.43	2114976.86	4400.00	<1	

Easting	Northing	Reading	Reach 21 Data Set	Comments
6039274.54	2114978.26	4260.00	<1	
6039274.65	2114979.67	4540.00	<1	
6039274.76	2114981.08	5130.00	1	

4670.48	Average
289.27	Std Dev
5538.29	3 Sigma
5590.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 22
Line: A

Main/Lateral: Lateral
Length (ft): 148
Pipe Diameter (in): 30

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 22 Data Set

Gamma Total CPS	
5989.65	Average
460.02	Std Dev
7369.71	3 Sigma
7340.00	Max

Sigma	Total Points
<1	99
1	10
2	6
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 22 Data Set	Comments
6039129.533	2114996.08	6130.00	<1	
6039130.791	2114995.97	5630.00	<1	
6039132.048	2114995.86	5710.00	<1	
6039133.306	2114995.74	5370.00	<1	
6039134.564	2114995.63	5760.00	<1	
6039135.822	2114995.52	5850.00	<1	
6039137.08	2114995.41	5930.00	<1	
6039138.337	2114995.29	5830.00	<1	
6039139.595	2114995.18	6530.00	1	
6039140.853	2114995.07	7210.00	2	
6039142.111	2114994.96	6860.00	1	
6039143.369	2114994.84	6270.00	<1	
6039144.627	2114994.73	6350.00	<1	
6039145.884	2114994.62	5830.00	<1	
6039147.142	2114994.51	5900.00	<1	
6039148.4	2114994.39	6630.00	1	
6039149.658	2114994.28	5700.00	<1	
6039150.916	2114994.17	5700.00	<1	
6039152.173	2114994.06	5510.00	<1	
6039153.431	2114993.94	6050.00	<1	

Easting	Northing	Reading	Reach 22 Data Set	Comments
6039154.689	2114993.83	5860.00	<1	
6039155.947	2114993.72	6850.00	1	
6039157.205	2114993.61	6910.00	2	
6039158.463	2114993.49	6420.00	<1	
6039159.72	2114993.38	5180.00	<1	
6039160.978	2114993.27	5480.00	<1	
6039162.236	2114993.16	6240.00	<1	
6039163.494	2114993.04	6440.00	<1	
6039164.752	2114992.93	6290.00	<1	
6039166.009	2114992.82	6450.00	1	
6039167.267	2114992.71	6200.00	<1	
6039168.525	2114992.59	6120.00	<1	
6039169.783	2114992.48	6710.00	1	
6039171.041	2114992.37	6040.00	<1	
6039172.299	2114992.26	5910.00	<1	
6039173.556	2114992.14	5930.00	<1	
6039174.814	2114992.03	5930.00	<1	
6039176.072	2114991.92	6350.00	<1	
6039177.33	2114991.80	6550.00	1	
6039178.588	2114991.69	5930.00	<1	
6039179.845	2114991.58	6020.00	<1	
6039181.103	2114991.47	5560.00	<1	
6039182.361	2114991.35	6240.00	<1	
6039183.619	2114991.24	5910.00	<1	
6039184.877	2114991.13	5410.00	<1	
6039186.135	2114991.02	5700.00	<1	
6039187.392	2114990.90	5470.00	<1	
6039188.65	2114990.79	6380.00	<1	
6039189.908	2114990.68	6420.00	<1	
6039191.166	2114990.57	5870.00	<1	
6039192.424	2114990.45	5710.00	<1	
6039193.681	2114990.34	5300.00	<1	
6039194.939	2114990.23	6040.00	<1	
6039196.197	2114990.12	6890.00	1	
6039197.455	2114990.00	7050.00	2	
6039198.713	2114989.89	5850.00	<1	
6039199.97	2114989.78	5550.00	<1	
6039201.228	2114989.67	5690.00	<1	
6039202.486	2114989.55	5680.00	<1	
6039203.744	2114989.44	6830.00	1	
6039205.002	2114989.33	6220.00	<1	

Easting	Northing	Reading	Reach 22 Data Set	Comments
6039206.26	2114989.22	6220.00	<1	
6039207.517	2114989.10	6040.00	<1	
6039208.775	2114988.99	5560.00	<1	
6039210.033	2114988.88	5880.00	<1	
6039211.291	2114988.77	6960.00	2	
6039212.549	2114988.65	6620.00	1	
6039213.806	2114988.54	5730.00	<1	
6039215.064	2114988.43	5610.00	<1	
6039216.322	2114988.32	5700.00	<1	
6039217.58	2114988.20	5760.00	<1	
6039218.838	2114988.09	5930.00	<1	
6039220.096	2114987.98	5700.00	<1	
6039221.353	2114987.87	6080.00	<1	
6039222.611	2114987.75	6130.00	<1	
6039223.869	2114987.64	6080.00	<1	
6039225.127	2114987.53	6020.00	<1	
6039226.385	2114987.42	5270.00	<1	
6039227.642	2114987.30	5790.00	<1	
6039228.9	2114987.19	5850.00	<1	
6039230.158	2114987.08	5970.00	<1	
6039231.416	2114986.96	5530.00	<1	
6039232.674	2114986.85	6000.00	<1	
6039233.932	2114986.74	5320.00	<1	
6039235.189	2114986.63	5730.00	<1	
6039236.447	2114986.51	5840.00	<1	
6039237.705	2114986.40	5920.00	<1	
6039238.963	2114986.29	5590.00	<1	
6039240.221	2114986.18	5590.00	<1	
6039241.478	2114986.06	5500.00	<1	
6039242.736	2114985.95	6080.00	<1	
6039243.994	2114985.84	5280.00	<1	
6039245.252	2114985.73	5510.00	<1	
6039246.51	2114985.61	6290.00	<1	
6039247.767	2114985.50	7340.00	2	
6039249.025	2114985.39	5830.00	<1	
6039250.283	2114985.28	5820.00	<1	
6039251.541	2114985.16	5980.00	<1	
6039252.799	2114985.05	6410.00	<1	
6039254.057	2114984.94	5560.00	<1	
6039255.314	2114984.83	5950.00	<1	
6039256.572	2114984.71	5560.00	<1	

Easting	Northing	Reading	Reach 22 Data Set	Comments
6039257.83	2114984.60	6030.00	<1	
6039259.088	2114984.49	5480.00	<1	
6039260.346	2114984.38	6410.00	<1	
6039261.603	2114984.26	5920.00	<1	
6039262.861	2114984.15	5450.00	<1	
6039264.119	2114984.04	5430.00	<1	
6039265.377	2114983.93	6380.00	<1	
6039266.635	2114983.81	5330.00	<1	
6039267.893	2114983.70	5700.00	<1	
6039269.15	2114983.59	5700.00	<1	
6039270.408	2114983.48	5970.00	<1	
6039271.666	2114983.36	7230.00	2	
6039272.924	2114983.25	5920.00	<1	

5989.65	Average
460.02	Std Dev
7369.71	3 Sigma
7340.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 23
Line: A

Main/Lateral: Main
Length (ft): 197
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 23 Data Set

Gamma Total CPS	
4766.69	Average
296.67	Std Dev
5656.68	3 Sigma
5790.00	Max

Sigma	Total Points
<1	143
1	21
2	4
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 23 Data Set	Comments
6039275.106	2114985.06	4070.00	<1	
6039275.212	2114986.17	4510.00	<1	
6039275.317	2114987.27	4940.00	<1	
6039275.422	2114988.37	4960.00	<1	
6039275.528	2114989.48	4750.00	<1	
6039275.633	2114990.58	4460.00	<1	
6039275.739	2114991.69	4670.00	<1	
6039275.844	2114992.79	4940.00	<1	
6039275.95	2114993.89	4870.00	<1	
6039276.055	2114995.00	5260.00	1	
6039276.161	2114996.10	4810.00	<1	
6039276.266	2114997.20	5050.00	<1	
6039276.372	2114998.31	4830.00	<1	
6039276.477	2114999.41	4560.00	<1	
6039276.582	2115000.52	4880.00	<1	
6039276.688	2115001.62	5170.00	1	
6039276.793	2115002.72	4860.00	<1	
6039276.899	2115003.83	4730.00	<1	
6039277.004	2115004.93	4550.00	<1	
6039277.11	2115006.03	4330.00	<1	

Easting	Northing	Reading	Reach 23 Data Set	Comments
6039277.215	2115007.14	4750.00	<1	
6039277.321	2115008.24	4740.00	<1	
6039277.426	2115009.35	4400.00	<1	
6039277.532	2115010.45	4420.00	<1	
6039277.637	2115011.55	5030.00	<1	
6039277.742	2115012.66	4930.00	<1	
6039277.848	2115013.76	4870.00	<1	
6039277.953	2115014.86	4650.00	<1	
6039278.059	2115015.97	4720.00	<1	
6039278.164	2115017.07	4920.00	<1	
6039278.27	2115018.18	4500.00	<1	
6039278.375	2115019.28	4060.00	<1	
6039278.481	2115020.38	4560.00	<1	
6039278.586	2115021.49	4670.00	<1	
6039278.692	2115022.59	4510.00	<1	
6039278.797	2115023.69	4640.00	<1	
6039278.902	2115024.80	4790.00	<1	
6039279.008	2115025.90	4750.00	<1	
6039279.113	2115027.01	4780.00	<1	
6039279.219	2115028.11	4400.00	<1	
6039279.324	2115029.21	4420.00	<1	
6039279.43	2115030.32	4650.00	<1	
6039279.535	2115031.42	4380.00	<1	
6039279.641	2115032.52	4300.00	<1	
6039279.746	2115033.63	4640.00	<1	
6039279.852	2115034.73	4350.00	<1	
6039279.957	2115035.84	4610.00	<1	
6039280.062	2115036.94	5090.00	1	
6039280.168	2115038.04	4780.00	<1	
6039280.273	2115039.15	4270.00	<1	
6039280.379	2115040.25	4340.00	<1	
6039280.484	2115041.35	4460.00	<1	
6039280.59	2115042.46	4300.00	<1	
6039280.695	2115043.56	4930.00	<1	
6039280.801	2115044.66	4820.00	<1	
6039280.906	2115045.77	5150.00	1	
6039281.012	2115046.87	5470.00	2	
6039281.117	2115047.98	4790.00	<1	
6039281.222	2115049.08	4640.00	<1	
6039281.328	2115050.18	4840.00	<1	
6039281.433	2115051.29	5070.00	1	

Easting	Northing	Reading	Reach 23 Data Set	Comments
6039281.539	2115052.39	5310.00	1	
6039281.644	2115053.49	4760.00	<1	
6039281.75	2115054.60	4710.00	<1	
6039281.855	2115055.70	4800.00	<1	
6039281.961	2115056.81	5110.00	1	
6039282.066	2115057.91	5400.00	2	
6039282.172	2115059.01	4760.00	<1	
6039282.277	2115060.12	4520.00	<1	
6039282.382	2115061.22	4910.00	<1	
6039282.488	2115062.32	5080.00	1	
6039282.593	2115063.43	4720.00	<1	
6039282.699	2115064.53	4400.00	<1	
6039282.804	2115065.64	5270.00	1	
6039282.91	2115066.74	4930.00	<1	
6039283.015	2115067.84	4900.00	<1	
6039283.121	2115068.95	4860.00	<1	
6039283.226	2115070.05	5220.00	1	
6039283.332	2115071.15	5290.00	1	
6039283.437	2115072.26	4860.00	<1	
6039283.542	2115073.36	4520.00	<1	
6039283.648	2115074.47	4530.00	<1	
6039283.753	2115075.57	4890.00	<1	
6039283.859	2115076.67	4810.00	<1	
6039283.964	2115077.78	4770.00	<1	
6039284.07	2115078.88	5000.00	<1	
6039284.175	2115079.98	4990.00	<1	
6039284.281	2115081.09	4700.00	<1	
6039284.386	2115082.19	4880.00	<1	
6039284.492	2115083.30	4700.00	<1	
6039284.597	2115084.40	4440.00	<1	
6039284.703	2115085.50	5020.00	<1	
6039284.808	2115086.61	4760.00	<1	
6039284.913	2115087.71	4710.00	<1	
6039285.019	2115088.81	5010.00	<1	
6039285.124	2115089.92	4590.00	<1	
6039285.23	2115091.02	4780.00	<1	
6039285.335	2115092.13	4460.00	<1	
6039285.441	2115093.23	4720.00	<1	
6039285.546	2115094.33	4300.00	<1	
6039285.652	2115095.44	4690.00	<1	
6039285.757	2115096.54	4750.00	<1	

Easting	Northing	Reading	Reach 23 Data Set	Comments
6039285.863	2115097.64	5120.00	1	
6039285.968	2115098.75	4900.00	<1	
6039286.073	2115099.85	4610.00	<1	
6039286.179	2115100.96	4430.00	<1	
6039286.284	2115102.06	4720.00	<1	
6039286.39	2115103.16	4970.00	<1	
6039286.495	2115104.27	5380.00	2	
6039286.601	2115105.37	4930.00	<1	
6039286.706	2115106.47	4920.00	<1	
6039286.812	2115107.58	5020.00	<1	
6039286.917	2115108.68	5380.00	2	
6039287.023	2115109.79	5300.00	1	
6039287.128	2115110.89	4660.00	<1	
6039287.233	2115111.99	4890.00	<1	
6039287.339	2115113.10	4510.00	<1	
6039287.444	2115114.20	4710.00	<1	
6039287.55	2115115.30	4620.00	<1	
6039287.655	2115116.41	5330.00	1	
6039287.761	2115117.51	4950.00	<1	
6039287.866	2115118.62	5250.00	1	
6039287.972	2115119.72	4890.00	<1	
6039288.077	2115120.82	4780.00	<1	
6039288.183	2115121.93	5100.00	1	
6039288.288	2115123.03	5140.00	1	
6039288.393	2115124.13	4970.00	<1	
6039288.499	2115125.24	5220.00	1	
6039288.604	2115126.34	4810.00	<1	
6039288.71	2115127.45	5040.00	<1	
6039288.815	2115128.55	4980.00	<1	
6039288.921	2115129.65	4680.00	<1	
6039289.026	2115130.76	4780.00	<1	
6039289.132	2115131.86	4920.00	<1	
6039289.237	2115132.96	4620.00	<1	
6039289.343	2115134.07	5030.00	<1	
6039289.448	2115135.17	4870.00	<1	
6039289.553	2115136.27	4840.00	<1	
6039289.659	2115137.38	4610.00	<1	
6039289.764	2115138.48	4340.00	<1	
6039289.87	2115139.59	5050.00	<1	
6039289.975	2115140.69	4810.00	<1	
6039290.081	2115141.79	4620.00	<1	

Easting	Northing	Reading	Reach 23 Data Set	Comments
6039290.186	2115142.90	4450.00	<1	
6039290.292	2115144.00	4590.00	<1	
6039290.397	2115145.10	4990.00	<1	
6039290.503	2115146.21	4200.00	<1	
6039290.608	2115147.31	4520.00	<1	
6039290.713	2115148.42	4310.00	<1	
6039290.819	2115149.52	4510.00	<1	
6039290.924	2115150.62	4640.00	<1	
6039291.03	2115151.73	4480.00	<1	
6039291.135	2115152.83	4460.00	<1	
6039291.241	2115153.93	4250.00	<1	
6039291.346	2115155.04	4550.00	<1	
6039291.452	2115156.14	4440.00	<1	
6039291.557	2115157.25	4700.00	<1	
6039291.663	2115158.35	4640.00	<1	
6039291.768	2115159.45	4570.00	<1	
6039291.873	2115160.56	4410.00	<1	
6039291.979	2115161.66	5130.00	1	
6039292.084	2115162.76	5790.00	3	
6039292.19	2115163.87	5120.00	1	
6039292.295	2115164.97	4830.00	<1	
6039292.401	2115166.08	4430.00	<1	
6039292.506	2115167.18	4420.00	<1	
6039292.612	2115168.28	4200.00	<1	
6039292.717	2115169.39	4730.00	<1	
6039292.823	2115170.49	5090.00	1	

4766.69	Average
296.67	Std Dev
5656.68	3 Sigma
5790.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 24
Line: A

Main/Lateral: Main
Length (ft): 403
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 24 Data Set

Gamma Total CPS	
4656.52	Average
308.76	Std Dev
5582.80	3 Sigma
5540.00	Max

Sigma	Total Points
<1	317
1	48
2	9
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 24 Data Set	Comments
6039293.169	2115174.48	4450.00	<1	
6039293.254	2115175.56	5250.00	1	
6039293.339	2115176.65	5540.00	2	
6039293.424	2115177.73	4890.00	<1	
6039293.51	2115178.82	4800.00	<1	
6039293.595	2115179.90	4750.00	<1	
6039293.68	2115180.99	4360.00	<1	
6039293.765	2115182.07	4130.00	<1	
6039293.85	2115183.16	4480.00	<1	
6039293.935	2115184.24	4240.00	<1	
6039294.02	2115185.33	4490.00	<1	
6039294.105	2115186.41	4200.00	<1	
6039294.19	2115187.50	4720.00	<1	
6039294.276	2115188.59	4930.00	<1	
6039294.361	2115189.67	4490.00	<1	
6039294.446	2115190.76	4640.00	<1	
6039294.531	2115191.84	4360.00	<1	
6039294.616	2115192.93	4940.00	<1	
6039294.701	2115194.01	4490.00	<1	
6039294.786	2115195.10	4310.00	<1	

Easting	Northing	Reading	Reach 24 Data Set	Comments
6039294.871	2115196.18	4620.00	<1	
6039294.956	2115197.27	5050.00	1	
6039295.042	2115198.35	5200.00	1	
6039295.127	2115199.44	5170.00	1	
6039295.212	2115200.52	4870.00	<1	
6039295.297	2115201.61	4540.00	<1	
6039295.382	2115202.70	4740.00	<1	
6039295.467	2115203.78	5040.00	1	
6039295.552	2115204.87	4540.00	<1	
6039295.637	2115205.95	4690.00	<1	
6039295.723	2115207.04	5010.00	1	
6039295.808	2115208.12	4800.00	<1	
6039295.893	2115209.21	4450.00	<1	
6039295.978	2115210.29	4180.00	<1	
6039296.063	2115211.38	4150.00	<1	
6039296.148	2115212.46	4820.00	<1	
6039296.233	2115213.55	4380.00	<1	
6039296.318	2115214.63	4820.00	<1	
6039296.403	2115215.72	4650.00	<1	
6039296.489	2115216.81	4780.00	<1	
6039296.574	2115217.89	4630.00	<1	
6039296.659	2115218.98	5190.00	1	
6039296.744	2115220.06	4770.00	<1	
6039296.829	2115221.15	4460.00	<1	
6039296.914	2115222.23	5040.00	1	
6039296.999	2115223.32	4460.00	<1	
6039297.084	2115224.40	4680.00	<1	
6039297.169	2115225.49	4030.00	<1	
6039297.255	2115226.57	4270.00	<1	
6039297.34	2115227.66	4210.00	<1	
6039297.425	2115228.74	4440.00	<1	
6039297.51	2115229.83	4930.00	<1	
6039297.595	2115230.92	4550.00	<1	
6039297.68	2115232.00	4880.00	<1	
6039297.765	2115233.09	5220.00	1	
6039297.85	2115234.17	4840.00	<1	
6039297.935	2115235.26	4830.00	<1	
6039298.021	2115236.34	5120.00	1	
6039298.106	2115237.43	5090.00	1	
6039298.191	2115238.51	4780.00	<1	
6039298.276	2115239.60	4830.00	<1	

Easting	Northing	Reading	Reach 24 Data Set	Comments
6039298.361	2115240.68	4400.00	<1	
6039298.446	2115241.77	4660.00	<1	
6039298.531	2115242.85	4770.00	<1	
6039298.616	2115243.94	5280.00	2	
6039298.701	2115245.03	4840.00	<1	
6039298.787	2115246.11	4620.00	<1	
6039298.872	2115247.20	4140.00	<1	
6039298.957	2115248.28	4500.00	<1	
6039299.042	2115249.37	4620.00	<1	
6039299.127	2115250.45	4740.00	<1	
6039299.212	2115251.54	4310.00	<1	
6039299.297	2115252.62	4840.00	<1	
6039299.382	2115253.71	5050.00	1	
6039299.467	2115254.79	4990.00	1	
6039299.553	2115255.88	4610.00	<1	
6039299.638	2115256.96	4450.00	<1	
6039299.723	2115258.05	4750.00	<1	
6039299.808	2115259.14	4750.00	<1	
6039299.893	2115260.22	4010.00	<1	
6039299.978	2115261.31	4410.00	<1	
6039300.063	2115262.39	4290.00	<1	
6039300.148	2115263.48	4220.00	<1	
6039300.233	2115264.56	4980.00	1	
6039300.319	2115265.65	4610.00	<1	
6039300.404	2115266.73	4590.00	<1	
6039300.489	2115267.82	4920.00	<1	
6039300.574	2115268.90	4720.00	<1	
6039300.659	2115269.99	4520.00	<1	
6039300.744	2115271.07	4620.00	<1	
6039300.829	2115272.16	4920.00	<1	
6039300.914	2115273.25	5040.00	1	
6039300.999	2115274.33	5410.00	2	
6039301.085	2115275.42	5050.00	1	
6039301.17	2115276.50	4820.00	<1	
6039301.255	2115277.59	4650.00	<1	
6039301.34	2115278.67	4130.00	<1	
6039301.425	2115279.76	4380.00	<1	
6039301.51	2115280.84	4700.00	<1	
6039301.595	2115281.93	4890.00	<1	
6039301.68	2115283.01	4780.00	<1	
6039301.765	2115284.10	5200.00	1	

Easting	Northing	Reading	Reach 24 Data Set	Comments
6039301.851	2115285.18	5070.00	1	
6039301.936	2115286.27	5450.00	2	
6039302.021	2115287.36	5400.00	2	
6039302.106	2115288.44	4660.00	<1	
6039302.191	2115289.53	4560.00	<1	
6039302.276	2115290.61	4520.00	<1	
6039302.361	2115291.70	4960.00	<1	
6039302.446	2115292.78	4540.00	<1	
6039302.531	2115293.87	4240.00	<1	
6039302.617	2115294.95	4140.00	<1	
6039302.702	2115296.04	4310.00	<1	
6039302.787	2115297.12	4520.00	<1	
6039302.872	2115298.21	4600.00	<1	
6039302.957	2115299.29	4510.00	<1	
6039303.042	2115300.38	4720.00	<1	
6039303.127	2115301.47	5070.00	1	
6039303.212	2115302.55	4710.00	<1	
6039303.297	2115303.64	4500.00	<1	
6039303.383	2115304.72	4490.00	<1	
6039303.468	2115305.81	4490.00	<1	
6039303.553	2115306.89	4470.00	<1	
6039303.638	2115307.98	4630.00	<1	
6039303.723	2115309.06	5100.00	1	
6039303.808	2115310.15	4410.00	<1	
6039303.893	2115311.23	4320.00	<1	
6039303.978	2115312.32	4170.00	<1	
6039304.063	2115313.40	4780.00	<1	
6039304.149	2115314.49	4850.00	<1	
6039304.234	2115315.58	5050.00	1	
6039304.319	2115316.66	5070.00	1	
6039304.404	2115317.75	4810.00	<1	
6039304.489	2115318.83	4470.00	<1	
6039304.574	2115319.92	4340.00	<1	
6039304.659	2115321.00	4210.00	<1	
6039304.744	2115322.09	4210.00	<1	
6039304.829	2115323.17	4810.00	<1	
6039304.915	2115324.26	4880.00	<1	
6039305	2115325.34	4240.00	<1	
6039305.085	2115326.43	4750.00	<1	
6039305.17	2115327.52	4520.00	<1	
6039305.255	2115328.60	5280.00	2	

Easting	Northing	Reading	Reach 24 Data Set	Comments
6039305.34	2115329.69	4640.00	<1	
6039305.425	2115330.77	4830.00	<1	
6039305.51	2115331.86	4710.00	<1	
6039305.595	2115332.94	4380.00	<1	
6039305.681	2115334.03	4850.00	<1	
6039305.766	2115335.11	4460.00	<1	
6039305.851	2115336.20	4620.00	<1	
6039305.936	2115337.28	4160.00	<1	
6039306.021	2115338.37	4440.00	<1	
6039306.106	2115339.45	4780.00	<1	
6039306.191	2115340.54	4070.00	<1	
6039306.276	2115341.63	4420.00	<1	
6039306.361	2115342.71	4540.00	<1	
6039306.447	2115343.80	4970.00	1	
6039306.532	2115344.88	4590.00	<1	
6039306.617	2115345.97	5090.00	1	
6039306.702	2115347.05	4660.00	<1	
6039306.787	2115348.14	4740.00	<1	
6039306.872	2115349.22	4590.00	<1	
6039306.957	2115350.31	4790.00	<1	
6039307.042	2115351.39	4550.00	<1	
6039307.127	2115352.48	4380.00	<1	
6039307.213	2115353.56	4460.00	<1	
6039307.298	2115354.65	4960.00	<1	
6039307.383	2115355.74	4660.00	<1	
6039307.468	2115356.82	4740.00	<1	
6039307.553	2115357.91	4990.00	1	
6039307.638	2115358.99	4200.00	<1	
6039307.723	2115360.08	4580.00	<1	
6039307.808	2115361.16	4900.00	<1	
6039307.894	2115362.25	4560.00	<1	
6039307.979	2115363.33	4470.00	<1	
6039308.064	2115364.42	4720.00	<1	
6039308.149	2115365.50	4710.00	<1	
6039308.234	2115366.59	4670.00	<1	
6039308.319	2115367.67	4910.00	<1	
6039308.404	2115368.76	5190.00	1	
6039308.489	2115369.85	4850.00	<1	
6039308.574	2115370.93	4730.00	<1	
6039308.66	2115372.02	4530.00	<1	
6039308.745	2115373.10	4870.00	<1	

Easting	Northing	Reading	Reach 24 Data Set	Comments
6039308.83	2115374.19	4220.00	<1	
6039308.915	2115375.27	4550.00	<1	
6039309	2115376.36	4700.00	<1	
6039309.085	2115377.44	4800.00	<1	
6039309.17	2115378.53	5120.00	1	
6039309.255	2115379.61	5020.00	1	
6039309.34	2115380.70	5220.00	1	
6039309.426	2115381.78	5160.00	1	
6039309.511	2115382.87	5160.00	1	
6039309.596	2115383.96	5060.00	1	
6039309.681	2115385.04	4970.00	1	
6039309.766	2115386.13	4830.00	<1	
6039309.851	2115387.21	4160.00	<1	
6039309.936	2115388.30	4590.00	<1	
6039310.021	2115389.38	4920.00	<1	
6039310.106	2115390.47	4640.00	<1	
6039310.192	2115391.55	4540.00	<1	
6039310.277	2115392.64	5160.00	1	
6039310.362	2115393.72	4880.00	<1	
6039310.447	2115394.81	4240.00	<1	
6039310.532	2115395.89	4150.00	<1	
6039310.617	2115396.98	4600.00	<1	
6039310.702	2115398.07	4770.00	<1	
6039310.787	2115399.15	4940.00	<1	
6039310.872	2115400.24	5290.00	2	
6039310.958	2115401.32	4730.00	<1	
6039311.043	2115402.41	4460.00	<1	
6039311.128	2115403.49	4400.00	<1	
6039311.213	2115404.58	4400.00	<1	
6039311.298	2115405.66	4380.00	<1	
6039311.383	2115406.75	4760.00	<1	
6039311.468	2115407.83	4910.00	<1	
6039311.553	2115408.92	4720.00	<1	
6039311.638	2115410.00	4770.00	<1	
6039311.724	2115411.09	4390.00	<1	
6039311.809	2115412.18	4510.00	<1	
6039311.894	2115413.26	4890.00	<1	
6039311.979	2115414.35	4890.00	<1	
6039312.064	2115415.43	4550.00	<1	
6039312.149	2115416.52	4580.00	<1	
6039312.234	2115417.60	4530.00	<1	

Easting	Northing	Reading	Reach 24 Data Set	Comments
6039312.319	2115418.69	4530.00	<1	
6039312.404	2115419.77	5020.00	1	
6039312.49	2115420.86	4900.00	<1	
6039312.575	2115421.94	4770.00	<1	
6039312.66	2115423.03	5110.00	1	
6039312.745	2115424.11	4800.00	<1	
6039312.83	2115425.20	4690.00	<1	
6039312.915	2115426.29	4060.00	<1	
6039313	2115427.37	4050.00	<1	
6039313.085	2115428.46	4480.00	<1	
6039313.17	2115429.54	4770.00	<1	
6039313.256	2115430.63	4650.00	<1	
6039313.341	2115431.71	4410.00	<1	
6039313.426	2115432.80	4570.00	<1	
6039313.511	2115433.88	4810.00	<1	
6039313.596	2115434.97	4780.00	<1	
6039313.681	2115436.05	4710.00	<1	
6039313.766	2115437.14	4840.00	<1	
6039313.851	2115438.22	4610.00	<1	
6039313.936	2115439.31	4460.00	<1	
6039314.022	2115440.40	4220.00	<1	
6039314.107	2115441.48	4400.00	<1	
6039314.192	2115442.57	4800.00	<1	
6039314.277	2115443.65	4280.00	<1	
6039314.362	2115444.74	4800.00	<1	
6039314.447	2115445.82	4700.00	<1	
6039314.532	2115446.91	4330.00	<1	
6039314.617	2115447.99	4720.00	<1	
6039314.702	2115449.08	4600.00	<1	
6039314.788	2115450.16	4580.00	<1	
6039314.873	2115451.25	5250.00	1	
6039314.958	2115452.33	4980.00	1	
6039315.043	2115453.42	4960.00	<1	
6039315.128	2115454.51	4720.00	<1	
6039315.213	2115455.59	4490.00	<1	
6039315.298	2115456.68	4380.00	<1	
6039315.383	2115457.76	4610.00	<1	
6039315.468	2115458.85	4590.00	<1	
6039315.554	2115459.93	4650.00	<1	
6039315.639	2115461.02	4260.00	<1	
6039315.724	2115462.10	4550.00	<1	

Easting	Northing	Reading	Reach 24 Data Set	Comments
6039315.809	2115463.19	3770.00	<1	
6039315.894	2115464.27	4380.00	<1	
6039315.979	2115465.36	4700.00	<1	
6039316.064	2115466.44	4200.00	<1	
6039316.149	2115467.53	4640.00	<1	
6039316.234	2115468.62	4940.00	<1	
6039316.32	2115469.70	4960.00	<1	
6039316.405	2115470.79	4770.00	<1	
6039316.49	2115471.87	5160.00	1	
6039316.575	2115472.96	4800.00	<1	
6039316.66	2115474.04	4590.00	<1	
6039316.745	2115475.13	4450.00	<1	
6039316.83	2115476.21	4350.00	<1	
6039316.915	2115477.30	4940.00	<1	
6039317	2115478.38	4680.00	<1	
6039317.086	2115479.47	4710.00	<1	
6039317.171	2115480.55	4520.00	<1	
6039317.256	2115481.64	4840.00	<1	
6039317.341	2115482.73	5280.00	2	
6039317.426	2115483.81	4710.00	<1	
6039317.511	2115484.90	4150.00	<1	
6039317.596	2115485.98	3970.00	<1	
6039317.681	2115487.07	4130.00	<1	
6039317.766	2115488.15	4680.00	<1	
6039317.852	2115489.24	4340.00	<1	
6039317.937	2115490.32	4670.00	<1	
6039318.022	2115491.41	4650.00	<1	
6039318.107	2115492.49	4270.00	<1	
6039318.192	2115493.58	4620.00	<1	
6039318.277	2115494.66	4330.00	<1	
6039318.362	2115495.75	4020.00	<1	
6039318.447	2115496.84	4250.00	<1	
6039318.532	2115497.92	4580.00	<1	
6039318.618	2115499.01	4510.00	<1	
6039318.703	2115500.09	4410.00	<1	
6039318.788	2115501.18	4580.00	<1	
6039318.873	2115502.26	4380.00	<1	
6039318.958	2115503.35	4370.00	<1	
6039319.043	2115504.43	4520.00	<1	
6039319.128	2115505.52	4300.00	<1	
6039319.213	2115506.60	4020.00	<1	

Easting	Northing	Reading	Reach 24 Data Set	Comments
6039319.298	2115507.69	4430.00	<1	
6039319.384	2115508.77	4980.00	1	
6039319.469	2115509.86	4900.00	<1	
6039319.554	2115510.95	4950.00	<1	
6039319.639	2115512.03	4910.00	<1	
6039319.724	2115513.12	4590.00	<1	
6039319.809	2115514.20	3720.00	<1	
6039319.894	2115515.29	4060.00	<1	
6039319.979	2115516.37	4350.00	<1	
6039320.064	2115517.46	4300.00	<1	
6039320.15	2115518.54	4420.00	<1	
6039320.235	2115519.63	4630.00	<1	
6039320.32	2115520.71	4670.00	<1	
6039320.405	2115521.80	5070.00	1	
6039320.49	2115522.88	4810.00	<1	
6039320.575	2115523.97	4430.00	<1	
6039320.66	2115525.06	4440.00	<1	
6039320.745	2115526.14	3850.00	<1	
6039320.831	2115527.23	4180.00	<1	
6039320.916	2115528.31	4210.00	<1	
6039321.001	2115529.40	4610.00	<1	
6039321.086	2115530.48	4920.00	<1	
6039321.171	2115531.57	4830.00	<1	
6039321.256	2115532.65	4760.00	<1	
6039321.341	2115533.74	4400.00	<1	
6039321.426	2115534.82	4580.00	<1	
6039321.511	2115535.91	4550.00	<1	
6039321.597	2115536.99	4440.00	<1	
6039321.682	2115538.08	4880.00	<1	
6039321.767	2115539.17	4750.00	<1	
6039321.852	2115540.25	5160.00	1	
6039321.937	2115541.34	4330.00	<1	
6039322.022	2115542.42	4630.00	<1	
6039322.107	2115543.51	4540.00	<1	
6039322.192	2115544.59	4590.00	<1	
6039322.277	2115545.68	4870.00	<1	
6039322.363	2115546.76	4770.00	<1	
6039322.448	2115547.85	5170.00	1	
6039322.533	2115548.93	4460.00	<1	
6039322.618	2115550.02	4470.00	<1	
6039322.703	2115551.10	4590.00	<1	

Easting	Northing	Reading	Reach 24 Data Set	Comments
6039322.788	2115552.19	4420.00	<1	
6039322.873	2115553.28	4790.00	<1	
6039322.958	2115554.36	4660.00	<1	
6039323.043	2115555.45	5240.00	1	
6039323.129	2115556.53	4550.00	<1	
6039323.214	2115557.62	4600.00	<1	
6039323.299	2115558.70	4720.00	<1	
6039323.384	2115559.79	4800.00	<1	
6039323.469	2115560.87	4960.00	<1	
6039323.554	2115561.96	5170.00	1	
6039323.639	2115563.04	4720.00	<1	
6039323.724	2115564.13	4560.00	<1	
6039323.809	2115565.21	4920.00	<1	
6039323.895	2115566.30	4740.00	<1	
6039323.98	2115567.39	4510.00	<1	
6039324.065	2115568.47	4550.00	<1	
6039324.15	2115569.56	4740.00	<1	
6039324.235	2115570.64	5240.00	1	
6039324.32	2115571.73	4420.00	<1	
6039324.405	2115572.81	4970.00	1	
6039324.49	2115573.90	5140.00	1	
6039324.575	2115574.98	5350.00	2	
6039324.661	2115576.07	4900.00	<1	
6039324.746	2115577.15	4520.00	<1	
6039324.831	2115578.24	4700.00	<1	
6039324.916	2115579.32	4680.00	<1	

4656.52	Average
308.76	Std Dev
5582.80	3 Sigma
5540.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 25
Line: A

Main/Lateral: Lateral
Length (ft): 8
Pipe Diameter (in): 10

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 25 Data Set

Gamma Total CPS	
5375.56	Average
930.07	Std Dev
8165.76	3 Sigma
6610.00	Max

Sigma	Total Points
<1	7
1	2
2	0
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 25 Data Set	Comments
6039299.636	2115192.17	3650.00	<1	
6039299.131	2115192.21	4380.00	<1	
6039298.627	2115192.26	4940.00	<1	
6039298.123	2115192.30	5570.00	<1	
6039297.619	2115192.34	5780.00	<1	
6039297.115	2115192.39	6610.00	1	
6039296.611	2115192.43	5700.00	<1	
6039296.107	2115192.47	6340.00	1	
6039295.602	2115192.52	5410.00	<1	

5375.56	Average
930.07	Std Dev
8165.76	3 Sigma
6610.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line A Hydrojetting

Reach: 26
Line: A

Main/Lateral: Main
Length (ft): 236
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 26 Data Set

Gamma Total CPS	
4533.19	Average
354.37	Std Dev
5596.31	3 Sigma
5720.00	Max

Sigma	Total Points
<1	203
1	26
2	5
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 26 Data Set	Comments
6039343.513	2115814.00	3440.00	<1	
6039343.435	2115813.02	3440.00	<1	
6039343.357	2115812.03	3800.00	<1	
6039343.279	2115811.05	4300.00	<1	
6039343.201	2115810.06	4030.00	<1	
6039343.123	2115809.08	4820.00	<1	
6039343.045	2115808.09	4350.00	<1	
6039342.966	2115807.10	4610.00	<1	
6039342.888	2115806.12	4680.00	<1	
6039342.81	2115805.13	4960.00	1	
6039342.732	2115804.15	4600.00	<1	
6039342.654	2115803.16	4550.00	<1	
6039342.576	2115802.17	4590.00	<1	
6039342.498	2115801.19	4740.00	<1	
6039342.419	2115800.20	4740.00	<1	
6039342.341	2115799.22	4260.00	<1	
6039342.263	2115798.23	4450.00	<1	
6039342.185	2115797.24	4570.00	<1	
6039342.107	2115796.26	4580.00	<1	
6039342.029	2115795.27	4030.00	<1	

Easting	Northing	Reading	Reach 26 Data Set	Comments
6039341.951	2115794.29	3940.00	<1	
6039341.873	2115793.30	3920.00	<1	
6039341.794	2115792.32	4560.00	<1	
6039341.716	2115791.33	4700.00	<1	
6039341.638	2115790.34	4430.00	<1	
6039341.56	2115789.36	4590.00	<1	
6039341.482	2115788.37	4820.00	<1	
6039341.404	2115787.39	4550.00	<1	
6039341.326	2115786.40	4670.00	<1	
6039341.247	2115785.41	4670.00	<1	
6039341.169	2115784.43	4930.00	1	
6039341.091	2115783.44	4480.00	<1	
6039341.013	2115782.46	4310.00	<1	
6039340.935	2115781.47	4660.00	<1	
6039340.857	2115780.49	4380.00	<1	
6039340.779	2115779.50	4370.00	<1	
6039340.701	2115778.51	4470.00	<1	
6039340.622	2115777.53	4650.00	<1	
6039340.544	2115776.54	4550.00	<1	
6039340.466	2115775.56	4500.00	<1	
6039340.388	2115774.57	4280.00	<1	
6039340.31	2115773.58	3980.00	<1	
6039340.232	2115772.60	4070.00	<1	
6039340.154	2115771.61	4260.00	<1	
6039340.075	2115770.63	4260.00	<1	
6039339.997	2115769.64	4120.00	<1	
6039339.919	2115768.65	4350.00	<1	
6039339.841	2115767.67	4220.00	<1	
6039339.763	2115766.68	4380.00	<1	
6039339.685	2115765.70	4580.00	<1	
6039339.607	2115764.71	4360.00	<1	
6039339.529	2115763.73	4540.00	<1	
6039339.45	2115762.74	4720.00	<1	
6039339.372	2115761.75	4620.00	<1	
6039339.294	2115760.77	4470.00	<1	
6039339.216	2115759.78	4890.00	1	
6039339.138	2115758.80	4300.00	<1	
6039339.06	2115757.81	4260.00	<1	
6039338.982	2115756.82	4260.00	<1	
6039338.904	2115755.84	4450.00	<1	
6039338.825	2115754.85	4030.00	<1	

Easting	Northing	Reading	Reach 26 Data Set	Comments
6039338.747	2115753.87	4470.00	<1	
6039338.669	2115752.88	4300.00	<1	
6039338.591	2115751.90	4410.00	<1	
6039338.513	2115750.91	4390.00	<1	
6039338.435	2115749.92	4480.00	<1	
6039338.357	2115748.94	4200.00	<1	
6039338.278	2115747.95	4020.00	<1	
6039338.2	2115746.97	4440.00	<1	
6039338.122	2115745.98	4370.00	<1	
6039338.044	2115744.99	4320.00	<1	
6039337.966	2115744.01	4220.00	<1	
6039337.888	2115743.02	4260.00	<1	
6039337.81	2115742.04	4830.00	<1	
6039337.732	2115741.05	4390.00	<1	
6039337.653	2115740.06	4390.00	<1	
6039337.575	2115739.08	4340.00	<1	
6039337.497	2115738.09	4520.00	<1	
6039337.419	2115737.11	4400.00	<1	
6039337.341	2115736.12	4450.00	<1	
6039337.263	2115735.14	4290.00	<1	
6039337.185	2115734.15	4150.00	<1	
6039337.106	2115733.16	4210.00	<1	
6039337.028	2115732.18	3990.00	<1	
6039336.95	2115731.19	3650.00	<1	
6039336.872	2115730.21	3690.00	<1	
6039336.794	2115729.22	3990.00	<1	
6039336.716	2115728.23	3990.00	<1	
6039336.638	2115727.25	4850.00	<1	
6039336.56	2115726.26	4850.00	<1	
6039336.481	2115725.28	4020.00	<1	
6039336.403	2115724.29	4380.00	<1	
6039336.325	2115723.30	4330.00	<1	
6039336.247	2115722.32	4600.00	<1	
6039336.169	2115721.33	4440.00	<1	
6039336.091	2115720.35	4720.00	<1	
6039336.013	2115719.36	4540.00	<1	
6039335.934	2115718.38	4730.00	<1	
6039335.856	2115717.39	4790.00	<1	
6039335.778	2115716.40	4980.00	1	
6039335.7	2115715.42	4780.00	<1	
6039335.622	2115714.43	4570.00	<1	

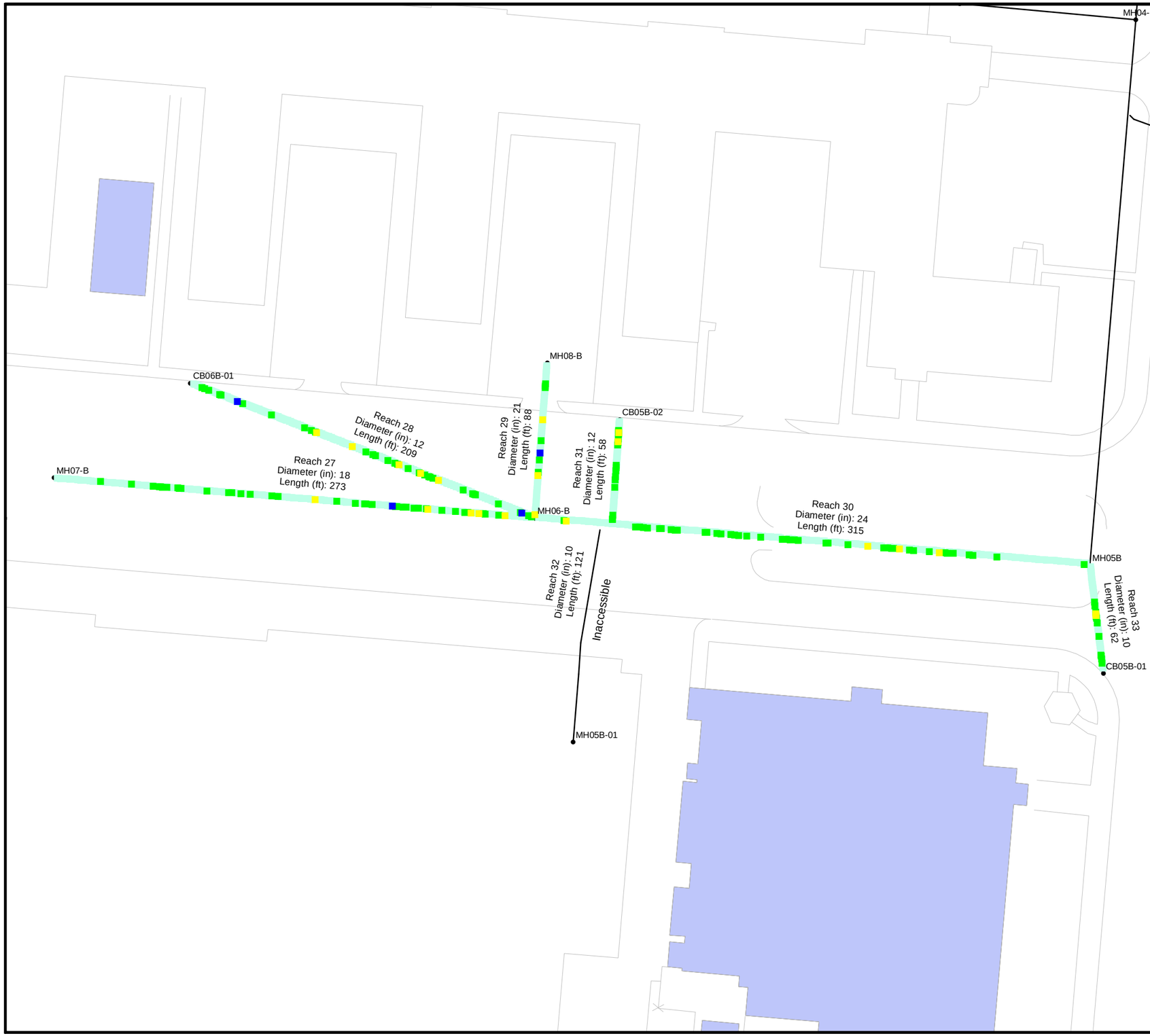
Easting	Northing	Reading	Reach 26 Data Set	Comments
6039335.544	2115713.45	4600.00	<1	
6039335.466	2115712.46	5150.00	1	
6039335.388	2115711.47	5090.00	1	
6039335.309	2115710.49	4880.00	<1	
6039335.231	2115709.50	4880.00	<1	
6039335.153	2115708.52	4480.00	<1	
6039335.075	2115707.53	4360.00	<1	
6039334.997	2115706.55	4010.00	<1	
6039334.919	2115705.56	3940.00	<1	
6039334.841	2115704.57	4150.00	<1	
6039334.762	2115703.59	4900.00	1	
6039334.684	2115702.60	4600.00	<1	
6039334.606	2115701.62	4500.00	<1	
6039334.528	2115700.63	5160.00	1	
6039334.45	2115699.64	4680.00	<1	
6039334.372	2115698.66	4520.00	<1	
6039334.294	2115697.67	4480.00	<1	
6039334.216	2115696.69	4220.00	<1	
6039334.137	2115695.70	3960.00	<1	
6039334.059	2115694.71	4070.00	<1	
6039333.981	2115693.73	4190.00	<1	
6039333.903	2115692.74	4050.00	<1	
6039333.825	2115691.76	4050.00	<1	
6039333.747	2115690.77	4410.00	<1	
6039333.669	2115689.79	4030.00	<1	
6039333.59	2115688.80	4580.00	<1	
6039333.512	2115687.81	5070.00	1	
6039333.434	2115686.83	4250.00	<1	
6039333.356	2115685.84	4440.00	<1	
6039333.278	2115684.86	4690.00	<1	
6039333.2	2115683.87	4950.00	1	
6039333.122	2115682.88	4580.00	<1	
6039333.044	2115681.90	4600.00	<1	
6039332.965	2115680.91	4760.00	<1	
6039332.887	2115679.93	4330.00	<1	
6039332.809	2115678.94	4850.00	<1	
6039332.731	2115677.96	4300.00	<1	
6039332.653	2115676.97	4270.00	<1	
6039332.575	2115675.98	4140.00	<1	
6039332.497	2115675.00	4140.00	<1	
6039332.418	2115674.01	4620.00	<1	

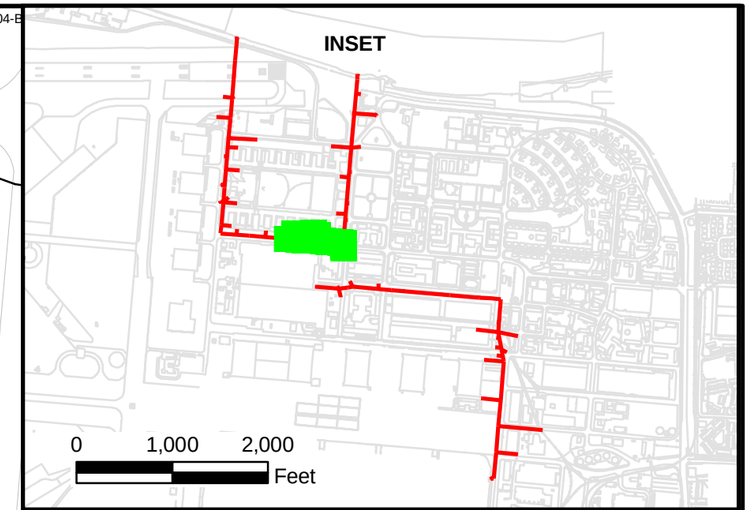
Easting	Northing	Reading	Reach 26 Data Set	Comments
6039332.34	2115673.03	4330.00	<1	
6039332.262	2115672.04	4160.00	<1	
6039332.184	2115671.05	4580.00	<1	
6039332.106	2115670.07	4830.00	<1	
6039332.028	2115669.08	4680.00	<1	
6039331.95	2115668.10	4370.00	<1	
6039331.872	2115667.11	4620.00	<1	
6039331.793	2115666.12	4710.00	<1	
6039331.715	2115665.14	4870.00	<1	
6039331.637	2115664.15	4720.00	<1	
6039331.559	2115663.17	4820.00	<1	
6039331.481	2115662.18	4550.00	<1	
6039331.403	2115661.20	4360.00	<1	
6039331.325	2115660.21	4400.00	<1	
6039331.246	2115659.22	4470.00	<1	
6039331.168	2115658.24	4470.00	<1	
6039331.09	2115657.25	4610.00	<1	
6039331.012	2115656.27	4510.00	<1	
6039330.934	2115655.28	4480.00	<1	
6039330.856	2115654.29	4240.00	<1	
6039330.778	2115653.31	4530.00	<1	
6039330.7	2115652.32	4720.00	<1	
6039330.621	2115651.34	4380.00	<1	
6039330.543	2115650.35	4270.00	<1	
6039330.465	2115649.37	4770.00	<1	
6039330.387	2115648.38	4560.00	<1	
6039330.309	2115647.39	4990.00	1	
6039330.231	2115646.41	4300.00	<1	
6039330.153	2115645.42	4550.00	<1	
6039330.074	2115644.44	4400.00	<1	
6039329.996	2115643.45	4900.00	1	
6039329.918	2115642.46	4900.00	1	
6039329.84	2115641.48	4650.00	<1	
6039329.762	2115640.49	4350.00	<1	
6039329.684	2115639.51	3790.00	<1	
6039329.606	2115638.52	4100.00	<1	
6039329.528	2115637.53	4710.00	<1	
6039329.449	2115636.55	4640.00	<1	
6039329.371	2115635.56	4700.00	<1	
6039329.293	2115634.58	4480.00	<1	
6039329.215	2115633.59	4260.00	<1	

Easting	Northing	Reading	Reach 26 Data Set	Comments
6039329.137	2115632.61	4580.00	<1	
6039329.059	2115631.62	4780.00	<1	
6039328.981	2115630.63	4540.00	<1	
6039328.902	2115629.65	4610.00	<1	
6039328.824	2115628.66	4610.00	<1	
6039328.746	2115627.68	4580.00	<1	
6039328.668	2115626.69	4580.00	<1	
6039328.59	2115625.70	5130.00	1	
6039328.512	2115624.72	4990.00	1	
6039328.434	2115623.73	4880.00	<1	
6039328.356	2115622.75	4420.00	<1	
6039328.277	2115621.76	5040.00	1	
6039328.199	2115620.78	4620.00	<1	
6039328.121	2115619.79	4730.00	<1	
6039328.043	2115618.80	4530.00	<1	
6039327.965	2115617.82	4660.00	<1	
6039327.887	2115616.83	4790.00	<1	
6039327.809	2115615.85	4900.00	1	
6039327.73	2115614.86	4580.00	<1	
6039327.652	2115613.87	4570.00	<1	
6039327.574	2115612.89	4290.00	<1	
6039327.496	2115611.90	4680.00	<1	
6039327.418	2115610.92	4680.00	<1	
6039327.34	2115609.93	4610.00	<1	
6039327.262	2115608.94	4920.00	1	
6039327.184	2115607.96	4890.00	1	
6039327.105	2115606.97	5190.00	1	
6039327.027	2115605.99	5220.00	1	
6039326.949	2115605.00	5560.00	2	
6039326.871	2115604.02	4950.00	1	
6039326.793	2115603.03	4310.00	<1	
6039326.715	2115602.04	4480.00	<1	
6039326.637	2115601.06	4830.00	<1	
6039326.558	2115600.07	4710.00	<1	
6039326.48	2115599.09	4500.00	<1	
6039326.402	2115598.10	4600.00	<1	
6039326.324	2115597.11	5090.00	1	
6039326.246	2115596.13	4560.00	<1	
6039326.168	2115595.14	5120.00	1	
6039326.09	2115594.16	4570.00	<1	
6039326.012	2115593.17	4840.00	<1	

Easting	Northing	Reading	Reach 26 Data Set	Comments
6039325.933	2115592.19	4820.00	<1	
6039325.855	2115591.20	5050.00	1	
6039325.777	2115590.21	5420.00	2	
6039325.699	2115589.23	5480.00	2	
6039325.621	2115588.24	5480.00	2	
6039325.543	2115587.26	5720.00	3	
6039325.465	2115586.27	5590.00	2	
6039325.387	2115585.28	4830.00	<1	
6039325.308	2115584.30	4960.00	1	
6039325.23	2115583.31	4740.00	<1	

4533.19	Average
354.37	Std Dev
5596.31	3 Sigma
5720.00	Max





Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
27	10731
28	6389
29	7022
30	9002
31	6275
32	NA
33	5973

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0 5 10 20 30 40
Feet

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 27 thru 33

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_27-33_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 27
Line: B

Main/Lateral: Main
Length (ft): 273
Pipe Diameter (in): 18

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 27 Data Set

Gamma Total CPS	
8683.34	Average
682.49	Std Dev
10730.82	3 Sigma
11200.00	Max

Sigma	Total Points
<1	265
1	37
2	5
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 27 Data Set	Comments
6039868.998	2113722.24	8890.00	<1	
6039869.872	2113722.17	8260.00	<1	
6039870.745	2113722.09	8310.00	<1	
6039871.619	2113722.02	8300.00	<1	
6039872.492	2113721.95	9190.00	<1	
6039873.366	2113721.87	9060.00	<1	
6039874.239	2113721.80	7380.00	<1	
6039875.112	2113721.73	8280.00	<1	
6039875.986	2113721.65	8500.00	<1	
6039876.859	2113721.58	9280.00	<1	
6039877.733	2113721.50	7970.00	<1	
6039878.606	2113721.43	8850.00	<1	
6039879.48	2113721.36	7550.00	<1	
6039880.353	2113721.28	8740.00	<1	
6039881.227	2113721.21	8080.00	<1	
6039882.1	2113721.14	8930.00	<1	
6039882.974	2113721.06	9180.00	<1	
6039883.847	2113720.99	9300.00	<1	
6039884.72	2113720.92	7920.00	<1	
6039885.594	2113720.84	9020.00	<1	

Easting	Northing	Reading	Reach 27 Data Set	Comments
6039886.467	2113720.77	9210.00	<1	
6039887.341	2113720.70	8440.00	<1	
6039888.214	2113720.62	9240.00	<1	
6039889.088	2113720.55	7550.00	<1	
6039889.961	2113720.48	7930.00	<1	
6039890.835	2113720.40	8390.00	<1	
6039891.708	2113720.33	7660.00	<1	
6039892.582	2113720.26	8410.00	<1	
6039893.455	2113720.18	9970.00	1	
6039894.328	2113720.11	7780.00	<1	
6039895.202	2113720.04	8950.00	<1	
6039896.075	2113719.96	8430.00	<1	
6039896.949	2113719.89	8240.00	<1	
6039897.822	2113719.81	8200.00	<1	
6039898.696	2113719.74	8660.00	<1	
6039899.569	2113719.67	8930.00	<1	
6039900.443	2113719.59	7940.00	<1	
6039901.316	2113719.52	8490.00	<1	
6039902.19	2113719.45	8140.00	<1	
6039903.063	2113719.37	7580.00	<1	
6039903.936	2113719.30	8350.00	<1	
6039904.81	2113719.23	8670.00	<1	
6039905.683	2113719.15	8020.00	<1	
6039906.557	2113719.08	7760.00	<1	
6039907.43	2113719.01	8570.00	<1	
6039908.304	2113718.93	8190.00	<1	
6039909.177	2113718.86	7550.00	<1	
6039910.051	2113718.79	8570.00	<1	
6039910.924	2113718.71	9600.00	1	
6039911.798	2113718.64	8790.00	<1	
6039912.671	2113718.57	8350.00	<1	
6039913.544	2113718.49	8340.00	<1	
6039914.418	2113718.42	7950.00	<1	
6039915.291	2113718.35	7400.00	<1	
6039916.165	2113718.27	8500.00	<1	
6039917.038	2113718.20	7580.00	<1	
6039917.912	2113718.12	7900.00	<1	
6039918.785	2113718.05	8890.00	<1	
6039919.659	2113717.98	8770.00	<1	
6039920.532	2113717.90	8390.00	<1	
6039921.405	2113717.83	9190.00	<1	

Easting	Northing	Reading	Reach 27 Data Set	Comments
6039922.279	2113717.76	9230.00	<1	
6039923.152	2113717.68	9770.00	1	
6039924.026	2113717.61	8400.00	<1	
6039924.899	2113717.54	7600.00	<1	
6039925.773	2113717.46	8220.00	<1	
6039926.646	2113717.39	9650.00	1	
6039927.52	2113717.32	9930.00	1	
6039928.393	2113717.24	9740.00	1	
6039929.267	2113717.17	8510.00	<1	
6039930.14	2113717.10	8590.00	<1	
6039931.013	2113717.02	9900.00	1	
6039931.887	2113716.95	8490.00	<1	
6039932.76	2113716.88	8960.00	<1	
6039933.634	2113716.80	7600.00	<1	
6039934.507	2113716.73	8000.00	<1	
6039935.381	2113716.66	8200.00	<1	
6039936.254	2113716.58	7430.00	<1	
6039937.128	2113716.51	9690.00	1	
6039938.001	2113716.44	9920.00	1	
6039938.875	2113716.36	9900.00	1	
6039939.748	2113716.29	9110.00	<1	
6039940.621	2113716.21	9340.00	<1	
6039941.495	2113716.14	8490.00	<1	
6039942.368	2113716.07	8420.00	<1	
6039943.242	2113715.99	8200.00	<1	
6039944.115	2113715.92	8360.00	<1	
6039944.989	2113715.85	7640.00	<1	
6039945.862	2113715.77	8090.00	<1	
6039946.736	2113715.70	8850.00	<1	
6039947.609	2113715.63	8770.00	<1	
6039948.483	2113715.55	8420.00	<1	
6039949.356	2113715.48	8430.00	<1	
6039950.229	2113715.41	9220.00	<1	
6039951.103	2113715.33	8780.00	<1	
6039951.976	2113715.26	9120.00	<1	
6039952.85	2113715.19	7610.00	<1	
6039953.723	2113715.11	9460.00	1	
6039954.597	2113715.04	7760.00	<1	
6039955.47	2113714.97	7840.00	<1	
6039956.344	2113714.89	8700.00	<1	
6039957.217	2113714.82	7830.00	<1	

Easting	Northing	Reading	Reach 27 Data Set	Comments
6039958.091	2113714.75	8630.00	<1	
6039958.964	2113714.67	9220.00	<1	
6039959.837	2113714.60	8020.00	<1	
6039960.711	2113714.52	8590.00	<1	
6039961.584	2113714.45	8620.00	<1	
6039962.458	2113714.38	8090.00	<1	
6039963.331	2113714.30	7470.00	<1	
6039964.205	2113714.23	8470.00	<1	
6039965.078	2113714.16	9210.00	<1	
6039965.952	2113714.08	9550.00	1	
6039966.825	2113714.01	9130.00	<1	
6039967.699	2113713.94	9540.00	1	
6039968.572	2113713.86	8320.00	<1	
6039969.445	2113713.79	8670.00	<1	
6039970.319	2113713.72	7220.00	<1	
6039971.192	2113713.64	8370.00	<1	
6039972.066	2113713.57	8620.00	<1	
6039972.939	2113713.50	9540.00	1	
6039973.813	2113713.42	7670.00	<1	
6039974.686	2113713.35	7940.00	<1	
6039975.56	2113713.28	7520.00	<1	
6039976.433	2113713.20	7270.00	<1	
6039977.307	2113713.13	8860.00	<1	
6039978.18	2113713.06	9940.00	1	
6039979.053	2113712.98	7620.00	<1	
6039979.927	2113712.91	7820.00	<1	
6039980.8	2113712.83	7680.00	<1	
6039981.674	2113712.76	8390.00	<1	
6039982.547	2113712.69	9010.00	<1	
6039983.421	2113712.61	8390.00	<1	
6039984.294	2113712.54	8720.00	<1	
6039985.168	2113712.47	8730.00	<1	
6039986.041	2113712.39	9130.00	<1	
6039986.914	2113712.32	8280.00	<1	
6039987.788	2113712.25	8010.00	<1	
6039988.661	2113712.17	7060.00	<1	
6039989.535	2113712.10	8440.00	<1	
6039990.408	2113712.03	9480.00	1	
6039991.282	2113711.95	7760.00	<1	
6039992.155	2113711.88	6750.00	<1	
6039993.029	2113711.81	8630.00	<1	

Easting	Northing	Reading	Reach 27 Data Set	Comments
6039993.902	2113711.73	9690.00	1	
6039994.776	2113711.66	8170.00	<1	
6039995.649	2113711.59	8630.00	<1	
6039996.522	2113711.51	8800.00	<1	
6039997.396	2113711.44	7430.00	<1	
6039998.269	2113711.37	8260.00	<1	
6039999.143	2113711.29	8960.00	<1	
6040000.016	2113711.22	8330.00	<1	
6040000.89	2113711.14	7340.00	<1	
6040001.763	2113711.07	9020.00	<1	
6040002.637	2113711.00	8740.00	<1	
6040003.51	2113710.92	8370.00	<1	
6040004.384	2113710.85	8740.00	<1	
6040005.257	2113710.78	8340.00	<1	
6040006.13	2113710.70	7950.00	<1	
6040007.004	2113710.63	8520.00	<1	
6040007.877	2113710.56	8410.00	<1	
6040008.751	2113710.48	9310.00	<1	
6040009.624	2113710.41	7730.00	<1	
6040010.498	2113710.34	8410.00	<1	
6040011.371	2113710.26	7400.00	<1	
6040012.245	2113710.19	8830.00	<1	
6040013.118	2113710.12	8380.00	<1	
6040013.992	2113710.04	8760.00	<1	
6040014.865	2113709.97	10100.00	2	
6040015.738	2113709.90	9000.00	<1	
6040016.612	2113709.82	7960.00	<1	
6040017.485	2113709.75	9000.00	<1	
6040018.359	2113709.68	9310.00	<1	
6040019.232	2113709.60	8150.00	<1	
6040020.106	2113709.53	8880.00	<1	
6040020.979	2113709.46	9070.00	<1	
6040021.853	2113709.38	8880.00	<1	
6040022.726	2113709.31	8560.00	<1	
6040023.6	2113709.23	9120.00	<1	
6040024.473	2113709.16	7980.00	<1	
6040025.346	2113709.09	9160.00	<1	
6040026.22	2113709.01	8430.00	<1	
6040027.093	2113708.94	9440.00	1	
6040027.967	2113708.87	8500.00	<1	
6040028.84	2113708.79	8300.00	<1	

Easting	Northing	Reading	Reach 27 Data Set	Comments
6040029.714	2113708.72	9150.00	<1	
6040030.587	2113708.65	8760.00	<1	
6040031.461	2113708.57	7990.00	<1	
6040032.334	2113708.50	8600.00	<1	
6040033.208	2113708.43	8980.00	<1	
6040034.081	2113708.35	8530.00	<1	
6040034.954	2113708.28	8400.00	<1	
6040035.828	2113708.21	8450.00	<1	
6040036.701	2113708.13	8870.00	<1	
6040037.575	2113708.06	9370.00	1	
6040038.448	2113707.99	9210.00	<1	
6040039.322	2113707.91	9310.00	<1	
6040040.195	2113707.84	8700.00	<1	
6040041.069	2113707.77	8040.00	<1	
6040041.942	2113707.69	9110.00	<1	
6040042.816	2113707.62	9440.00	1	
6040043.689	2113707.54	9850.00	1	
6040044.562	2113707.47	8840.00	<1	
6040045.436	2113707.40	9130.00	<1	
6040046.309	2113707.32	8210.00	<1	
6040047.183	2113707.25	9480.00	1	
6040048.056	2113707.18	8770.00	<1	
6040048.93	2113707.10	9110.00	<1	
6040049.803	2113707.03	9260.00	<1	
6040050.677	2113706.96	8740.00	<1	
6040051.55	2113706.88	8520.00	<1	
6040052.423	2113706.81	7310.00	<1	
6040053.297	2113706.74	9340.00	<1	
6040054.17	2113706.66	9180.00	<1	
6040055.044	2113706.59	8870.00	<1	
6040055.917	2113706.52	9210.00	<1	
6040056.791	2113706.44	8850.00	<1	
6040057.664	2113706.37	8260.00	<1	
6040058.538	2113706.30	11200.00	3	
6040059.411	2113706.22	9050.00	<1	
6040060.285	2113706.15	9710.00	1	
6040061.158	2113706.08	9580.00	1	
6040062.031	2113706.00	8920.00	<1	
6040062.905	2113705.93	8700.00	<1	
6040063.778	2113705.85	9310.00	<1	
6040064.652	2113705.78	9430.00	1	

Easting	Northing	Reading	Reach 27 Data Set	Comments
6040065.525	2113705.71	9350.00	<1	
6040066.399	2113705.63	10000.00	1	
6040067.272	2113705.56	8680.00	<1	
6040068.146	2113705.49	9240.00	<1	
6040069.019	2113705.41	8660.00	<1	
6040069.893	2113705.34	8470.00	<1	
6040070.766	2113705.27	9580.00	1	
6040071.639	2113705.19	8200.00	<1	
6040072.513	2113705.12	8280.00	<1	
6040073.386	2113705.05	9720.00	1	
6040074.26	2113704.97	8420.00	<1	
6040075.133	2113704.90	9170.00	<1	
6040076.007	2113704.83	8760.00	<1	
6040076.88	2113704.75	8920.00	<1	
6040077.754	2113704.68	9860.00	1	
6040078.627	2113704.61	10400.00	2	
6040079.501	2113704.53	9000.00	<1	
6040080.374	2113704.46	8520.00	<1	
6040081.247	2113704.39	7760.00	<1	
6040082.121	2113704.31	8930.00	<1	
6040082.994	2113704.24	9080.00	<1	
6040083.868	2113704.16	9300.00	<1	
6040084.741	2113704.09	8450.00	<1	
6040085.615	2113704.02	9260.00	<1	
6040086.488	2113703.94	9720.00	1	
6040087.362	2113703.87	8570.00	<1	
6040088.235	2113703.80	9080.00	<1	
6040089.109	2113703.72	8190.00	<1	
6040089.982	2113703.65	7640.00	<1	
6040090.855	2113703.58	9050.00	<1	
6040091.729	2113703.50	9360.00	<1	
6040092.602	2113703.43	8720.00	<1	
6040093.476	2113703.36	9130.00	<1	
6040094.349	2113703.28	9480.00	1	
6040095.223	2113703.21	9200.00	<1	
6040096.096	2113703.14	8630.00	<1	
6040096.97	2113703.06	8000.00	<1	
6040097.843	2113702.99	8950.00	<1	
6040098.717	2113702.92	8820.00	<1	
6040099.59	2113702.84	9810.00	1	
6040100.463	2113702.77	9460.00	1	

Easting	Northing	Reading	Reach 27 Data Set	Comments
6040101.337	2113702.70	9700.00	1	
6040102.21	2113702.62	8680.00	<1	
6040103.084	2113702.55	10500.00	2	
6040103.957	2113702.48	9130.00	<1	
6040104.831	2113702.40	8870.00	<1	
6040105.704	2113702.33	9050.00	<1	
6040106.578	2113702.25	7350.00	<1	
6040107.451	2113702.18	10100.00	2	
6040108.325	2113702.11	7790.00	<1	
6040109.198	2113702.03	8200.00	<1	
6040110.071	2113701.96	9950.00	1	
6040110.945	2113701.89	9370.00	1	
6040111.818	2113701.81	8330.00	<1	
6040112.692	2113701.74	8070.00	<1	
6040113.565	2113701.67	9260.00	<1	
6040114.439	2113701.59	8370.00	<1	
6040115.312	2113701.52	8190.00	<1	
6040116.186	2113701.45	8480.00	<1	
6040117.059	2113701.37	9290.00	<1	
6040117.933	2113701.30	8280.00	<1	
6040118.806	2113701.23	9610.00	1	
6040119.679	2113701.15	8540.00	<1	
6040120.553	2113701.08	8390.00	<1	
6040121.426	2113701.01	9290.00	<1	
6040122.3	2113700.93	10100.00	2	
6040123.173	2113700.86	8370.00	<1	
6040124.047	2113700.79	9130.00	<1	
6040124.92	2113700.71	8930.00	<1	
6040125.794	2113700.64	8740.00	<1	
6040126.667	2113700.56	8980.00	<1	
6040127.54	2113700.49	9330.00	<1	
6040128.414	2113700.42	8440.00	<1	
6040129.287	2113700.34	8770.00	<1	
6040130.161	2113700.27	8310.00	<1	
6040131.034	2113700.20	8840.00	<1	
6040131.908	2113700.12	8460.00	<1	
6040132.781	2113700.05	9110.00	<1	
6040133.655	2113699.98	9110.00	<1	
6040134.528	2113699.90	8620.00	<1	
6040135.402	2113699.83	8450.00	<1	
6040136.275	2113699.76	8810.00	<1	

Easting	Northing	Reading	Reach 27 Data Set	Comments
6040137.148	2113699.68	8250.00	<1	

8683.34	Average
682.49	Std Dev
10730.82	3 Sigma
11200.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 28
Line: B

Main/Lateral: Lateral
Length (ft): 209
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 28 Data Set

Gamma Total CPS	
5380.16	Average
336.24	Std Dev
6388.88	3 Sigma
6630.00	Max

Sigma	Total Points
<1	211
1	30
2	5
3	2
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 28 Data Set	Comments
6039946.055	2113775.38	5110.00	<1	
6039946.829	2113775.07	5120.00	<1	
6039947.603	2113774.77	5110.00	<1	
6039948.377	2113774.47	5080.00	<1	
6039949.151	2113774.16	5280.00	<1	
6039949.926	2113773.86	5710.00	<1	
6039950.7	2113773.55	5940.00	1	
6039951.474	2113773.25	5310.00	<1	
6039952.248	2113772.94	5730.00	1	
6039953.022	2113772.64	5460.00	<1	
6039953.797	2113772.34	5320.00	<1	
6039954.571	2113772.03	5780.00	1	
6039955.345	2113771.73	5620.00	<1	
6039956.119	2113771.42	5400.00	<1	
6039956.893	2113771.12	5490.00	<1	
6039957.668	2113770.82	5420.00	<1	
6039958.442	2113770.51	5390.00	<1	
6039959.216	2113770.21	5290.00	<1	
6039959.99	2113769.90	4960.00	<1	
6039960.764	2113769.60	5850.00	1	

Easting	Northing	Reading	Reach 28 Data Set	Comments
6039961.539	2113769.29	5830.00	1	
6039962.313	2113768.99	4700.00	<1	
6039963.087	2113768.69	5080.00	<1	
6039963.861	2113768.38	5520.00	<1	
6039964.635	2113768.08	5300.00	<1	
6039965.41	2113767.77	5310.00	<1	
6039966.184	2113767.47	5260.00	<1	
6039966.958	2113767.17	5180.00	<1	
6039967.732	2113766.86	5090.00	<1	
6039968.506	2113766.56	5100.00	<1	
6039969.28	2113766.25	5450.00	<1	
6039970.055	2113765.95	5420.00	<1	
6039970.829	2113765.64	6560.00	3	
6039971.603	2113765.34	4790.00	<1	
6039972.377	2113765.04	4970.00	<1	
6039973.151	2113764.73	5700.00	<1	
6039973.926	2113764.43	5980.00	1	
6039974.7	2113764.12	5320.00	<1	
6039975.474	2113763.82	5200.00	<1	
6039976.248	2113763.52	5090.00	<1	
6039977.022	2113763.21	5640.00	<1	
6039977.797	2113762.91	5500.00	<1	
6039978.571	2113762.60	5710.00	<1	
6039979.345	2113762.30	5260.00	<1	
6039980.119	2113761.99	5460.00	<1	
6039980.893	2113761.69	4960.00	<1	
6039981.668	2113761.39	5590.00	<1	
6039982.442	2113761.08	5280.00	<1	
6039983.216	2113760.78	5030.00	<1	
6039983.99	2113760.47	4690.00	<1	
6039984.764	2113760.17	5380.00	<1	
6039985.538	2113759.87	5040.00	<1	
6039986.313	2113759.56	5050.00	<1	
6039987.087	2113759.26	5630.00	<1	
6039987.861	2113758.95	5590.00	<1	
6039988.635	2113758.65	5510.00	<1	
6039989.409	2113758.34	5680.00	<1	
6039990.184	2113758.04	5910.00	1	
6039990.958	2113757.74	5620.00	<1	
6039991.732	2113757.43	5440.00	<1	
6039992.506	2113757.13	5230.00	<1	

Easting	Northing	Reading	Reach 28 Data Set	Comments
6039993.28	2113756.82	5650.00	<1	
6039994.055	2113756.52	5220.00	<1	
6039994.829	2113756.22	5430.00	<1	
6039995.603	2113755.91	5180.00	<1	
6039996.377	2113755.61	5210.00	<1	
6039997.151	2113755.30	4990.00	<1	
6039997.926	2113755.00	5160.00	<1	
6039998.7	2113754.69	5300.00	<1	
6039999.474	2113754.39	5440.00	<1	
6040000.248	2113754.09	5420.00	<1	
6040001.022	2113753.78	5530.00	<1	
6040001.796	2113753.48	5260.00	<1	
6040002.571	2113753.17	5580.00	<1	
6040003.345	2113752.87	5390.00	<1	
6040004.119	2113752.57	5010.00	<1	
6040004.893	2113752.26	4740.00	<1	
6040005.667	2113751.96	5140.00	<1	
6040006.442	2113751.65	5470.00	<1	
6040007.216	2113751.35	4880.00	<1	
6040007.99	2113751.04	5150.00	<1	
6040008.764	2113750.74	5830.00	1	
6040009.538	2113750.44	5190.00	<1	
6040010.313	2113750.13	5090.00	<1	
6040011.087	2113749.83	5370.00	<1	
6040011.861	2113749.52	5400.00	<1	
6040012.635	2113749.22	5960.00	1	
6040013.409	2113748.91	5390.00	<1	
6040014.184	2113748.61	5370.00	<1	
6040014.958	2113748.31	5740.00	1	
6040015.732	2113748.00	6070.00	2	
6040016.506	2113747.70	5200.00	<1	
6040017.28	2113747.39	5180.00	<1	
6040018.055	2113747.09	5170.00	<1	
6040018.829	2113746.79	5660.00	<1	
6040019.603	2113746.48	5030.00	<1	
6040020.377	2113746.18	5490.00	<1	
6040021.151	2113745.87	5120.00	<1	
6040021.925	2113745.57	5140.00	<1	
6040022.7	2113745.26	5640.00	<1	
6040023.474	2113744.96	5330.00	<1	
6040024.248	2113744.66	5300.00	<1	

Easting	Northing	Reading	Reach 28 Data Set	Comments
6040025.022	2113744.35	4770.00	<1	
6040025.796	2113744.05	5010.00	<1	
6040026.571	2113743.74	5010.00	<1	
6040027.345	2113743.44	5250.00	<1	
6040028.119	2113743.14	5130.00	<1	
6040028.893	2113742.83	5230.00	<1	
6040029.667	2113742.53	5330.00	<1	
6040030.442	2113742.22	4800.00	<1	
6040031.216	2113741.92	5400.00	<1	
6040031.99	2113741.61	4800.00	<1	
6040032.764	2113741.31	4640.00	<1	
6040033.538	2113741.01	5300.00	<1	
6040034.313	2113740.70	4780.00	<1	
6040035.087	2113740.40	5010.00	<1	
6040035.861	2113740.09	6100.00	2	
6040036.635	2113739.79	5220.00	<1	
6040037.409	2113739.49	5300.00	<1	
6040038.183	2113739.18	5180.00	<1	
6040038.958	2113738.88	5330.00	<1	
6040039.732	2113738.57	5260.00	<1	
6040040.506	2113738.27	5580.00	<1	
6040041.28	2113737.96	5320.00	<1	
6040042.054	2113737.66	5420.00	<1	
6040042.829	2113737.36	5120.00	<1	
6040043.603	2113737.05	5790.00	1	
6040044.377	2113736.75	5030.00	<1	
6040045.151	2113736.44	4790.00	<1	
6040045.925	2113736.14	4670.00	<1	
6040046.7	2113735.84	5070.00	<1	
6040047.474	2113735.53	5790.00	1	
6040048.248	2113735.23	5310.00	<1	
6040049.022	2113734.92	5810.00	1	
6040049.796	2113734.62	5500.00	<1	
6040050.571	2113734.31	5570.00	<1	
6040051.345	2113734.01	5150.00	<1	
6040052.119	2113733.71	5490.00	<1	
6040052.893	2113733.40	5170.00	<1	
6040053.667	2113733.10	4770.00	<1	
6040054.441	2113732.79	4920.00	<1	
6040055.216	2113732.49	5630.00	<1	
6040055.99	2113732.19	5910.00	1	

Easting	Northing	Reading	Reach 28 Data Set	Comments
6040056.764	2113731.88	5640.00	<1	
6040057.538	2113731.58	5280.00	<1	
6040058.312	2113731.27	5330.00	<1	
6040059.087	2113730.97	4820.00	<1	
6040059.861	2113730.66	5770.00	1	
6040060.635	2113730.36	5330.00	<1	
6040061.409	2113730.06	5890.00	1	
6040062.183	2113729.75	6120.00	2	
6040062.958	2113729.45	5220.00	<1	
6040063.732	2113729.14	5420.00	<1	
6040064.506	2113728.84	5600.00	<1	
6040065.28	2113728.54	5550.00	<1	
6040066.054	2113728.23	5350.00	<1	
6040066.829	2113727.93	5370.00	<1	
6040067.603	2113727.62	6020.00	1	
6040068.377	2113727.32	5340.00	<1	
6040069.151	2113727.01	5490.00	<1	
6040069.925	2113726.71	5150.00	<1	
6040070.7	2113726.41	5370.00	<1	
6040071.474	2113726.10	5180.00	<1	
6040072.248	2113725.80	5400.00	<1	
6040073.022	2113725.49	5570.00	<1	
6040073.796	2113725.19	5730.00	1	
6040074.57	2113724.89	6160.00	2	
6040075.345	2113724.58	5590.00	<1	
6040076.119	2113724.28	5300.00	<1	
6040076.893	2113723.97	5730.00	1	
6040077.667	2113723.67	5160.00	<1	
6040078.441	2113723.36	5150.00	<1	
6040079.216	2113723.06	5860.00	1	
6040079.99	2113722.76	5850.00	1	
6040080.764	2113722.45	5700.00	<1	
6040081.538	2113722.15	5790.00	1	
6040082.312	2113721.84	5360.00	<1	
6040083.087	2113721.54	5690.00	<1	
6040083.861	2113721.23	5710.00	<1	
6040084.635	2113720.93	6240.00	2	
6040085.409	2113720.63	5360.00	<1	
6040086.183	2113720.32	5450.00	<1	
6040086.958	2113720.02	5400.00	<1	
6040087.732	2113719.71	5300.00	<1	

Easting	Northing	Reading	Reach 28 Data Set	Comments
6040088.506	2113719.41	5000.00	<1	
6040089.28	2113719.11	5120.00	<1	
6040090.054	2113718.80	5530.00	<1	
6040090.828	2113718.50	5070.00	<1	
6040091.603	2113718.19	4810.00	<1	
6040092.377	2113717.89	5470.00	<1	
6040093.151	2113717.58	5430.00	<1	
6040093.925	2113717.28	5250.00	<1	
6040094.699	2113716.98	5020.00	<1	
6040095.474	2113716.67	5630.00	<1	
6040096.248	2113716.37	5620.00	<1	
6040097.022	2113716.06	5180.00	<1	
6040097.796	2113715.76	5130.00	<1	
6040098.57	2113715.46	5990.00	1	
6040099.345	2113715.15	5490.00	<1	
6040100.119	2113714.85	5500.00	<1	
6040100.893	2113714.54	5520.00	<1	
6040101.667	2113714.24	5480.00	<1	
6040102.441	2113713.93	5370.00	<1	
6040103.216	2113713.63	5520.00	<1	
6040103.99	2113713.33	5900.00	1	
6040104.764	2113713.02	5880.00	1	
6040105.538	2113712.72	5810.00	1	
6040106.312	2113712.41	4980.00	<1	
6040107.086	2113712.11	5490.00	<1	
6040107.861	2113711.81	5260.00	<1	
6040108.635	2113711.50	4870.00	<1	
6040109.409	2113711.20	5070.00	<1	
6040110.183	2113710.89	4960.00	<1	
6040110.957	2113710.59	5180.00	<1	
6040111.732	2113710.28	5180.00	<1	
6040112.506	2113709.98	5120.00	<1	
6040113.28	2113709.68	5290.00	<1	
6040114.054	2113709.37	5160.00	<1	
6040114.828	2113709.07	4640.00	<1	
6040115.603	2113708.76	5180.00	<1	
6040116.377	2113708.46	5100.00	<1	
6040117.151	2113708.16	5320.00	<1	
6040117.925	2113707.85	5090.00	<1	
6040118.699	2113707.55	5990.00	1	
6040119.474	2113707.24	5610.00	<1	

Easting	Northing	Reading	Reach 28 Data Set	Comments
6040120.248	2113706.94	5670.00	<1	
6040121.022	2113706.63	5520.00	<1	
6040121.796	2113706.33	5070.00	<1	
6040122.57	2113706.03	5430.00	<1	
6040123.345	2113705.72	5180.00	<1	
6040124.119	2113705.42	5630.00	<1	
6040124.893	2113705.11	5010.00	<1	
6040125.667	2113704.81	5380.00	<1	
6040126.441	2113704.51	5250.00	<1	
6040127.215	2113704.20	5640.00	<1	
6040127.99	2113703.90	5540.00	<1	
6040128.764	2113703.59	5630.00	<1	
6040129.538	2113703.29	5440.00	<1	
6040130.312	2113702.98	5220.00	<1	
6040131.086	2113702.68	5810.00	1	
6040131.861	2113702.38	6630.00	3	
6040132.635	2113702.07	5600.00	<1	
6040133.409	2113701.77	5620.00	<1	
6040134.183	2113701.46	5610.00	<1	
6040134.957	2113701.16	5270.00	<1	
6040135.732	2113700.86	5840.00	1	
6040136.506	2113700.55	5600.00	<1	
6040137.28	2113700.25	5840.00	1	

5380.16	Average
336.24	Std Dev
6388.88	3 Sigma
6630.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 29
Line: B

Main/Lateral: Lateral
Length (ft): 88
Pipe Diameter (in): 21

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 29 Data Set

Gamma Total CPS	
5819.06	Average
401.07	Std Dev
7022.27	3 Sigma
7210.00	Max

Sigma	Total Points
<1	75
1	6
2	3
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 29 Data Set	Comments
6040145.964	2113785.40	5690.00	<1	
6040145.885	2113784.40	4910.00	<1	
6040145.806	2113783.41	5690.00	<1	
6040145.726	2113782.41	5830.00	<1	
6040145.647	2113781.41	5180.00	<1	
6040145.568	2113780.41	5750.00	<1	
6040145.488	2113779.41	5370.00	<1	
6040145.409	2113778.41	5640.00	<1	
6040145.33	2113777.41	5590.00	<1	
6040145.25	2113776.41	5920.00	<1	
6040145.171	2113775.42	6270.00	1	
6040145.092	2113774.42	6310.00	1	
6040145.012	2113773.42	6370.00	1	
6040144.933	2113772.42	6150.00	<1	
6040144.854	2113771.42	6010.00	<1	
6040144.774	2113770.42	5940.00	<1	
6040144.695	2113769.42	6090.00	<1	
6040144.616	2113768.42	5610.00	<1	
6040144.536	2113767.43	5920.00	<1	
6040144.457	2113766.43	5920.00	<1	

Easting	Northing	Reading	Reach 29 Data Set	Comments
6040144.378	2113765.43	5490.00	<1	
6040144.298	2113764.43	5150.00	<1	
6040144.219	2113763.43	5770.00	<1	
6040144.14	2113762.43	6050.00	<1	
6040144.06	2113761.43	5380.00	<1	
6040143.981	2113760.43	5720.00	<1	
6040143.901	2113759.44	5620.00	<1	
6040143.822	2113758.44	5790.00	<1	
6040143.743	2113757.44	5820.00	<1	
6040143.663	2113756.44	5830.00	<1	
6040143.584	2113755.44	6740.00	2	
6040143.505	2113754.44	5840.00	<1	
6040143.425	2113753.44	5730.00	<1	
6040143.346	2113752.45	5760.00	<1	
6040143.267	2113751.45	5830.00	<1	
6040143.187	2113750.45	6140.00	<1	
6040143.108	2113749.45	6200.00	<1	
6040143.029	2113748.45	5260.00	<1	
6040142.949	2113747.45	5640.00	<1	
6040142.87	2113746.45	5230.00	<1	
6040142.791	2113745.45	5350.00	<1	
6040142.711	2113744.46	5180.00	<1	
6040142.632	2113743.46	6500.00	1	
6040142.553	2113742.46	5920.00	<1	
6040142.473	2113741.46	5350.00	<1	
6040142.394	2113740.46	5910.00	<1	
6040142.315	2113739.46	5910.00	<1	
6040142.235	2113738.46	5630.00	<1	
6040142.156	2113737.46	5910.00	<1	
6040142.077	2113736.47	7210.00	3	
6040141.997	2113735.47	6180.00	<1	
6040141.918	2113734.47	6120.00	<1	
6040141.839	2113733.47	5790.00	<1	
6040141.759	2113732.47	6320.00	1	
6040141.68	2113731.47	6180.00	<1	
6040141.601	2113730.47	6050.00	<1	
6040141.521	2113729.47	5460.00	<1	
6040141.442	2113728.48	5910.00	<1	
6040141.363	2113727.48	5900.00	<1	
6040141.283	2113726.48	5390.00	<1	
6040141.204	2113725.48	6390.00	1	

Easting	Northing	Reading	Reach 29 Data Set	Comments
6040141.125	2113724.48	6030.00	<1	
6040141.045	2113723.48	6710.00	2	
6040140.966	2113722.48	5570.00	<1	
6040140.887	2113721.48	5940.00	<1	
6040140.807	2113720.49	5620.00	<1	
6040140.728	2113719.49	6150.00	<1	
6040140.649	2113718.49	5850.00	<1	
6040140.569	2113717.49	5500.00	<1	
6040140.49	2113716.49	5760.00	<1	
6040140.411	2113715.49	5700.00	<1	
6040140.331	2113714.49	5430.00	<1	
6040140.252	2113713.49	5500.00	<1	
6040140.173	2113712.50	5330.00	<1	
6040140.093	2113711.50	5890.00	<1	
6040140.014	2113710.50	5530.00	<1	
6040139.935	2113709.50	5960.00	<1	
6040139.855	2113708.50	5520.00	<1	
6040139.776	2113707.50	5440.00	<1	
6040139.697	2113706.50	5720.00	<1	
6040139.617	2113705.50	5130.00	<1	
6040139.538	2113704.51	6140.00	<1	
6040139.458	2113703.51	5780.00	<1	
6040139.379	2113702.51	5890.00	<1	
6040139.3	2113701.51	6820.00	2	

5819.06	Average
401.07	Std Dev
7022.27	3 Sigma
7210.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 30
Line: B

Main/Lateral: Main
Length (ft): 315
Pipe Diameter (in): 24

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 30 Data Set

Gamma Total CPS	
7159.53	Average
614.28	Std Dev
9002.39	3 Sigma
8840.00	Max

Sigma	Total Points
<1	229
1	44
2	4
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 30 Data Set	Comments
6040141.134	2113699.35	7090.00	<1	
6040142.258	2113699.25	6950.00	<1	
6040143.381	2113699.16	7420.00	<1	
6040144.505	2113699.06	7420.00	<1	
6040145.629	2113698.96	6400.00	<1	
6040146.752	2113698.87	7540.00	<1	
6040147.876	2113698.77	7360.00	<1	
6040148.999	2113698.68	7210.00	<1	
6040150.123	2113698.58	7260.00	<1	
6040151.246	2113698.49	6850.00	<1	
6040152.37	2113698.39	7640.00	<1	
6040153.494	2113698.30	6850.00	<1	
6040154.617	2113698.20	7210.00	<1	
6040155.741	2113698.10	8030.00	1	
6040156.864	2113698.01	8840.00	2	
6040157.988	2113697.91	7170.00	<1	
6040159.111	2113697.82	7500.00	<1	
6040160.235	2113697.72	7660.00	<1	
6040161.359	2113697.63	6630.00	<1	
6040162.482	2113697.53	6690.00	<1	

Easting	Northing	Reading	Reach 30 Data Set	Comments
6040163.606	2113697.44	7110.00	<1	
6040164.729	2113697.34	7110.00	<1	
6040165.853	2113697.24	7220.00	<1	
6040166.977	2113697.15	6940.00	<1	
6040168.1	2113697.05	5980.00	<1	
6040169.224	2113696.96	7030.00	<1	
6040170.347	2113696.86	6350.00	<1	
6040171.471	2113696.77	5080.00	<1	
6040172.594	2113696.67	6310.00	<1	
6040173.718	2113696.58	6210.00	<1	
6040174.842	2113696.48	6910.00	<1	
6040175.965	2113696.39	7150.00	<1	
6040177.089	2113696.29	7510.00	<1	
6040178.212	2113696.19	6860.00	<1	
6040179.336	2113696.10	6060.00	<1	
6040180.459	2113696.00	7740.00	<1	
6040181.583	2113695.91	6330.00	<1	
6040182.707	2113695.81	6270.00	<1	
6040183.83	2113695.72	6020.00	<1	
6040184.954	2113695.62	6830.00	<1	
6040186.077	2113695.53	6930.00	<1	
6040187.201	2113695.43	6930.00	<1	
6040188.325	2113695.33	6900.00	<1	
6040189.448	2113695.24	7040.00	<1	
6040190.572	2113695.14	6820.00	<1	
6040191.695	2113695.05	6910.00	<1	
6040192.819	2113694.95	7370.00	<1	
6040193.942	2113694.86	7000.00	<1	
6040195.066	2113694.76	7390.00	<1	
6040196.19	2113694.67	8160.00	1	
6040197.313	2113694.57	7210.00	<1	
6040198.437	2113694.48	7930.00	1	
6040199.56	2113694.38	7730.00	<1	
6040200.684	2113694.28	7920.00	1	
6040201.807	2113694.19	7330.00	<1	
6040202.931	2113694.09	7800.00	1	
6040204.055	2113694.00	6620.00	<1	
6040205.178	2113693.90	7300.00	<1	
6040206.302	2113693.81	6840.00	<1	
6040207.425	2113693.71	7680.00	<1	
6040208.549	2113693.62	7480.00	<1	

Easting	Northing	Reading	Reach 30 Data Set	Comments
6040209.672	2113693.52	8160.00	1	
6040210.796	2113693.42	8120.00	1	
6040211.92	2113693.33	7030.00	<1	
6040213.043	2113693.23	7030.00	<1	
6040214.167	2113693.14	6620.00	<1	
6040215.29	2113693.04	6690.00	<1	
6040216.414	2113692.95	8270.00	1	
6040217.538	2113692.85	6880.00	<1	
6040218.661	2113692.76	8110.00	1	
6040219.785	2113692.66	8090.00	1	
6040220.908	2113692.57	6610.00	<1	
6040222.032	2113692.47	6310.00	<1	
6040223.155	2113692.37	7540.00	<1	
6040224.279	2113692.28	6350.00	<1	
6040225.403	2113692.18	7010.00	<1	
6040226.526	2113692.09	6700.00	<1	
6040227.65	2113691.99	7120.00	<1	
6040228.773	2113691.90	7410.00	<1	
6040229.897	2113691.80	7240.00	<1	
6040231.02	2113691.71	7200.00	<1	
6040232.144	2113691.61	7370.00	<1	
6040233.268	2113691.51	7740.00	<1	
6040234.391	2113691.42	7410.00	<1	
6040235.515	2113691.32	8050.00	1	
6040236.638	2113691.23	8170.00	1	
6040237.762	2113691.13	7070.00	<1	
6040238.886	2113691.04	7460.00	<1	
6040240.009	2113690.94	6710.00	<1	
6040241.133	2113690.85	7520.00	<1	
6040242.256	2113690.75	7810.00	1	
6040243.38	2113690.65	7480.00	<1	
6040244.503	2113690.56	8060.00	1	
6040245.627	2113690.46	7310.00	<1	
6040246.751	2113690.37	6750.00	<1	
6040247.874	2113690.27	6750.00	<1	
6040248.998	2113690.18	6230.00	<1	
6040250.121	2113690.08	8180.00	1	
6040251.245	2113689.99	7180.00	<1	
6040252.368	2113689.89	7800.00	1	
6040253.492	2113689.80	6940.00	<1	
6040254.616	2113689.70	8010.00	1	

Easting	Northing	Reading	Reach 30 Data Set	Comments
6040255.739	2113689.60	7050.00	<1	
6040256.863	2113689.51	6430.00	<1	
6040257.986	2113689.41	7110.00	<1	
6040259.11	2113689.32	7820.00	1	
6040260.233	2113689.22	7640.00	<1	
6040261.357	2113689.13	6480.00	<1	
6040262.481	2113689.03	6830.00	<1	
6040263.604	2113688.94	7210.00	<1	
6040264.728	2113688.84	6620.00	<1	
6040265.851	2113688.74	6620.00	<1	
6040266.975	2113688.65	8370.00	1	
6040268.099	2113688.55	6580.00	<1	
6040269.222	2113688.46	6620.00	<1	
6040270.346	2113688.36	7160.00	<1	
6040271.469	2113688.27	7390.00	<1	
6040272.593	2113688.17	7320.00	<1	
6040273.716	2113688.08	7270.00	<1	
6040274.84	2113687.98	6900.00	<1	
6040275.964	2113687.89	7270.00	<1	
6040277.087	2113687.79	6480.00	<1	
6040278.211	2113687.69	6200.00	<1	
6040279.334	2113687.60	7800.00	1	
6040280.458	2113687.50	7970.00	1	
6040281.581	2113687.41	7970.00	1	
6040282.705	2113687.31	7670.00	<1	
6040283.829	2113687.22	7840.00	1	
6040284.952	2113687.12	7400.00	<1	
6040286.076	2113687.03	7790.00	1	
6040287.199	2113686.93	6850.00	<1	
6040288.323	2113686.83	7790.00	1	
6040289.446	2113686.74	7400.00	<1	
6040290.57	2113686.64	7640.00	<1	
6040291.694	2113686.55	7640.00	<1	
6040292.817	2113686.45	6740.00	<1	
6040293.941	2113686.36	7610.00	<1	
6040295.064	2113686.26	6920.00	<1	
6040296.188	2113686.17	7350.00	<1	
6040297.312	2113686.07	7280.00	<1	
6040298.435	2113685.98	7480.00	<1	
6040299.559	2113685.88	7440.00	<1	
6040300.682	2113685.78	7490.00	<1	

Easting	Northing	Reading	Reach 30 Data Set	Comments
6040301.806	2113685.69	7350.00	<1	
6040302.929	2113685.59	7730.00	<1	
6040304.053	2113685.50	8340.00	1	
6040305.177	2113685.40	7870.00	1	
6040306.3	2113685.31	7290.00	<1	
6040307.424	2113685.21	7550.00	<1	
6040308.547	2113685.12	6670.00	<1	
6040309.671	2113685.02	7600.00	<1	
6040310.794	2113684.92	7010.00	<1	
6040311.918	2113684.83	6300.00	<1	
6040313.042	2113684.73	7080.00	<1	
6040314.165	2113684.64	7170.00	<1	
6040315.289	2113684.54	7170.00	<1	
6040316.412	2113684.45	7800.00	1	
6040317.536	2113684.35	6600.00	<1	
6040318.66	2113684.26	6840.00	<1	
6040319.783	2113684.16	6860.00	<1	
6040320.907	2113684.06	7350.00	<1	
6040322.03	2113683.97	6330.00	<1	
6040323.154	2113683.87	7150.00	<1	
6040324.277	2113683.78	6570.00	<1	
6040325.401	2113683.68	7720.00	<1	
6040326.525	2113683.59	7010.00	<1	
6040327.648	2113683.49	8730.00	2	
6040328.772	2113683.40	7100.00	<1	
6040329.895	2113683.30	7430.00	<1	
6040331.019	2113683.21	7150.00	<1	
6040332.142	2113683.11	6590.00	<1	
6040333.266	2113683.01	7400.00	<1	
6040334.39	2113682.92	6910.00	<1	
6040335.513	2113682.82	7620.00	<1	
6040336.637	2113682.73	7970.00	1	
6040337.76	2113682.63	7970.00	1	
6040338.884	2113682.54	8110.00	1	
6040340.007	2113682.44	6370.00	<1	
6040341.131	2113682.35	7950.00	1	
6040342.255	2113682.25	7820.00	1	
6040343.378	2113682.15	7160.00	<1	
6040344.502	2113682.06	6660.00	<1	
6040345.625	2113681.96	8500.00	2	
6040346.749	2113681.87	7660.00	<1	

Easting	Northing	Reading	Reach 30 Data Set	Comments
6040347.873	2113681.77	7660.00	<1	
6040348.996	2113681.68	6820.00	<1	
6040350.12	2113681.58	7420.00	<1	
6040351.243	2113681.49	8210.00	1	
6040352.367	2113681.39	6870.00	<1	
6040353.49	2113681.30	8360.00	1	
6040354.614	2113681.20	7710.00	<1	
6040355.738	2113681.10	7050.00	<1	
6040356.861	2113681.01	7240.00	<1	
6040357.985	2113680.91	7500.00	<1	
6040359.108	2113680.82	6370.00	<1	
6040360.232	2113680.72	6800.00	<1	
6040361.355	2113680.63	6800.00	<1	
6040362.479	2113680.53	7970.00	1	
6040363.603	2113680.44	7080.00	<1	
6040364.726	2113680.34	7160.00	<1	
6040365.85	2113680.24	7130.00	<1	
6040366.973	2113680.15	6930.00	<1	
6040368.097	2113680.05	8590.00	2	
6040369.221	2113679.96	7530.00	<1	
6040370.344	2113679.86	7980.00	1	
6040371.468	2113679.77	8030.00	1	
6040372.591	2113679.67	8170.00	1	
6040373.715	2113679.58	6500.00	<1	
6040374.838	2113679.48	7220.00	<1	
6040375.962	2113679.39	8240.00	1	
6040377.086	2113679.29	6660.00	<1	
6040378.209	2113679.19	6790.00	<1	
6040379.333	2113679.10	7410.00	<1	
6040380.456	2113679.00	7680.00	<1	
6040381.58	2113678.91	6620.00	<1	
6040382.703	2113678.81	6290.00	<1	
6040383.827	2113678.72	7680.00	<1	
6040384.951	2113678.62	7910.00	1	
6040386.074	2113678.53	7320.00	<1	
6040387.198	2113678.43	7850.00	1	
6040388.321	2113678.33	7630.00	<1	
6040389.445	2113678.24	6720.00	<1	
6040390.568	2113678.14	6910.00	<1	
6040391.692	2113678.05	6030.00	<1	
6040392.816	2113677.95	6290.00	<1	

Easting	Northing	Reading	Reach 30 Data Set	Comments
6040393.939	2113677.86	6530.00	<1	
6040395.063	2113677.76	6110.00	<1	
6040396.186	2113677.67	7150.00	<1	
6040397.31	2113677.57	6510.00	<1	
6040398.434	2113677.48	6510.00	<1	
6040399.557	2113677.38	6610.00	<1	
6040400.681	2113677.28	8030.00	1	
6040401.804	2113677.19	6920.00	<1	
6040402.928	2113677.09	7370.00	<1	
6040404.051	2113677.00	7060.00	<1	
6040405.175	2113676.90	7640.00	<1	
6040406.299	2113676.81	7090.00	<1	
6040407.422	2113676.71	7280.00	<1	
6040408.546	2113676.62	7120.00	<1	
6040409.669	2113676.52	6300.00	<1	
6040410.793	2113676.42	6530.00	<1	
6040411.916	2113676.33	6570.00	<1	
6040413.04	2113676.23	6190.00	<1	
6040414.164	2113676.14	5890.00	<1	
6040415.287	2113676.04	7190.00	<1	
6040416.411	2113675.95	7700.00	<1	
6040417.534	2113675.85	7170.00	<1	
6040418.658	2113675.76	6460.00	<1	
6040419.782	2113675.66	6630.00	<1	
6040420.905	2113675.56	7340.00	<1	
6040422.029	2113675.47	7070.00	<1	
6040423.152	2113675.37	7000.00	<1	
6040424.276	2113675.28	6950.00	<1	
6040425.399	2113675.18	7210.00	<1	
6040426.523	2113675.09	7450.00	<1	
6040427.647	2113674.99	7050.00	<1	
6040428.77	2113674.90	6270.00	<1	
6040429.894	2113674.80	6660.00	<1	
6040431.017	2113674.71	5770.00	<1	
6040432.141	2113674.61	7030.00	<1	
6040433.264	2113674.51	7030.00	<1	
6040434.388	2113674.42	6490.00	<1	
6040435.512	2113674.32	6890.00	<1	
6040436.635	2113674.23	7350.00	<1	
6040437.759	2113674.13	5680.00	<1	
6040438.882	2113674.04	5930.00	<1	

Easting	Northing	Reading	Reach 30 Data Set	Comments
6040440.006	2113673.94	6880.00	<1	
6040441.129	2113673.85	7100.00	<1	
6040442.253	2113673.75	7160.00	<1	
6040443.377	2113673.65	6010.00	<1	
6040444.5	2113673.56	6120.00	<1	
6040445.624	2113673.46	6220.00	<1	
6040446.747	2113673.37	6470.00	<1	
6040447.871	2113673.27	5650.00	<1	
6040448.995	2113673.18	7110.00	<1	
6040450.118	2113673.08	8000.00	1	
6040451.242	2113672.99	7190.00	<1	

7159.53	Average
614.28	Std Dev
9002.39	3 Sigma
8840.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 31
Line: B

Main/Lateral: Lateral
Length (ft): 58
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 31 Data Set

Gamma Total CPS	
5285.66	Average
329.83	Std Dev
6275.15	3 Sigma
6000.00	Max

Sigma	Total Points
<1	104
1	16
2	2
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 31 Data Set	Comments
6040186.996	2113753.49	4780.00	<1	
6040186.963	2113753.02	5050.00	<1	
6040186.929	2113752.55	4920.00	<1	
6040186.896	2113752.08	5350.00	<1	
6040186.863	2113751.61	5270.00	<1	
6040186.83	2113751.14	5550.00	<1	
6040186.797	2113750.68	5300.00	<1	
6040186.764	2113750.21	4730.00	<1	
6040186.731	2113749.74	5380.00	<1	
6040186.698	2113749.27	5800.00	1	
6040186.665	2113748.80	5540.00	<1	
6040186.632	2113748.33	5880.00	1	
6040186.599	2113747.86	5960.00	2	
6040186.566	2113747.39	5730.00	1	
6040186.533	2113746.93	5730.00	1	
6040186.5	2113746.46	4790.00	<1	
6040186.467	2113745.99	5430.00	<1	
6040186.434	2113745.52	5360.00	<1	
6040186.401	2113745.05	5370.00	<1	
6040186.368	2113744.58	5080.00	<1	

Easting	Northing	Reading	Reach 31 Data Set	Comments
6040186.335	2113744.11	5910.00	1	
6040186.302	2113743.65	5360.00	<1	
6040186.269	2113743.18	5310.00	<1	
6040186.236	2113742.71	6000.00	2	
6040186.203	2113742.24	5760.00	1	
6040186.169	2113741.77	5550.00	<1	
6040186.136	2113741.30	5420.00	<1	
6040186.103	2113740.83	5840.00	1	
6040186.07	2113740.36	5370.00	<1	
6040186.037	2113739.90	5220.00	<1	
6040186.004	2113739.43	5460.00	<1	
6040185.971	2113738.96	5300.00	<1	
6040185.938	2113738.49	5490.00	<1	
6040185.905	2113738.02	5400.00	<1	
6040185.872	2113737.55	5480.00	<1	
6040185.839	2113737.08	5260.00	<1	
6040185.806	2113736.62	5260.00	<1	
6040185.773	2113736.15	5610.00	<1	
6040185.74	2113735.68	5220.00	<1	
6040185.707	2113735.21	5380.00	<1	
6040185.674	2113734.74	5220.00	<1	
6040185.641	2113734.27	5210.00	<1	
6040185.608	2113733.80	5540.00	<1	
6040185.575	2113733.33	5450.00	<1	
6040185.542	2113732.87	5320.00	<1	
6040185.509	2113732.40	5340.00	<1	
6040185.476	2113731.93	5040.00	<1	
6040185.443	2113731.46	5400.00	<1	
6040185.409	2113730.99	5290.00	<1	
6040185.376	2113730.52	5490.00	<1	
6040185.343	2113730.05	5310.00	<1	
6040185.31	2113729.59	4840.00	<1	
6040185.277	2113729.12	5740.00	1	
6040185.244	2113728.65	5610.00	<1	
6040185.211	2113728.18	5820.00	1	
6040185.178	2113727.71	5160.00	<1	
6040185.145	2113727.24	5280.00	<1	
6040185.112	2113726.77	5210.00	<1	
6040185.079	2113726.30	5750.00	1	
6040185.046	2113725.84	5580.00	<1	
6040185.013	2113725.37	5580.00	<1	

Easting	Northing	Reading	Reach 31 Data Set	Comments
6040184.98	2113724.90	5030.00	<1	
6040184.947	2113724.43	5300.00	<1	
6040184.914	2113723.96	4810.00	<1	
6040184.881	2113723.49	4900.00	<1	
6040184.848	2113723.02	5860.00	1	
6040184.815	2113722.56	5050.00	<1	
6040184.782	2113722.09	4940.00	<1	
6040184.749	2113721.62	5300.00	<1	
6040184.716	2113721.15	5680.00	1	
6040184.683	2113720.68	5600.00	<1	
6040184.649	2113720.21	4980.00	<1	
6040184.616	2113719.74	4910.00	<1	
6040184.583	2113719.27	4890.00	<1	
6040184.55	2113718.81	5240.00	<1	
6040184.517	2113718.34	5150.00	<1	
6040184.484	2113717.87	5560.00	<1	
6040184.451	2113717.40	5110.00	<1	
6040184.418	2113716.93	5690.00	1	
6040184.385	2113716.46	5260.00	<1	
6040184.352	2113715.99	5260.00	<1	
6040184.319	2113715.53	5070.00	<1	
6040184.286	2113715.06	5160.00	<1	
6040184.253	2113714.59	5220.00	<1	
6040184.22	2113714.12	5010.00	<1	
6040184.187	2113713.65	4820.00	<1	
6040184.154	2113713.18	4840.00	<1	
6040184.121	2113712.71	5570.00	<1	
6040184.088	2113712.24	5100.00	<1	
6040184.055	2113711.78	5370.00	<1	
6040184.022	2113711.31	5440.00	<1	
6040183.989	2113710.84	5180.00	<1	
6040183.956	2113710.37	5190.00	<1	
6040183.923	2113709.90	5090.00	<1	
6040183.89	2113709.43	5130.00	<1	
6040183.856	2113708.96	5030.00	<1	
6040183.823	2113708.50	4950.00	<1	
6040183.79	2113708.03	4940.00	<1	
6040183.757	2113707.56	4830.00	<1	
6040183.724	2113707.09	5230.00	<1	
6040183.691	2113706.62	5170.00	<1	
6040183.658	2113706.15	5210.00	<1	

Easting	Northing	Reading	Reach 31 Data Set	Comments
6040183.625	2113705.68	5210.00	<1	
6040183.592	2113705.21	5080.00	<1	
6040183.559	2113704.75	5570.00	<1	
6040183.526	2113704.28	5050.00	<1	
6040183.493	2113703.81	4650.00	<1	
6040183.46	2113703.34	4150.00	<1	
6040183.427	2113702.87	4420.00	<1	
6040183.394	2113702.40	4690.00	<1	
6040183.361	2113701.93	5510.00	<1	
6040183.328	2113701.47	5300.00	<1	
6040183.295	2113701.00	5670.00	1	
6040183.262	2113700.53	5280.00	<1	
6040183.229	2113700.06	4670.00	<1	
6040183.196	2113699.59	5150.00	<1	
6040183.163	2113699.12	5630.00	1	
6040183.13	2113698.65	5740.00	1	
6040183.096	2113698.18	5530.00	<1	
6040183.063	2113697.72	5360.00	<1	
6040183.03	2113697.25	4980.00	<1	
6040182.997	2113696.78	5360.00	<1	

5285.66	Average
329.83	Std Dev
6275.15	3 Sigma
6000.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 33
Line: B

Main/Lateral: Lateral
Length (ft): 62
Pipe Diameter (in): 10

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 33 Data Set

Gamma Total CPS	
4931.43	Average
347.34	Std Dev
5973.44	3 Sigma
5740.00	Max

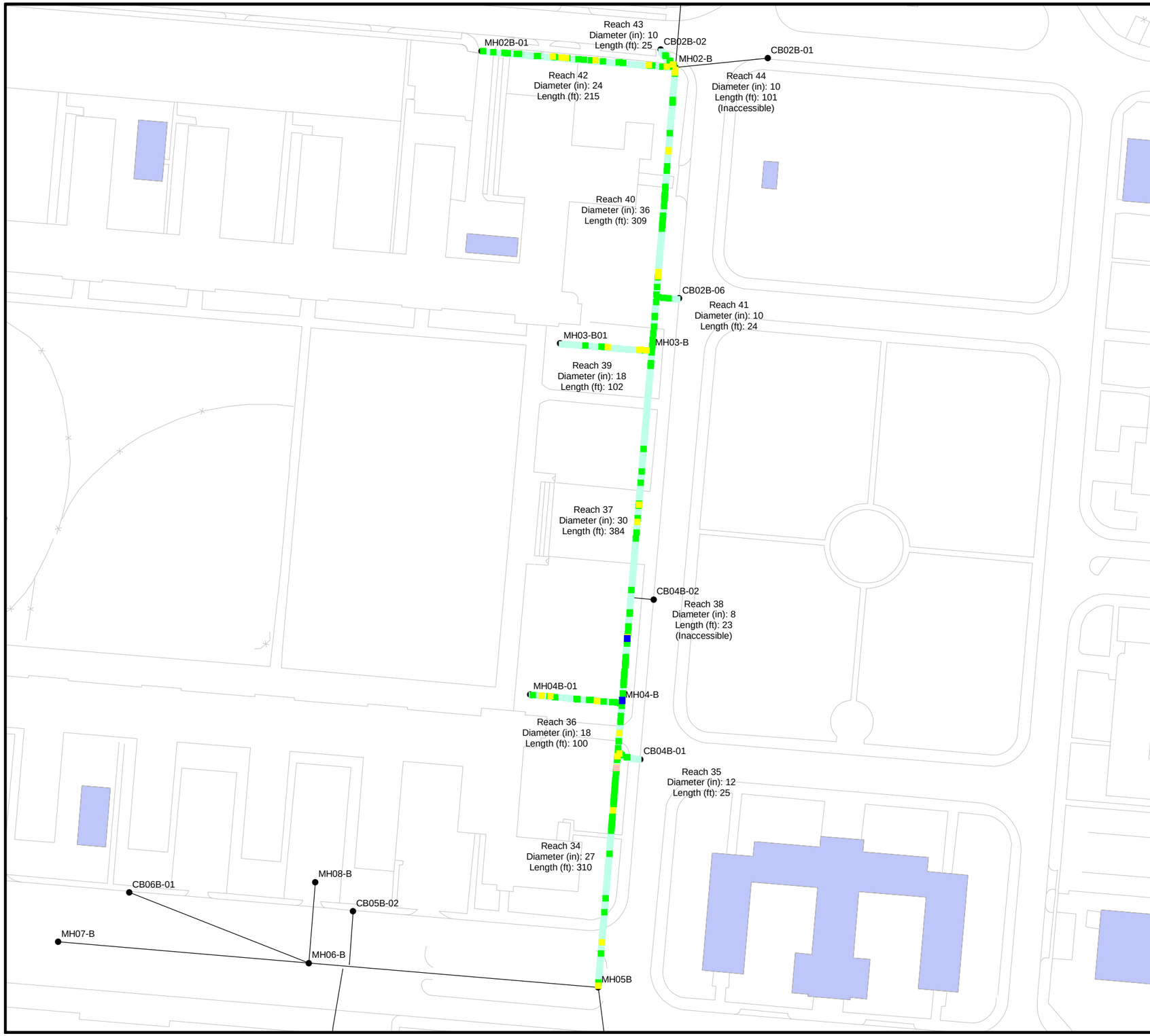
Sigma	Total Points
<1	64
1	11
2	2
3	0
4	0
5	0
>6	0

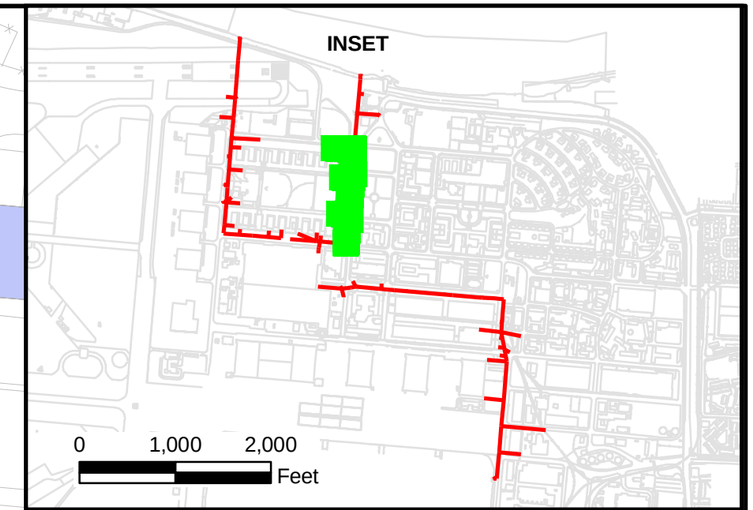
Easting	Northing	Reading	Reach 33 Data Set	Comments
6040453.485	2113670.83	4910.00	<1	
6040453.58	2113670.08	4840.00	<1	
6040453.675	2113669.32	5260.00	<1	
6040453.77	2113668.57	4920.00	<1	
6040453.865	2113667.82	4920.00	<1	
6040453.96	2113667.06	4950.00	<1	
6040454.054	2113666.31	4620.00	<1	
6040454.149	2113665.56	4200.00	<1	
6040454.244	2113664.80	4270.00	<1	
6040454.339	2113664.05	4190.00	<1	
6040454.434	2113663.29	4750.00	<1	
6040454.529	2113662.54	4750.00	<1	
6040454.624	2113661.79	4800.00	<1	
6040454.719	2113661.03	4550.00	<1	
6040454.814	2113660.28	4380.00	<1	
6040454.909	2113659.53	5030.00	<1	
6040455.004	2113658.77	4850.00	<1	
6040455.099	2113658.02	4710.00	<1	
6040455.194	2113657.26	4420.00	<1	
6040455.289	2113656.51	4420.00	<1	

Easting	Northing	Reading	Reach 33 Data Set	Comments
6040455.384	2113655.76	4890.00	<1	
6040455.479	2113655.00	4680.00	<1	
6040455.574	2113654.25	4630.00	<1	
6040455.669	2113653.50	4520.00	<1	
6040455.764	2113652.74	4640.00	<1	
6040455.859	2113651.99	5330.00	1	
6040455.954	2113651.23	5040.00	<1	
6040456.049	2113650.48	5000.00	<1	
6040456.144	2113649.73	5440.00	1	
6040456.239	2113648.97	5130.00	<1	
6040456.334	2113648.22	5000.00	<1	
6040456.429	2113647.47	5250.00	<1	
6040456.524	2113646.71	5150.00	<1	
6040456.619	2113645.96	5400.00	1	
6040456.714	2113645.20	5740.00	2	
6040456.809	2113644.45	5740.00	2	
6040456.904	2113643.70	5550.00	1	
6040456.999	2113642.94	5330.00	1	
6040457.094	2113642.19	5260.00	<1	
6040457.189	2113641.44	4830.00	<1	
6040457.284	2113640.68	4820.00	<1	
6040457.379	2113639.93	5300.00	1	
6040457.474	2113639.17	5250.00	<1	
6040457.569	2113638.42	4880.00	<1	
6040457.664	2113637.67	4870.00	<1	
6040457.759	2113636.91	4520.00	<1	
6040457.854	2113636.16	4240.00	<1	
6040457.949	2113635.41	4230.00	<1	
6040458.044	2113634.65	4720.00	<1	
6040458.139	2113633.90	4840.00	<1	
6040458.234	2113633.14	4980.00	<1	
6040458.329	2113632.39	5280.00	1	
6040458.424	2113631.64	5030.00	<1	
6040458.519	2113630.88	4630.00	<1	
6040458.614	2113630.13	4630.00	<1	
6040458.709	2113629.38	4940.00	<1	
6040458.804	2113628.62	5210.00	<1	
6040458.899	2113627.87	4920.00	<1	
6040458.994	2113627.11	5150.00	<1	
6040459.089	2113626.36	5260.00	<1	
6040459.184	2113625.61	4920.00	<1	

Easting	Northing	Reading	Reach 33 Data Set	Comments
6040459.279	2113624.85	4860.00	<1	
6040459.374	2113624.10	4810.00	<1	
6040459.469	2113623.34	5020.00	<1	
6040459.564	2113622.59	4610.00	<1	
6040459.659	2113621.84	5430.00	1	
6040459.754	2113621.08	5310.00	1	
6040459.849	2113620.33	4960.00	<1	
6040459.944	2113619.58	5320.00	1	
6040460.039	2113618.82	4830.00	<1	
6040460.134	2113618.07	5150.00	<1	
6040460.229	2113617.31	5460.00	1	
6040460.324	2113616.56	5070.00	<1	
6040460.419	2113615.81	4960.00	<1	
6040460.514	2113615.05	4880.00	<1	
6040460.609	2113614.30	4980.00	<1	
6040460.704	2113613.55	5160.00	<1	

4931.43	Average
347.34	Std Dev
5973.44	3 Sigma
5740.00	Max





Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
34	8373
35	6202
36	7523
37	5761
38	NA
39	7958
40	5704
41	6149
42	7978
43	6322

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0 10 20 40 60 80
Feet

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 34 thru 44

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_34-44_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 34
Line: B

Main/Lateral: Main
Length (ft): 310
Pipe Diameter (in): 27

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 34 Data Set

Gamma Total CPS	
6510.25	Average
620.98	Std Dev
8373.20	3 Sigma
9110.00	Max

Sigma	Total Points
<1	232
1	41
2	6
3	0
4	1
5	0
>6	0

Easting	Northing	Reading	Reach 34 Data Set	Comments
6040453.402	2113674.81	7870.00	2	
6040453.493	2113675.90	7000.00	<1	
6040453.585	2113677.00	6980.00	<1	
6040453.676	2113678.09	7650.00	1	
6040453.768	2113679.18	6880.00	<1	
6040453.86	2113680.27	6980.00	<1	
6040453.951	2113681.37	6080.00	<1	
6040454.043	2113682.46	5510.00	<1	
6040454.135	2113683.55	6130.00	<1	
6040454.226	2113684.65	6780.00	<1	
6040454.318	2113685.74	6920.00	<1	
6040454.41	2113686.83	7040.00	<1	
6040454.501	2113687.93	7090.00	<1	
6040454.593	2113689.02	5760.00	<1	
6040454.684	2113690.11	5630.00	<1	
6040454.776	2113691.20	5760.00	<1	
6040454.868	2113692.30	6160.00	<1	
6040454.959	2113693.39	6030.00	<1	
6040455.051	2113694.48	5720.00	<1	
6040455.143	2113695.58	6180.00	<1	

Easting	Northing	Reading	Reach 34 Data Set	Comments
6040455.234	2113696.67	5780.00	<1	
6040455.326	2113697.76	6140.00	<1	
6040455.417	2113698.86	5850.00	<1	
6040455.509	2113699.95	6280.00	<1	
6040455.601	2113701.04	5810.00	<1	
6040455.692	2113702.13	6590.00	<1	
6040455.784	2113703.23	5920.00	<1	
6040455.876	2113704.32	5990.00	<1	
6040455.967	2113705.41	6550.00	<1	
6040456.059	2113706.51	5920.00	<1	
6040456.151	2113707.60	5990.00	<1	
6040456.242	2113708.69	6010.00	<1	
6040456.334	2113709.79	7320.00	1	
6040456.425	2113710.88	5910.00	<1	
6040456.517	2113711.97	5930.00	<1	
6040456.609	2113713.06	5990.00	<1	
6040456.7	2113714.16	6000.00	<1	
6040456.792	2113715.25	5640.00	<1	
6040456.884	2113716.34	6270.00	<1	
6040456.975	2113717.44	6020.00	<1	
6040457.067	2113718.53	5830.00	<1	
6040457.158	2113719.62	6960.00	<1	
6040457.25	2113720.72	5600.00	<1	
6040457.342	2113721.81	8060.00	2	
6040457.433	2113722.90	6470.00	<1	
6040457.525	2113723.99	6400.00	<1	
6040457.617	2113725.09	5980.00	<1	
6040457.708	2113726.18	6440.00	<1	
6040457.8	2113727.27	6970.00	<1	
6040457.892	2113728.37	6940.00	<1	
6040457.983	2113729.46	6650.00	<1	
6040458.075	2113730.55	5700.00	<1	
6040458.166	2113731.65	5590.00	<1	
6040458.258	2113732.74	5740.00	<1	
6040458.35	2113733.83	5760.00	<1	
6040458.441	2113734.92	6000.00	<1	
6040458.533	2113736.02	5720.00	<1	
6040458.625	2113737.11	6240.00	<1	
6040458.716	2113738.20	5890.00	<1	
6040458.808	2113739.30	5860.00	<1	
6040458.9	2113740.39	6370.00	<1	

Easting	Northing	Reading	Reach 34 Data Set	Comments
6040458.991	2113741.48	5800.00	<1	
6040459.083	2113742.57	6670.00	<1	
6040459.174	2113743.67	6800.00	<1	
6040459.266	2113744.76	5710.00	<1	
6040459.358	2113745.85	5400.00	<1	
6040459.449	2113746.95	5430.00	<1	
6040459.541	2113748.04	6380.00	<1	
6040459.633	2113749.13	6710.00	<1	
6040459.724	2113750.23	6380.00	<1	
6040459.816	2113751.32	5930.00	<1	
6040459.907	2113752.41	5630.00	<1	
6040459.999	2113753.50	6090.00	<1	
6040460.091	2113754.60	7620.00	1	
6040460.182	2113755.69	6690.00	<1	
6040460.274	2113756.78	6700.00	<1	
6040460.366	2113757.88	7000.00	<1	
6040460.457	2113758.97	6150.00	<1	
6040460.549	2113760.06	6110.00	<1	
6040460.641	2113761.16	6440.00	<1	
6040460.732	2113762.25	6560.00	<1	
6040460.824	2113763.34	5870.00	<1	
6040460.915	2113764.43	5920.00	<1	
6040461.007	2113765.53	6320.00	<1	
6040461.099	2113766.62	6040.00	<1	
6040461.19	2113767.71	6020.00	<1	
6040461.282	2113768.81	6030.00	<1	
6040461.374	2113769.90	7550.00	1	
6040461.465	2113770.99	6670.00	<1	
6040461.557	2113772.09	6090.00	<1	
6040461.648	2113773.18	6710.00	<1	
6040461.74	2113774.27	6100.00	<1	
6040461.832	2113775.36	5790.00	<1	
6040461.923	2113776.46	5950.00	<1	
6040462.015	2113777.55	6020.00	<1	
6040462.107	2113778.64	5780.00	<1	
6040462.198	2113779.74	6420.00	<1	
6040462.29	2113780.83	6900.00	<1	
6040462.382	2113781.92	6000.00	<1	
6040462.473	2113783.02	6800.00	<1	
6040462.565	2113784.11	6410.00	<1	
6040462.656	2113785.20	5750.00	<1	

Easting	Northing	Reading	Reach 34 Data Set	Comments
6040462.748	2113786.29	5520.00	<1	
6040462.84	2113787.39	5810.00	<1	
6040462.931	2113788.48	6180.00	<1	
6040463.023	2113789.57	6170.00	<1	
6040463.115	2113790.67	6170.00	<1	
6040463.206	2113791.76	6020.00	<1	
6040463.298	2113792.85	5400.00	<1	
6040463.389	2113793.95	5880.00	<1	
6040463.481	2113795.04	5920.00	<1	
6040463.573	2113796.13	6380.00	<1	
6040463.664	2113797.22	6280.00	<1	
6040463.756	2113798.32	6660.00	<1	
6040463.848	2113799.41	6030.00	<1	
6040463.939	2113800.50	5830.00	<1	
6040464.031	2113801.60	6400.00	<1	
6040464.123	2113802.69	5880.00	<1	
6040464.214	2113803.78	6810.00	<1	
6040464.306	2113804.88	6260.00	<1	
6040464.397	2113805.97	6500.00	<1	
6040464.489	2113807.06	5650.00	<1	
6040464.581	2113808.15	6260.00	<1	
6040464.672	2113809.25	6150.00	<1	
6040464.764	2113810.34	6870.00	<1	
6040464.856	2113811.43	6160.00	<1	
6040464.947	2113812.53	6500.00	<1	
6040465.039	2113813.62	5870.00	<1	
6040465.13	2113814.71	5530.00	<1	
6040465.222	2113815.81	5690.00	<1	
6040465.314	2113816.90	6460.00	<1	
6040465.405	2113817.99	7330.00	1	
6040465.497	2113819.08	6710.00	<1	
6040465.589	2113820.18	6260.00	<1	
6040465.68	2113821.27	5740.00	<1	
6040465.772	2113822.36	6010.00	<1	
6040465.864	2113823.46	6540.00	<1	
6040465.955	2113824.55	5790.00	<1	
6040466.047	2113825.64	6290.00	<1	
6040466.138	2113826.73	5850.00	<1	
6040466.23	2113827.83	5490.00	<1	
6040466.322	2113828.92	5780.00	<1	
6040466.413	2113830.01	5720.00	<1	

Easting	Northing	Reading	Reach 34 Data Set	Comments
6040466.505	2113831.11	6560.00	<1	
6040466.597	2113832.20	6270.00	<1	
6040466.688	2113833.29	6460.00	<1	
6040466.78	2113834.39	6150.00	<1	
6040466.871	2113835.48	5380.00	<1	
6040466.963	2113836.57	6070.00	<1	
6040467.055	2113837.66	6130.00	<1	
6040467.146	2113838.76	6520.00	<1	
6040467.238	2113839.85	6410.00	<1	
6040467.33	2113840.94	6500.00	<1	
6040467.421	2113842.04	6100.00	<1	
6040467.513	2113843.13	7370.00	1	
6040467.605	2113844.22	6600.00	<1	
6040467.696	2113845.32	6970.00	<1	
6040467.788	2113846.41	7480.00	1	
6040467.879	2113847.50	7180.00	1	
6040467.971	2113848.59	6550.00	<1	
6040468.063	2113849.69	7390.00	1	
6040468.154	2113850.78	7650.00	1	
6040468.246	2113851.87	7220.00	1	
6040468.338	2113852.97	6640.00	<1	
6040468.429	2113854.06	6640.00	<1	
6040468.521	2113855.15	6730.00	<1	
6040468.612	2113856.25	7150.00	1	
6040468.704	2113857.34	7290.00	1	
6040468.796	2113858.43	7480.00	1	
6040468.887	2113859.52	6180.00	<1	
6040468.979	2113860.62	7040.00	<1	
6040469.071	2113861.71	6580.00	<1	
6040469.162	2113862.80	6590.00	<1	
6040469.254	2113863.90	6500.00	<1	
6040469.346	2113864.99	8360.00	2	
6040469.437	2113866.08	6850.00	<1	
6040469.529	2113867.18	6980.00	<1	
6040469.62	2113868.27	6380.00	<1	
6040469.712	2113869.36	6560.00	<1	
6040469.804	2113870.45	6960.00	<1	
6040469.895	2113871.55	7200.00	1	
6040469.987	2113872.64	7310.00	1	
6040470.079	2113873.73	7720.00	1	
6040470.17	2113874.83	7190.00	1	

Easting	Northing	Reading	Reach 34 Data Set	Comments
6040470.262	2113875.92	7550.00	1	
6040470.353	2113877.01	6650.00	<1	
6040470.445	2113878.11	7160.00	1	
6040470.537	2113879.20	7190.00	1	
6040470.628	2113880.29	6670.00	<1	
6040470.72	2113881.38	6730.00	<1	
6040470.812	2113882.48	7400.00	1	
6040470.903	2113883.57	7100.00	<1	
6040470.995	2113884.66	6560.00	<1	
6040471.087	2113885.76	7650.00	1	
6040471.178	2113886.85	6740.00	<1	
6040471.27	2113887.94	7220.00	1	
6040471.361	2113889.04	6280.00	<1	
6040471.453	2113890.13	6750.00	<1	
6040471.545	2113891.22	7360.00	1	
6040471.636	2113892.31	7310.00	1	
6040471.728	2113893.41	6640.00	<1	
6040471.82	2113894.50	7230.00	1	
6040471.911	2113895.59	6920.00	<1	
6040472.003	2113896.69	6240.00	<1	
6040472.095	2113897.78	7690.00	1	
6040472.186	2113898.87	6360.00	<1	
6040472.278	2113899.97	6230.00	<1	
6040472.369	2113901.06	7330.00	1	
6040472.461	2113902.15	6620.00	<1	
6040472.553	2113903.24	5610.00	<1	
6040472.644	2113904.34	6380.00	<1	
6040472.736	2113905.43	6370.00	<1	
6040472.828	2113906.52	7310.00	1	
6040472.919	2113907.62	7400.00	1	
6040473.011	2113908.71	6720.00	<1	
6040473.102	2113909.80	7710.00	1	
6040473.194	2113910.89	9110.00	4	
6040473.286	2113911.99	7810.00	2	
6040473.377	2113913.08	6650.00	<1	
6040473.469	2113914.17	6140.00	<1	
6040473.561	2113915.27	7090.00	<1	
6040473.652	2113916.36	6780.00	<1	
6040473.744	2113917.45	6620.00	<1	
6040473.836	2113918.55	6870.00	<1	
6040473.927	2113919.64	7140.00	1	

Easting	Northing	Reading	Reach 34 Data Set	Comments
6040474.019	2113920.73	6540.00	<1	
6040474.11	2113921.82	7500.00	1	
6040474.202	2113922.92	6470.00	<1	
6040474.294	2113924.01	8250.00	2	
6040474.385	2113925.10	7200.00	1	
6040474.477	2113926.20	7030.00	<1	
6040474.569	2113927.29	5520.00	<1	
6040474.66	2113928.38	6010.00	<1	
6040474.752	2113929.48	7400.00	1	
6040474.843	2113930.57	7110.00	<1	
6040474.935	2113931.66	6400.00	<1	
6040475.027	2113932.75	7530.00	1	
6040475.118	2113933.85	6100.00	<1	
6040475.21	2113934.94	6890.00	<1	
6040475.302	2113936.03	6770.00	<1	
6040475.393	2113937.13	6260.00	<1	
6040475.485	2113938.22	6530.00	<1	
6040475.577	2113939.31	5940.00	<1	
6040475.668	2113940.41	7150.00	1	
6040475.76	2113941.50	7080.00	<1	
6040475.851	2113942.59	6150.00	<1	
6040475.943	2113943.68	6690.00	<1	
6040476.035	2113944.78	7030.00	<1	
6040476.126	2113945.87	6690.00	<1	
6040476.218	2113946.96	6220.00	<1	
6040476.31	2113948.06	6750.00	<1	
6040476.401	2113949.15	7760.00	2	
6040476.493	2113950.24	6780.00	<1	
6040476.584	2113951.34	6860.00	<1	
6040476.676	2113952.43	5840.00	<1	
6040476.768	2113953.52	5780.00	<1	
6040476.859	2113954.61	6570.00	<1	
6040476.951	2113955.71	6950.00	<1	
6040477.043	2113956.80	6840.00	<1	
6040477.134	2113957.89	6010.00	<1	
6040477.226	2113958.99	5910.00	<1	
6040477.318	2113960.08	6910.00	<1	
6040477.409	2113961.17	7400.00	1	
6040477.501	2113962.27	6050.00	<1	
6040477.592	2113963.36	5820.00	<1	
6040477.684	2113964.45	6820.00	<1	

Easting	Northing	Reading	Reach 34 Data Set	Comments
6040477.776	2113965.54	6430.00	<1	
6040477.867	2113966.64	6850.00	<1	
6040477.959	2113967.73	7140.00	1	
6040478.051	2113968.82	6810.00	<1	
6040478.142	2113969.92	6390.00	<1	
6040478.234	2113971.01	6170.00	<1	
6040478.325	2113972.10	6290.00	<1	
6040478.417	2113973.20	6750.00	<1	
6040478.509	2113974.29	6090.00	<1	
6040478.6	2113975.38	6730.00	<1	
6040478.692	2113976.47	6610.00	<1	
6040478.784	2113977.57	6840.00	<1	
6040478.875	2113978.66	7630.00	1	
6040478.967	2113979.75	6730.00	<1	

6510.25	Average
620.98	Std Dev
8373.20	3 Sigma
9110.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 35
Line: B

Main/Lateral: Lateral
Length (ft): 25
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 35 Data Set

Gamma Total CPS	
5339.75	Average
287.36	Std Dev
6201.84	3 Sigma
5950.00	Max

Sigma	Total Points
<1	34
1	5
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 35 Data Set	Comments
6040497.03	2113920.75	5270.00	<1	
6040496.517	2113920.82	5130.00	<1	
6040496.004	2113920.89	4780.00	<1	
6040495.491	2113920.96	5160.00	<1	
6040494.977	2113921.03	5010.00	<1	
6040494.464	2113921.10	5240.00	<1	
6040493.951	2113921.16	5330.00	<1	
6040493.438	2113921.23	4830.00	<1	
6040492.925	2113921.30	5110.00	<1	
6040492.412	2113921.37	5530.00	<1	
6040491.898	2113921.44	5610.00	<1	
6040491.385	2113921.51	5610.00	<1	
6040490.872	2113921.58	5200.00	<1	
6040490.359	2113921.65	4910.00	<1	
6040489.846	2113921.72	5190.00	<1	
6040489.332	2113921.79	5380.00	<1	
6040488.819	2113921.86	5450.00	<1	
6040488.306	2113921.92	5250.00	<1	
6040487.315	2113922.06	4670.00	<1	
6040486.722	2113922.27	5240.00	<1	

Easting	Northing	Reading	Reach 35 Data Set	Comments
6040486.128	2113922.49	4900.00	<1	
6040485.535	2113922.71	5160.00	<1	
6040484.942	2113922.92	5680.00	1	
6040484.348	2113923.14	5650.00	1	
6040483.755	2113923.35	5540.00	<1	
6040483.161	2113923.57	5470.00	<1	
6040482.568	2113923.78	5590.00	<1	
6040481.975	2113924.00	5440.00	<1	
6040481.381	2113924.22	5440.00	<1	
6040480.788	2113924.43	5270.00	<1	
6040480.195	2113924.65	5170.00	<1	
6040479.601	2113924.86	5360.00	<1	
6040479.008	2113925.08	5640.00	1	
6040478.068	2113925.42	5460.00	<1	
6040477.63	2113925.88	5450.00	<1	
6040477.192	2113926.34	5800.00	1	
6040476.754	2113926.79	5700.00	1	
6040476.316	2113927.25	5950.00	2	
6040475.878	2113927.71	5560.00	<1	
6040475.44	2113928.17	5460.00	<1	

5339.75	Average
287.36	Std Dev
6201.84	3 Sigma
5950.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 36
Line: B

Main/Lateral: Lateral
Length (ft): 100
Pipe Diameter (in): 18

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 36 Data Set

Gamma Total CPS	
6174.67	Average
449.53	Std Dev
7523.27	3 Sigma
7360.00	Max

Sigma	Total Points
<1	76
1	13
2	3
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 36 Data Set	Comments
6040381.501	2113990.68	6350.00	<1	
6040382.552	2113990.59	6670.00	1	
6040383.603	2113990.49	6510.00	<1	
6040384.654	2113990.40	5860.00	<1	
6040385.705	2113990.30	5910.00	<1	
6040386.756	2113990.20	6420.00	<1	
6040387.807	2113990.11	6420.00	<1	
6040388.858	2113990.01	5840.00	<1	
6040389.909	2113989.91	5820.00	<1	
6040390.96	2113989.82	6580.00	<1	
6040392.011	2113989.72	7360.00	2	
6040393.062	2113989.63	5450.00	<1	
6040394.113	2113989.53	6230.00	<1	
6040395.164	2113989.43	6470.00	<1	
6040396.215	2113989.34	5700.00	<1	
6040397.266	2113989.24	6340.00	<1	
6040398.317	2113989.14	5740.00	<1	
6040399.368	2113989.05	6610.00	<1	
6040400.419	2113988.95	7040.00	1	
6040401.47	2113988.86	7120.00	2	

Easting	Northing	Reading	Reach 36 Data Set	Comments
6040402.521	2113988.76	6420.00	<1	
6040403.572	2113988.66	6090.00	<1	
6040404.623	2113988.57	5540.00	<1	
6040405.674	2113988.47	6200.00	<1	
6040406.725	2113988.38	6720.00	1	
6040407.776	2113988.28	6060.00	<1	
6040408.827	2113988.18	5920.00	<1	
6040409.878	2113988.09	5930.00	<1	
6040410.929	2113987.99	5910.00	<1	
6040411.98	2113987.89	5750.00	<1	
6040413.031	2113987.80	5890.00	<1	
6040414.082	2113987.70	6140.00	<1	
6040415.133	2113987.61	6040.00	<1	
6040416.184	2113987.51	5600.00	<1	
6040417.235	2113987.41	6120.00	<1	
6040418.286	2113987.32	6000.00	<1	
6040419.337	2113987.22	6600.00	<1	
6040420.388	2113987.12	5860.00	<1	
6040421.439	2113987.03	6310.00	<1	
6040422.49	2113986.93	6070.00	<1	
6040423.541	2113986.84	5740.00	<1	
6040424.592	2113986.74	5670.00	<1	
6040425.643	2113986.64	5870.00	<1	
6040426.694	2113986.55	6040.00	<1	
6040427.745	2113986.45	6270.00	<1	
6040428.796	2113986.35	5840.00	<1	
6040429.847	2113986.26	6930.00	1	
6040430.898	2113986.16	6820.00	1	
6040431.949	2113986.07	6340.00	<1	
6040433	2113985.97	5680.00	<1	
6040434.051	2113985.87	6420.00	<1	
6040435.102	2113985.78	5460.00	<1	
6040436.153	2113985.68	5740.00	<1	
6040437.204	2113985.58	5660.00	<1	
6040438.255	2113985.49	6310.00	<1	
6040439.306	2113985.39	6100.00	<1	
6040440.357	2113985.30	6320.00	<1	
6040441.408	2113985.20	5710.00	<1	
6040442.459	2113985.10	6390.00	<1	
6040443.51	2113985.01	6980.00	1	
6040444.561	2113984.91	7010.00	1	

Easting	Northing	Reading	Reach 36 Data Set	Comments
6040445.612	2113984.81	6870.00	1	
6040446.663	2113984.72	6300.00	<1	
6040447.714	2113984.62	5550.00	<1	
6040448.765	2113984.53	5350.00	<1	
6040449.816	2113984.43	5900.00	<1	
6040450.867	2113984.33	5920.00	<1	
6040451.918	2113984.24	7080.00	2	
6040452.969	2113984.14	5890.00	<1	
6040454.02	2113984.05	6450.00	<1	
6040455.071	2113983.95	5650.00	<1	
6040456.122	2113983.85	6090.00	<1	
6040457.173	2113983.76	6240.00	<1	
6040458.224	2113983.66	6240.00	<1	
6040459.275	2113983.56	6850.00	1	
6040460.326	2113983.47	5560.00	<1	
6040461.377	2113983.37	5870.00	<1	
6040462.428	2113983.28	6530.00	<1	
6040463.479	2113983.18	6240.00	<1	
6040464.53	2113983.08	6520.00	<1	
6040465.581	2113982.99	5540.00	<1	
6040466.632	2113982.89	6110.00	<1	
6040467.683	2113982.79	5520.00	<1	
6040468.734	2113982.70	6670.00	1	
6040469.785	2113982.60	6370.00	<1	
6040470.836	2113982.51	6680.00	1	
6040471.887	2113982.41	5850.00	<1	
6040472.938	2113982.31	5990.00	<1	
6040473.989	2113982.22	6810.00	1	
6040475.04	2113982.12	5900.00	<1	
6040476.091	2113982.02	5930.00	<1	
6040477.142	2113981.93	6690.00	1	

6174.67	Average
449.53	Std Dev
7523.27	3 Sigma
7360.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 37
Line: B

Main/Lateral: Main
Length (ft): 384
Pipe Diameter (in): 30

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 37 Data Set

Gamma Total CPS	
4808.90	Average
317.41	Std Dev
5761.12	3 Sigma
6010.00	Max

Sigma	Total Points
<1	283
1	37
2	3
3	4
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 37 Data Set	Comments
6040479.304	2113983.74	5900.00	3	
6040479.402	2113984.90	5770.00	3	
6040479.501	2113986.06	4890.00	<1	
6040479.6	2113987.22	4880.00	<1	
6040479.699	2113988.38	4880.00	<1	
6040479.798	2113989.55	4680.00	<1	
6040479.897	2113990.71	4600.00	<1	
6040479.996	2113991.87	5250.00	1	
6040480.094	2113993.03	5010.00	<1	
6040480.193	2113994.19	5100.00	<1	
6040480.292	2113995.35	4740.00	<1	
6040480.391	2113996.52	4550.00	<1	
6040480.49	2113997.68	4380.00	<1	
6040480.589	2113998.84	4410.00	<1	
6040480.687	2114000.00	4940.00	<1	
6040480.786	2114001.16	5150.00	1	
6040480.885	2114002.32	4530.00	<1	
6040480.984	2114003.48	5170.00	1	
6040481.083	2114004.65	5330.00	1	
6040481.182	2114005.81	5020.00	<1	

Easting	Northing	Reading	Reach 37 Data Set	Comments
6040481.281	2114006.97	5020.00	<1	
6040481.379	2114008.13	5180.00	1	
6040481.478	2114009.29	5070.00	<1	
6040481.577	2114010.45	4980.00	<1	
6040481.676	2114011.62	5220.00	1	
6040481.775	2114012.78	5160.00	1	
6040481.874	2114013.94	5050.00	<1	
6040481.973	2114015.10	4930.00	<1	
6040482.071	2114016.26	5400.00	1	
6040482.17	2114017.42	4970.00	<1	
6040482.269	2114018.58	4870.00	<1	
6040482.368	2114019.75	4890.00	<1	
6040482.467	2114020.91	4700.00	<1	
6040482.566	2114022.07	5130.00	1	
6040482.664	2114023.23	4760.00	<1	
6040482.763	2114024.39	5300.00	1	
6040482.862	2114025.55	5370.00	1	
6040482.961	2114026.71	5370.00	1	
6040483.06	2114027.88	5130.00	1	
6040483.159	2114029.04	5050.00	<1	
6040483.258	2114030.20	5220.00	1	
6040483.356	2114031.36	5180.00	1	
6040483.455	2114032.52	4790.00	<1	
6040483.554	2114033.68	4610.00	<1	
6040483.653	2114034.85	5100.00	<1	
6040483.752	2114036.01	5110.00	<1	
6040483.851	2114037.17	4460.00	<1	
6040483.95	2114038.33	4920.00	<1	
6040484.048	2114039.49	5070.00	<1	
6040484.147	2114040.65	4680.00	<1	
6040484.246	2114041.81	4770.00	<1	
6040484.345	2114042.98	4950.00	<1	
6040484.444	2114044.14	4930.00	<1	
6040484.543	2114045.30	4960.00	<1	
6040484.642	2114046.46	5290.00	1	
6040484.74	2114047.62	4760.00	<1	
6040484.839	2114048.78	5300.00	1	
6040484.938	2114049.94	5320.00	1	
6040485.037	2114051.11	6010.00	3	
6040485.136	2114052.27	6010.00	3	
6040485.235	2114053.43	5480.00	2	

Easting	Northing	Reading	Reach 37 Data Set	Comments
6040485.333	2114054.59	5180.00	1	
6040485.432	2114055.75	4820.00	<1	
6040485.531	2114056.91	5290.00	1	
6040485.63	2114058.08	4540.00	<1	
6040485.729	2114059.24	5080.00	<1	
6040485.828	2114060.40	4420.00	<1	
6040485.927	2114061.56	4940.00	<1	
6040486.025	2114062.72	5060.00	<1	
6040486.124	2114063.88	5130.00	1	
6040486.223	2114065.04	5250.00	1	
6040486.322	2114066.21	4560.00	<1	
6040486.421	2114067.37	4780.00	<1	
6040486.52	2114068.53	4320.00	<1	
6040486.619	2114069.69	4570.00	<1	
6040486.717	2114070.85	4790.00	<1	
6040486.816	2114072.01	5030.00	<1	
6040486.915	2114073.18	5040.00	<1	
6040487.014	2114074.34	4910.00	<1	
6040487.113	2114075.50	4910.00	<1	
6040487.212	2114076.66	5050.00	<1	
6040487.31	2114077.82	4880.00	<1	
6040487.409	2114078.98	5240.00	1	
6040487.508	2114080.14	5270.00	1	
6040487.607	2114081.31	4640.00	<1	
6040487.706	2114082.47	4780.00	<1	
6040487.805	2114083.63	5040.00	<1	
6040487.904	2114084.79	4410.00	<1	
6040488.002	2114085.95	4870.00	<1	
6040488.101	2114087.11	4610.00	<1	
6040488.2	2114088.27	5020.00	<1	
6040488.299	2114089.44	4830.00	<1	
6040488.398	2114090.60	4810.00	<1	
6040488.497	2114091.76	4910.00	<1	
6040488.596	2114092.92	5120.00	<1	
6040488.694	2114094.08	5090.00	<1	
6040488.793	2114095.24	4670.00	<1	
6040488.892	2114096.41	4420.00	<1	
6040488.991	2114097.57	4570.00	<1	
6040489.09	2114098.73	4570.00	<1	
6040489.189	2114099.89	4760.00	<1	
6040489.287	2114101.05	4510.00	<1	

Easting	Northing	Reading	Reach 37 Data Set	Comments
6040489.386	2114102.21	4650.00	<1	
6040489.485	2114103.37	4970.00	<1	
6040489.584	2114104.54	5140.00	1	
6040489.683	2114105.70	4920.00	<1	
6040489.782	2114106.86	4830.00	<1	
6040489.881	2114108.02	4880.00	<1	
6040489.979	2114109.18	5020.00	<1	
6040490.078	2114110.34	5080.00	<1	
6040490.177	2114111.50	4570.00	<1	
6040490.276	2114112.67	4940.00	<1	
6040490.375	2114113.83	5060.00	<1	
6040490.474	2114114.99	4550.00	<1	
6040490.573	2114116.15	4870.00	<1	
6040490.671	2114117.31	5090.00	<1	
6040490.77	2114118.47	4460.00	<1	
6040490.869	2114119.64	4590.00	<1	
6040490.968	2114120.80	4810.00	<1	
6040491.067	2114121.96	4540.00	<1	
6040491.166	2114123.12	4670.00	<1	
6040491.264	2114124.28	4590.00	<1	
6040491.363	2114125.44	4680.00	<1	
6040491.462	2114126.60	4830.00	<1	
6040491.561	2114127.77	4830.00	<1	
6040491.66	2114128.93	4630.00	<1	
6040491.759	2114130.09	4500.00	<1	
6040491.858	2114131.25	4750.00	<1	
6040491.956	2114132.41	4370.00	<1	
6040492.055	2114133.57	4060.00	<1	
6040492.154	2114134.74	4480.00	<1	
6040492.253	2114135.90	4470.00	<1	
6040492.352	2114137.06	4580.00	<1	
6040492.451	2114138.22	4800.00	<1	
6040492.55	2114139.38	4380.00	<1	
6040492.648	2114140.54	4340.00	<1	
6040492.747	2114141.70	4440.00	<1	
6040492.846	2114142.87	4610.00	<1	
6040492.945	2114144.03	5120.00	<1	
6040493.044	2114145.19	4650.00	<1	
6040493.143	2114146.35	4630.00	<1	
6040493.241	2114147.51	4630.00	<1	
6040493.34	2114148.67	4580.00	<1	

Easting	Northing	Reading	Reach 37 Data Set	Comments
6040493.439	2114149.83	4330.00	<1	
6040493.538	2114151.00	4620.00	<1	
6040493.637	2114152.16	4820.00	<1	
6040493.736	2114153.32	4630.00	<1	
6040493.835	2114154.48	4470.00	<1	
6040493.933	2114155.64	4540.00	<1	
6040494.032	2114156.80	4690.00	<1	
6040494.131	2114157.97	5090.00	<1	
6040494.23	2114159.13	4820.00	<1	
6040494.329	2114160.29	5250.00	1	
6040494.428	2114161.45	4940.00	<1	
6040494.527	2114162.61	4900.00	<1	
6040494.625	2114163.77	4560.00	<1	
6040494.724	2114164.93	4850.00	<1	
6040494.823	2114166.10	5090.00	<1	
6040494.922	2114167.26	5200.00	1	
6040495.021	2114168.42	5110.00	<1	
6040495.12	2114169.58	4990.00	<1	
6040495.219	2114170.74	4990.00	<1	
6040495.317	2114171.90	4530.00	<1	
6040495.416	2114173.06	4710.00	<1	
6040495.515	2114174.23	4720.00	<1	
6040495.614	2114175.39	4610.00	<1	
6040495.713	2114176.55	4700.00	<1	
6040495.812	2114177.71	4940.00	<1	
6040495.91	2114178.87	5540.00	2	
6040496.009	2114180.03	4700.00	<1	
6040496.108	2114181.20	4700.00	<1	
6040496.207	2114182.36	5400.00	1	
6040496.306	2114183.52	4930.00	<1	
6040496.405	2114184.68	4840.00	<1	
6040496.504	2114185.84	4690.00	<1	
6040496.602	2114187.00	4810.00	<1	
6040496.701	2114188.16	4510.00	<1	
6040496.8	2114189.33	4610.00	<1	
6040496.899	2114190.49	4780.00	<1	
6040496.998	2114191.65	4780.00	<1	
6040497.097	2114192.81	4700.00	<1	
6040497.196	2114193.97	4950.00	<1	
6040497.294	2114195.13	4860.00	<1	
6040497.393	2114196.30	5160.00	1	

Easting	Northing	Reading	Reach 37 Data Set	Comments
6040497.492	2114197.46	5580.00	2	
6040497.591	2114198.62	5370.00	1	
6040497.69	2114199.78	4650.00	<1	
6040497.789	2114200.94	5070.00	<1	
6040497.887	2114202.10	4920.00	<1	
6040497.986	2114203.26	4750.00	<1	
6040498.085	2114204.43	4660.00	<1	
6040498.184	2114205.59	4430.00	<1	
6040498.283	2114206.75	4800.00	<1	
6040498.382	2114207.91	4860.00	<1	
6040498.481	2114209.07	4820.00	<1	
6040498.579	2114210.23	5020.00	<1	
6040498.678	2114211.39	4780.00	<1	
6040498.777	2114212.56	4810.00	<1	
6040498.876	2114213.72	4810.00	<1	
6040498.975	2114214.88	4620.00	<1	
6040499.074	2114216.04	4810.00	<1	
6040499.173	2114217.20	5100.00	<1	
6040499.271	2114218.36	4790.00	<1	
6040499.37	2114219.53	4670.00	<1	
6040499.469	2114220.69	5240.00	1	
6040499.568	2114221.85	4450.00	<1	
6040499.667	2114223.01	4170.00	<1	
6040499.766	2114224.17	4670.00	<1	
6040499.864	2114225.33	5050.00	<1	
6040499.963	2114226.49	5050.00	<1	
6040500.062	2114227.66	4600.00	<1	
6040500.161	2114228.82	4300.00	<1	
6040500.26	2114229.98	4980.00	<1	
6040500.359	2114231.14	4590.00	<1	
6040500.458	2114232.30	4780.00	<1	
6040500.556	2114233.46	5170.00	1	
6040500.655	2114234.62	4670.00	<1	
6040500.754	2114235.79	4710.00	<1	
6040500.853	2114236.95	4740.00	<1	
6040500.952	2114238.11	4640.00	<1	
6040501.051	2114239.27	4990.00	<1	
6040501.15	2114240.43	4760.00	<1	
6040501.248	2114241.59	4990.00	<1	
6040501.347	2114242.76	4830.00	<1	
6040501.446	2114243.92	4770.00	<1	

Easting	Northing	Reading	Reach 37 Data Set	Comments
6040501.545	2114245.08	4770.00	<1	
6040501.644	2114246.24	4910.00	<1	
6040501.743	2114247.40	4640.00	<1	
6040501.841	2114248.56	4910.00	<1	
6040501.94	2114249.72	4360.00	<1	
6040502.039	2114250.89	4200.00	<1	
6040502.138	2114252.05	4900.00	<1	
6040502.237	2114253.21	5010.00	<1	
6040502.336	2114254.37	4890.00	<1	
6040502.435	2114255.53	4500.00	<1	
6040502.533	2114256.69	4420.00	<1	
6040502.632	2114257.86	5310.00	1	
6040502.731	2114259.02	4810.00	<1	
6040502.83	2114260.18	4440.00	<1	
6040502.929	2114261.34	4980.00	<1	
6040503.028	2114262.50	5100.00	<1	
6040503.127	2114263.66	4390.00	<1	
6040503.225	2114264.82	4380.00	<1	
6040503.324	2114265.99	4890.00	<1	
6040503.423	2114267.15	4570.00	<1	
6040503.522	2114268.31	4240.00	<1	
6040503.621	2114269.47	4540.00	<1	
6040503.72	2114270.63	4160.00	<1	
6040503.818	2114271.79	4160.00	<1	
6040503.917	2114272.95	4010.00	<1	
6040504.016	2114274.12	4640.00	<1	
6040504.115	2114275.28	4540.00	<1	
6040504.214	2114276.44	4690.00	<1	
6040504.313	2114277.60	4530.00	<1	
6040504.412	2114278.76	4360.00	<1	
6040504.51	2114279.92	4310.00	<1	
6040504.609	2114281.09	4450.00	<1	
6040504.708	2114282.25	4080.00	<1	
6040504.807	2114283.41	4720.00	<1	
6040504.906	2114284.57	4640.00	<1	
6040505.005	2114285.73	5000.00	<1	
6040505.104	2114286.89	4670.00	<1	
6040505.202	2114288.05	4640.00	<1	
6040505.301	2114289.22	5020.00	<1	
6040505.4	2114290.38	4950.00	<1	
6040505.499	2114291.54	4540.00	<1	

Easting	Northing	Reading	Reach 37 Data Set	Comments
6040505.598	2114292.70	4720.00	<1	
6040505.697	2114293.86	4300.00	<1	
6040505.795	2114295.02	4300.00	<1	
6040505.894	2114296.18	4820.00	<1	
6040505.993	2114297.35	4970.00	<1	
6040506.092	2114298.51	4670.00	<1	
6040506.191	2114299.67	4350.00	<1	
6040506.29	2114300.83	4040.00	<1	
6040506.389	2114301.99	4520.00	<1	
6040506.487	2114303.15	4650.00	<1	
6040506.586	2114304.32	4690.00	<1	
6040506.685	2114305.48	5120.00	<1	
6040506.784	2114306.64	4530.00	<1	
6040506.883	2114307.80	4700.00	<1	
6040506.982	2114308.96	4750.00	<1	
6040507.081	2114310.12	4750.00	<1	
6040507.179	2114311.28	4480.00	<1	
6040507.278	2114312.45	4980.00	<1	
6040507.377	2114313.61	4980.00	<1	
6040507.476	2114314.77	4840.00	<1	
6040507.575	2114315.93	4900.00	<1	
6040507.674	2114317.09	5030.00	<1	
6040507.773	2114318.25	5040.00	<1	
6040507.871	2114319.42	4960.00	<1	
6040507.97	2114320.58	4860.00	<1	
6040508.069	2114321.74	4110.00	<1	
6040508.168	2114322.90	4110.00	<1	
6040508.267	2114324.06	4610.00	<1	
6040508.366	2114325.22	4820.00	<1	
6040508.464	2114326.38	4510.00	<1	
6040508.563	2114327.55	5010.00	<1	
6040508.662	2114328.71	4920.00	<1	
6040508.761	2114329.87	5010.00	<1	
6040508.86	2114331.03	4670.00	<1	
6040508.959	2114332.19	4770.00	<1	
6040509.058	2114333.35	4510.00	<1	
6040509.156	2114334.51	4250.00	<1	
6040509.255	2114335.68	4440.00	<1	
6040509.354	2114336.84	4200.00	<1	
6040509.453	2114338.00	4740.00	<1	
6040509.552	2114339.16	4650.00	<1	

Easting	Northing	Reading	Reach 37 Data Set	Comments
6040509.651	2114340.32	4550.00	<1	
6040509.75	2114341.48	4870.00	<1	
6040509.848	2114342.65	4800.00	<1	
6040509.947	2114343.81	4620.00	<1	
6040510.046	2114344.97	4700.00	<1	
6040510.145	2114346.13	4440.00	<1	
6040510.244	2114347.29	4850.00	<1	
6040510.343	2114348.45	5270.00	1	
6040510.441	2114349.61	5270.00	1	
6040510.54	2114350.78	5440.00	1	
6040510.639	2114351.94	4680.00	<1	
6040510.738	2114353.10	5080.00	<1	
6040510.837	2114354.26	4720.00	<1	
6040510.936	2114355.42	4760.00	<1	
6040511.035	2114356.58	4970.00	<1	
6040511.133	2114357.74	5010.00	<1	
6040511.232	2114358.91	4940.00	<1	
6040511.331	2114360.07	4720.00	<1	
6040511.43	2114361.23	4590.00	<1	
6040511.529	2114362.39	5220.00	1	

4808.90	Average
317.41	Std Dev
5761.12	3 Sigma
6010.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 39
Line: B

Main/Lateral: Lateral
Length (ft): 102
Pipe Diameter (in): 18

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 39 Data Set

Gamma Total CPS	
6337.17	Average
540.13	Std Dev
7957.56	3 Sigma
7900.00	Max

Sigma	Total Points
<1	88
1	6
2	5
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 39 Data Set	Comments
6040414.048	2114372.27	6110.00	<1	
6040415.024	2114372.19	6680.00	<1	
6040416	2114372.11	6100.00	<1	
6040416.976	2114372.03	5760.00	<1	
6040417.952	2114371.95	5840.00	<1	
6040418.928	2114371.88	5870.00	<1	
6040419.905	2114371.80	6330.00	<1	
6040420.881	2114371.72	5900.00	<1	
6040421.857	2114371.64	6030.00	<1	
6040422.833	2114371.56	6400.00	<1	
6040423.809	2114371.48	6810.00	<1	
6040424.785	2114371.40	6160.00	<1	
6040425.761	2114371.32	6290.00	<1	
6040426.737	2114371.24	6290.00	<1	
6040427.713	2114371.17	6140.00	<1	
6040428.689	2114371.09	5950.00	<1	
6040429.665	2114371.01	5760.00	<1	
6040430.642	2114370.93	5990.00	<1	
6040431.618	2114370.85	6150.00	<1	
6040432.594	2114370.77	5810.00	<1	

Easting	Northing	Reading	Reach 39 Data Set	Comments
6040433.57	2114370.69	6520.00	<1	
6040434.546	2114370.61	5990.00	<1	
6040435.522	2114370.54	5880.00	<1	
6040436.498	2114370.46	5800.00	<1	
6040437.474	2114370.38	6630.00	<1	
6040438.45	2114370.30	6170.00	<1	
6040439.426	2114370.22	7020.00	1	
6040440.402	2114370.14	6570.00	<1	
6040441.379	2114370.06	6430.00	<1	
6040442.355	2114369.98	6300.00	<1	
6040443.331	2114369.90	5730.00	<1	
6040444.307	2114369.83	5930.00	<1	
6040445.283	2114369.75	6210.00	<1	
6040446.259	2114369.67	6410.00	<1	
6040447.235	2114369.59	6750.00	<1	
6040448.211	2114369.51	6750.00	<1	
6040449.187	2114369.43	6530.00	<1	
6040450.163	2114369.35	5560.00	<1	
6040451.139	2114369.27	5830.00	<1	
6040452.116	2114369.20	5790.00	<1	
6040453.092	2114369.12	5990.00	<1	
6040454.068	2114369.04	5990.00	<1	
6040455.044	2114368.96	6600.00	<1	
6040456.02	2114368.88	6570.00	<1	
6040456.996	2114368.80	7210.00	1	
6040457.972	2114368.72	5610.00	<1	
6040458.948	2114368.64	5860.00	<1	
6040459.924	2114368.56	7180.00	1	
6040460.9	2114368.49	6850.00	<1	
6040461.876	2114368.41	6140.00	<1	
6040462.853	2114368.33	5720.00	<1	
6040463.829	2114368.25	7890.00	2	
6040464.805	2114368.17	6840.00	<1	
6040465.781	2114368.09	6810.00	<1	
6040466.757	2114368.01	6300.00	<1	
6040467.733	2114367.93	6860.00	<1	
6040468.709	2114367.86	5840.00	<1	
6040469.685	2114367.78	6170.00	<1	
6040470.661	2114367.70	5990.00	<1	
6040471.637	2114367.62	5750.00	<1	
6040472.613	2114367.54	6060.00	<1	

Easting	Northing	Reading	Reach 39 Data Set	Comments
6040473.59	2114367.46	6050.00	<1	
6040474.566	2114367.38	6810.00	<1	
6040475.542	2114367.30	6810.00	<1	
6040476.518	2114367.22	5470.00	<1	
6040477.494	2114367.15	5930.00	<1	
6040478.47	2114367.07	6820.00	<1	
6040479.446	2114366.99	6710.00	<1	
6040480.422	2114366.91	6760.00	<1	
6040481.398	2114366.83	5880.00	<1	
6040482.374	2114366.75	6570.00	<1	
6040483.35	2114366.67	6010.00	<1	
6040484.327	2114366.59	5650.00	<1	
6040485.303	2114366.52	5840.00	<1	
6040486.279	2114366.44	6180.00	<1	
6040487.255	2114366.36	6770.00	<1	
6040488.231	2114366.28	5580.00	<1	
6040489.207	2114366.20	5900.00	<1	
6040490.183	2114366.12	6100.00	<1	
6040491.159	2114366.04	6180.00	<1	
6040492.135	2114365.96	5360.00	<1	
6040493.111	2114365.88	6800.00	<1	
6040494.087	2114365.81	6000.00	<1	
6040495.064	2114365.73	6320.00	<1	
6040496.04	2114365.65	5820.00	<1	
6040497.016	2114365.57	6620.00	<1	
6040497.992	2114365.49	7550.00	2	
6040498.968	2114365.41	7900.00	2	
6040499.944	2114365.33	7900.00	2	
6040500.92	2114365.25	6540.00	<1	
6040501.896	2114365.18	6380.00	<1	
6040502.872	2114365.10	6270.00	<1	
6040503.848	2114365.02	7120.00	1	
6040504.824	2114364.94	7110.00	1	
6040505.801	2114364.86	7510.00	2	
6040506.777	2114364.78	6990.00	1	
6040507.753	2114364.70	6670.00	<1	
6040508.729	2114364.62	6660.00	<1	
6040509.705	2114364.54	6440.00	<1	

6337.17	Average
540.13	Std Dev
7957.56	3 Sigma

Easting	Northing	Reading		Reach 39 Data Set	Comments
		7900.00	Max		

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 40
Line: B

Main/Lateral: Main
Length (ft): 309
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 40 Data Set

Gamma Total CPS	
4798.33	Average
302.01	Std Dev
5704.35	3 Sigma
5460.00	Max

Sigma	Total Points
<1	225
1	32
2	6
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 40 Data Set	Comments
6040511.864	2114366.38	5040.00	<1	
6040511.96	2114367.54	4990.00	<1	
6040512.057	2114368.70	5220.00	1	
6040512.153	2114369.86	5220.00	1	
6040512.249	2114371.02	5050.00	<1	
6040512.346	2114372.18	4510.00	<1	
6040512.442	2114373.34	4750.00	<1	
6040512.538	2114374.50	4900.00	<1	
6040512.635	2114375.66	4460.00	<1	
6040512.731	2114376.82	5180.00	1	
6040512.827	2114377.98	4970.00	<1	
6040512.924	2114379.14	4160.00	<1	
6040513.02	2114380.30	4800.00	<1	
6040513.117	2114381.46	4900.00	<1	
6040513.213	2114382.62	4670.00	<1	
6040513.309	2114383.78	5400.00	1	
6040513.406	2114384.94	5090.00	<1	
6040513.502	2114386.10	5090.00	<1	
6040513.598	2114387.26	4870.00	<1	
6040513.695	2114388.42	4920.00	<1	

Easting	Northing	Reading	Reach 40 Data Set	Comments
6040513.791	2114389.58	4710.00	<1	
6040513.887	2114390.74	5110.00	1	
6040513.984	2114391.90	4600.00	<1	
6040514.08	2114393.06	4310.00	<1	
6040514.176	2114394.21	4710.00	<1	
6040514.273	2114395.37	4440.00	<1	
6040514.369	2114396.53	4450.00	<1	
6040514.465	2114397.69	4150.00	<1	
6040514.562	2114398.85	4440.00	<1	
6040514.658	2114400.01	4650.00	<1	
6040514.754	2114401.17	5300.00	1	
6040514.851	2114402.33	5300.00	1	
6040514.947	2114403.49	4860.00	<1	
6040515.044	2114404.65	4740.00	<1	
6040515.14	2114405.81	4220.00	<1	
6040515.236	2114406.97	4720.00	<1	
6040515.333	2114408.13	4920.00	<1	
6040515.429	2114409.29	5030.00	<1	
6040515.525	2114410.45	5080.00	<1	
6040515.622	2114411.61	4870.00	<1	
6040515.718	2114412.77	4730.00	<1	
6040515.814	2114413.93	4960.00	<1	
6040515.911	2114415.09	5090.00	<1	
6040516.007	2114416.25	4720.00	<1	
6040516.103	2114417.41	5170.00	1	
6040516.2	2114418.57	4670.00	<1	
6040516.296	2114419.73	4670.00	<1	
6040516.392	2114420.89	4890.00	<1	
6040516.489	2114422.05	4810.00	<1	
6040516.585	2114423.21	4670.00	<1	
6040516.681	2114424.37	4930.00	<1	
6040516.778	2114425.53	5130.00	1	
6040516.874	2114426.69	4770.00	<1	
6040516.971	2114427.85	5010.00	<1	
6040517.067	2114429.01	5000.00	<1	
6040517.163	2114430.17	4370.00	<1	
6040517.26	2114431.33	4600.00	<1	
6040517.356	2114432.49	4960.00	<1	
6040517.452	2114433.65	5350.00	1	
6040517.549	2114434.81	4670.00	<1	
6040517.645	2114435.97	4360.00	<1	

Easting	Northing	Reading	Reach 40 Data Set	Comments
6040517.741	2114437.13	4260.00	<1	
6040517.838	2114438.29	4680.00	<1	
6040517.934	2114439.45	4580.00	<1	
6040518.03	2114440.61	4730.00	<1	
6040518.127	2114441.77	4800.00	<1	
6040518.223	2114442.93	4800.00	<1	
6040518.319	2114444.09	5120.00	1	
6040518.416	2114445.25	5440.00	2	
6040518.512	2114446.41	4610.00	<1	
6040518.608	2114447.57	4550.00	<1	
6040518.705	2114448.73	4700.00	<1	
6040518.801	2114449.89	5440.00	2	
6040518.898	2114451.05	4950.00	<1	
6040518.994	2114452.21	4720.00	<1	
6040519.09	2114453.37	4410.00	<1	
6040519.187	2114454.53	4350.00	<1	
6040519.283	2114455.69	4780.00	<1	
6040519.379	2114456.85	4680.00	<1	
6040519.476	2114458.01	4050.00	<1	
6040519.572	2114459.17	4630.00	<1	
6040519.668	2114460.33	4940.00	<1	
6040519.765	2114461.49	4790.00	<1	
6040519.861	2114462.65	4790.00	<1	
6040519.957	2114463.81	4640.00	<1	
6040520.054	2114464.97	5060.00	<1	
6040520.15	2114466.13	5040.00	<1	
6040520.246	2114467.29	4900.00	<1	
6040520.343	2114468.45	4710.00	<1	
6040520.439	2114469.61	4670.00	<1	
6040520.535	2114470.77	4480.00	<1	
6040520.632	2114471.93	4440.00	<1	
6040520.728	2114473.09	5010.00	<1	
6040520.825	2114474.25	4790.00	<1	
6040520.921	2114475.41	4230.00	<1	
6040521.017	2114476.57	3780.00	<1	
6040521.114	2114477.73	4200.00	<1	
6040521.21	2114478.89	4440.00	<1	
6040521.306	2114480.05	5060.00	<1	
6040521.403	2114481.21	4920.00	<1	
6040521.499	2114482.37	4820.00	<1	
6040521.595	2114483.53	4760.00	<1	

Easting	Northing	Reading	Reach 40 Data Set	Comments
6040521.692	2114484.69	5070.00	<1	
6040521.788	2114485.85	5070.00	<1	
6040521.884	2114487.01	4880.00	<1	
6040521.981	2114488.17	4760.00	<1	
6040522.077	2114489.33	4530.00	<1	
6040522.173	2114490.49	5000.00	<1	
6040522.27	2114491.65	4990.00	<1	
6040522.366	2114492.81	4980.00	<1	
6040522.462	2114493.97	4570.00	<1	
6040522.559	2114495.13	4470.00	<1	
6040522.655	2114496.29	5050.00	<1	
6040522.752	2114497.45	5310.00	1	
6040522.848	2114498.61	4690.00	<1	
6040522.944	2114499.77	4820.00	<1	
6040523.041	2114500.93	5190.00	1	
6040523.137	2114502.09	5110.00	1	
6040523.233	2114503.25	4720.00	<1	
6040523.33	2114504.41	4090.00	<1	
6040523.426	2114505.57	4380.00	<1	
6040523.522	2114506.73	5270.00	1	
6040523.619	2114507.89	4930.00	<1	
6040523.715	2114509.05	4880.00	<1	
6040523.811	2114510.21	5300.00	1	
6040523.908	2114511.37	5300.00	1	
6040524.004	2114512.53	4740.00	<1	
6040524.1	2114513.69	4790.00	<1	
6040524.197	2114514.85	4960.00	<1	
6040524.293	2114516.01	4840.00	<1	
6040524.389	2114517.17	4700.00	<1	
6040524.486	2114518.33	4820.00	<1	
6040524.582	2114519.49	4860.00	<1	
6040524.679	2114520.65	4490.00	<1	
6040524.775	2114521.81	5370.00	1	
6040524.871	2114522.97	4950.00	<1	
6040524.968	2114524.13	4980.00	<1	
6040525.064	2114525.29	5020.00	<1	
6040525.16	2114526.45	4900.00	<1	
6040525.257	2114527.61	4900.00	<1	
6040525.353	2114528.77	5240.00	1	
6040525.449	2114529.93	5320.00	1	
6040525.546	2114531.09	4820.00	<1	

Easting	Northing	Reading	Reach 40 Data Set	Comments
6040525.642	2114532.25	5130.00	1	
6040525.738	2114533.41	5170.00	1	
6040525.835	2114534.57	5170.00	1	
6040525.931	2114535.73	4750.00	<1	
6040526.027	2114536.89	4940.00	<1	
6040526.124	2114538.05	4540.00	<1	
6040526.22	2114539.21	4600.00	<1	
6040526.316	2114540.37	4800.00	<1	
6040526.413	2114541.53	5290.00	1	
6040526.509	2114542.69	5270.00	1	
6040526.606	2114543.84	4770.00	<1	
6040526.702	2114545.00	4590.00	<1	
6040526.798	2114546.16	4460.00	<1	
6040526.895	2114547.32	4540.00	<1	
6040526.991	2114548.48	4930.00	<1	
6040527.087	2114549.64	4530.00	<1	
6040527.184	2114550.80	4360.00	<1	
6040527.28	2114551.96	4710.00	<1	
6040527.376	2114553.12	4490.00	<1	
6040527.473	2114554.28	4660.00	<1	
6040527.569	2114555.44	4530.00	<1	
6040527.665	2114556.60	5020.00	<1	
6040527.762	2114557.76	5020.00	<1	
6040527.858	2114558.92	5060.00	<1	
6040527.954	2114560.08	5310.00	1	
6040528.051	2114561.24	4450.00	<1	
6040528.147	2114562.40	4550.00	<1	
6040528.243	2114563.56	4940.00	<1	
6040528.34	2114564.72	5360.00	1	
6040528.436	2114565.88	5080.00	<1	
6040528.533	2114567.04	5030.00	<1	
6040528.629	2114568.20	4800.00	<1	
6040528.725	2114569.36	4350.00	<1	
6040528.822	2114570.52	4850.00	<1	
6040528.918	2114571.68	4840.00	<1	
6040529.014	2114572.84	4340.00	<1	
6040529.111	2114574.00	4710.00	<1	
6040529.207	2114575.16	4300.00	<1	
6040529.303	2114576.32	4730.00	<1	
6040529.4	2114577.48	4820.00	<1	
6040529.496	2114578.64	5010.00	<1	

Easting	Northing	Reading	Reach 40 Data Set	Comments
6040529.592	2114579.80	4890.00	<1	
6040529.689	2114580.96	5430.00	2	
6040529.785	2114582.12	5430.00	2	
6040529.881	2114583.28	4390.00	<1	
6040529.978	2114584.44	4400.00	<1	
6040530.074	2114585.60	4690.00	<1	
6040530.17	2114586.76	4740.00	<1	
6040530.267	2114587.92	4500.00	<1	
6040530.363	2114589.08	4580.00	<1	
6040530.46	2114590.24	4880.00	<1	
6040530.556	2114591.40	4980.00	<1	
6040530.652	2114592.56	4790.00	<1	
6040530.749	2114593.72	4910.00	<1	
6040530.845	2114594.88	4680.00	<1	
6040530.941	2114596.04	4610.00	<1	
6040531.038	2114597.20	4840.00	<1	
6040531.134	2114598.36	4540.00	<1	
6040531.23	2114599.52	5040.00	<1	
6040531.327	2114600.68	5140.00	1	
6040531.423	2114601.84	4900.00	<1	
6040531.519	2114603.00	4690.00	<1	
6040531.616	2114604.16	4690.00	<1	
6040531.712	2114605.32	4740.00	<1	
6040531.808	2114606.48	4720.00	<1	
6040531.905	2114607.64	4780.00	<1	
6040532.001	2114608.80	4800.00	<1	
6040532.097	2114609.96	4020.00	<1	
6040532.194	2114611.12	4710.00	<1	
6040532.29	2114612.28	4670.00	<1	
6040532.387	2114613.44	4650.00	<1	
6040532.483	2114614.60	4810.00	<1	
6040532.579	2114615.76	5080.00	<1	
6040532.676	2114616.92	4670.00	<1	
6040532.772	2114618.08	4580.00	<1	
6040532.868	2114619.24	4940.00	<1	
6040532.965	2114620.40	5070.00	<1	
6040533.061	2114621.56	4960.00	<1	
6040533.157	2114622.72	4820.00	<1	
6040533.254	2114623.88	4770.00	<1	
6040533.35	2114625.04	4950.00	<1	
6040533.446	2114626.20	4870.00	<1	

Easting	Northing	Reading	Reach 40 Data Set	Comments
6040533.543	2114627.36	4620.00	<1	
6040533.639	2114628.52	4460.00	<1	
6040533.735	2114629.68	4400.00	<1	
6040533.832	2114630.84	4680.00	<1	
6040533.928	2114632.00	4720.00	<1	
6040534.025	2114633.16	5010.00	<1	
6040534.121	2114634.32	5130.00	1	
6040534.217	2114635.48	5140.00	1	
6040534.314	2114636.64	5140.00	1	
6040534.41	2114637.80	4170.00	<1	
6040534.506	2114638.96	5000.00	<1	
6040534.603	2114640.12	4580.00	<1	
6040534.699	2114641.28	4730.00	<1	
6040534.795	2114642.44	4970.00	<1	
6040534.892	2114643.60	4870.00	<1	
6040534.988	2114644.76	4510.00	<1	
6040535.084	2114645.92	4070.00	<1	
6040535.181	2114647.08	4910.00	<1	
6040535.277	2114648.24	4490.00	<1	
6040535.373	2114649.40	4570.00	<1	
6040535.47	2114650.56	4700.00	<1	
6040535.566	2114651.72	4910.00	<1	
6040535.662	2114652.88	4310.00	<1	
6040535.759	2114654.04	4480.00	<1	
6040535.855	2114655.20	5010.00	<1	
6040535.952	2114656.36	4500.00	<1	
6040536.048	2114657.52	4340.00	<1	
6040536.144	2114658.68	4680.00	<1	
6040536.241	2114659.84	4640.00	<1	
6040536.337	2114661.00	4560.00	<1	
6040536.433	2114662.16	4800.00	<1	
6040536.53	2114663.32	4750.00	<1	
6040536.626	2114664.48	4580.00	<1	
6040536.722	2114665.64	5250.00	1	
6040536.819	2114666.80	5440.00	2	
6040536.915	2114667.96	5070.00	<1	
6040537.011	2114669.12	5460.00	2	
6040537.108	2114670.28	5020.00	<1	

4798.33	Average
302.01	Std Dev
5704.35	3 Sigma

Easting	Northing	Reading		Reach 40 Data Set	Comments
		5460.00	Max		

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 41
Line: B

Main/Lateral: Lateral
Length (ft): 24
Pipe Diameter (in): 10

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 41 Data Set

Gamma Total CPS	
5228.33	Average
306.88	Std Dev
6148.97	3 Sigma
5720.00	Max

Sigma	Total Points
<1	31
1	5
2	0
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 41 Data Set	Comments
6040539.254	2114421.44	4350.00	<1	
6040538.634	2114421.47	4730.00	<1	
6040538.013	2114421.50	5020.00	<1	
6040537.393	2114421.52	5260.00	<1	
6040536.773	2114421.55	5030.00	<1	
6040536.152	2114421.58	5330.00	<1	
6040535.532	2114421.61	5050.00	<1	
6040534.911	2114421.64	4760.00	<1	
6040534.291	2114421.67	5180.00	<1	
6040533.67	2114421.70	5510.00	<1	
6040533.05	2114421.72	4950.00	<1	
6040532.43	2114421.75	4950.00	<1	
6040531.809	2114421.78	5490.00	<1	
6040531.189	2114421.81	5240.00	<1	
6040530.568	2114421.84	5300.00	<1	
6040529.948	2114421.87	5560.00	1	
6040529.327	2114421.89	5490.00	<1	
6040528.707	2114421.92	5500.00	<1	
6040528.086	2114421.95	5470.00	<1	
6040527.466	2114421.98	5220.00	<1	

Easting	Northing	Reading	Reach 41 Data Set	Comments
6040526.846	2114422.01	5320.00	<1	
6040526.225	2114422.04	4910.00	<1	
6040525.605	2114422.07	4970.00	<1	
6040524.984	2114422.09	4870.00	<1	
6040524.364	2114422.12	5620.00	1	
6040523.743	2114422.15	5320.00	<1	
6040523.123	2114422.18	5470.00	<1	
6040522.502	2114422.21	5220.00	<1	
6040521.882	2114422.24	4870.00	<1	
6040521.262	2114422.27	5420.00	<1	
6040520.641	2114422.29	5420.00	<1	
6040520.021	2114422.32	5070.00	<1	
6040519.4	2114422.35	5440.00	<1	
6040518.78	2114422.38	5630.00	1	
6040518.159	2114422.41	5560.00	1	
6040517.539	2114422.44	5720.00	1	

5228.33	Average
306.88	Std Dev
6148.97	3 Sigma
5720.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 42
Line: B

Main/Lateral: Lateral
Length (ft): 215
Pipe Diameter (in): 24

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 42 Data Set

Gamma Total CPS	
6407.95	Average
523.34	Std Dev
7977.97	3 Sigma
7890.00	Max

Sigma	Total Points
<1	142
1	23
2	6
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 42 Data Set	Comments
6040328.538	2114690.06	6970.00	1	
6040329.754	2114689.96	5990.00	<1	
6040330.97	2114689.85	6680.00	<1	
6040332.186	2114689.75	6830.00	<1	
6040333.402	2114689.65	5940.00	<1	
6040334.619	2114689.54	6690.00	<1	
6040335.835	2114689.44	6480.00	<1	
6040337.051	2114689.34	6920.00	<1	
6040338.267	2114689.23	6640.00	<1	
6040339.483	2114689.13	7100.00	1	
6040340.699	2114689.02	6200.00	<1	
6040341.915	2114688.92	6100.00	<1	
6040343.131	2114688.82	5590.00	<1	
6040344.348	2114688.71	5890.00	<1	
6040345.564	2114688.61	5820.00	<1	
6040346.78	2114688.51	6080.00	<1	
6040347.996	2114688.40	5840.00	<1	
6040349.212	2114688.30	5840.00	<1	
6040350.428	2114688.19	5890.00	<1	
6040351.644	2114688.09	6970.00	1	

Easting	Northing	Reading	Reach 42 Data Set	Comments
6040352.861	2114687.99	5900.00	<1	
6040354.077	2114687.88	7350.00	1	
6040355.293	2114687.78	6970.00	1	
6040356.509	2114687.68	6240.00	<1	
6040357.725	2114687.57	6600.00	<1	
6040358.941	2114687.47	5570.00	<1	
6040360.157	2114687.37	6790.00	<1	
6040361.373	2114687.26	6240.00	<1	
6040362.59	2114687.16	6330.00	<1	
6040363.806	2114687.05	6750.00	<1	
6040365.022	2114686.95	7320.00	1	
6040366.238	2114686.85	6410.00	<1	
6040367.454	2114686.74	7080.00	1	
6040368.67	2114686.64	6670.00	<1	
6040369.886	2114686.54	6260.00	<1	
6040371.103	2114686.43	6010.00	<1	
6040372.319	2114686.33	6240.00	<1	
6040373.535	2114686.23	5650.00	<1	
6040374.751	2114686.12	6810.00	<1	
6040375.967	2114686.02	6070.00	<1	
6040377.183	2114685.91	5890.00	<1	
6040378.399	2114685.81	6190.00	<1	
6040379.615	2114685.71	5920.00	<1	
6040380.832	2114685.60	5710.00	<1	
6040382.048	2114685.50	6270.00	<1	
6040383.264	2114685.40	6270.00	<1	
6040384.48	2114685.29	5940.00	<1	
6040385.696	2114685.19	6620.00	<1	
6040386.912	2114685.09	7340.00	1	
6040388.128	2114684.98	7090.00	1	
6040389.345	2114684.88	6210.00	<1	
6040390.561	2114684.77	5930.00	<1	
6040391.777	2114684.67	6100.00	<1	
6040392.993	2114684.57	5620.00	<1	
6040394.209	2114684.46	6280.00	<1	
6040395.425	2114684.36	6480.00	<1	
6040396.641	2114684.26	5720.00	<1	
6040397.857	2114684.15	5500.00	<1	
6040399.074	2114684.05	5860.00	<1	
6040400.29	2114683.95	6210.00	<1	
6040401.506	2114683.84	5790.00	<1	

Easting	Northing	Reading	Reach 42 Data Set	Comments
6040402.722	2114683.74	6600.00	<1	
6040403.938	2114683.63	7710.00	2	
6040405.154	2114683.53	6770.00	<1	
6040406.37	2114683.43	7250.00	1	
6040407.587	2114683.32	6610.00	<1	
6040408.803	2114683.22	6750.00	<1	
6040410.019	2114683.12	6110.00	<1	
6040411.235	2114683.01	6050.00	<1	
6040412.451	2114682.91	5970.00	<1	
6040413.667	2114682.80	7600.00	2	
6040414.883	2114682.70	6430.00	<1	
6040416.099	2114682.60	6430.00	<1	
6040417.316	2114682.49	6690.00	<1	
6040418.532	2114682.39	7620.00	2	
6040419.748	2114682.29	6980.00	1	
6040420.964	2114682.18	6190.00	<1	
6040422.18	2114682.08	6010.00	<1	
6040423.396	2114681.98	6410.00	<1	
6040424.612	2114681.87	6290.00	<1	
6040425.829	2114681.77	6110.00	<1	
6040427.045	2114681.66	6520.00	<1	
6040428.261	2114681.56	6840.00	<1	
6040429.477	2114681.46	6430.00	<1	
6040430.693	2114681.35	5840.00	<1	
6040431.909	2114681.25	7140.00	1	
6040433.125	2114681.15	6780.00	<1	
6040434.341	2114681.04	6510.00	<1	
6040435.558	2114680.94	6230.00	<1	
6040436.774	2114680.84	6610.00	<1	
6040437.99	2114680.73	7340.00	1	
6040439.206	2114680.63	6210.00	<1	
6040440.422	2114680.52	6350.00	<1	
6040441.638	2114680.42	5950.00	<1	
6040442.854	2114680.32	6060.00	<1	
6040444.071	2114680.21	6530.00	<1	
6040445.287	2114680.11	7290.00	1	
6040446.503	2114680.01	6870.00	<1	
6040447.719	2114679.90	6020.00	<1	
6040448.935	2114679.80	6310.00	<1	
6040450.151	2114679.70	7650.00	2	
6040451.367	2114679.59	6680.00	<1	

Easting	Northing	Reading	Reach 42 Data Set	Comments
6040452.583	2114679.49	6050.00	<1	
6040453.8	2114679.38	6840.00	<1	
6040455.016	2114679.28	5930.00	<1	
6040456.232	2114679.18	5930.00	<1	
6040457.448	2114679.07	6850.00	<1	
6040458.664	2114678.97	6970.00	1	
6040459.88	2114678.87	6650.00	<1	
6040461.096	2114678.76	6220.00	<1	
6040462.313	2114678.66	6280.00	<1	
6040463.529	2114678.56	6440.00	<1	
6040464.745	2114678.45	5760.00	<1	
6040465.961	2114678.35	5680.00	<1	
6040467.177	2114678.24	5560.00	<1	
6040468.393	2114678.14	5400.00	<1	
6040469.609	2114678.04	6190.00	<1	
6040470.825	2114677.93	5880.00	<1	
6040472.042	2114677.83	6020.00	<1	
6040473.258	2114677.73	6070.00	<1	
6040474.474	2114677.62	5550.00	<1	
6040475.69	2114677.52	7140.00	1	
6040476.906	2114677.41	7260.00	1	
6040478.122	2114677.31	5900.00	<1	
6040479.338	2114677.21	6580.00	<1	
6040480.555	2114677.10	7220.00	1	
6040481.771	2114677.00	6370.00	<1	
6040482.987	2114676.90	6200.00	<1	
6040484.203	2114676.79	6490.00	<1	
6040485.419	2114676.69	6410.00	<1	
6040486.635	2114676.59	5960.00	<1	
6040487.851	2114676.48	6860.00	<1	
6040489.067	2114676.38	6860.00	<1	
6040490.284	2114676.27	6070.00	<1	
6040491.5	2114676.17	6070.00	<1	
6040492.716	2114676.07	6560.00	<1	
6040493.932	2114675.96	6480.00	<1	
6040495.148	2114675.86	6370.00	<1	
6040496.364	2114675.76	6500.00	<1	
6040497.58	2114675.65	6380.00	<1	
6040498.796	2114675.55	5390.00	<1	
6040500.013	2114675.45	6720.00	<1	
6040501.229	2114675.34	5930.00	<1	

Easting	Northing	Reading	Reach 42 Data Set	Comments
6040502.445	2114675.24	6240.00	<1	
6040503.661	2114675.13	5830.00	<1	
6040504.877	2114675.03	6190.00	<1	
6040506.093	2114674.93	6500.00	<1	
6040507.309	2114674.82	6140.00	<1	
6040508.526	2114674.72	7490.00	2	
6040509.742	2114674.62	7380.00	1	
6040510.958	2114674.51	5850.00	<1	
6040512.174	2114674.41	7140.00	1	
6040513.39	2114674.31	5950.00	<1	
6040514.606	2114674.20	5680.00	<1	
6040515.822	2114674.10	6370.00	<1	
6040517.038	2114673.99	6370.00	<1	
6040518.255	2114673.89	6020.00	<1	
6040519.471	2114673.79	6220.00	<1	
6040520.687	2114673.68	6520.00	<1	
6040521.903	2114673.58	5920.00	<1	
6040523.119	2114673.48	7400.00	1	
6040524.335	2114673.37	6280.00	<1	
6040525.551	2114673.27	6900.00	<1	
6040526.768	2114673.17	7000.00	1	
6040527.984	2114673.06	7890.00	2	
6040529.2	2114672.96	6620.00	<1	
6040530.416	2114672.85	7000.00	1	
6040531.632	2114672.75	5950.00	<1	
6040532.848	2114672.65	6650.00	<1	
6040534.064	2114672.54	6060.00	<1	
6040535.28	2114672.44	6810.00	<1	

6407.95	Average
523.34	Std Dev
7977.97	3 Sigma
7890.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 43
Line: B

Main/Lateral: Lateral
Length (ft): 25
Pipe Diameter (in): 10

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 43 Data Set

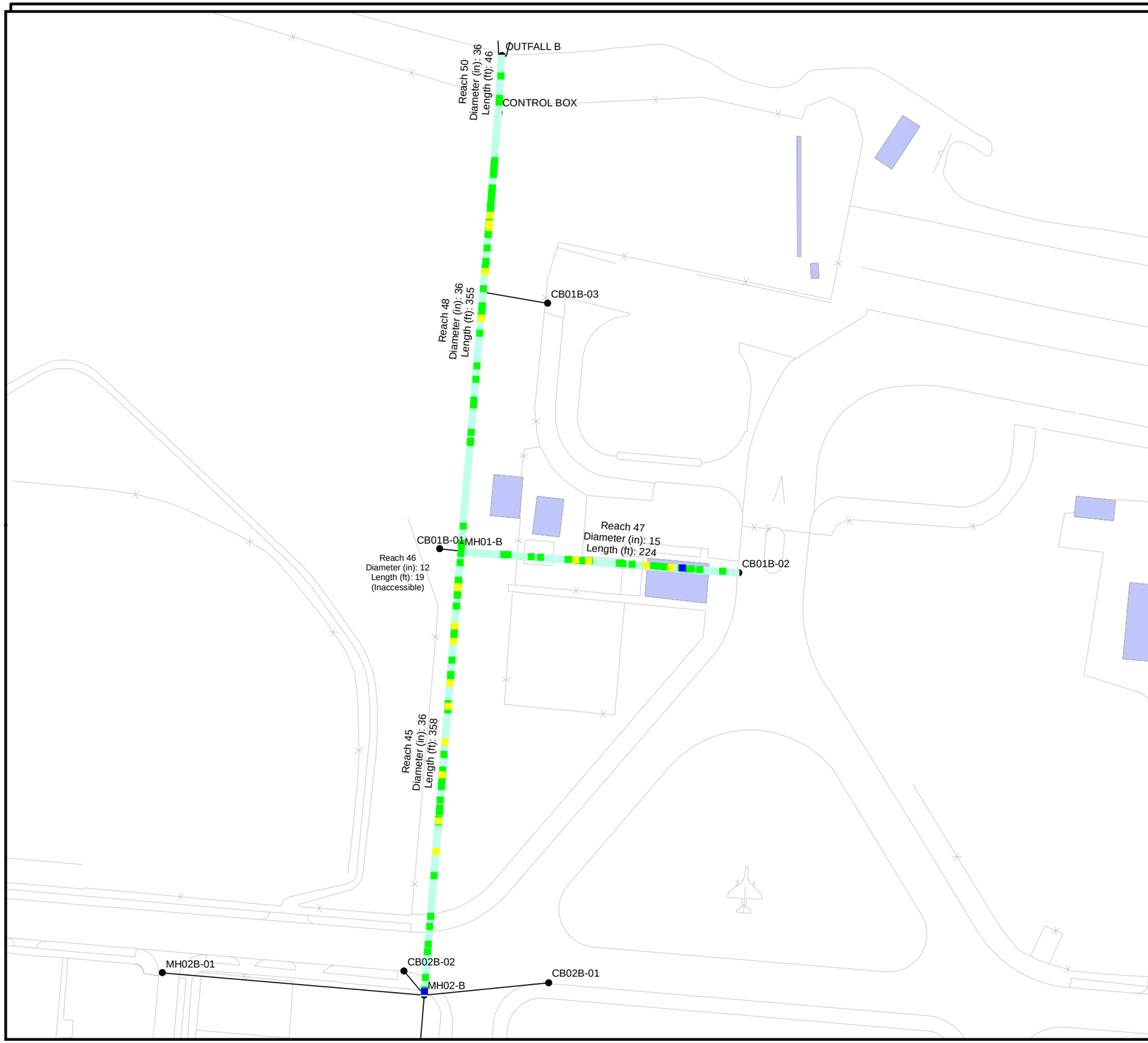
Gamma Total CPS	
5332.00	Average
330.14	Std Dev
6322.43	3 Sigma
6190.00	Max

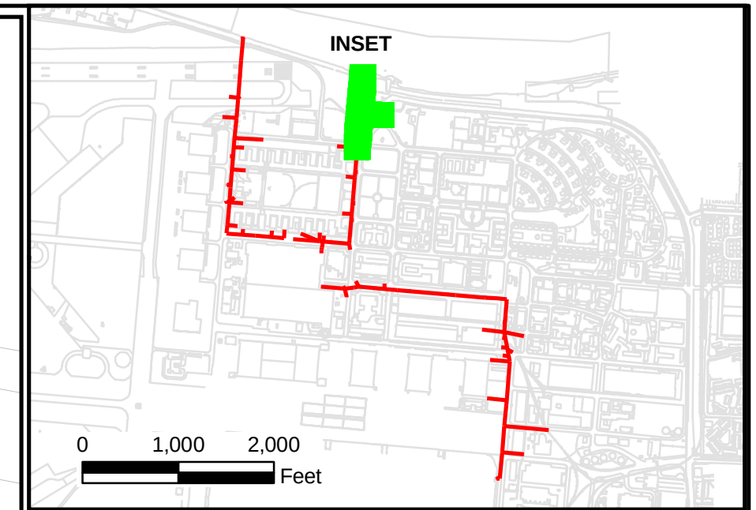
Sigma	Total Points
<1	36
1	8
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 43 Data Set	Comments
6040522.422	2114689.95	5040.00	<1	
6040522.73	2114689.59	5370.00	<1	
6040523.038	2114689.22	5440.00	<1	
6040523.347	2114688.85	5490.00	<1	
6040523.655	2114688.48	5330.00	<1	
6040523.963	2114688.12	5250.00	<1	
6040524.271	2114687.75	4660.00	<1	
6040524.58	2114687.38	5140.00	<1	
6040524.888	2114687.02	5250.00	<1	
6040525.196	2114686.65	5130.00	<1	
6040525.505	2114686.28	5130.00	<1	
6040525.813	2114685.92	5110.00	<1	
6040526.121	2114685.55	4970.00	<1	
6040526.43	2114685.18	5800.00	1	
6040526.738	2114684.81	5210.00	<1	
6040527.046	2114684.45	5710.00	1	
6040527.354	2114684.08	5590.00	<1	
6040527.663	2114683.71	5620.00	<1	
6040527.971	2114683.35	5160.00	<1	
6040528.279	2114682.98	4730.00	<1	

Easting	Northing	Reading	Reach 43 Data Set	Comments
6040528.588	2114682.61	5020.00	<1	
6040528.896	2114682.24	5050.00	<1	
6040529.204	2114681.88	4930.00	<1	
6040529.513	2114681.51	5360.00	<1	
6040529.821	2114681.14	5200.00	<1	
6040530.129	2114680.78	5490.00	<1	
6040530.438	2114680.41	5290.00	<1	
6040530.746	2114680.04	5430.00	<1	
6040531.054	2114679.67	5670.00	1	
6040531.362	2114679.31	5670.00	1	
6040531.671	2114678.94	5670.00	1	
6040531.979	2114678.57	5070.00	<1	
6040532.287	2114678.21	4970.00	<1	
6040532.596	2114677.84	4660.00	<1	
6040532.904	2114677.47	4990.00	<1	
6040533.212	2114677.11	5410.00	<1	
6040533.521	2114676.74	5360.00	<1	
6040533.829	2114676.37	5500.00	<1	
6040534.137	2114676.00	5470.00	<1	
6040534.445	2114675.64	6190.00	2	
6040534.754	2114675.27	5630.00	<1	
6040535.062	2114674.90	5790.00	1	
6040535.37	2114674.54	5820.00	1	
6040535.679	2114674.17	5710.00	1	
6040535.987	2114673.80	5460.00	<1	

5332.00	Average
330.14	Std Dev
6322.43	3 Sigma
6190.00	Max





Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
45	5602
46	NA
47	7238
48	5949
49	NA
50	6454

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0 5 10 20 30 40
Feet

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 45 thru 50

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_45-50_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 45
Line: B

Main/Lateral: Main
Length (ft): 358
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 45 Data Set

Gamma Total CPS	
4726.16	Average
291.98	Std Dev
5602.10	3 Sigma
5790.00	Max

Sigma	Total Points
<1	298
1	37
2	10
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 45 Data Set	Comments
6040537.439	2114674.26	4220.00	<1	
6040537.524	2114675.29	5790.00	3	
6040537.61	2114676.31	5300.00	1	
6040537.695	2114677.34	4750.00	<1	
6040537.781	2114678.37	4980.00	<1	
6040537.866	2114679.39	4900.00	<1	
6040537.951	2114680.42	4980.00	<1	
6040538.037	2114681.44	4730.00	<1	
6040538.122	2114682.47	4850.00	<1	
6040538.207	2114683.49	4790.00	<1	
6040538.293	2114684.52	4380.00	<1	
6040538.378	2114685.55	5000.00	<1	
6040538.463	2114686.57	5130.00	1	
6040538.549	2114687.60	4650.00	<1	
6040538.634	2114688.62	4920.00	<1	
6040538.719	2114689.65	4590.00	<1	
6040538.805	2114690.67	4480.00	<1	
6040538.89	2114691.70	4840.00	<1	
6040538.975	2114692.73	4860.00	<1	
6040539.061	2114693.75	4920.00	<1	

Easting	Northing	Reading	Reach 45 Data Set	Comments
6040539.146	2114694.78	4360.00	<1	
6040539.232	2114695.80	4700.00	<1	
6040539.317	2114696.83	4670.00	<1	
6040539.402	2114697.85	4560.00	<1	
6040539.488	2114698.88	4880.00	<1	
6040539.573	2114699.91	4600.00	<1	
6040539.658	2114700.93	4690.00	<1	
6040539.744	2114701.96	4460.00	<1	
6040539.829	2114702.98	4400.00	<1	
6040539.914	2114704.01	4490.00	<1	
6040540	2114705.03	4770.00	<1	
6040540.085	2114706.06	4830.00	<1	
6040540.17	2114707.09	5060.00	1	
6040540.256	2114708.11	4820.00	<1	
6040540.341	2114709.14	4720.00	<1	
6040540.426	2114710.16	4980.00	<1	
6040540.512	2114711.19	4940.00	<1	
6040540.597	2114712.21	4950.00	<1	
6040540.683	2114713.24	5030.00	1	
6040540.768	2114714.27	4690.00	<1	
6040540.853	2114715.29	4350.00	<1	
6040540.939	2114716.32	4890.00	<1	
6040541.024	2114717.34	4340.00	<1	
6040541.109	2114718.37	4380.00	<1	
6040541.195	2114719.39	4580.00	<1	
6040541.28	2114720.42	4330.00	<1	
6040541.365	2114721.45	4350.00	<1	
6040541.451	2114722.47	4050.00	<1	
6040541.536	2114723.50	4380.00	<1	
6040541.621	2114724.52	4410.00	<1	
6040541.707	2114725.55	4640.00	<1	
6040541.792	2114726.57	4510.00	<1	
6040541.877	2114727.60	5030.00	1	
6040541.963	2114728.63	4380.00	<1	
6040542.048	2114729.65	4590.00	<1	
6040542.134	2114730.68	4390.00	<1	
6040542.219	2114731.70	4940.00	<1	
6040542.304	2114732.73	4300.00	<1	
6040542.39	2114733.75	4470.00	<1	
6040542.475	2114734.78	4950.00	<1	
6040542.56	2114735.81	5090.00	1	

Easting	Northing	Reading	Reach 45 Data Set	Comments
6040542.646	2114736.83	4440.00	<1	
6040542.731	2114737.86	3740.00	<1	
6040542.816	2114738.88	4690.00	<1	
6040542.902	2114739.91	4880.00	<1	
6040542.987	2114740.93	4590.00	<1	
6040543.072	2114741.96	4860.00	<1	
6040543.158	2114742.99	4880.00	<1	
6040543.243	2114744.01	4490.00	<1	
6040543.328	2114745.04	4530.00	<1	
6040543.414	2114746.06	4620.00	<1	
6040543.499	2114747.09	4950.00	<1	
6040543.585	2114748.11	4550.00	<1	
6040543.67	2114749.14	4320.00	<1	
6040543.755	2114750.17	4200.00	<1	
6040543.841	2114751.19	4200.00	<1	
6040543.926	2114752.22	4650.00	<1	
6040544.011	2114753.24	4820.00	<1	
6040544.097	2114754.27	4830.00	<1	
6040544.182	2114755.29	4620.00	<1	
6040544.267	2114756.32	4420.00	<1	
6040544.353	2114757.35	4670.00	<1	
6040544.438	2114758.37	4650.00	<1	
6040544.523	2114759.40	4660.00	<1	
6040544.609	2114760.42	4780.00	<1	
6040544.694	2114761.45	4600.00	<1	
6040544.78	2114762.47	4100.00	<1	
6040544.865	2114763.50	4880.00	<1	
6040544.95	2114764.53	5010.00	<1	
6040545.036	2114765.55	4880.00	<1	
6040545.121	2114766.58	4660.00	<1	
6040545.206	2114767.60	4720.00	<1	
6040545.292	2114768.63	5210.00	1	
6040545.377	2114769.65	5000.00	<1	
6040545.462	2114770.68	4750.00	<1	
6040545.548	2114771.71	4490.00	<1	
6040545.633	2114772.73	4330.00	<1	
6040545.718	2114773.76	4510.00	<1	
6040545.804	2114774.78	4660.00	<1	
6040545.889	2114775.81	4580.00	<1	
6040545.974	2114776.83	4790.00	<1	
6040546.06	2114777.86	4150.00	<1	

Easting	Northing	Reading	Reach 45 Data Set	Comments
6040546.145	2114778.89	4050.00	<1	
6040546.231	2114779.91	4430.00	<1	
6040546.316	2114780.94	4350.00	<1	
6040546.401	2114781.96	4430.00	<1	
6040546.487	2114782.99	4460.00	<1	
6040546.572	2114784.01	4590.00	<1	
6040546.657	2114785.04	4420.00	<1	
6040546.743	2114786.07	4830.00	<1	
6040546.828	2114787.09	4690.00	<1	
6040546.913	2114788.12	5560.00	2	
6040546.999	2114789.14	4760.00	<1	
6040547.084	2114790.17	4770.00	<1	
6040547.169	2114791.19	4900.00	<1	
6040547.255	2114792.22	4750.00	<1	
6040547.34	2114793.25	4140.00	<1	
6040547.425	2114794.27	4930.00	<1	
6040547.511	2114795.30	4540.00	<1	
6040547.596	2114796.32	4250.00	<1	
6040547.682	2114797.35	4550.00	<1	
6040547.767	2114798.37	4850.00	<1	
6040547.852	2114799.40	4600.00	<1	
6040547.938	2114800.43	4560.00	<1	
6040548.023	2114801.45	4360.00	<1	
6040548.108	2114802.48	4260.00	<1	
6040548.194	2114803.50	4830.00	<1	
6040548.279	2114804.53	4600.00	<1	
6040548.364	2114805.55	4290.00	<1	
6040548.45	2114806.58	4840.00	<1	
6040548.535	2114807.61	4980.00	<1	
6040548.62	2114808.63	4820.00	<1	
6040548.706	2114809.66	4680.00	<1	
6040548.791	2114810.68	4390.00	<1	
6040548.876	2114811.71	5070.00	1	
6040548.962	2114812.73	5430.00	2	
6040549.047	2114813.76	5150.00	1	
6040549.133	2114814.79	4610.00	<1	
6040549.218	2114815.81	4890.00	<1	
6040549.303	2114816.84	4910.00	<1	
6040549.389	2114817.86	4500.00	<1	
6040549.474	2114818.89	4630.00	<1	
6040549.559	2114819.91	5110.00	1	

Easting	Northing	Reading	Reach 45 Data Set	Comments
6040549.645	2114820.94	5020.00	1	
6040549.73	2114821.97	4740.00	<1	
6040549.815	2114822.99	5040.00	1	
6040549.901	2114824.02	4360.00	<1	
6040549.986	2114825.04	4500.00	<1	
6040550.071	2114826.07	4920.00	<1	
6040550.157	2114827.09	4800.00	<1	
6040550.242	2114828.12	4590.00	<1	
6040550.327	2114829.15	5080.00	1	
6040550.413	2114830.17	4710.00	<1	
6040550.498	2114831.20	4870.00	<1	
6040550.584	2114832.22	4680.00	<1	
6040550.669	2114833.25	4880.00	<1	
6040550.754	2114834.27	4960.00	<1	
6040550.84	2114835.30	4620.00	<1	
6040550.925	2114836.33	4760.00	<1	
6040551.01	2114837.35	4730.00	<1	
6040551.096	2114838.38	4820.00	<1	
6040551.181	2114839.40	4850.00	<1	
6040551.266	2114840.43	5170.00	1	
6040551.352	2114841.45	4670.00	<1	
6040551.437	2114842.48	5180.00	1	
6040551.522	2114843.51	4660.00	<1	
6040551.608	2114844.53	4640.00	<1	
6040551.693	2114845.56	4620.00	<1	
6040551.778	2114846.58	4890.00	<1	
6040551.864	2114847.61	5180.00	1	
6040551.949	2114848.63	5110.00	1	
6040552.035	2114849.66	5390.00	2	
6040552.12	2114850.68	4940.00	<1	
6040552.205	2114851.71	4410.00	<1	
6040552.291	2114852.74	4540.00	<1	
6040552.376	2114853.76	5050.00	1	
6040552.461	2114854.79	4750.00	<1	
6040552.547	2114855.81	4860.00	<1	
6040552.632	2114856.84	4790.00	<1	
6040552.717	2114857.86	4740.00	<1	
6040552.803	2114858.89	4640.00	<1	
6040552.888	2114859.92	4390.00	<1	
6040552.973	2114860.94	4710.00	<1	
6040553.059	2114861.97	4310.00	<1	

Easting	Northing	Reading	Reach 45 Data Set	Comments
6040553.144	2114862.99	4630.00	<1	
6040553.229	2114864.02	4420.00	<1	
6040553.315	2114865.04	4760.00	<1	
6040553.4	2114866.07	5050.00	1	
6040553.486	2114867.10	4690.00	<1	
6040553.571	2114868.12	4550.00	<1	
6040553.656	2114869.15	4720.00	<1	
6040553.742	2114870.17	4780.00	<1	
6040553.827	2114871.20	4810.00	<1	
6040553.912	2114872.22	4670.00	<1	
6040553.998	2114873.25	4780.00	<1	
6040554.083	2114874.28	4910.00	<1	
6040554.168	2114875.30	4670.00	<1	
6040554.254	2114876.33	5330.00	2	
6040554.339	2114877.35	4930.00	<1	
6040554.424	2114878.38	4700.00	<1	
6040554.51	2114879.40	4450.00	<1	
6040554.595	2114880.43	4540.00	<1	
6040554.68	2114881.46	4910.00	<1	
6040554.766	2114882.48	4900.00	<1	
6040554.851	2114883.51	4740.00	<1	
6040554.937	2114884.53	4770.00	<1	
6040555.022	2114885.56	4650.00	<1	
6040555.107	2114886.58	4410.00	<1	
6040555.193	2114887.61	4790.00	<1	
6040555.278	2114888.64	4470.00	<1	
6040555.363	2114889.66	4750.00	<1	
6040555.449	2114890.69	4830.00	<1	
6040555.534	2114891.71	5010.00	<1	
6040555.619	2114892.74	4660.00	<1	
6040555.705	2114893.76	4410.00	<1	
6040555.79	2114894.79	4900.00	<1	
6040555.875	2114895.82	4800.00	<1	
6040555.961	2114896.84	4740.00	<1	
6040556.046	2114897.87	4980.00	<1	
6040556.131	2114898.89	4900.00	<1	
6040556.217	2114899.92	4700.00	<1	
6040556.302	2114900.94	4680.00	<1	
6040556.388	2114901.97	5100.00	1	
6040556.473	2114903.00	4960.00	<1	
6040556.558	2114904.02	4650.00	<1	

Easting	Northing	Reading	Reach 45 Data Set	Comments
6040556.644	2114905.05	5390.00	2	
6040556.729	2114906.07	4960.00	<1	
6040556.814	2114907.10	5150.00	1	
6040556.9	2114908.12	5000.00	<1	
6040556.985	2114909.15	4730.00	<1	
6040557.07	2114910.18	4890.00	<1	
6040557.156	2114911.20	4630.00	<1	
6040557.241	2114912.23	4740.00	<1	
6040557.326	2114913.25	4850.00	<1	
6040557.412	2114914.28	4590.00	<1	
6040557.497	2114915.30	4870.00	<1	
6040557.582	2114916.33	4850.00	<1	
6040557.668	2114917.36	4370.00	<1	
6040557.753	2114918.38	4490.00	<1	
6040557.839	2114919.41	4420.00	<1	
6040557.924	2114920.43	4630.00	<1	
6040558.009	2114921.46	4650.00	<1	
6040558.095	2114922.48	4850.00	<1	
6040558.18	2114923.51	5350.00	2	
6040558.265	2114924.54	4880.00	<1	
6040558.351	2114925.56	4410.00	<1	
6040558.436	2114926.59	4440.00	<1	
6040558.521	2114927.61	4830.00	<1	
6040558.607	2114928.64	4780.00	<1	
6040558.692	2114929.66	5200.00	1	
6040558.777	2114930.69	5140.00	1	
6040558.863	2114931.72	4170.00	<1	
6040558.948	2114932.74	4710.00	<1	
6040559.033	2114933.77	4230.00	<1	
6040559.119	2114934.79	4540.00	<1	
6040559.204	2114935.82	4770.00	<1	
6040559.29	2114936.84	4810.00	<1	
6040559.375	2114937.87	4290.00	<1	
6040559.46	2114938.90	4290.00	<1	
6040559.546	2114939.92	4630.00	<1	
6040559.631	2114940.95	4880.00	<1	
6040559.716	2114941.97	5120.00	1	
6040559.802	2114943.00	4640.00	<1	
6040559.887	2114944.02	4800.00	<1	
6040559.972	2114945.05	4830.00	<1	
6040560.058	2114946.08	4750.00	<1	

Easting	Northing	Reading	Reach 45 Data Set	Comments
6040560.143	2114947.10	4650.00	<1	
6040560.228	2114948.13	4610.00	<1	
6040560.314	2114949.15	4490.00	<1	
6040560.399	2114950.18	4430.00	<1	
6040560.485	2114951.20	4480.00	<1	
6040560.57	2114952.23	4530.00	<1	
6040560.655	2114953.26	4800.00	<1	
6040560.741	2114954.28	5000.00	<1	
6040560.826	2114955.31	4600.00	<1	
6040560.911	2114956.33	4880.00	<1	
6040560.997	2114957.36	5340.00	2	
6040561.082	2114958.38	4440.00	<1	
6040561.167	2114959.41	4880.00	<1	
6040561.253	2114960.44	4710.00	<1	
6040561.338	2114961.46	4440.00	<1	
6040561.423	2114962.49	5150.00	1	
6040561.509	2114963.51	4990.00	<1	
6040561.594	2114964.54	4630.00	<1	
6040561.679	2114965.56	4500.00	<1	
6040561.765	2114966.59	4790.00	<1	
6040561.85	2114967.62	5020.00	1	
6040561.936	2114968.64	5290.00	1	
6040562.021	2114969.67	5370.00	2	
6040562.106	2114970.69	4950.00	<1	
6040562.192	2114971.72	4570.00	<1	
6040562.277	2114972.74	4380.00	<1	
6040562.362	2114973.77	4640.00	<1	
6040562.448	2114974.80	4180.00	<1	
6040562.533	2114975.82	4920.00	<1	
6040562.618	2114976.85	4740.00	<1	
6040562.704	2114977.87	4190.00	<1	
6040562.789	2114978.90	4830.00	<1	
6040562.874	2114979.92	4770.00	<1	
6040562.96	2114980.95	3980.00	<1	
6040563.045	2114981.98	4600.00	<1	
6040563.13	2114983.00	4790.00	<1	
6040563.216	2114984.03	5000.00	<1	
6040563.301	2114985.05	4910.00	<1	
6040563.387	2114986.08	5070.00	1	
6040563.472	2114987.10	4750.00	<1	
6040563.557	2114988.13	4530.00	<1	

Easting	Northing	Reading	Reach 45 Data Set	Comments
6040563.643	2114989.16	4830.00	<1	
6040563.728	2114990.18	4740.00	<1	
6040563.813	2114991.21	4460.00	<1	
6040563.899	2114992.23	4390.00	<1	
6040563.984	2114993.26	4680.00	<1	
6040564.069	2114994.28	5030.00	1	
6040564.155	2114995.31	5040.00	1	
6040564.24	2114996.34	4910.00	<1	
6040564.325	2114997.36	5190.00	1	
6040564.411	2114998.39	4950.00	<1	
6040564.496	2114999.41	4800.00	<1	
6040564.581	2115000.44	5420.00	2	
6040564.667	2115001.46	5410.00	2	
6040564.752	2115002.49	5040.00	1	
6040564.838	2115003.52	5120.00	1	
6040564.923	2115004.54	5070.00	1	
6040565.008	2115005.57	4430.00	<1	
6040565.094	2115006.59	5310.00	1	
6040565.179	2115007.62	4860.00	<1	
6040565.264	2115008.64	4040.00	<1	
6040565.35	2115009.67	3950.00	<1	
6040565.435	2115010.70	4550.00	<1	
6040565.52	2115011.72	4990.00	<1	
6040565.606	2115012.75	4590.00	<1	
6040565.691	2115013.77	4120.00	<1	
6040565.776	2115014.80	4700.00	<1	
6040565.862	2115015.82	4420.00	<1	
6040565.947	2115016.85	4920.00	<1	
6040566.032	2115017.88	4990.00	<1	
6040566.118	2115018.90	4740.00	<1	
6040566.203	2115019.93	4570.00	<1	
6040566.289	2115020.95	5160.00	1	
6040566.374	2115021.98	4940.00	<1	
6040566.459	2115023.00	4650.00	<1	
6040566.545	2115024.03	4860.00	<1	
6040566.63	2115025.06	4850.00	<1	
6040566.715	2115026.08	4750.00	<1	
6040566.801	2115027.11	4570.00	<1	
6040566.886	2115028.13	5040.00	1	
		4726.16	Average	
		291.98	Std Dev	

Easting	Northing	Reading		Reach 45 Data Set	Comments
		5602.10	3 Sigma		
		5790.00	Max		

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 47
Line: B

Main/Lateral: Lateral
Length (ft): 224
Pipe Diameter (in): 15

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 47 Data Set

Gamma Total CPS	
5658.49	Average
526.64	Std Dev
7238.42	3 Sigma
7420.00	Max

Sigma	Total Points
<1	209
1	25
2	4
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 47 Data Set	Comments
6040788.758	2115012.94	5480.00	<1	
6040787.835	2115013.01	5760.00	<1	
6040786.912	2115013.08	5910.00	<1	
6040785.988	2115013.15	5460.00	<1	
6040785.065	2115013.22	5630.00	<1	
6040784.142	2115013.29	5100.00	<1	
6040783.219	2115013.37	4690.00	<1	
6040782.296	2115013.44	4970.00	<1	
6040781.373	2115013.51	5240.00	<1	
6040780.45	2115013.58	5380.00	<1	
6040779.526	2115013.65	5080.00	<1	
6040778.603	2115013.72	5680.00	<1	
6040777.68	2115013.79	6330.00	1	
6040776.757	2115013.87	5130.00	<1	
6040775.834	2115013.94	5170.00	<1	
6040774.911	2115014.01	5370.00	<1	
6040773.987	2115014.08	6090.00	<1	
6040773.064	2115014.15	5680.00	<1	
6040772.141	2115014.22	5810.00	<1	
6040771.218	2115014.30	5750.00	<1	

Easting	Northing	Reading	Reach 47 Data Set	Comments
6040770.295	2115014.37	5890.00	<1	
6040769.372	2115014.44	6100.00	<1	
6040768.448	2115014.51	5730.00	<1	
6040767.525	2115014.58	5770.00	<1	
6040766.602	2115014.65	5840.00	<1	
6040765.679	2115014.73	5770.00	<1	
6040764.756	2115014.80	5640.00	<1	
6040763.833	2115014.87	5470.00	<1	
6040762.909	2115014.94	5430.00	<1	
6040761.986	2115015.01	4970.00	<1	
6040761.063	2115015.08	5820.00	<1	
6040760.14	2115015.15	5810.00	<1	
6040759.217	2115015.23	6350.00	1	
6040758.294	2115015.30	6010.00	<1	
6040757.371	2115015.37	5730.00	<1	
6040756.447	2115015.44	5510.00	<1	
6040755.524	2115015.51	5380.00	<1	
6040754.601	2115015.58	5040.00	<1	
6040753.678	2115015.66	5110.00	<1	
6040752.755	2115015.73	6190.00	1	
6040751.832	2115015.80	6350.00	1	
6040750.908	2115015.87	5430.00	<1	
6040749.985	2115015.94	6490.00	1	
6040749.062	2115016.01	5640.00	<1	
6040748.139	2115016.09	5730.00	<1	
6040747.216	2115016.16	6080.00	<1	
6040746.293	2115016.23	5930.00	<1	
6040745.369	2115016.30	7420.00	3	
6040744.446	2115016.37	6340.00	1	
6040743.523	2115016.44	5770.00	<1	
6040742.6	2115016.51	6000.00	<1	
6040741.677	2115016.59	5700.00	<1	
6040740.754	2115016.66	5880.00	<1	
6040739.83	2115016.73	5810.00	<1	
6040738.907	2115016.80	6080.00	<1	
6040737.984	2115016.87	5660.00	<1	
6040737.061	2115016.94	5770.00	<1	
6040736.138	2115017.02	7090.00	2	
6040735.215	2115017.09	5130.00	<1	
6040734.292	2115017.16	5710.00	<1	
6040733.368	2115017.23	5670.00	<1	

Easting	Northing	Reading	Reach 47 Data Set	Comments
6040732.445	2115017.30	5820.00	<1	
6040731.522	2115017.37	6400.00	1	
6040730.599	2115017.45	5930.00	<1	
6040729.676	2115017.52	6000.00	<1	
6040728.753	2115017.59	5660.00	<1	
6040727.829	2115017.66	5830.00	<1	
6040726.906	2115017.73	6630.00	1	
6040725.983	2115017.80	6600.00	1	
6040725.06	2115017.87	6070.00	<1	
6040724.137	2115017.95	5760.00	<1	
6040723.214	2115018.02	5630.00	<1	
6040722.29	2115018.09	6440.00	1	
6040721.367	2115018.16	5780.00	<1	
6040720.444	2115018.23	5830.00	<1	
6040719.521	2115018.30	5880.00	<1	
6040718.598	2115018.38	5890.00	<1	
6040717.675	2115018.45	5560.00	<1	
6040716.751	2115018.52	5820.00	<1	
6040715.828	2115018.59	7180.00	2	
6040714.905	2115018.66	5470.00	<1	
6040713.982	2115018.73	5550.00	<1	
6040713.059	2115018.81	5440.00	<1	
6040712.136	2115018.88	5910.00	<1	
6040711.213	2115018.95	5790.00	<1	
6040710.289	2115019.02	5950.00	<1	
6040709.366	2115019.09	5350.00	<1	
6040708.443	2115019.16	5690.00	<1	
6040707.52	2115019.23	5820.00	<1	
6040706.597	2115019.31	5880.00	<1	
6040705.674	2115019.38	5980.00	<1	
6040704.75	2115019.45	6190.00	1	
6040703.827	2115019.52	4950.00	<1	
6040702.904	2115019.59	5880.00	<1	
6040701.981	2115019.66	5890.00	<1	
6040701.058	2115019.74	5410.00	<1	
6040700.135	2115019.81	5510.00	<1	
6040699.211	2115019.88	5810.00	<1	
6040698.288	2115019.95	5620.00	<1	
6040697.365	2115020.02	6490.00	1	
6040696.442	2115020.09	5830.00	<1	
6040695.519	2115020.17	5840.00	<1	

Easting	Northing	Reading	Reach 47 Data Set	Comments
6040694.596	2115020.24	6550.00	1	
6040693.672	2115020.31	5890.00	<1	
6040692.749	2115020.38	5410.00	<1	
6040691.826	2115020.45	5750.00	<1	
6040690.903	2115020.52	5450.00	<1	
6040689.98	2115020.59	5600.00	<1	
6040689.057	2115020.67	5820.00	<1	
6040688.134	2115020.74	5680.00	<1	
6040687.21	2115020.81	5570.00	<1	
6040686.287	2115020.88	5350.00	<1	
6040685.364	2115020.95	5730.00	<1	
6040684.441	2115021.02	5200.00	<1	
6040683.518	2115021.10	5740.00	<1	
6040682.595	2115021.17	6020.00	<1	
6040681.671	2115021.24	5330.00	<1	
6040680.748	2115021.31	5820.00	<1	
6040679.825	2115021.38	5470.00	<1	
6040678.902	2115021.45	5540.00	<1	
6040677.979	2115021.53	6050.00	<1	
6040677.056	2115021.60	5700.00	<1	
6040676.132	2115021.67	5970.00	<1	
6040675.209	2115021.74	5240.00	<1	
6040674.286	2115021.81	5450.00	<1	
6040673.363	2115021.88	5060.00	<1	
6040672.44	2115021.95	5670.00	<1	
6040671.517	2115022.03	6100.00	<1	
6040670.593	2115022.10	6310.00	1	
6040669.67	2115022.17	7010.00	2	
6040668.747	2115022.24	6450.00	1	
6040667.824	2115022.31	6490.00	1	
6040666.901	2115022.38	5480.00	<1	
6040665.978	2115022.46	5490.00	<1	
6040665.055	2115022.53	5740.00	<1	
6040664.131	2115022.60	6470.00	1	
6040663.208	2115022.67	5950.00	<1	
6040662.285	2115022.74	5970.00	<1	
6040661.362	2115022.81	6650.00	1	
6040660.439	2115022.89	5680.00	<1	
6040659.516	2115022.96	6850.00	2	
6040658.592	2115023.03	6590.00	1	
6040657.669	2115023.10	6050.00	<1	

Easting	Northing	Reading	Reach 47 Data Set	Comments
6040656.746	2115023.17	6050.00	<1	
6040655.823	2115023.24	5740.00	<1	
6040654.9	2115023.31	5340.00	<1	
6040653.977	2115023.39	6130.00	<1	
6040653.053	2115023.46	6430.00	1	
6040652.13	2115023.53	5240.00	<1	
6040651.207	2115023.60	5870.00	<1	
6040650.284	2115023.67	6090.00	<1	
6040649.361	2115023.74	5620.00	<1	
6040648.438	2115023.82	5190.00	<1	
6040647.514	2115023.89	5830.00	<1	
6040646.591	2115023.96	5710.00	<1	
6040645.668	2115024.03	5550.00	<1	
6040644.745	2115024.10	5710.00	<1	
6040643.822	2115024.17	5760.00	<1	
6040642.899	2115024.25	5620.00	<1	
6040641.976	2115024.32	5890.00	<1	
6040641.052	2115024.39	5560.00	<1	
6040640.129	2115024.46	5140.00	<1	
6040639.206	2115024.53	5450.00	<1	
6040638.283	2115024.60	6150.00	<1	
6040637.36	2115024.67	5460.00	<1	
6040636.437	2115024.75	5120.00	<1	
6040635.513	2115024.82	5500.00	<1	
6040634.59	2115024.89	5480.00	<1	
6040633.667	2115024.96	5530.00	<1	
6040632.744	2115025.03	5470.00	<1	
6040631.821	2115025.10	6040.00	<1	
6040630.898	2115025.18	6210.00	1	
6040629.974	2115025.25	5600.00	<1	
6040629.051	2115025.32	5870.00	<1	
6040628.128	2115025.39	5300.00	<1	
6040627.205	2115025.46	5930.00	<1	
6040626.282	2115025.53	5220.00	<1	
6040625.359	2115025.61	5360.00	<1	
6040624.435	2115025.68	5470.00	<1	
6040623.512	2115025.75	6310.00	1	
6040622.589	2115025.82	5390.00	<1	
6040621.666	2115025.89	4770.00	<1	
6040620.743	2115025.96	5560.00	<1	
6040619.82	2115026.03	5680.00	<1	

Easting	Northing	Reading	Reach 47 Data Set	Comments
6040618.897	2115026.11	5720.00	<1	
6040617.973	2115026.18	5990.00	<1	
6040617.05	2115026.25	6090.00	<1	
6040616.127	2115026.32	5920.00	<1	
6040615.204	2115026.39	5460.00	<1	
6040614.281	2115026.46	5690.00	<1	
6040613.358	2115026.54	5810.00	<1	
6040612.434	2115026.61	5740.00	<1	
6040611.511	2115026.68	5590.00	<1	
6040610.588	2115026.75	5310.00	<1	
6040609.665	2115026.82	5960.00	<1	
6040608.742	2115026.89	5860.00	<1	
6040607.819	2115026.97	6030.00	<1	
6040606.895	2115027.04	5640.00	<1	
6040605.972	2115027.11	5930.00	<1	
6040605.049	2115027.18	6430.00	1	
6040604.126	2115027.25	5850.00	<1	
6040603.203	2115027.32	6590.00	1	
6040602.28	2115027.39	5930.00	<1	
6040601.356	2115027.47	6550.00	1	
6040600.433	2115027.54	5280.00	<1	
6040599.51	2115027.61	6160.00	<1	
6040598.587	2115027.68	5960.00	<1	
6040597.664	2115027.75	5460.00	<1	
6040596.741	2115027.82	5380.00	<1	
6040595.818	2115027.90	5350.00	<1	
6040594.894	2115027.97	4480.00	<1	
6040593.971	2115028.04	4880.00	<1	
6040593.048	2115028.11	4960.00	<1	
6040592.125	2115028.18	4320.00	<1	
6040591.202	2115028.25	4310.00	<1	
6040590.279	2115028.33	4490.00	<1	
6040589.355	2115028.40	4660.00	<1	
6040588.432	2115028.47	5060.00	<1	
6040587.509	2115028.54	4840.00	<1	
6040586.586	2115028.61	4720.00	<1	
6040585.663	2115028.68	4750.00	<1	
6040584.74	2115028.75	5390.00	<1	
6040583.816	2115028.83	4480.00	<1	
6040582.893	2115028.90	4890.00	<1	
6040581.97	2115028.97	4650.00	<1	

Easting	Northing	Reading	Reach 47 Data Set	Comments
6040581.047	2115029.04	4550.00	<1	
6040580.124	2115029.11	5150.00	<1	
6040579.201	2115029.18	4680.00	<1	
6040578.277	2115029.26	4920.00	<1	
6040577.354	2115029.33	5290.00	<1	
6040576.431	2115029.40	5100.00	<1	
6040575.508	2115029.47	5100.00	<1	
6040574.585	2115029.54	5000.00	<1	
6040573.662	2115029.61	5250.00	<1	
6040572.739	2115029.69	4960.00	<1	
6040571.815	2115029.76	4300.00	<1	
6040570.892	2115029.83	4640.00	<1	
6040569.969	2115029.90	4540.00	<1	
6040569.046	2115029.97	4750.00	<1	

5658.49	Average
526.64	Std Dev
7238.42	3 Sigma
7420.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 48
Line: B

Main/Lateral: Main
Length (ft): 355
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 48 Data Set

Gamma Total CPS	
4795.84	Average
384.34	Std Dev
5948.88	3 Sigma
5800.00	Max

Sigma	Total Points
<1	210
1	40
2	5
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 48 Data Set	Comments
6040567.223	2115032.12	4830.00	<1	
6040567.342	2115033.50	5510.00	1	
6040567.461	2115034.87	5340.00	1	
6040567.579	2115036.25	5290.00	1	
6040567.698	2115037.63	5110.00	<1	
6040567.816	2115039.00	4810.00	<1	
6040567.935	2115040.38	4610.00	<1	
6040568.053	2115041.76	4680.00	<1	
6040568.172	2115043.13	4900.00	<1	
6040568.29	2115044.51	4840.00	<1	
6040568.409	2115045.89	4930.00	<1	
6040568.527	2115047.27	4670.00	<1	
6040568.646	2115048.64	4390.00	<1	
6040568.765	2115050.02	5230.00	1	
6040568.883	2115051.40	4950.00	<1	
6040569.002	2115052.77	4650.00	<1	
6040569.12	2115054.15	4600.00	<1	
6040569.239	2115055.53	4760.00	<1	
6040569.357	2115056.90	4990.00	<1	
6040569.476	2115058.28	4510.00	<1	

Easting	Northing	Reading	Reach 48 Data Set	Comments
6040569.594	2115059.66	4520.00	<1	
6040569.713	2115061.03	4390.00	<1	
6040569.832	2115062.41	4080.00	<1	
6040569.95	2115063.79	4490.00	<1	
6040570.069	2115065.17	5030.00	<1	
6040570.187	2115066.54	4440.00	<1	
6040570.306	2115067.92	4140.00	<1	
6040570.424	2115069.30	4170.00	<1	
6040570.543	2115070.67	4310.00	<1	
6040570.661	2115072.05	4670.00	<1	
6040570.78	2115073.43	4190.00	<1	
6040570.899	2115074.80	4600.00	<1	
6040571.017	2115076.18	4660.00	<1	
6040571.136	2115077.56	3930.00	<1	
6040571.254	2115078.93	4050.00	<1	
6040571.373	2115080.31	4180.00	<1	
6040571.491	2115081.69	4170.00	<1	
6040571.61	2115083.07	4760.00	<1	
6040571.728	2115084.44	4360.00	<1	
6040571.847	2115085.82	4670.00	<1	
6040571.966	2115087.20	4490.00	<1	
6040572.084	2115088.57	4360.00	<1	
6040572.203	2115089.95	5050.00	<1	
6040572.321	2115091.33	5100.00	<1	
6040572.44	2115092.70	4600.00	<1	
6040572.558	2115094.08	4620.00	<1	
6040572.677	2115095.46	4990.00	<1	
6040572.795	2115096.84	4600.00	<1	
6040572.914	2115098.21	4430.00	<1	
6040573.033	2115099.59	4990.00	<1	
6040573.151	2115100.97	4620.00	<1	
6040573.27	2115102.34	4400.00	<1	
6040573.388	2115103.72	4650.00	<1	
6040573.507	2115105.10	4560.00	<1	
6040573.625	2115106.47	4450.00	<1	
6040573.744	2115107.85	4610.00	<1	
6040573.862	2115109.23	5000.00	<1	
6040573.981	2115110.60	4610.00	<1	
6040574.099	2115111.98	4570.00	<1	
6040574.218	2115113.36	5000.00	<1	
6040574.337	2115114.74	4940.00	<1	

Easting	Northing	Reading	Reach 48 Data Set	Comments
6040574.455	2115116.11	4210.00	<1	
6040574.574	2115117.49	5390.00	1	
6040574.692	2115118.87	5250.00	1	
6040574.811	2115120.24	4570.00	<1	
6040574.929	2115121.62	4680.00	<1	
6040575.048	2115123.00	4760.00	<1	
6040575.166	2115124.37	4960.00	<1	
6040575.285	2115125.75	5460.00	1	
6040575.404	2115127.13	4830.00	<1	
6040575.522	2115128.51	4740.00	<1	
6040575.641	2115129.88	5010.00	<1	
6040575.759	2115131.26	4540.00	<1	
6040575.878	2115132.64	4260.00	<1	
6040575.996	2115134.01	4800.00	<1	
6040576.115	2115135.39	4380.00	<1	
6040576.233	2115136.77	4910.00	<1	
6040576.352	2115138.14	4720.00	<1	
6040576.471	2115139.52	4550.00	<1	
6040576.589	2115140.90	4950.00	<1	
6040576.708	2115142.27	4800.00	<1	
6040576.826	2115143.65	4680.00	<1	
6040576.945	2115145.03	4480.00	<1	
6040577.063	2115146.41	4770.00	<1	
6040577.182	2115147.78	5200.00	1	
6040577.3	2115149.16	4880.00	<1	
6040577.419	2115150.54	4890.00	<1	
6040577.538	2115151.91	5540.00	1	
6040577.656	2115153.29	4750.00	<1	
6040577.775	2115154.67	4530.00	<1	
6040577.893	2115156.04	4620.00	<1	
6040578.012	2115157.42	4740.00	<1	
6040578.13	2115158.80	4850.00	<1	
6040578.249	2115160.17	4770.00	<1	
6040578.367	2115161.55	4910.00	<1	
6040578.486	2115162.93	5050.00	<1	
6040578.605	2115164.31	5030.00	<1	
6040578.723	2115165.68	4590.00	<1	
6040578.842	2115167.06	4790.00	<1	
6040578.96	2115168.44	5190.00	1	
6040579.079	2115169.81	5160.00	<1	
6040579.197	2115171.19	4740.00	<1	

Easting	Northing	Reading	Reach 48 Data Set	Comments
6040579.316	2115172.57	4820.00	<1	
6040579.434	2115173.94	4980.00	<1	
6040579.553	2115175.32	4790.00	<1	
6040579.671	2115176.70	4490.00	<1	
6040579.79	2115178.08	4850.00	<1	
6040579.909	2115179.45	5200.00	1	
6040580.027	2115180.83	4860.00	<1	
6040580.146	2115182.21	4740.00	<1	
6040580.264	2115183.58	4670.00	<1	
6040580.383	2115184.96	4500.00	<1	
6040580.501	2115186.34	4820.00	<1	
6040580.62	2115187.71	4660.00	<1	
6040580.738	2115189.09	5060.00	<1	
6040580.857	2115190.47	4810.00	<1	
6040580.976	2115191.84	4580.00	<1	
6040581.094	2115193.22	3940.00	<1	
6040581.213	2115194.60	4440.00	<1	
6040581.331	2115195.98	4530.00	<1	
6040581.45	2115197.35	4590.00	<1	
6040581.568	2115198.73	4870.00	<1	
6040581.687	2115200.11	4690.00	<1	
6040581.805	2115201.48	4480.00	<1	
6040581.924	2115202.86	4700.00	<1	
6040582.043	2115204.24	4990.00	<1	
6040582.161	2115205.61	5350.00	1	
6040582.28	2115206.99	4920.00	<1	
6040582.398	2115208.37	5180.00	<1	
6040582.517	2115209.75	5050.00	<1	
6040582.635	2115211.12	4890.00	<1	
6040582.754	2115212.50	4630.00	<1	
6040582.872	2115213.88	5020.00	<1	
6040582.991	2115215.25	5020.00	<1	
6040583.11	2115216.63	5060.00	<1	
6040583.228	2115218.01	5630.00	2	
6040583.347	2115219.38	5550.00	1	
6040583.465	2115220.76	5170.00	<1	
6040583.584	2115222.14	4780.00	<1	
6040583.702	2115223.51	5270.00	1	
6040583.821	2115224.89	4960.00	<1	
6040583.939	2115226.27	5200.00	1	
6040584.058	2115227.65	5300.00	1	

Easting	Northing	Reading	Reach 48 Data Set	Comments
6040584.177	2115229.02	4720.00	<1	
6040584.295	2115230.40	4810.00	<1	
6040584.414	2115231.78	4750.00	<1	
6040584.532	2115233.15	4750.00	<1	
6040584.651	2115234.53	4740.00	<1	
6040584.769	2115235.91	4860.00	<1	
6040584.888	2115237.28	5010.00	<1	
6040585.006	2115238.66	4740.00	<1	
6040585.125	2115240.04	4730.00	<1	
6040585.243	2115241.41	5320.00	1	
6040585.362	2115242.79	4950.00	<1	
6040585.481	2115244.17	4990.00	<1	
6040585.599	2115245.55	4650.00	<1	
6040585.718	2115246.92	4550.00	<1	
6040585.836	2115248.30	4610.00	<1	
6040585.955	2115249.68	4490.00	<1	
6040586.073	2115251.05	3930.00	<1	
6040586.192	2115252.43	4330.00	<1	
6040586.31	2115253.81	4830.00	<1	
6040586.429	2115255.18	5570.00	2	
6040586.548	2115256.56	5540.00	1	
6040586.666	2115257.94	5220.00	1	
6040586.785	2115259.32	4550.00	<1	
6040586.903	2115260.69	5120.00	<1	
6040587.022	2115262.07	4960.00	<1	
6040587.14	2115263.45	5270.00	1	
6040587.259	2115264.82	4690.00	<1	
6040587.377	2115266.20	4640.00	<1	
6040587.496	2115267.58	4670.00	<1	
6040587.615	2115268.95	4700.00	<1	
6040587.733	2115270.33	4810.00	<1	
6040587.852	2115271.71	4850.00	<1	
6040587.97	2115273.08	4700.00	<1	
6040588.089	2115274.46	5240.00	1	
6040588.207	2115275.84	4660.00	<1	
6040588.326	2115277.22	4910.00	<1	
6040588.444	2115278.59	4960.00	<1	
6040588.563	2115279.97	4820.00	<1	
6040588.682	2115281.35	4860.00	<1	
6040588.8	2115282.72	4390.00	<1	
6040588.919	2115284.10	4930.00	<1	

Easting	Northing	Reading	Reach 48 Data Set	Comments
6040589.037	2115285.48	5270.00	1	
6040589.156	2115286.85	5410.00	1	
6040589.274	2115288.23	5390.00	1	
6040589.393	2115289.61	4780.00	<1	
6040589.511	2115290.99	5800.00	2	
6040589.63	2115292.36	5520.00	1	
6040589.749	2115293.74	5690.00	2	
6040589.867	2115295.12	5440.00	1	
6040589.986	2115296.49	4980.00	<1	
6040590.104	2115297.87	5040.00	<1	
6040590.223	2115299.25	5130.00	<1	
6040590.341	2115300.62	5670.00	2	
6040590.46	2115302.00	4850.00	<1	
6040590.578	2115303.38	4530.00	<1	
6040590.697	2115304.75	5490.00	1	
6040590.815	2115306.13	4830.00	<1	
6040590.934	2115307.51	5440.00	1	
6040591.053	2115308.89	5280.00	1	
6040591.171	2115310.26	5300.00	1	
6040591.29	2115311.64	4660.00	<1	
6040591.408	2115313.02	4640.00	<1	
6040591.527	2115314.39	5020.00	<1	
6040591.645	2115315.77	5260.00	1	
6040591.764	2115317.15	4610.00	<1	
6040591.882	2115318.52	5200.00	1	
6040592.001	2115319.90	5220.00	1	
6040592.12	2115321.28	5280.00	1	
6040592.238	2115322.65	5370.00	1	
6040592.357	2115324.03	4590.00	<1	
6040592.475	2115325.41	4950.00	<1	
6040592.594	2115326.79	4370.00	<1	
6040592.712	2115328.16	4830.00	<1	
6040592.831	2115329.54	4380.00	<1	
6040592.949	2115330.92	4620.00	<1	
6040593.068	2115332.29	4540.00	<1	
6040593.187	2115333.67	5360.00	1	
6040593.305	2115335.05	5040.00	<1	
6040593.424	2115336.42	5120.00	<1	
6040593.542	2115337.80	5420.00	1	
6040593.661	2115339.18	5110.00	<1	
6040593.779	2115340.56	5230.00	1	

Easting	Northing	Reading	Reach 48 Data Set	Comments
6040593.898	2115341.93	5420.00	1	
6040594.016	2115343.31	5000.00	<1	
6040594.135	2115344.69	5330.00	1	
6040594.254	2115346.06	4380.00	<1	
6040594.372	2115347.44	4720.00	<1	
6040594.491	2115348.82	4570.00	<1	
6040594.609	2115350.19	4300.00	<1	
6040594.728	2115351.57	4930.00	<1	
6040594.846	2115352.95	4460.00	<1	
6040594.965	2115354.32	4510.00	<1	
6040595.083	2115355.70	3780.00	<1	
6040595.202	2115357.08	3950.00	<1	
6040595.321	2115358.46	3820.00	<1	
6040595.439	2115359.83	3940.00	<1	
6040595.558	2115361.21	3970.00	<1	
6040595.676	2115362.59	3890.00	<1	
6040595.795	2115363.96	3990.00	<1	
6040595.913	2115365.34	4000.00	<1	
6040596.032	2115366.72	4280.00	<1	
6040596.15	2115368.09	4510.00	<1	
6040596.269	2115369.47	4570.00	<1	
6040596.387	2115370.85	4390.00	<1	
6040596.506	2115372.23	4630.00	<1	
6040596.625	2115373.60	4930.00	<1	
6040596.743	2115374.98	4570.00	<1	
6040596.862	2115376.36	4340.00	<1	
6040596.98	2115377.73	4870.00	<1	
6040597.099	2115379.11	5010.00	<1	
6040597.217	2115380.49	4550.00	<1	
6040597.336	2115381.86	4830.00	<1	

4795.84	Average
384.34	Std Dev
5948.88	3 Sigma
5800.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line B Hydrojetting

Reach: 50
Line: B

Main/Lateral: Main
Length (ft): 46
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 50 Data Set

Gamma Total CPS	
4793.93	Average
553.24	Std Dev
6453.64	3 Sigma
5580.00	Max

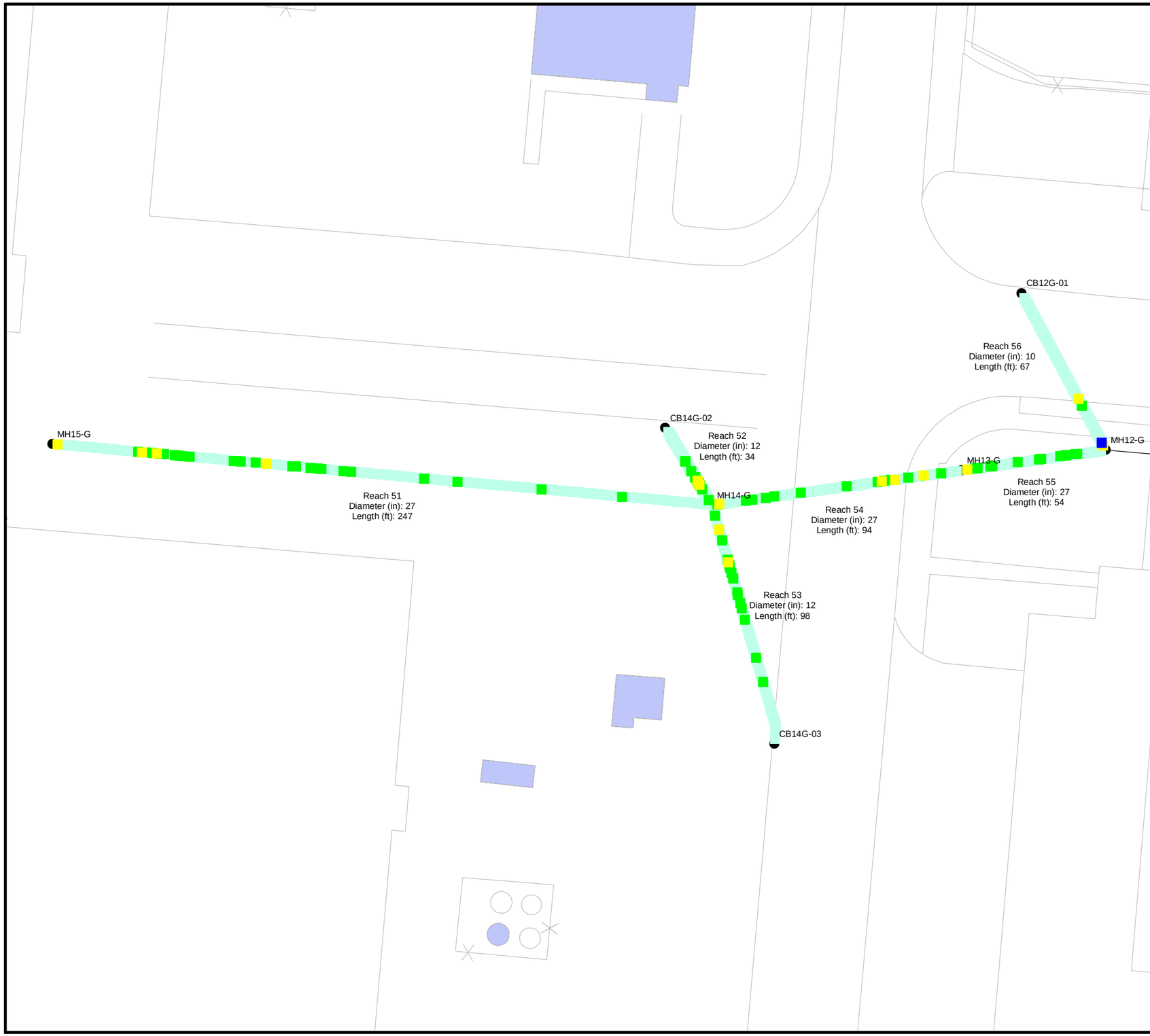
Sigma	Total Points
<1	52
1	4
2	0
3	0
4	0
5	0
>6	0

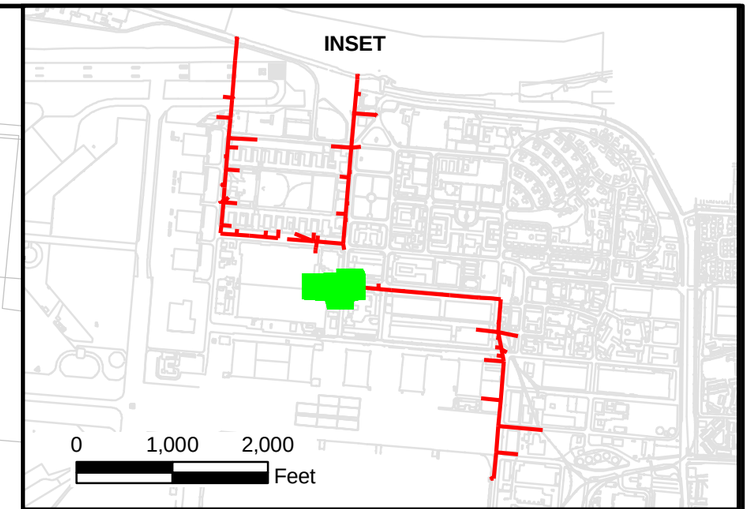
Easting	Northing	Reading	Reach 50 Data Set	Comments
6040599.964	2115427.37	2860.00	<1	
6040599.922	2115426.61	3060.00	<1	
6040599.879	2115425.86	3290.00	<1	
6040599.836	2115425.10	3480.00	<1	
6040599.794	2115424.35	4060.00	<1	
6040599.751	2115423.59	4300.00	<1	
6040599.708	2115422.84	5310.00	<1	
6040599.666	2115422.08	4960.00	<1	
6040599.623	2115421.33	4900.00	<1	
6040599.581	2115420.57	4870.00	<1	
6040599.538	2115419.82	5130.00	<1	
6040599.495	2115419.06	5150.00	<1	
6040599.453	2115418.31	5230.00	<1	
6040599.41	2115417.55	4920.00	<1	
6040599.368	2115416.80	4850.00	<1	
6040599.325	2115416.04	5040.00	<1	
6040599.282	2115415.29	4780.00	<1	
6040599.24	2115414.53	5120.00	<1	
6040599.197	2115413.78	5220.00	<1	
6040599.154	2115413.02	5400.00	1	

Easting	Northing	Reading	Reach 50 Data Set	Comments
6040599.112	2115412.27	5070.00	<1	
6040599.069	2115411.52	4690.00	<1	
6040599.027	2115410.76	4720.00	<1	
6040598.984	2115410.01	5250.00	<1	
6040598.941	2115409.25	5320.00	<1	
6040598.899	2115408.50	5000.00	<1	
6040598.856	2115407.74	5020.00	<1	
6040598.813	2115406.99	5020.00	<1	
6040598.771	2115406.23	4860.00	<1	
6040598.728	2115405.48	4390.00	<1	
6040598.686	2115404.72	4530.00	<1	
6040598.643	2115403.97	4490.00	<1	
6040598.6	2115403.21	4810.00	<1	
6040598.558	2115402.46	4730.00	<1	
6040598.515	2115401.70	4570.00	<1	
6040598.473	2115400.95	4980.00	<1	
6040598.43	2115400.19	5060.00	<1	
6040598.387	2115399.44	4940.00	<1	
6040598.345	2115398.68	4600.00	<1	
6040598.302	2115397.93	4860.00	<1	
6040598.259	2115397.17	5130.00	<1	
6040598.217	2115396.42	5080.00	<1	
6040598.174	2115395.67	5140.00	<1	
6040598.132	2115394.91	5380.00	1	
6040598.089	2115394.16	5580.00	1	
6040598.046	2115393.40	5190.00	<1	
6040598.004	2115392.65	4950.00	<1	
6040597.961	2115391.89	5480.00	1	
6040597.919	2115391.14	4810.00	<1	
6040597.876	2115390.38	4790.00	<1	
6040597.833	2115389.63	4970.00	<1	
6040597.791	2115388.87	5010.00	<1	
6040597.748	2115388.12	4940.00	<1	
6040597.705	2115387.36	4250.00	<1	
6040597.663	2115386.61	4360.00	<1	
6040597.62	2115385.85	4560.00	<1	

4793.93	Average
553.24	Std Dev
6453.64	3 Sigma
5580.00	Max

Easting	Northing	Reading	Reach 50 Data Set	Comments





Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
51	5825
52	6451
53	6067
54	5522
55	5745
56	6987

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

036 121824
Feet

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 51 thru 56

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_51-56_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 51
Line: G

Main/Lateral: Main
Length (ft): 247
Pipe Diameter (in): 27

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 51 Data Set

Gamma Total CPS	
4808.26	Average
338.79	Std Dev
5824.64	3 Sigma
5750.00	Max

Sigma	Total Points
<1	150
1	24
2	4
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 51 Data Set	Comments
6040159.244	2113224.90	5570.00	2	
6040160.612	2113224.77	4880.00	<1	
6040161.981	2113224.64	5110.00	<1	
6040163.349	2113224.51	4680.00	<1	
6040164.718	2113224.39	4400.00	<1	
6040166.087	2113224.26	4570.00	<1	
6040167.455	2113224.13	4350.00	<1	
6040168.824	2113224.01	4350.00	<1	
6040170.192	2113223.88	4530.00	<1	
6040171.561	2113223.75	4580.00	<1	
6040172.93	2113223.63	4900.00	<1	
6040174.298	2113223.50	4390.00	<1	
6040175.667	2113223.37	4710.00	<1	
6040177.035	2113223.24	4660.00	<1	
6040178.404	2113223.12	4680.00	<1	
6040179.773	2113222.99	4220.00	<1	
6040181.141	2113222.86	4060.00	<1	
6040182.51	2113222.74	4490.00	<1	
6040183.878	2113222.61	4640.00	<1	
6040185.247	2113222.48	4620.00	<1	

Easting	Northing	Reading	Reach 51 Data Set	Comments
6040186.616	2113222.35	4650.00	<1	
6040187.984	2113222.23	4730.00	<1	
6040189.353	2113222.10	5220.00	1	
6040190.722	2113221.97	5650.00	2	
6040192.09	2113221.85	5420.00	1	
6040193.459	2113221.72	4770.00	<1	
6040194.827	2113221.59	5150.00	1	
6040196.196	2113221.47	5750.00	2	
6040197.565	2113221.34	5460.00	1	
6040198.933	2113221.21	5320.00	1	
6040200.302	2113221.08	5030.00	<1	
6040201.67	2113220.96	4750.00	<1	
6040203.039	2113220.83	5300.00	1	
6040204.408	2113220.70	5410.00	1	
6040205.776	2113220.58	5160.00	1	
6040207.145	2113220.45	4860.00	<1	
6040208.513	2113220.32	5230.00	1	
6040209.882	2113220.19	4340.00	<1	
6040211.251	2113220.07	4890.00	<1	
6040212.619	2113219.94	4800.00	<1	
6040213.988	2113219.81	4460.00	<1	
6040215.356	2113219.69	4960.00	<1	
6040216.725	2113219.56	4950.00	<1	
6040218.094	2113219.43	4920.00	<1	
6040219.462	2113219.30	4780.00	<1	
6040220.831	2113219.18	4250.00	<1	
6040222.199	2113219.05	4660.00	<1	
6040223.568	2113218.92	4770.00	<1	
6040224.937	2113218.80	5260.00	1	
6040226.305	2113218.67	5170.00	1	
6040227.674	2113218.54	5310.00	1	
6040229.042	2113218.42	5000.00	<1	
6040230.411	2113218.29	4490.00	<1	
6040231.78	2113218.16	5120.00	<1	
6040233.148	2113218.03	5240.00	1	
6040234.517	2113217.91	5100.00	<1	
6040235.885	2113217.78	4990.00	<1	
6040237.254	2113217.65	5530.00	2	
6040238.623	2113217.53	4940.00	<1	
6040239.991	2113217.40	4770.00	<1	
6040241.36	2113217.27	4990.00	<1	

Easting	Northing	Reading	Reach 51 Data Set	Comments
6040242.728	2113217.14	4230.00	<1	
6040244.097	2113217.02	4170.00	<1	
6040245.466	2113216.89	4930.00	<1	
6040246.834	2113216.76	5290.00	1	
6040248.203	2113216.64	5220.00	1	
6040249.571	2113216.51	5030.00	<1	
6040250.94	2113216.38	5110.00	<1	
6040252.309	2113216.26	4990.00	<1	
6040253.677	2113216.13	5220.00	1	
6040255.046	2113216.00	5120.00	<1	
6040256.414	2113215.87	5360.00	1	
6040257.783	2113215.75	5240.00	1	
6040259.152	2113215.62	4790.00	<1	
6040260.52	2113215.49	4860.00	<1	
6040261.889	2113215.37	4740.00	<1	
6040263.257	2113215.24	4820.00	<1	
6040264.626	2113215.11	5130.00	<1	
6040265.995	2113214.98	5320.00	1	
6040267.363	2113214.86	5130.00	<1	
6040268.732	2113214.73	5180.00	1	
6040270.1	2113214.60	5040.00	<1	
6040271.469	2113214.48	4590.00	<1	
6040272.838	2113214.35	5130.00	<1	
6040274.206	2113214.22	4620.00	<1	
6040275.575	2113214.10	5100.00	<1	
6040276.943	2113213.97	4890.00	<1	
6040278.312	2113213.84	4940.00	<1	
6040279.681	2113213.71	4920.00	<1	
6040281.049	2113213.59	4740.00	<1	
6040282.418	2113213.46	4630.00	<1	
6040283.786	2113213.33	4410.00	<1	
6040285.155	2113213.21	4340.00	<1	
6040286.524	2113213.08	4490.00	<1	
6040287.892	2113212.95	4510.00	<1	
6040289.261	2113212.82	4770.00	<1	
6040290.629	2113212.70	4640.00	<1	
6040291.998	2113212.57	4850.00	<1	
6040293.367	2113212.44	4740.00	<1	
6040294.735	2113212.32	5130.00	<1	
6040296.104	2113212.19	5340.00	1	
6040297.473	2113212.06	5080.00	<1	

Easting	Northing	Reading	Reach 51 Data Set	Comments
6040298.841	2113211.93	4910.00	<1	
6040300.21	2113211.81	4910.00	<1	
6040301.578	2113211.68	4220.00	<1	
6040302.947	2113211.55	4470.00	<1	
6040304.316	2113211.43	5080.00	<1	
6040305.684	2113211.30	4670.00	<1	
6040307.053	2113211.17	4680.00	<1	
6040308.421	2113211.05	5390.00	1	
6040309.79	2113210.92	4910.00	<1	
6040311.159	2113210.79	4820.00	<1	
6040312.527	2113210.66	4940.00	<1	
6040313.896	2113210.54	4730.00	<1	
6040315.264	2113210.41	4680.00	<1	
6040316.633	2113210.28	4580.00	<1	
6040318.002	2113210.16	4730.00	<1	
6040319.37	2113210.03	4230.00	<1	
6040320.739	2113209.90	4550.00	<1	
6040322.107	2113209.77	4460.00	<1	
6040323.476	2113209.65	4550.00	<1	
6040324.845	2113209.52	4470.00	<1	
6040326.213	2113209.39	5100.00	<1	
6040327.582	2113209.27	4810.00	<1	
6040328.95	2113209.14	5010.00	<1	
6040330.319	2113209.01	4840.00	<1	
6040331.688	2113208.89	5120.00	<1	
6040333.056	2113208.76	4570.00	<1	
6040334.425	2113208.63	4640.00	<1	
6040335.793	2113208.50	4220.00	<1	
6040337.162	2113208.38	4570.00	<1	
6040338.531	2113208.25	4400.00	<1	
6040339.899	2113208.12	5340.00	1	
6040341.268	2113208.00	4720.00	<1	
6040342.636	2113207.87	5120.00	<1	
6040344.005	2113207.74	4780.00	<1	
6040345.374	2113207.61	4390.00	<1	
6040346.742	2113207.49	4350.00	<1	
6040348.111	2113207.36	4320.00	<1	
6040349.479	2113207.23	4460.00	<1	
6040350.848	2113207.11	4610.00	<1	
6040352.217	2113206.98	4930.00	<1	
6040353.585	2113206.85	4840.00	<1	

Easting	Northing	Reading	Reach 51 Data Set	Comments
6040354.954	2113206.72	5010.00	<1	
6040356.322	2113206.60	5120.00	<1	
6040357.691	2113206.47	4660.00	<1	
6040359.06	2113206.34	4480.00	<1	
6040360.428	2113206.22	4730.00	<1	
6040361.797	2113206.09	4910.00	<1	
6040363.165	2113205.96	4970.00	<1	
6040364.534	2113205.84	4810.00	<1	
6040365.903	2113205.71	4230.00	<1	
6040367.271	2113205.58	5090.00	<1	
6040368.64	2113205.45	4960.00	<1	
6040370.008	2113205.33	5160.00	1	
6040371.377	2113205.20	4260.00	<1	
6040372.746	2113205.07	4060.00	<1	
6040374.114	2113204.95	4510.00	<1	
6040375.483	2113204.82	4550.00	<1	
6040376.851	2113204.69	4780.00	<1	
6040378.22	2113204.56	4740.00	<1	
6040379.589	2113204.44	4430.00	<1	
6040380.957	2113204.31	4560.00	<1	
6040382.326	2113204.18	4670.00	<1	
6040383.694	2113204.06	4790.00	<1	
6040385.063	2113203.93	4470.00	<1	
6040386.432	2113203.80	4450.00	<1	
6040387.8	2113203.68	4470.00	<1	
6040389.169	2113203.55	4690.00	<1	
6040390.537	2113203.42	4200.00	<1	
6040391.906	2113203.29	4310.00	<1	
6040393.275	2113203.17	4920.00	<1	
6040394.643	2113203.04	5080.00	<1	
6040396.012	2113202.91	4760.00	<1	
6040397.38	2113202.79	4750.00	<1	
6040398.749	2113202.66	4820.00	<1	
6040400.118	2113202.53	4790.00	<1	
6040401.486	2113202.40	4840.00	<1	

4808.26	Average
338.79	Std Dev
5824.64	3 Sigma
5750.00	Max

Easting	Northing	Reading	Reach 51 Data Set	Comments

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 52
Line: G

Main/Lateral: Lateral
Length (ft): 34
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 52 Data Set

Gamma Total CPS	
5245.00	Average
401.90	Std Dev
6450.71	3 Sigma
6170.00	Max

Sigma	Total Points
<1	87
1	12
2	3
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 52 Data Set	Comments
6040387.027	2113229.40	5120.00	<1	
6040387.179	2113229.15	4980.00	<1	
6040387.332	2113228.90	4940.00	<1	
6040387.485	2113228.65	5230.00	<1	
6040387.637	2113228.40	5000.00	<1	
6040387.79	2113228.14	4270.00	<1	
6040387.943	2113227.89	4410.00	<1	
6040388.095	2113227.64	4650.00	<1	
6040388.248	2113227.39	4530.00	<1	
6040388.4	2113227.13	4700.00	<1	
6040388.553	2113226.88	4120.00	<1	
6040388.706	2113226.63	4230.00	<1	
6040388.858	2113226.38	4720.00	<1	
6040389.011	2113226.13	4900.00	<1	
6040389.164	2113225.87	5030.00	<1	
6040389.316	2113225.62	4830.00	<1	
6040389.469	2113225.37	5010.00	<1	
6040389.621	2113225.12	4740.00	<1	
6040389.774	2113224.86	5260.00	<1	
6040389.927	2113224.61	5370.00	<1	

Easting	Northing	Reading	Reach 52 Data Set	Comments
6040390.079	2113224.36	5530.00	<1	
6040390.232	2113224.11	5240.00	<1	
6040390.385	2113223.86	5310.00	<1	
6040390.537	2113223.60	5340.00	<1	
6040390.69	2113223.35	5150.00	<1	
6040390.842	2113223.10	4900.00	<1	
6040390.995	2113222.85	5260.00	<1	
6040391.148	2113222.59	5620.00	<1	
6040391.3	2113222.34	5520.00	<1	
6040391.453	2113222.09	5340.00	<1	
6040391.606	2113221.84	5410.00	<1	
6040391.758	2113221.59	5120.00	<1	
6040391.911	2113221.33	5180.00	<1	
6040392.063	2113221.08	4730.00	<1	
6040392.216	2113220.83	5180.00	<1	
6040392.369	2113220.58	5470.00	<1	
6040392.521	2113220.32	5530.00	<1	
6040392.674	2113220.07	5300.00	<1	
6040392.827	2113219.82	5020.00	<1	
6040392.979	2113219.57	5090.00	<1	
6040393.132	2113219.32	5560.00	<1	
6040393.285	2113219.06	5400.00	<1	
6040393.437	2113218.81	5760.00	1	
6040393.59	2113218.56	5950.00	1	
6040393.742	2113218.31	5140.00	<1	
6040393.895	2113218.06	5080.00	<1	
6040394.048	2113217.80	5250.00	<1	
6040394.2	2113217.55	4850.00	<1	
6040394.353	2113217.30	4940.00	<1	
6040394.506	2113217.05	4940.00	<1	
6040394.658	2113216.79	4830.00	<1	
6040394.811	2113216.54	4790.00	<1	
6040394.963	2113216.29	5150.00	<1	
6040395.116	2113216.04	5160.00	<1	
6040395.269	2113215.79	4900.00	<1	
6040395.421	2113215.53	5290.00	<1	
6040395.574	2113215.28	5330.00	<1	
6040395.727	2113215.03	5830.00	1	
6040395.879	2113214.78	5440.00	<1	
6040396.032	2113214.52	5020.00	<1	
6040396.184	2113214.27	5000.00	<1	

Easting	Northing	Reading	Reach 52 Data Set	Comments
6040396.337	2113214.02	5410.00	<1	
6040396.49	2113213.77	5420.00	<1	
6040396.642	2113213.52	5380.00	<1	
6040396.795	2113213.26	5110.00	<1	
6040396.948	2113213.01	5440.00	<1	
6040397.1	2113212.76	5730.00	1	
6040397.253	2113212.51	5770.00	1	
6040397.406	2113212.25	5330.00	<1	
6040397.558	2113212.00	5510.00	<1	
6040397.711	2113211.75	5480.00	<1	
6040397.863	2113211.50	5760.00	1	
6040398.016	2113211.25	6170.00	2	
6040398.169	2113210.99	5860.00	1	
6040398.321	2113210.74	6130.00	2	
6040398.474	2113210.49	5980.00	1	
6040398.627	2113210.24	5820.00	1	
6040398.779	2113209.98	6090.00	2	
6040398.932	2113209.73	5800.00	1	
6040399.084	2113209.48	5570.00	<1	
6040399.237	2113209.23	5540.00	<1	
6040399.39	2113208.98	5020.00	<1	
6040399.542	2113208.72	4830.00	<1	
6040399.695	2113208.47	4720.00	<1	
6040399.848	2113208.22	5700.00	1	
6040400	2113207.97	5490.00	<1	
6040400.153	2113207.71	5270.00	<1	
6040400.305	2113207.46	4830.00	<1	
6040400.458	2113207.21	5500.00	<1	
6040400.611	2113206.96	5450.00	<1	
6040400.763	2113206.71	5080.00	<1	
6040400.916	2113206.45	5180.00	<1	
6040401.069	2113206.20	5540.00	<1	
6040401.221	2113205.95	5370.00	<1	
6040401.374	2113205.70	5260.00	<1	
6040401.526	2113205.44	5310.00	<1	
6040401.679	2113205.19	5320.00	<1	
6040401.832	2113204.94	5160.00	<1	
6040401.984	2113204.69	5560.00	<1	
6040402.137	2113204.44	5430.00	<1	
6040402.29	2113204.18	5750.00	1	
6040402.442	2113203.93	5030.00	<1	

Easting	Northing	Reading		Reach 52 Data Set	Comments
		5245.00	Average		
		401.90	Std Dev		
		6450.71	3 Sigma		
		6170.00	Max		

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 53
Line: G

Main/Lateral: Lateral
Length (ft): 98
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 53 Data Set

Gamma Total CPS	
4964.00	Average
367.65	Std Dev
6066.96	3 Sigma
5870.00	Max

Sigma	Total Points
<1	69
1	14
2	2
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 53 Data Set	Comments
6040426.895	2113115.08	4550.00	<1	
6040426.962	2113116.04	4580.00	<1	
6040427.029	2113116.99	4540.00	<1	
6040427.096	2113117.95	4690.00	<1	
6040427.163	2113118.90	4510.00	<1	
6040427.23	2113119.86	5140.00	<1	
6040426.953	2113120.82	4780.00	<1	
6040426.659	2113121.84	4870.00	<1	
6040426.365	2113122.86	4890.00	<1	
6040426.071	2113123.88	4620.00	<1	
6040425.777	2113124.90	4530.00	<1	
6040425.484	2113125.92	4230.00	<1	
6040425.19	2113126.93	4250.00	<1	
6040424.896	2113127.95	4740.00	<1	
6040424.602	2113128.97	4580.00	<1	
6040424.308	2113129.99	4680.00	<1	
6040424.014	2113131.01	4280.00	<1	
6040423.72	2113132.03	4280.00	<1	
6040423.427	2113133.05	4970.00	<1	
6040423.133	2113134.07	4520.00	<1	

Easting	Northing	Reading	Reach 53 Data Set	Comments
6040422.839	2113135.09	4790.00	<1	
6040422.545	2113136.10	5540.00	1	
6040422.251	2113137.12	4970.00	<1	
6040421.957	2113138.14	5140.00	<1	
6040421.663	2113139.16	5030.00	<1	
6040421.37	2113140.18	4960.00	<1	
6040421.076	2113141.20	5270.00	<1	
6040420.782	2113142.22	5090.00	<1	
6040420.488	2113143.24	4760.00	<1	
6040420.194	2113144.26	4780.00	<1	
6040419.9	2113145.28	5550.00	1	
6040419.606	2113146.29	5270.00	<1	
6040419.313	2113147.31	4650.00	<1	
6040419.019	2113148.33	5030.00	<1	
6040418.725	2113149.35	4660.00	<1	
6040418.431	2113150.37	4800.00	<1	
6040418.137	2113151.39	4770.00	<1	
6040417.843	2113152.41	4820.00	<1	
6040417.549	2113153.43	4520.00	<1	
6040417.256	2113154.45	4630.00	<1	
6040416.962	2113155.46	4440.00	<1	
6040416.668	2113156.48	4600.00	<1	
6040416.374	2113157.50	4610.00	<1	
6040416.08	2113158.52	4660.00	<1	
6040415.786	2113159.54	5370.00	1	
6040415.492	2113160.56	5110.00	<1	
6040415.199	2113161.58	5040.00	<1	
6040414.905	2113162.60	5010.00	<1	
6040414.611	2113163.62	5570.00	1	
6040414.317	2113164.64	4880.00	<1	
6040414.023	2113165.65	5580.00	1	
6040413.729	2113166.67	4890.00	<1	
6040413.435	2113167.69	5050.00	<1	
6040413.142	2113168.71	5340.00	1	
6040412.848	2113169.73	5340.00	1	
6040412.554	2113170.75	4900.00	<1	
6040412.26	2113171.77	4660.00	<1	
6040411.966	2113172.79	5010.00	<1	
6040411.672	2113173.81	5280.00	<1	
6040411.378	2113174.82	5430.00	1	
6040411.085	2113175.84	4770.00	<1	

Easting	Northing	Reading	Reach 53 Data Set	Comments
6040410.791	2113176.86	5360.00	1	
6040410.497	2113177.88	5220.00	<1	
6040410.203	2113178.90	5610.00	1	
6040409.909	2113179.92	5550.00	1	
6040409.615	2113180.94	5870.00	2	
6040409.321	2113181.96	5550.00	1	
6040409.028	2113182.98	5140.00	<1	
6040408.734	2113184.00	5080.00	<1	
6040408.44	2113185.01	4960.00	<1	
6040408.146	2113186.03	5150.00	<1	
6040407.852	2113187.05	5330.00	<1	
6040407.558	2113188.07	4960.00	<1	
6040407.264	2113189.09	5620.00	1	
6040406.971	2113190.11	4890.00	<1	
6040406.677	2113191.13	4820.00	<1	
6040406.383	2113192.15	4910.00	<1	
6040406.089	2113193.17	5790.00	2	
6040405.795	2113194.18	5080.00	<1	
6040405.501	2113195.20	4730.00	<1	
6040405.207	2113196.22	5110.00	<1	
6040404.914	2113197.24	5110.00	<1	
6040404.62	2113198.26	5390.00	1	
6040404.326	2113199.28	5000.00	<1	
6040404.032	2113200.30	4910.00	<1	

4964.00	Average
367.65	Std Dev
6066.96	3 Sigma
5870.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 54
Line: G

Main/Lateral: Main
Length (ft): 94
Pipe Diameter (in): 27

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 54 Data Set

Gamma Total CPS	
4500.82	Average
340.49	Std Dev
5522.28	3 Sigma
5360.00	Max

Sigma	Total Points
<1	94
1	12
2	4
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 54 Data Set	Comments
6040405.458	2113202.50	5020.00	1	
6040406.277	2113202.61	5360.00	2	
6040407.096	2113202.73	4770.00	<1	
6040407.915	2113202.84	4730.00	<1	
6040408.734	2113202.96	4390.00	<1	
6040409.554	2113203.07	4470.00	<1	
6040410.373	2113203.19	4490.00	<1	
6040411.192	2113203.30	4610.00	<1	
6040412.011	2113203.42	3980.00	<1	
6040412.83	2113203.53	4440.00	<1	
6040413.649	2113203.65	4610.00	<1	
6040414.468	2113203.76	4570.00	<1	
6040415.287	2113203.88	4270.00	<1	
6040416.106	2113203.99	4900.00	1	
6040416.925	2113204.11	4410.00	<1	
6040417.744	2113204.22	4390.00	<1	
6040418.563	2113204.34	4980.00	1	
6040419.382	2113204.45	4810.00	<1	
6040420.201	2113204.57	4320.00	<1	
6040421.02	2113204.68	4170.00	<1	

Easting	Northing	Reading	Reach 54 Data Set	Comments
6040421.839	2113204.80	4320.00	<1	
6040422.658	2113204.91	4770.00	<1	
6040423.477	2113205.03	4850.00	1	
6040424.296	2113205.14	4620.00	<1	
6040425.115	2113205.26	4610.00	<1	
6040425.934	2113205.37	4660.00	<1	
6040426.753	2113205.49	5080.00	1	
6040427.573	2113205.60	4640.00	<1	
6040428.392	2113205.72	4560.00	<1	
6040429.211	2113205.84	3990.00	<1	
6040430.03	2113205.95	4490.00	<1	
6040430.849	2113206.07	4490.00	<1	
6040431.668	2113206.18	3880.00	<1	
6040432.487	2113206.30	4010.00	<1	
6040433.306	2113206.41	4150.00	<1	
6040434.125	2113206.53	4020.00	<1	
6040434.944	2113206.64	4760.00	<1	
6040435.763	2113206.76	4830.00	<1	
6040436.582	2113206.87	5010.00	1	
6040437.401	2113206.99	4270.00	<1	
6040438.22	2113207.10	4360.00	<1	
6040439.039	2113207.22	4340.00	<1	
6040439.858	2113207.33	4360.00	<1	
6040440.677	2113207.45	4290.00	<1	
6040441.496	2113207.56	4510.00	<1	
6040442.315	2113207.68	4180.00	<1	
6040443.134	2113207.79	4590.00	<1	
6040443.953	2113207.91	4440.00	<1	
6040444.772	2113208.02	4330.00	<1	
6040445.592	2113208.14	4010.00	<1	
6040446.411	2113208.25	3840.00	<1	
6040447.23	2113208.37	3660.00	<1	
6040448.049	2113208.48	4060.00	<1	
6040448.868	2113208.60	4100.00	<1	
6040449.687	2113208.71	3860.00	<1	
6040450.506	2113208.83	4110.00	<1	
6040451.325	2113208.94	4020.00	<1	
6040452.144	2113209.06	4450.00	<1	
6040452.963	2113209.17	4320.00	<1	
6040453.782	2113209.29	4860.00	1	
6040454.601	2113209.40	4670.00	<1	

Easting	Northing	Reading	Reach 54 Data Set	Comments
6040455.42	2113209.52	4530.00	<1	
6040456.239	2113209.63	4350.00	<1	
6040457.058	2113209.75	4840.00	<1	
6040457.877	2113209.86	4350.00	<1	
6040458.696	2113209.98	4740.00	<1	
6040459.515	2113210.09	4480.00	<1	
6040460.334	2113210.21	4180.00	<1	
6040461.153	2113210.32	4560.00	<1	
6040461.972	2113210.44	4820.00	<1	
6040462.791	2113210.55	4260.00	<1	
6040463.611	2113210.67	4070.00	<1	
6040464.43	2113210.78	4120.00	<1	
6040465.249	2113210.90	4910.00	1	
6040466.068	2113211.01	4410.00	<1	
6040466.887	2113211.13	5310.00	2	
6040467.706	2113211.24	5060.00	1	
6040468.525	2113211.36	4590.00	<1	
6040469.344	2113211.47	4650.00	<1	
6040470.163	2113211.59	5060.00	1	
6040470.982	2113211.70	4470.00	<1	
6040471.801	2113211.82	5190.00	2	
6040472.62	2113211.93	4650.00	<1	
6040473.439	2113212.05	4590.00	<1	
6040474.258	2113212.16	4420.00	<1	
6040475.077	2113212.28	4430.00	<1	
6040475.896	2113212.39	4610.00	<1	
6040476.715	2113212.51	4850.00	1	
6040477.534	2113212.62	4730.00	<1	
6040478.353	2113212.74	4580.00	<1	
6040479.172	2113212.85	3970.00	<1	
6040479.991	2113212.97	4570.00	<1	
6040480.81	2113213.08	4740.00	<1	
6040481.63	2113213.20	4590.00	<1	
6040482.449	2113213.31	5190.00	2	
6040483.268	2113213.43	4740.00	<1	
6040484.087	2113213.55	4720.00	<1	
6040484.906	2113213.66	4080.00	<1	
6040485.725	2113213.78	4420.00	<1	
6040486.544	2113213.89	4280.00	<1	
6040487.363	2113214.01	4420.00	<1	
6040488.182	2113214.12	4500.00	<1	

Easting	Northing	Reading	Reach 54 Data Set	Comments
6040489.001	2113214.24	5070.00	1	
6040489.82	2113214.35	4820.00	<1	
6040490.639	2113214.47	4520.00	<1	
6040491.458	2113214.58	3940.00	<1	
6040492.277	2113214.70	4060.00	<1	
6040493.096	2113214.81	4440.00	<1	
6040493.915	2113214.93	4630.00	<1	
6040494.734	2113215.04	4520.00	<1	

4500.82	Average
340.49	Std Dev
5522.28	3 Sigma
5360.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 55
Line: G

Main/Lateral: Main
Length (ft): 54
Pipe Diameter (in): 27

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 55 Data Set

Gamma Total CPS	
4810.31	Average
311.49	Std Dev
5744.78	3 Sigma
5450.00	Max

Sigma	Total Points
<1	51
1	12
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 55 Data Set	Comments
6040498.695	2113215.60	5450.00	2	
6040499.485	2113215.71	5000.00	<1	
6040500.274	2113215.82	4560.00	<1	
6040501.063	2113215.93	4880.00	<1	
6040501.852	2113216.04	5160.00	1	
6040502.642	2113216.15	5180.00	1	
6040503.431	2113216.26	4790.00	<1	
6040504.22	2113216.37	4890.00	<1	
6040505.01	2113216.48	4580.00	<1	
6040505.799	2113216.59	4840.00	<1	
6040506.588	2113216.71	4870.00	<1	
6040507.377	2113216.82	5370.00	1	
6040508.167	2113216.93	5280.00	1	
6040508.956	2113217.04	4810.00	<1	
6040509.745	2113217.15	4550.00	<1	
6040510.535	2113217.26	4930.00	<1	
6040511.324	2113217.37	4620.00	<1	
6040512.113	2113217.48	4570.00	<1	
6040512.902	2113217.59	4570.00	<1	
6040513.692	2113217.70	4330.00	<1	

Easting	Northing	Reading	Reach 55 Data Set	Comments
6040514.481	2113217.81	4910.00	<1	
6040515.27	2113217.92	4680.00	<1	
6040516.06	2113218.03	4680.00	<1	
6040516.849	2113218.15	4750.00	<1	
6040517.638	2113218.26	5250.00	1	
6040518.427	2113218.37	4540.00	<1	
6040519.217	2113218.48	4550.00	<1	
6040520.006	2113218.59	4560.00	<1	
6040520.795	2113218.70	4800.00	<1	
6040521.584	2113218.81	4340.00	<1	
6040522.374	2113218.92	4390.00	<1	
6040523.163	2113219.03	4400.00	<1	
6040523.952	2113219.14	4890.00	<1	
6040524.742	2113219.25	5070.00	<1	
6040525.531	2113219.36	5250.00	1	
6040526.32	2113219.48	5150.00	1	
6040527.109	2113219.59	4490.00	<1	
6040527.899	2113219.70	5070.00	<1	
6040528.688	2113219.81	5080.00	<1	
6040529.477	2113219.92	4710.00	<1	
6040530.267	2113220.03	4390.00	<1	
6040531.056	2113220.14	4710.00	<1	
6040531.845	2113220.25	4710.00	<1	
6040532.634	2113220.36	4940.00	<1	
6040533.424	2113220.47	5340.00	1	
6040534.213	2113220.58	4430.00	<1	
6040535.002	2113220.69	5180.00	1	
6040535.792	2113220.80	5230.00	1	
6040536.581	2113220.92	5060.00	<1	
6040537.37	2113221.03	4870.00	<1	
6040538.159	2113221.14	4770.00	<1	
6040538.949	2113221.25	5220.00	1	
6040539.738	2113221.36	5320.00	1	
6040540.527	2113221.47	5060.00	<1	
6040541.316	2113221.58	5000.00	<1	
6040542.106	2113221.69	4880.00	<1	
6040542.895	2113221.80	4870.00	<1	
6040543.684	2113221.91	4610.00	<1	
6040544.474	2113222.02	4450.00	<1	
6040545.263	2113222.13	4310.00	<1	
6040546.052	2113222.25	4630.00	<1	

Easting	Northing	Reading	Reach 55 Data Set	Comments
6040546.841	2113222.36	4230.00	<1	
6040547.631	2113222.47	4430.00	<1	
6040548.42	2113222.58	4430.00	<1	

4810.31	Average
311.49	Std Dev
5744.78	3 Sigma
5450.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 56
Line: G

Main/Lateral: Lateral
Length (ft): 67
Pipe Diameter (in): 10

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 56 Data Set

Gamma Total CPS	
5672.62	Average
438.21	Std Dev
6987.26	3 Sigma
7150.00	Max

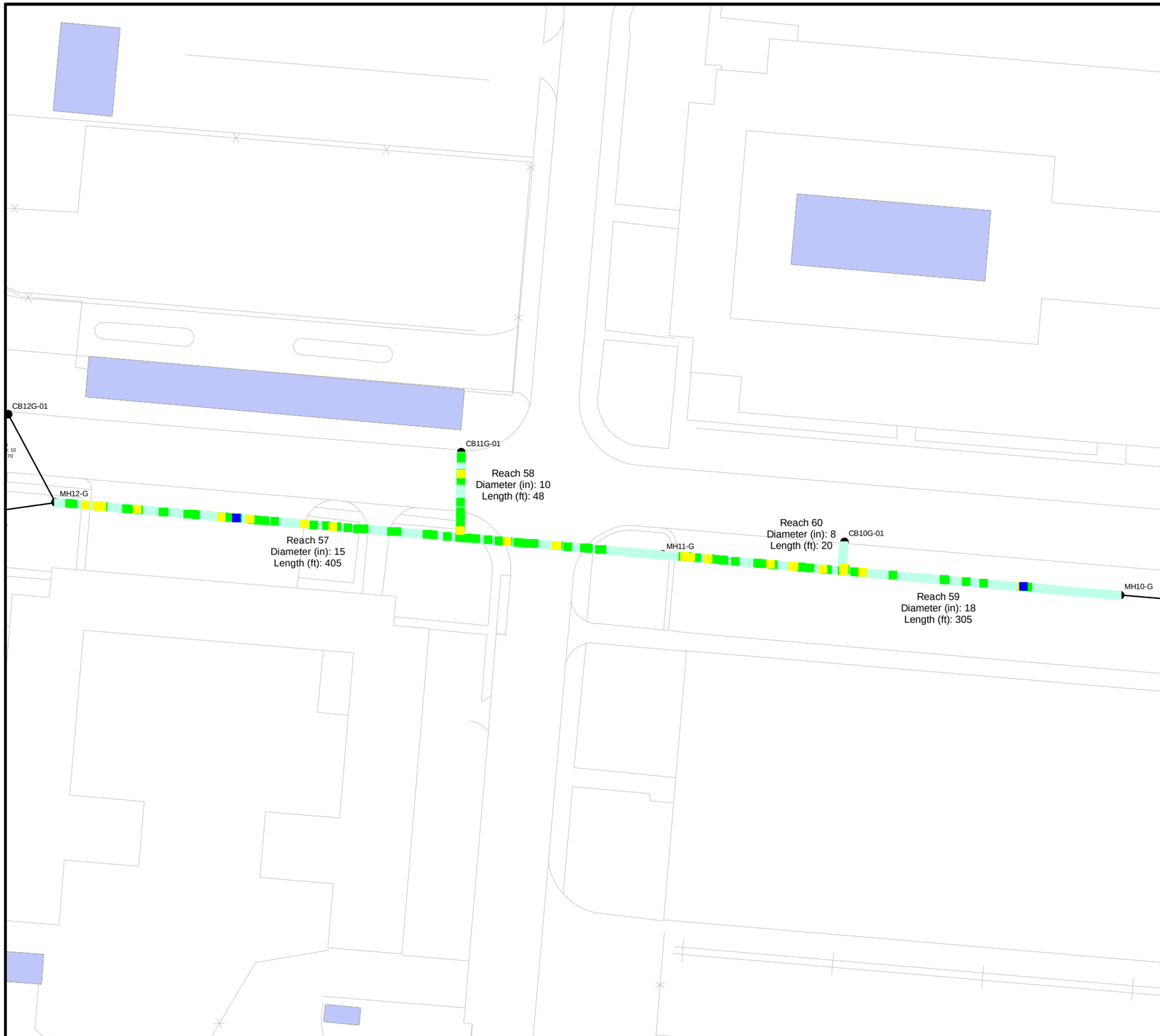
Sigma	Total Points
<1	61
1	1
2	2
3	1
4	0
5	0
>6	0

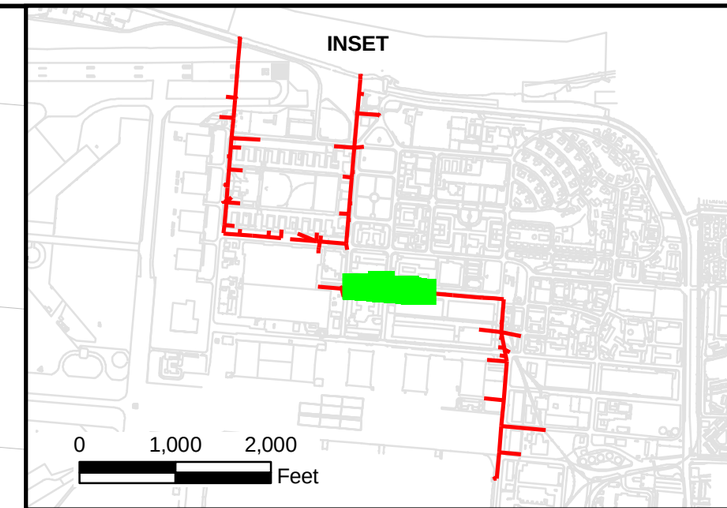
Easting	Northing	Reading	Reach 56 Data Set	Comments
6040519.921	2113279.75	4860.00	<1	
6040520.383	2113278.88	4900.00	<1	
6040520.844	2113278.02	5310.00	<1	
6040521.306	2113277.16	5410.00	<1	
6040521.767	2113276.30	5360.00	<1	
6040522.229	2113275.44	5540.00	<1	
6040522.69	2113274.58	6090.00	<1	
6040523.151	2113273.72	5320.00	<1	
6040523.613	2113272.85	5320.00	<1	
6040524.074	2113271.99	5740.00	<1	
6040524.536	2113271.13	5650.00	<1	
6040524.997	2113270.27	5940.00	<1	
6040525.459	2113269.41	5780.00	<1	
6040525.92	2113268.55	5320.00	<1	
6040526.382	2113267.69	5510.00	<1	
6040526.843	2113266.82	5570.00	<1	
6040527.305	2113265.96	5280.00	<1	
6040527.766	2113265.10	5070.00	<1	
6040528.228	2113264.24	5270.00	<1	
6040528.689	2113263.38	5770.00	<1	

Easting	Northing	Reading	Reach 56 Data Set	Comments
6040529.151	2113262.52	6030.00	<1	
6040529.612	2113261.66	5600.00	<1	
6040530.074	2113260.80	5470.00	<1	
6040530.535	2113259.93	6070.00	<1	
6040530.997	2113259.07	5350.00	<1	
6040531.458	2113258.21	5450.00	<1	
6040531.92	2113257.35	5740.00	<1	
6040532.381	2113256.49	6080.00	<1	
6040532.843	2113255.63	5670.00	<1	
6040533.304	2113254.77	5370.00	<1	
6040533.766	2113253.90	5910.00	<1	
6040534.227	2113253.04	5310.00	<1	
6040534.689	2113252.18	5410.00	<1	
6040535.15	2113251.32	5670.00	<1	
6040535.612	2113250.46	5600.00	<1	
6040536.073	2113249.60	5550.00	<1	
6040536.535	2113248.74	5790.00	<1	
6040536.996	2113247.88	5960.00	<1	
6040537.457	2113247.01	5920.00	<1	
6040537.919	2113246.15	5480.00	<1	
6040538.38	2113245.29	5580.00	<1	
6040538.842	2113244.43	5520.00	<1	
6040539.303	2113243.57	5760.00	<1	
6040539.765	2113242.71	5630.00	<1	
6040540.226	2113241.85	6960.00	2	
6040540.688	2113240.98	5930.00	<1	
6040541.149	2113240.12	6090.00	<1	
6040541.611	2113239.26	6490.00	1	
6040542.072	2113238.40	5820.00	<1	
6040542.534	2113237.54	5260.00	<1	
6040542.995	2113236.68	5380.00	<1	
6040543.457	2113235.82	5420.00	<1	
6040543.918	2113234.95	5960.00	<1	
6040544.38	2113234.09	5790.00	<1	
6040544.841	2113233.23	4820.00	<1	
6040545.303	2113232.37	5890.00	<1	
6040545.764	2113231.51	5480.00	<1	
6040546.226	2113230.65	5260.00	<1	
6040546.687	2113229.79	5830.00	<1	
6040547.149	2113228.93	5780.00	<1	
6040547.61	2113228.06	5960.00	<1	

Easting	Northing	Reading	Reach 56 Data Set	Comments
6040548.072	2113227.20	5970.00	<1	
6040548.533	2113226.34	5570.00	<1	
6040548.995	2113225.48	7150.00	3	
6040549.456	2113224.62	6980.00	2	

5672.62	Average
438.21	Std Dev
6987.26	3 Sigma
7150.00	Max





Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
57	7836
58	5510
59	7015
60	6156

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0 15 30 60
Feet

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 57 thru 60

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_57-60_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 57
Line: G

Main/Lateral: Main
Length (ft): 405
Pipe Diameter (in): 15

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 57 Data Set

Gamma Total CPS	
6030.97	Average
601.53	Std Dev
7835.56	3 Sigma
7920.00	Max

Sigma	Total Points
<1	369
1	61
2	12
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040552.393	2113222.68	5620.00	<1	
6040553.296	2113222.61	5280.00	<1	
6040554.2	2113222.53	5330.00	<1	
6040555.103	2113222.45	5330.00	<1	
6040556.006	2113222.37	5720.00	<1	
6040556.909	2113222.30	5840.00	<1	
6040557.812	2113222.22	6240.00	<1	
6040558.715	2113222.14	6560.00	<1	
6040559.619	2113222.06	6650.00	1	
6040560.522	2113221.99	6290.00	<1	
6040561.425	2113221.91	6220.00	<1	
6040562.328	2113221.83	6790.00	1	
6040563.231	2113221.75	6190.00	<1	
6040564.134	2113221.67	6190.00	<1	
6040565.038	2113221.60	6210.00	<1	
6040565.941	2113221.52	6280.00	<1	
6040566.844	2113221.44	5060.00	<1	
6040567.747	2113221.36	5410.00	<1	
6040568.65	2113221.29	5770.00	<1	
6040569.554	2113221.21	5600.00	<1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040570.457	2113221.13	7380.00	2	
6040571.36	2113221.05	6260.00	<1	
6040572.263	2113220.98	5890.00	<1	
6040573.166	2113220.90	5890.00	<1	
6040574.069	2113220.82	5650.00	<1	
6040574.973	2113220.74	5650.00	<1	
6040575.876	2113220.67	5640.00	<1	
6040576.779	2113220.59	6460.00	<1	
6040577.682	2113220.51	7520.00	2	
6040578.585	2113220.43	7180.00	1	
6040579.488	2113220.35	7020.00	1	
6040580.392	2113220.28	7430.00	2	
6040581.295	2113220.20	7480.00	2	
6040582.198	2113220.12	6940.00	1	
6040583.101	2113220.04	5560.00	<1	
6040584.004	2113219.97	5290.00	<1	
6040584.907	2113219.89	5370.00	<1	
6040585.811	2113219.81	5160.00	<1	
6040586.714	2113219.73	4900.00	<1	
6040587.617	2113219.66	5570.00	<1	
6040588.52	2113219.58	5010.00	<1	
6040589.423	2113219.50	5040.00	<1	
6040590.326	2113219.42	5360.00	<1	
6040591.23	2113219.35	5610.00	<1	
6040592.133	2113219.27	5280.00	<1	
6040593.036	2113219.19	5610.00	<1	
6040593.939	2113219.11	5490.00	<1	
6040594.842	2113219.03	5720.00	<1	
6040595.746	2113218.96	5560.00	<1	
6040596.649	2113218.88	6060.00	<1	
6040597.552	2113218.80	6750.00	1	
6040598.455	2113218.72	6540.00	<1	
6040599.358	2113218.65	6540.00	<1	
6040600.261	2113218.57	6260.00	<1	
6040601.165	2113218.49	5760.00	<1	
6040602.068	2113218.41	6440.00	<1	
6040602.971	2113218.34	6710.00	1	
6040603.874	2113218.26	5670.00	<1	
6040604.777	2113218.18	7480.00	2	
6040605.68	2113218.10	6830.00	1	
6040606.584	2113218.03	5700.00	<1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040607.487	2113217.95	5700.00	<1	
6040608.39	2113217.87	5510.00	<1	
6040609.293	2113217.79	5270.00	<1	
6040610.196	2113217.71	5800.00	<1	
6040611.099	2113217.64	5700.00	<1	
6040612.003	2113217.56	5770.00	<1	
6040612.906	2113217.48	5980.00	<1	
6040613.809	2113217.40	5690.00	<1	
6040614.712	2113217.33	5890.00	<1	
6040615.615	2113217.25	6040.00	<1	
6040616.518	2113217.17	6020.00	<1	
6040617.422	2113217.09	5740.00	<1	
6040618.325	2113217.02	6390.00	<1	
6040619.228	2113216.94	6510.00	<1	
6040620.131	2113216.86	6510.00	<1	
6040621.034	2113216.78	6420.00	<1	
6040621.938	2113216.70	7100.00	1	
6040622.841	2113216.63	6660.00	1	
6040623.744	2113216.55	5580.00	<1	
6040624.647	2113216.47	5580.00	<1	
6040625.55	2113216.39	6340.00	<1	
6040626.453	2113216.32	5670.00	<1	
6040627.357	2113216.24	6100.00	<1	
6040628.26	2113216.16	6010.00	<1	
6040629.163	2113216.08	5160.00	<1	
6040630.066	2113216.01	5300.00	<1	
6040630.969	2113215.93	5260.00	<1	
6040631.872	2113215.85	5560.00	<1	
6040632.776	2113215.77	5430.00	<1	
6040633.679	2113215.70	5500.00	<1	
6040634.582	2113215.62	5460.00	<1	
6040635.485	2113215.54	6100.00	<1	
6040636.388	2113215.46	5950.00	<1	
6040637.291	2113215.38	5810.00	<1	
6040638.195	2113215.31	6710.00	1	
6040639.098	2113215.23	6550.00	<1	
6040640.001	2113215.15	5810.00	<1	
6040640.904	2113215.07	6210.00	<1	
6040641.807	2113215.00	6800.00	1	
6040642.71	2113214.92	5810.00	<1	
6040643.614	2113214.84	7130.00	1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040644.517	2113214.76	6570.00	<1	
6040645.42	2113214.69	5210.00	<1	
6040646.323	2113214.61	5780.00	<1	
6040647.226	2113214.53	5360.00	<1	
6040648.129	2113214.45	4960.00	<1	
6040649.033	2113214.38	4960.00	<1	
6040649.936	2113214.30	6230.00	<1	
6040650.839	2113214.22	5640.00	<1	
6040651.742	2113214.14	5810.00	<1	
6040652.645	2113214.06	5950.00	<1	
6040653.549	2113213.99	5620.00	<1	
6040654.452	2113213.91	5470.00	<1	
6040655.355	2113213.83	5600.00	<1	
6040656.258	2113213.75	5970.00	<1	
6040657.161	2113213.68	6040.00	<1	
6040658.064	2113213.60	6110.00	<1	
6040658.968	2113213.52	6590.00	<1	
6040659.871	2113213.44	6430.00	<1	
6040660.774	2113213.37	7630.00	2	
6040661.677	2113213.29	6720.00	1	
6040662.58	2113213.21	7120.00	1	
6040663.483	2113213.13	6060.00	<1	
6040664.387	2113213.06	6330.00	<1	
6040665.29	2113212.98	6660.00	1	
6040666.193	2113212.90	6720.00	1	
6040667.096	2113212.82	6060.00	<1	
6040667.999	2113212.74	6130.00	<1	
6040668.902	2113212.67	5330.00	<1	
6040669.806	2113212.59	6200.00	<1	
6040670.709	2113212.51	7920.00	3	
6040671.612	2113212.43	7220.00	1	
6040672.515	2113212.36	6300.00	<1	
6040673.418	2113212.28	6370.00	<1	
6040674.321	2113212.20	5780.00	<1	
6040675.225	2113212.12	5780.00	<1	
6040676.128	2113212.05	5700.00	<1	
6040677.031	2113211.97	5870.00	<1	
6040677.934	2113211.89	5680.00	<1	
6040678.837	2113211.81	5760.00	<1	
6040679.741	2113211.74	7770.00	2	
6040680.644	2113211.66	5950.00	<1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040681.547	2113211.58	6750.00	1	
6040682.45	2113211.50	6210.00	<1	
6040683.353	2113211.42	6170.00	<1	
6040684.256	2113211.35	6370.00	<1	
6040685.16	2113211.27	6870.00	1	
6040686.063	2113211.19	6060.00	<1	
6040686.966	2113211.11	6440.00	<1	
6040687.869	2113211.04	6520.00	<1	
6040688.772	2113210.96	6060.00	<1	
6040689.675	2113210.88	6700.00	1	
6040690.579	2113210.80	6560.00	<1	
6040691.482	2113210.73	5620.00	<1	
6040692.385	2113210.65	5140.00	<1	
6040693.288	2113210.57	5650.00	<1	
6040694.191	2113210.49	6410.00	<1	
6040695.094	2113210.42	6460.00	<1	
6040695.998	2113210.34	6990.00	1	
6040696.901	2113210.26	5600.00	<1	
6040697.804	2113210.18	5000.00	<1	
6040698.707	2113210.10	5770.00	<1	
6040699.61	2113210.03	5650.00	<1	
6040700.513	2113209.95	5360.00	<1	
6040701.417	2113209.87	5110.00	<1	
6040702.32	2113209.79	5480.00	<1	
6040703.223	2113209.72	5210.00	<1	
6040704.126	2113209.64	5240.00	<1	
6040705.029	2113209.56	5150.00	<1	
6040705.933	2113209.48	5320.00	<1	
6040706.836	2113209.41	5140.00	<1	
6040707.739	2113209.33	5580.00	<1	
6040708.642	2113209.25	5850.00	<1	
6040709.545	2113209.17	6200.00	<1	
6040710.448	2113209.10	5630.00	<1	
6040711.352	2113209.02	5670.00	<1	
6040712.255	2113208.94	5670.00	<1	
6040713.158	2113208.86	5800.00	<1	
6040714.061	2113208.78	5740.00	<1	
6040714.964	2113208.71	6520.00	<1	
6040715.867	2113208.63	7360.00	2	
6040716.771	2113208.55	6510.00	<1	
6040717.674	2113208.47	5800.00	<1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040718.577	2113208.40	5780.00	<1	
6040719.48	2113208.32	6000.00	<1	
6040720.383	2113208.24	6010.00	<1	
6040721.286	2113208.16	6600.00	<1	
6040722.19	2113208.09	7180.00	1	
6040723.093	2113208.01	6550.00	<1	
6040723.996	2113207.93	5130.00	<1	
6040724.899	2113207.85	5340.00	<1	
6040725.802	2113207.77	6290.00	<1	
6040726.705	2113207.70	5360.00	<1	
6040727.609	2113207.62	5910.00	<1	
6040728.512	2113207.54	6450.00	<1	
6040729.415	2113207.46	5530.00	<1	
6040730.318	2113207.39	6770.00	1	
6040731.221	2113207.31	6450.00	<1	
6040732.125	2113207.23	5690.00	<1	
6040733.028	2113207.15	5530.00	<1	
6040733.931	2113207.08	6020.00	<1	
6040734.834	2113207.00	7250.00	2	
6040735.737	2113206.92	6220.00	<1	
6040736.64	2113206.84	6200.00	<1	
6040737.544	2113206.77	7110.00	1	
6040738.447	2113206.69	6140.00	<1	
6040739.35	2113206.61	5750.00	<1	
6040740.253	2113206.53	5650.00	<1	
6040741.156	2113206.45	5610.00	<1	
6040742.059	2113206.38	5130.00	<1	
6040742.963	2113206.30	5590.00	<1	
6040743.866	2113206.22	5210.00	<1	
6040744.769	2113206.14	6790.00	1	
6040745.672	2113206.07	5910.00	<1	
6040746.575	2113205.99	5810.00	<1	
6040747.478	2113205.91	5540.00	<1	
6040748.382	2113205.83	5880.00	<1	
6040749.285	2113205.76	6060.00	<1	
6040750.188	2113205.68	6410.00	<1	
6040751.091	2113205.60	6640.00	1	
6040751.994	2113205.52	6120.00	<1	
6040752.897	2113205.45	7070.00	1	
6040753.801	2113205.37	6430.00	<1	
6040754.704	2113205.29	6660.00	1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040755.607	2113205.21	6660.00	1	
6040756.51	2113205.13	6080.00	<1	
6040757.413	2113205.06	5650.00	<1	
6040758.317	2113204.98	5770.00	<1	
6040759.22	2113204.90	5000.00	<1	
6040760.123	2113204.82	5500.00	<1	
6040761.026	2113204.75	6630.00	<1	
6040761.929	2113204.67	6470.00	<1	
6040762.832	2113204.59	6370.00	<1	
6040763.736	2113204.51	6010.00	<1	
6040764.639	2113204.44	5820.00	<1	
6040765.542	2113204.36	6470.00	<1	
6040766.445	2113204.28	5480.00	<1	
6040767.348	2113204.20	5510.00	<1	
6040768.251	2113204.13	5830.00	<1	
6040769.155	2113204.05	6470.00	<1	
6040770.058	2113203.97	6060.00	<1	
6040770.961	2113203.89	5810.00	<1	
6040771.864	2113203.81	5770.00	<1	
6040772.767	2113203.74	6590.00	<1	
6040773.67	2113203.66	6670.00	1	
6040774.574	2113203.58	5930.00	<1	
6040775.477	2113203.50	6650.00	1	
6040776.38	2113203.43	6900.00	1	
6040777.283	2113203.35	7140.00	1	
6040778.186	2113203.27	6460.00	<1	
6040779.089	2113203.19	5550.00	<1	
6040779.993	2113203.12	5000.00	<1	
6040780.896	2113203.04	5490.00	<1	
6040781.799	2113202.96	5850.00	<1	
6040782.702	2113202.88	5700.00	<1	
6040783.605	2113202.81	6290.00	<1	
6040784.509	2113202.73	6130.00	<1	
6040785.412	2113202.65	5470.00	<1	
6040786.315	2113202.57	5470.00	<1	
6040787.218	2113202.49	5150.00	<1	
6040788.121	2113202.42	5960.00	<1	
6040789.024	2113202.34	5660.00	<1	
6040789.928	2113202.26	5980.00	<1	
6040790.831	2113202.18	6150.00	<1	
6040791.734	2113202.11	6320.00	<1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040792.637	2113202.03	5630.00	<1	
6040793.54	2113201.95	6370.00	<1	
6040794.443	2113201.87	6020.00	<1	
6040795.347	2113201.80	6620.00	<1	
6040796.25	2113201.72	6250.00	<1	
6040797.153	2113201.64	6870.00	1	
6040798.056	2113201.56	6680.00	1	
6040798.959	2113201.49	5880.00	<1	
6040799.862	2113201.41	6220.00	<1	
6040800.766	2113201.33	5270.00	<1	
6040801.669	2113201.25	7110.00	1	
6040802.572	2113201.17	6520.00	<1	
6040803.475	2113201.10	6480.00	<1	
6040804.378	2113201.02	5430.00	<1	
6040805.281	2113200.94	5400.00	<1	
6040806.185	2113200.86	5250.00	<1	
6040807.088	2113200.79	5940.00	<1	
6040807.991	2113200.71	6610.00	<1	
6040808.894	2113200.63	5420.00	<1	
6040809.797	2113200.55	6050.00	<1	
6040810.7	2113200.48	7200.00	1	
6040811.604	2113200.40	5360.00	<1	
6040812.507	2113200.32	5520.00	<1	
6040813.41	2113200.24	5770.00	<1	
6040814.313	2113200.17	4960.00	<1	
6040815.216	2113200.09	5180.00	<1	
6040816.12	2113200.01	5180.00	<1	
6040817.023	2113199.93	5440.00	<1	
6040817.926	2113199.85	5750.00	<1	
6040818.829	2113199.78	6980.00	1	
6040819.732	2113199.70	6320.00	<1	
6040820.635	2113199.62	5410.00	<1	
6040821.539	2113199.54	5970.00	<1	
6040822.442	2113199.47	5650.00	<1	
6040823.345	2113199.39	6790.00	1	
6040824.248	2113199.31	5930.00	<1	
6040825.151	2113199.23	7200.00	1	
6040826.054	2113199.16	6600.00	<1	
6040826.958	2113199.08	6380.00	<1	
6040827.861	2113199.00	5800.00	<1	
6040828.764	2113198.92	6430.00	<1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040829.667	2113198.84	6870.00	1	
6040830.57	2113198.77	6410.00	<1	
6040831.473	2113198.69	5610.00	<1	
6040832.377	2113198.61	5370.00	<1	
6040833.28	2113198.53	4920.00	<1	
6040834.183	2113198.46	5150.00	<1	
6040835.086	2113198.38	5740.00	<1	
6040835.989	2113198.30	6010.00	<1	
6040836.892	2113198.22	6040.00	<1	
6040837.796	2113198.15	6830.00	1	
6040838.699	2113198.07	5540.00	<1	
6040839.602	2113197.99	5540.00	<1	
6040840.505	2113197.91	5990.00	<1	
6040841.408	2113197.84	5650.00	<1	
6040842.312	2113197.76	5460.00	<1	
6040843.215	2113197.68	6260.00	<1	
6040844.118	2113197.60	6470.00	<1	
6040845.021	2113197.52	6850.00	1	
6040845.924	2113197.45	6420.00	<1	
6040846.827	2113197.37	6630.00	<1	
6040847.731	2113197.29	6660.00	1	
6040848.634	2113197.21	6930.00	1	
6040849.537	2113197.14	6290.00	<1	
6040850.44	2113197.06	7610.00	2	
6040851.343	2113196.98	6910.00	1	
6040852.246	2113196.90	5480.00	<1	
6040853.15	2113196.83	6110.00	<1	
6040854.053	2113196.75	6110.00	<1	
6040854.956	2113196.67	6160.00	<1	
6040855.859	2113196.59	6390.00	<1	
6040856.762	2113196.52	6520.00	<1	
6040857.665	2113196.44	6850.00	1	
6040858.569	2113196.36	6260.00	<1	
6040859.472	2113196.28	6440.00	<1	
6040860.375	2113196.20	5910.00	<1	
6040861.278	2113196.13	6780.00	1	
6040862.181	2113196.05	6020.00	<1	
6040863.084	2113195.97	6390.00	<1	
6040863.988	2113195.89	6870.00	1	
6040864.891	2113195.82	6940.00	1	
6040865.794	2113195.74	6370.00	<1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040866.697	2113195.66	7060.00	1	
6040867.6	2113195.58	7110.00	1	
6040868.504	2113195.51	7040.00	1	
6040869.407	2113195.43	6580.00	<1	
6040870.31	2113195.35	6140.00	<1	
6040871.213	2113195.27	5930.00	<1	
6040872.116	2113195.20	5520.00	<1	
6040873.019	2113195.12	5700.00	<1	
6040873.923	2113195.04	5810.00	<1	
6040874.826	2113194.96	5870.00	<1	
6040875.729	2113194.88	5180.00	<1	
6040876.632	2113194.81	5180.00	<1	
6040877.535	2113194.73	5880.00	<1	
6040878.438	2113194.65	5570.00	<1	
6040879.342	2113194.57	5750.00	<1	
6040880.245	2113194.50	6050.00	<1	
6040881.148	2113194.42	6210.00	<1	
6040882.051	2113194.34	6060.00	<1	
6040882.954	2113194.26	7380.00	2	
6040883.857	2113194.19	7380.00	2	
6040884.761	2113194.11	6740.00	1	
6040885.664	2113194.03	6590.00	<1	
6040886.567	2113193.95	5610.00	<1	
6040887.47	2113193.88	6390.00	<1	
6040888.373	2113193.80	6160.00	<1	
6040889.276	2113193.72	6120.00	<1	
6040890.18	2113193.64	6320.00	<1	
6040891.083	2113193.56	6690.00	1	
6040891.986	2113193.49	5980.00	<1	
6040892.889	2113193.41	6360.00	<1	
6040893.792	2113193.33	5480.00	<1	
6040894.696	2113193.25	5410.00	<1	
6040895.599	2113193.18	5290.00	<1	
6040896.502	2113193.10	5170.00	<1	
6040897.405	2113193.02	6090.00	<1	
6040898.308	2113192.94	5590.00	<1	
6040899.211	2113192.87	6010.00	<1	
6040900.115	2113192.79	6040.00	<1	
6040901.018	2113192.71	5620.00	<1	
6040901.921	2113192.63	6710.00	1	
6040902.824	2113192.56	6590.00	<1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040903.727	2113192.48	6700.00	1	
6040904.63	2113192.40	6700.00	1	
6040905.534	2113192.32	5880.00	<1	
6040906.437	2113192.24	5990.00	<1	
6040907.34	2113192.17	5940.00	<1	
6040908.243	2113192.09	6290.00	<1	
6040909.146	2113192.01	5980.00	<1	
6040910.049	2113191.93	6070.00	<1	
6040910.953	2113191.86	5920.00	<1	
6040911.856	2113191.78	6750.00	1	
6040912.759	2113191.70	6200.00	<1	
6040913.662	2113191.62	6960.00	1	
6040914.565	2113191.55	6380.00	<1	
6040915.468	2113191.47	6300.00	<1	
6040916.372	2113191.39	5270.00	<1	
6040917.275	2113191.31	4830.00	<1	
6040918.178	2113191.24	5700.00	<1	
6040919.081	2113191.16	5770.00	<1	
6040919.984	2113191.08	6420.00	<1	
6040920.888	2113191.00	5460.00	<1	
6040921.791	2113190.92	6070.00	<1	
6040922.694	2113190.85	5480.00	<1	
6040923.597	2113190.77	5140.00	<1	
6040924.5	2113190.69	5000.00	<1	
6040925.403	2113190.61	5240.00	<1	
6040926.307	2113190.54	4800.00	<1	
6040927.21	2113190.46	4890.00	<1	
6040928.113	2113190.38	4890.00	<1	
6040929.016	2113190.30	5150.00	<1	
6040929.919	2113190.23	5980.00	<1	
6040930.822	2113190.15	5850.00	<1	
6040931.726	2113190.07	6020.00	<1	
6040932.629	2113189.99	5690.00	<1	
6040933.532	2113189.91	6030.00	<1	
6040934.435	2113189.84	5960.00	<1	
6040935.338	2113189.76	5320.00	<1	
6040936.241	2113189.68	6070.00	<1	
6040937.145	2113189.60	6540.00	<1	
6040938.048	2113189.53	5930.00	<1	
6040938.951	2113189.45	4900.00	<1	
6040939.854	2113189.37	5440.00	<1	

Easting	Northing	Reading	Reach 57 Data Set	Comments
6040940.757	2113189.29	5130.00	<1	
6040941.66	2113189.22	5900.00	<1	
6040942.564	2113189.14	6080.00	<1	
6040943.467	2113189.06	5090.00	<1	
6040944.37	2113188.98	5440.00	<1	
6040945.273	2113188.91	6430.00	<1	
6040946.176	2113188.83	5710.00	<1	
6040947.08	2113188.75	6320.00	<1	
6040947.983	2113188.67	6040.00	<1	
6040948.886	2113188.59	5970.00	<1	
6040949.789	2113188.52	5930.00	<1	
6040950.692	2113188.44	6290.00	<1	
6040951.595	2113188.36	6420.00	<1	

6030.97	Average
601.53	Std Dev
7835.56	3 Sigma
7920.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 58
Line: G

Main/Lateral: Lateral
Length (ft): 48
Pipe Diameter (in): 10

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 58 Data Set

Gamma Total CPS	
4383.22	Average
375.57	Std Dev
5509.92	3 Sigma
5270.00	Max

Sigma	Total Points
<1	70
1	15
2	2
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 58 Data Set	Comments
6040820.083	2113254.13	4670.00	<1	
6040820.074	2113253.51	4830.00	1	
6040820.066	2113252.88	4800.00	1	
6040820.058	2113252.26	4880.00	1	
6040820.05	2113251.64	4620.00	<1	
6040820.042	2113251.02	3970.00	<1	
6040820.034	2113250.40	4060.00	<1	
6040820.026	2113249.78	3970.00	<1	
6040820.018	2113249.16	4040.00	<1	
6040820.009	2113248.53	4250.00	<1	
6040820.001	2113247.91	4130.00	<1	
6040819.993	2113247.29	4110.00	<1	
6040819.985	2113246.67	4100.00	<1	
6040819.977	2113246.05	4120.00	<1	
6040819.969	2113245.43	4110.00	<1	
6040819.961	2113244.81	4100.00	<1	
6040819.952	2113244.18	3810.00	<1	
6040819.944	2113243.56	3980.00	<1	
6040819.936	2113242.94	4370.00	<1	
6040819.928	2113242.32	4890.00	1	

Easting	Northing	Reading	Reach 58 Data Set	Comments
6040819.92	2113241.70	5270.00	2	
6040819.912	2113241.08	4570.00	<1	
6040819.904	2113240.45	4780.00	1	
6040819.896	2113239.83	5030.00	1	
6040819.887	2113239.21	4600.00	<1	
6040819.879	2113238.59	4620.00	<1	
6040819.871	2113237.97	4690.00	<1	
6040819.863	2113237.35	5010.00	1	
6040819.855	2113236.73	4260.00	<1	
6040819.847	2113236.10	4430.00	<1	
6040819.839	2113235.48	4690.00	<1	
6040819.83	2113234.86	4350.00	<1	
6040819.822	2113234.24	4110.00	<1	
6040819.814	2113233.62	3980.00	<1	
6040819.806	2113233.00	4110.00	<1	
6040819.798	2113232.38	4040.00	<1	
6040819.79	2113231.75	4000.00	<1	
6040819.782	2113231.13	4110.00	<1	
6040819.774	2113230.51	4090.00	<1	
6040819.765	2113229.89	4140.00	<1	
6040819.757	2113229.27	3990.00	<1	
6040819.749	2113228.65	3830.00	<1	
6040819.741	2113228.03	4020.00	<1	
6040819.733	2113227.40	3720.00	<1	
6040819.725	2113226.78	3610.00	<1	
6040819.717	2113226.16	3510.00	<1	
6040819.708	2113225.54	4010.00	<1	
6040819.7	2113224.92	3890.00	<1	
6040819.692	2113224.30	3820.00	<1	
6040819.684	2113223.67	4370.00	<1	
6040819.676	2113223.05	5080.00	1	
6040819.668	2113222.43	4480.00	<1	
6040819.66	2113221.81	4440.00	<1	
6040819.652	2113221.19	4370.00	<1	
6040819.643	2113220.57	4330.00	<1	
6040819.635	2113219.95	4120.00	<1	
6040819.627	2113219.32	4130.00	<1	
6040819.619	2113218.70	3960.00	<1	
6040819.611	2113218.08	4350.00	<1	
6040819.603	2113217.46	4380.00	<1	
6040819.595	2113216.84	4840.00	1	

Easting	Northing	Reading	Reach 58 Data Set	Comments
6040819.586	2113216.22	4530.00	<1	
6040819.578	2113215.60	4630.00	<1	
6040819.57	2113214.97	4810.00	1	
6040819.562	2113214.35	4590.00	<1	
6040819.554	2113213.73	4800.00	1	
6040819.546	2113213.11	4720.00	<1	
6040819.538	2113212.49	4270.00	<1	
6040819.53	2113211.87	4160.00	<1	
6040819.521	2113211.25	4550.00	<1	
6040819.513	2113210.62	4260.00	<1	
6040819.505	2113210.00	4660.00	<1	
6040819.497	2113209.38	4220.00	<1	
6040819.489	2113208.76	4470.00	<1	
6040819.481	2113208.14	4760.00	1	
6040819.473	2113207.52	4670.00	<1	
6040819.464	2113206.89	4810.00	1	
6040819.456	2113206.27	4210.00	<1	
6040819.448	2113205.65	4480.00	<1	
6040819.44	2113205.03	4860.00	1	
6040819.432	2113204.41	5150.00	2	
6040819.424	2113203.79	4550.00	<1	
6040819.416	2113203.17	4640.00	<1	
6040819.407	2113202.54	4510.00	<1	
6040819.399	2113201.92	4460.00	<1	
6040819.391	2113201.30	4700.00	<1	
6040819.383	2113200.68	4930.00	1	

4383.22	Average
375.57	Std Dev
5509.92	3 Sigma
5270.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 59
Line: G

Main/Lateral: Main
Length (ft): 305
Pipe Diameter (in): 18

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 59 Data Set

Gamma Total CPS	
5747.33	Average
422.39	Std Dev
7014.51	3 Sigma
7130.00	Max

Sigma	Total Points
<1	242
1	32
2	10
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 59 Data Set	Comments
6040955.58	2113188.01	4940.00	<1	
6040956.638	2113187.92	5260.00	<1	
6040957.695	2113187.83	5760.00	<1	
6040958.752	2113187.74	5880.00	<1	
6040959.81	2113187.64	5650.00	<1	
6040960.867	2113187.55	5650.00	<1	
6040961.925	2113187.46	5660.00	<1	
6040962.982	2113187.36	5560.00	<1	
6040964.039	2113187.27	5340.00	<1	
6040965.097	2113187.18	5080.00	<1	
6040966.154	2113187.08	5610.00	<1	
6040967.212	2113186.99	6190.00	1	
6040968.269	2113186.90	6840.00	2	
6040969.326	2113186.80	6380.00	1	
6040970.384	2113186.71	6350.00	1	
6040971.441	2113186.62	6420.00	1	
6040972.498	2113186.52	6950.00	2	
6040973.556	2113186.43	6160.00	<1	
6040974.613	2113186.34	6010.00	<1	
6040975.671	2113186.24	5560.00	<1	

Easting	Northing	Reading	Reach 59 Data Set	Comments
6040976.728	2113186.15	6190.00	1	
6040977.785	2113186.06	5920.00	<1	
6040978.843	2113185.96	6100.00	<1	
6040979.9	2113185.87	5750.00	<1	
6040980.957	2113185.78	5940.00	<1	
6040982.015	2113185.68	5620.00	<1	
6040983.072	2113185.59	5730.00	<1	
6040984.13	2113185.50	6840.00	2	
6040985.187	2113185.41	6480.00	1	
6040986.244	2113185.31	6070.00	<1	
6040987.302	2113185.22	5860.00	<1	
6040988.359	2113185.13	6550.00	1	
6040989.417	2113185.03	5820.00	<1	
6040990.474	2113184.94	6070.00	<1	
6040991.531	2113184.85	5600.00	<1	
6040992.589	2113184.75	6410.00	1	
6040993.646	2113184.66	6390.00	1	
6040994.703	2113184.57	6350.00	1	
6040995.761	2113184.47	5970.00	<1	
6040996.818	2113184.38	5490.00	<1	
6040997.876	2113184.29	5600.00	<1	
6040998.933	2113184.19	5860.00	<1	
6040999.99	2113184.10	5630.00	<1	
6041001.048	2113184.01	5700.00	<1	
6041002.105	2113183.91	6340.00	1	
6041003.163	2113183.82	5920.00	<1	
6041004.22	2113183.73	6100.00	<1	
6041005.277	2113183.63	5600.00	<1	
6041006.335	2113183.54	5760.00	<1	
6041007.392	2113183.45	5580.00	<1	
6041008.449	2113183.35	5690.00	<1	
6041009.507	2113183.26	5940.00	<1	
6041010.564	2113183.17	5780.00	<1	
6041011.622	2113183.07	5770.00	<1	
6041012.679	2113182.98	6160.00	<1	
6041013.736	2113182.89	5560.00	<1	
6041014.794	2113182.80	5700.00	<1	
6041015.851	2113182.70	5800.00	<1	
6041016.909	2113182.61	6440.00	1	
6041017.966	2113182.52	6230.00	1	
6041019.023	2113182.42	5660.00	<1	

Easting	Northing	Reading	Reach 59 Data Set	Comments
6041020.081	2113182.33	6560.00	1	
6041021.138	2113182.24	6160.00	<1	
6041022.195	2113182.14	5400.00	<1	
6041023.253	2113182.05	5870.00	<1	
6041024.31	2113181.96	6130.00	<1	
6041025.368	2113181.86	6860.00	2	
6041026.425	2113181.77	5850.00	<1	
6041027.482	2113181.68	6170.00	1	
6041028.54	2113181.58	5630.00	<1	
6041029.597	2113181.49	5680.00	<1	
6041030.655	2113181.40	5800.00	<1	
6041031.712	2113181.30	5270.00	<1	
6041032.769	2113181.21	5620.00	<1	
6041033.827	2113181.12	5990.00	<1	
6041034.884	2113181.02	5450.00	<1	
6041035.941	2113180.93	5680.00	<1	
6041036.999	2113180.84	6090.00	<1	
6041038.056	2113180.74	5640.00	<1	
6041039.114	2113180.65	5600.00	<1	
6041040.171	2113180.56	6960.00	2	
6041041.228	2113180.46	6660.00	2	
6041042.286	2113180.37	5960.00	<1	
6041043.343	2113180.28	5720.00	<1	
6041044.401	2113180.19	5580.00	<1	
6041045.458	2113180.09	6370.00	1	
6041046.515	2113180.00	6530.00	1	
6041047.573	2113179.91	6090.00	<1	
6041048.63	2113179.81	6030.00	<1	
6041049.687	2113179.72	5300.00	<1	
6041050.745	2113179.63	5900.00	<1	
6041051.802	2113179.53	6530.00	1	
6041052.86	2113179.44	5630.00	<1	
6041053.917	2113179.35	6070.00	<1	
6041054.974	2113179.25	5600.00	<1	
6041056.032	2113179.16	5570.00	<1	
6041057.089	2113179.07	5500.00	<1	
6041058.147	2113178.97	5640.00	<1	
6041059.204	2113178.88	5770.00	<1	
6041060.261	2113178.79	6740.00	2	
6041061.319	2113178.69	6490.00	1	
6041062.376	2113178.60	6550.00	1	

Easting	Northing	Reading	Reach 59 Data Set	Comments
6041063.433	2113178.51	6300.00	1	
6041064.491	2113178.41	5530.00	<1	
6041065.548	2113178.32	5940.00	<1	
6041066.606	2113178.23	5670.00	<1	
6041067.663	2113178.13	5410.00	<1	
6041068.72	2113178.04	6020.00	<1	
6041069.778	2113177.95	5650.00	<1	
6041070.835	2113177.85	5360.00	<1	
6041071.893	2113177.76	5550.00	<1	
6041072.95	2113177.67	6340.00	1	
6041074.007	2113177.58	6650.00	2	
6041075.065	2113177.48	5530.00	<1	
6041076.122	2113177.39	5570.00	<1	
6041077.179	2113177.30	6070.00	<1	
6041078.237	2113177.20	5770.00	<1	
6041079.294	2113177.11	5450.00	<1	
6041080.352	2113177.02	5780.00	<1	
6041081.409	2113176.92	6190.00	1	
6041082.466	2113176.83	5970.00	<1	
6041083.524	2113176.74	5780.00	<1	
6041084.581	2113176.64	6500.00	1	
6041085.638	2113176.55	6360.00	1	
6041086.696	2113176.46	6620.00	2	
6041087.753	2113176.36	5920.00	<1	
6041088.811	2113176.27	6050.00	<1	
6041089.868	2113176.18	5820.00	<1	
6041090.925	2113176.08	6000.00	<1	
6041091.983	2113175.99	5790.00	<1	
6041093.04	2113175.90	5490.00	<1	
6041094.098	2113175.80	5460.00	<1	
6041095.155	2113175.71	5740.00	<1	
6041096.212	2113175.62	4950.00	<1	
6041097.27	2113175.52	5970.00	<1	
6041098.327	2113175.43	5810.00	<1	
6041099.384	2113175.34	5930.00	<1	
6041100.442	2113175.24	5370.00	<1	
6041101.499	2113175.15	5440.00	<1	
6041102.557	2113175.06	5110.00	<1	
6041103.614	2113174.97	5340.00	<1	
6041104.671	2113174.87	5730.00	<1	
6041105.729	2113174.78	5920.00	<1	

Easting	Northing	Reading	Reach 59 Data Set	Comments
6041106.786	2113174.69	6530.00	1	
6041107.844	2113174.59	5170.00	<1	
6041108.901	2113174.50	5740.00	<1	
6041109.958	2113174.41	5270.00	<1	
6041111.016	2113174.31	5060.00	<1	
6041112.073	2113174.22	5510.00	<1	
6041113.13	2113174.13	6050.00	<1	
6041114.188	2113174.03	5600.00	<1	
6041115.245	2113173.94	5530.00	<1	
6041116.303	2113173.85	5200.00	<1	
6041117.36	2113173.75	5830.00	<1	
6041118.417	2113173.66	5470.00	<1	
6041119.475	2113173.57	5250.00	<1	
6041120.532	2113173.47	5540.00	<1	
6041121.59	2113173.38	5200.00	<1	
6041122.647	2113173.29	5550.00	<1	
6041123.704	2113173.19	5620.00	<1	
6041124.762	2113173.10	5690.00	<1	
6041125.819	2113173.01	5350.00	<1	
6041126.876	2113172.91	5220.00	<1	
6041127.934	2113172.82	6140.00	<1	
6041128.991	2113172.73	5150.00	<1	
6041130.049	2113172.63	5700.00	<1	
6041131.106	2113172.54	5440.00	<1	
6041132.163	2113172.45	5400.00	<1	
6041133.221	2113172.36	5210.00	<1	
6041134.278	2113172.26	5030.00	<1	
6041135.336	2113172.17	5400.00	<1	
6041136.393	2113172.08	5230.00	<1	
6041137.45	2113171.98	5710.00	<1	
6041138.508	2113171.89	5770.00	<1	
6041139.565	2113171.80	5430.00	<1	
6041140.622	2113171.70	6250.00	1	
6041141.68	2113171.61	6250.00	1	
6041142.737	2113171.52	5650.00	<1	
6041143.795	2113171.42	5360.00	<1	
6041144.852	2113171.33	5450.00	<1	
6041145.909	2113171.24	5890.00	<1	
6041146.967	2113171.14	5590.00	<1	
6041148.024	2113171.05	5730.00	<1	
6041149.082	2113170.96	4990.00	<1	

Easting	Northing	Reading	Reach 59 Data Set	Comments
6041150.139	2113170.86	5200.00	<1	
6041151.196	2113170.77	5370.00	<1	
6041152.254	2113170.68	5100.00	<1	
6041153.311	2113170.58	5150.00	<1	
6041154.368	2113170.49	5470.00	<1	
6041155.426	2113170.40	6260.00	1	
6041156.483	2113170.30	5620.00	<1	
6041157.541	2113170.21	5780.00	<1	
6041158.598	2113170.12	5530.00	<1	
6041159.655	2113170.03	5630.00	<1	
6041160.713	2113169.93	5880.00	<1	
6041161.77	2113169.84	5560.00	<1	
6041162.828	2113169.75	5720.00	<1	
6041163.885	2113169.65	5780.00	<1	
6041164.942	2113169.56	5340.00	<1	
6041166	2113169.47	5460.00	<1	
6041167.057	2113169.37	6250.00	1	
6041168.114	2113169.28	5760.00	<1	
6041169.172	2113169.19	5400.00	<1	
6041170.229	2113169.09	5660.00	<1	
6041171.287	2113169.00	5650.00	<1	
6041172.344	2113168.91	5310.00	<1	
6041173.401	2113168.81	5230.00	<1	
6041174.459	2113168.72	5710.00	<1	
6041175.516	2113168.63	5140.00	<1	
6041176.574	2113168.53	5240.00	<1	
6041177.631	2113168.44	5240.00	<1	
6041178.688	2113168.35	6090.00	<1	
6041179.746	2113168.25	5270.00	<1	
6041180.803	2113168.16	5550.00	<1	
6041181.86	2113168.07	5560.00	<1	
6041182.918	2113167.97	5880.00	<1	
6041183.975	2113167.88	5760.00	<1	
6041185.033	2113167.79	5850.00	<1	
6041186.09	2113167.69	5770.00	<1	
6041187.147	2113167.60	5750.00	<1	
6041188.205	2113167.51	5790.00	<1	
6041189.262	2113167.42	5570.00	<1	
6041190.319	2113167.32	5530.00	<1	
6041191.377	2113167.23	5330.00	<1	
6041192.434	2113167.14	6750.00	2	

Easting	Northing	Reading	Reach 59 Data Set	Comments
6041193.492	2113167.04	7130.00	3	
6041194.549	2113166.95	5960.00	<1	
6041195.606	2113166.86	6460.00	1	
6041196.664	2113166.76	6310.00	1	
6041197.721	2113166.67	5240.00	<1	
6041198.779	2113166.58	5150.00	<1	
6041199.836	2113166.48	5940.00	<1	
6041200.893	2113166.39	5610.00	<1	
6041201.951	2113166.30	5960.00	<1	
6041203.008	2113166.20	5910.00	<1	
6041204.065	2113166.11	5790.00	<1	
6041205.123	2113166.02	5120.00	<1	
6041206.18	2113165.92	5710.00	<1	
6041207.238	2113165.83	5890.00	<1	
6041208.295	2113165.74	5350.00	<1	
6041209.352	2113165.64	5700.00	<1	
6041210.41	2113165.55	5960.00	<1	
6041211.467	2113165.46	5500.00	<1	
6041212.525	2113165.36	5930.00	<1	
6041213.582	2113165.27	6070.00	<1	
6041214.639	2113165.18	6070.00	<1	
6041215.697	2113165.08	5510.00	<1	
6041216.754	2113164.99	5630.00	<1	
6041217.811	2113164.90	6030.00	<1	
6041218.869	2113164.81	5700.00	<1	
6041219.926	2113164.71	5480.00	<1	
6041220.984	2113164.62	5330.00	<1	
6041222.041	2113164.53	5620.00	<1	
6041223.098	2113164.43	5280.00	<1	
6041224.156	2113164.34	5540.00	<1	
6041225.213	2113164.25	5570.00	<1	
6041226.271	2113164.15	5270.00	<1	
6041227.328	2113164.06	5160.00	<1	
6041228.385	2113163.97	5120.00	<1	
6041229.443	2113163.87	5700.00	<1	
6041230.5	2113163.78	5560.00	<1	
6041231.557	2113163.69	5790.00	<1	
6041232.615	2113163.59	5720.00	<1	
6041233.672	2113163.50	5240.00	<1	
6041234.73	2113163.41	4790.00	<1	
6041235.787	2113163.31	5030.00	<1	

Easting	Northing	Reading	Reach 59 Data Set	Comments
6041236.844	2113163.22	5390.00	<1	
6041237.902	2113163.13	5330.00	<1	
6041238.959	2113163.03	6060.00	<1	
6041240.017	2113162.94	5700.00	<1	
6041241.074	2113162.85	6020.00	<1	
6041242.131	2113162.75	5450.00	<1	
6041243.189	2113162.66	5780.00	<1	
6041244.246	2113162.57	5380.00	<1	
6041245.303	2113162.47	6130.00	<1	
6041246.361	2113162.38	5520.00	<1	
6041247.418	2113162.29	5340.00	<1	
6041248.476	2113162.20	5010.00	<1	
6041249.533	2113162.10	5160.00	<1	
6041250.59	2113162.01	5090.00	<1	
6041251.648	2113161.92	5280.00	<1	
6041252.705	2113161.82	5390.00	<1	
6041253.763	2113161.73	5860.00	<1	
6041254.82	2113161.64	5970.00	<1	
6041255.877	2113161.54	5550.00	<1	

5747.33	Average
422.39	Std Dev
7014.51	3 Sigma
7130.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 60
Line: G

Main/Lateral: Lateral
Length (ft): 20
Pipe Diameter (in): 8

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 60 Data Set

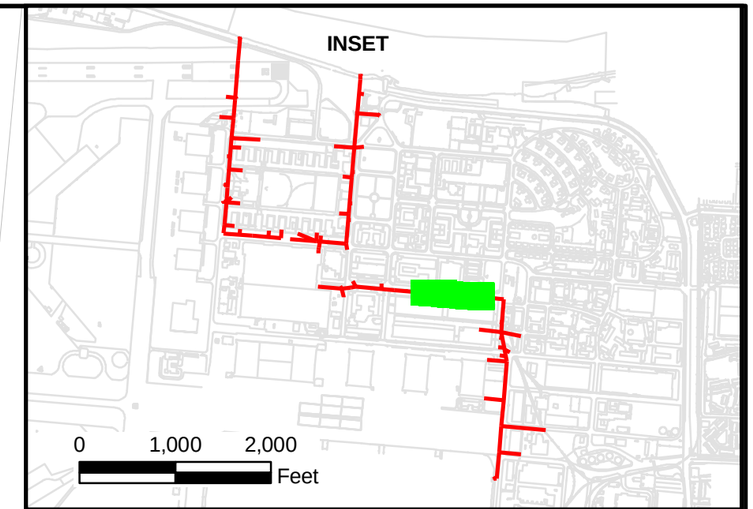
Gamma Total CPS	
4560.00	Average
532.01	Std Dev
6156.02	3 Sigma
5760.00	Max

Sigma	Total Points
<1	18
1	2
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 60 Data Set	Comments
6041074.447	2113194.74	4020.00	<1	
6041074.334	2113193.72	3970.00	<1	
6041074.22	2113192.69	4040.00	<1	
6041074.106	2113191.66	4110.00	<1	
6041073.993	2113190.63	4220.00	<1	
6041073.879	2113189.60	4180.00	<1	
6041073.765	2113188.58	4330.00	<1	
6041073.652	2113187.55	4100.00	<1	
6041073.538	2113186.52	4360.00	<1	
6041073.425	2113185.49	3970.00	<1	
6041073.311	2113184.46	4140.00	<1	
6041073.197	2113183.44	4520.00	<1	
6041073.084	2113182.41	4660.00	<1	
6041072.97	2113181.38	4840.00	<1	
6041073.559	2113180.57	4920.00	<1	
6041073.828	2113180.20	5040.00	<1	
6041074.096	2113179.83	4890.00	<1	
6041074.365	2113179.47	5760.00	2	
6041074.634	2113179.10	5050.00	<1	
6041074.902	2113178.73	5140.00	1	

Easting	Northing	Reading	Reach 60 Data Set	Comments
6041075.171	2113178.36	5500.00	1	

4560.00	Average
532.01	Std Dev
6156.02	3 Sigma
5760.00	Max



Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
61	8309
62	6779
63	8610
64	6575

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0 5 10 20 30 40
Feet

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 61 thru 64

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_61-64_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 61
Line: G

Main/Lateral: Main
Length (ft): 306
Pipe Diameter (in): 18

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 61 Data Set

Gamma Total CPS	
6549.09	Average
586.80	Std Dev
8309.48	3 Sigma
8160.00	Max

Sigma	Total Points
<1	253
1	34
2	11
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 61 Data Set	Comments
6041259.863	2113161.20	5380.00	<1	
6041260.876	2113161.12	6060.00	<1	
6041261.889	2113161.04	5830.00	<1	
6041262.902	2113160.95	6530.00	<1	
6041263.915	2113160.87	5870.00	<1	
6041264.928	2113160.79	7050.00	<1	
6041265.941	2113160.70	6300.00	<1	
6041266.955	2113160.62	5810.00	<1	
6041267.968	2113160.54	5780.00	<1	
6041268.981	2113160.45	5880.00	<1	
6041269.994	2113160.37	5770.00	<1	
6041271.007	2113160.29	6600.00	<1	
6041272.02	2113160.20	6030.00	<1	
6041273.033	2113160.12	5850.00	<1	
6041274.046	2113160.04	5520.00	<1	
6041275.059	2113159.95	5740.00	<1	
6041276.072	2113159.87	6310.00	<1	
6041277.086	2113159.79	6240.00	<1	
6041278.099	2113159.70	5510.00	<1	
6041279.112	2113159.62	6080.00	<1	

Easting	Northing	Reading	Reach 61 Data Set	Comments
6041280.125	2113159.54	6700.00	<1	
6041281.138	2113159.45	7030.00	<1	
6041282.151	2113159.37	5610.00	<1	
6041283.164	2113159.29	5810.00	<1	
6041284.177	2113159.20	6800.00	<1	
6041285.19	2113159.12	6280.00	<1	
6041286.204	2113159.03	6810.00	<1	
6041287.217	2113158.95	8160.00	2	
6041288.23	2113158.87	6590.00	<1	
6041289.243	2113158.78	6900.00	<1	
6041290.256	2113158.70	6210.00	<1	
6041291.269	2113158.62	6520.00	<1	
6041292.282	2113158.53	8010.00	2	
6041293.295	2113158.45	5860.00	<1	
6041294.308	2113158.37	6310.00	<1	
6041295.321	2113158.28	5830.00	<1	
6041296.335	2113158.20	7110.00	<1	
6041297.348	2113158.12	6840.00	<1	
6041298.361	2113158.03	6600.00	<1	
6041299.374	2113157.95	7070.00	<1	
6041300.387	2113157.87	6540.00	<1	
6041301.4	2113157.78	6630.00	<1	
6041302.413	2113157.70	6030.00	<1	
6041303.426	2113157.62	6220.00	<1	
6041304.439	2113157.53	7410.00	1	
6041305.452	2113157.45	6030.00	<1	
6041306.466	2113157.37	5940.00	<1	
6041307.479	2113157.28	6840.00	<1	
6041308.492	2113157.20	6410.00	<1	
6041309.505	2113157.12	6500.00	<1	
6041310.518	2113157.03	5570.00	<1	
6041311.531	2113156.95	5770.00	<1	
6041312.544	2113156.87	6410.00	<1	
6041313.557	2113156.78	5840.00	<1	
6041314.57	2113156.70	6000.00	<1	
6041315.583	2113156.62	6600.00	<1	
6041316.597	2113156.53	7900.00	2	
6041317.61	2113156.45	6500.00	<1	
6041318.623	2113156.37	6600.00	<1	
6041319.636	2113156.28	7280.00	1	
6041320.649	2113156.20	6860.00	<1	

Easting	Northing	Reading	Reach 61 Data Set	Comments
6041321.662	2113156.12	7220.00	1	
6041322.675	2113156.03	7130.00	<1	
6041323.688	2113155.95	6400.00	<1	
6041324.701	2113155.87	6620.00	<1	
6041325.715	2113155.78	6350.00	<1	
6041326.728	2113155.70	6650.00	<1	
6041327.741	2113155.62	6100.00	<1	
6041328.754	2113155.53	5980.00	<1	
6041329.767	2113155.45	6130.00	<1	
6041330.78	2113155.37	7400.00	1	
6041331.793	2113155.28	7050.00	<1	
6041332.806	2113155.20	6610.00	<1	
6041333.819	2113155.12	6250.00	<1	
6041334.832	2113155.03	5710.00	<1	
6041335.846	2113154.95	5910.00	<1	
6041336.859	2113154.87	5840.00	<1	
6041337.872	2113154.78	6640.00	<1	
6041338.885	2113154.70	6730.00	<1	
6041339.898	2113154.62	5930.00	<1	
6041340.911	2113154.53	6110.00	<1	
6041341.924	2113154.45	5730.00	<1	
6041342.937	2113154.37	6200.00	<1	
6041343.95	2113154.28	6180.00	<1	
6041344.963	2113154.20	7740.00	2	
6041345.977	2113154.11	6690.00	<1	
6041346.99	2113154.03	5640.00	<1	
6041348.003	2113153.95	6100.00	<1	
6041349.016	2113153.86	5870.00	<1	
6041350.029	2113153.78	5760.00	<1	
6041351.042	2113153.70	5860.00	<1	
6041352.055	2113153.61	6620.00	<1	
6041353.068	2113153.53	5900.00	<1	
6041354.081	2113153.45	5870.00	<1	
6041355.095	2113153.36	5930.00	<1	
6041356.108	2113153.28	6780.00	<1	
6041357.121	2113153.20	6730.00	<1	
6041358.134	2113153.11	6080.00	<1	
6041359.147	2113153.03	6880.00	<1	
6041360.16	2113152.95	6210.00	<1	
6041361.173	2113152.86	6780.00	<1	
6041362.186	2113152.78	6650.00	<1	

Easting	Northing	Reading	Reach 61 Data Set	Comments
6041363.199	2113152.70	7310.00	1	
6041364.212	2113152.61	6730.00	<1	
6041365.226	2113152.53	6110.00	<1	
6041366.239	2113152.45	5280.00	<1	
6041367.252	2113152.36	6230.00	<1	
6041368.265	2113152.28	5830.00	<1	
6041369.278	2113152.20	5520.00	<1	
6041370.291	2113152.11	6120.00	<1	
6041371.304	2113152.03	5940.00	<1	
6041372.317	2113151.95	6360.00	<1	
6041373.33	2113151.86	7720.00	1	
6041374.343	2113151.78	6230.00	<1	
6041375.357	2113151.70	6350.00	<1	
6041376.37	2113151.61	5800.00	<1	
6041377.383	2113151.53	6260.00	<1	
6041378.396	2113151.45	6630.00	<1	
6041379.409	2113151.36	5980.00	<1	
6041380.422	2113151.28	5950.00	<1	
6041381.435	2113151.20	6300.00	<1	
6041382.448	2113151.11	6870.00	<1	
6041383.461	2113151.03	6070.00	<1	
6041384.474	2113150.95	6980.00	<1	
6041385.488	2113150.86	6250.00	<1	
6041386.501	2113150.78	7540.00	1	
6041387.514	2113150.70	6650.00	<1	
6041388.527	2113150.61	6890.00	<1	
6041389.54	2113150.53	7390.00	1	
6041390.553	2113150.45	6660.00	<1	
6041391.566	2113150.36	7460.00	1	
6041392.579	2113150.28	7260.00	1	
6041393.592	2113150.20	6080.00	<1	
6041394.606	2113150.11	6670.00	<1	
6041395.619	2113150.03	7340.00	1	
6041396.632	2113149.95	6020.00	<1	
6041397.645	2113149.86	6540.00	<1	
6041398.658	2113149.78	6580.00	<1	
6041399.671	2113149.70	5230.00	<1	
6041400.684	2113149.61	7020.00	<1	
6041401.697	2113149.53	5490.00	<1	
6041402.71	2113149.45	6180.00	<1	
6041403.723	2113149.36	6750.00	<1	

Easting	Northing	Reading	Reach 61 Data Set	Comments
6041404.737	2113149.28	6390.00	<1	
6041405.75	2113149.19	6040.00	<1	
6041406.763	2113149.11	6930.00	<1	
6041407.776	2113149.03	6530.00	<1	
6041408.789	2113148.94	7230.00	1	
6041409.802	2113148.86	7240.00	1	
6041410.815	2113148.78	7170.00	1	
6041411.828	2113148.69	7780.00	2	
6041412.841	2113148.61	6990.00	<1	
6041413.854	2113148.53	7430.00	1	
6041414.868	2113148.44	6700.00	<1	
6041415.881	2113148.36	7430.00	1	
6041416.894	2113148.28	6970.00	<1	
6041417.907	2113148.19	5680.00	<1	
6041418.92	2113148.11	8040.00	2	
6041419.933	2113148.03	6200.00	<1	
6041420.946	2113147.94	6790.00	<1	
6041421.959	2113147.86	6770.00	<1	
6041422.972	2113147.78	6420.00	<1	
6041423.986	2113147.69	6520.00	<1	
6041424.999	2113147.61	6070.00	<1	
6041426.012	2113147.53	6200.00	<1	
6041427.025	2113147.44	7080.00	<1	
6041428.038	2113147.36	7120.00	<1	
6041429.051	2113147.28	6600.00	<1	
6041430.064	2113147.19	6740.00	<1	
6041431.077	2113147.11	6520.00	<1	
6041432.09	2113147.03	7800.00	2	
6041433.103	2113146.94	6710.00	<1	
6041434.117	2113146.86	7050.00	<1	
6041435.13	2113146.78	7120.00	<1	
6041436.143	2113146.69	6610.00	<1	
6041437.156	2113146.61	7300.00	1	
6041438.169	2113146.53	7040.00	<1	
6041439.182	2113146.44	7650.00	1	
6041440.195	2113146.36	7280.00	1	
6041441.208	2113146.28	6980.00	<1	
6041442.221	2113146.19	6470.00	<1	
6041443.234	2113146.11	7570.00	1	
6041444.248	2113146.03	6200.00	<1	
6041445.261	2113145.94	6540.00	<1	

Easting	Northing	Reading	Reach 61 Data Set	Comments
6041446.274	2113145.86	7390.00	1	
6041447.287	2113145.78	7020.00	<1	
6041448.3	2113145.69	7050.00	<1	
6041449.313	2113145.61	6880.00	<1	
6041450.326	2113145.53	6370.00	<1	
6041451.339	2113145.44	6050.00	<1	
6041452.352	2113145.36	7610.00	1	
6041453.366	2113145.28	7160.00	1	
6041454.379	2113145.19	6810.00	<1	
6041455.392	2113145.11	7330.00	1	
6041456.405	2113145.03	6250.00	<1	
6041457.418	2113144.94	5760.00	<1	
6041458.431	2113144.86	6530.00	<1	
6041459.444	2113144.78	5810.00	<1	
6041460.457	2113144.69	6430.00	<1	
6041461.47	2113144.61	6060.00	<1	
6041462.483	2113144.53	6380.00	<1	
6041463.497	2113144.44	6730.00	<1	
6041464.51	2113144.36	7300.00	1	
6041465.523	2113144.27	6950.00	<1	
6041466.536	2113144.19	6760.00	<1	
6041467.549	2113144.11	6020.00	<1	
6041468.562	2113144.02	7040.00	<1	
6041469.575	2113143.94	6980.00	<1	
6041470.588	2113143.86	7100.00	<1	
6041471.601	2113143.77	6850.00	<1	
6041472.614	2113143.69	6920.00	<1	
6041473.628	2113143.61	7650.00	1	
6041474.641	2113143.52	7480.00	1	
6041475.654	2113143.44	6640.00	<1	
6041476.667	2113143.36	6660.00	<1	
6041477.68	2113143.27	7130.00	<1	
6041478.693	2113143.19	6600.00	<1	
6041479.706	2113143.11	5640.00	<1	
6041480.719	2113143.02	6170.00	<1	
6041481.732	2113142.94	6530.00	<1	
6041482.745	2113142.86	7800.00	2	
6041483.759	2113142.77	7580.00	1	
6041484.772	2113142.69	7400.00	1	
6041485.785	2113142.61	6700.00	<1	
6041486.798	2113142.52	6500.00	<1	

Easting	Northing	Reading	Reach 61 Data Set	Comments
6041487.811	2113142.44	6300.00	<1	
6041488.824	2113142.36	8070.00	2	
6041489.837	2113142.27	6200.00	<1	
6041490.85	2113142.19	6520.00	<1	
6041491.863	2113142.11	6080.00	<1	
6041492.877	2113142.02	5870.00	<1	
6041493.89	2113141.94	6690.00	<1	
6041494.903	2113141.86	6010.00	<1	
6041495.916	2113141.77	6470.00	<1	
6041496.929	2113141.69	6580.00	<1	
6041497.942	2113141.61	6850.00	<1	
6041498.955	2113141.52	6290.00	<1	
6041499.968	2113141.44	6720.00	<1	
6041500.981	2113141.36	6500.00	<1	
6041501.994	2113141.27	5900.00	<1	
6041503.008	2113141.19	5890.00	<1	
6041504.021	2113141.11	6680.00	<1	
6041505.034	2113141.02	6440.00	<1	
6041506.047	2113140.94	6380.00	<1	
6041507.06	2113140.86	7020.00	<1	
6041508.073	2113140.77	6580.00	<1	
6041509.086	2113140.69	6330.00	<1	
6041510.099	2113140.61	6220.00	<1	
6041511.112	2113140.52	6430.00	<1	
6041512.125	2113140.44	6660.00	<1	
6041513.139	2113140.36	6450.00	<1	
6041514.152	2113140.27	6640.00	<1	
6041515.165	2113140.19	6190.00	<1	
6041516.178	2113140.11	5910.00	<1	
6041517.191	2113140.02	7040.00	<1	
6041518.204	2113139.94	7830.00	2	
6041519.217	2113139.86	7390.00	1	
6041520.23	2113139.77	6450.00	<1	
6041521.243	2113139.69	6280.00	<1	
6041522.257	2113139.61	6580.00	<1	
6041523.27	2113139.52	5570.00	<1	
6041524.283	2113139.44	5800.00	<1	
6041525.296	2113139.35	6400.00	<1	
6041526.309	2113139.27	7820.00	2	
6041527.322	2113139.19	6270.00	<1	
6041528.335	2113139.10	6700.00	<1	

Easting	Northing	Reading	Reach 61 Data Set	Comments
6041529.348	2113139.02	6940.00	<1	
6041530.361	2113138.94	5960.00	<1	
6041531.374	2113138.85	6590.00	<1	
6041532.388	2113138.77	6740.00	<1	
6041533.401	2113138.69	6230.00	<1	
6041534.414	2113138.60	6070.00	<1	
6041535.427	2113138.52	7540.00	1	
6041536.44	2113138.44	6950.00	<1	
6041537.453	2113138.35	6740.00	<1	
6041538.466	2113138.27	6950.00	<1	
6041539.479	2113138.19	6430.00	<1	
6041540.492	2113138.10	6200.00	<1	
6041541.505	2113138.02	6130.00	<1	
6041542.519	2113137.94	5960.00	<1	
6041543.532	2113137.85	6160.00	<1	
6041544.545	2113137.77	6700.00	<1	
6041545.558	2113137.69	6050.00	<1	
6041546.571	2113137.60	7130.00	<1	
6041547.584	2113137.52	7470.00	1	
6041548.597	2113137.44	7400.00	1	
6041549.61	2113137.35	7640.00	1	
6041550.623	2113137.27	7120.00	<1	
6041551.637	2113137.19	7110.00	<1	
6041552.65	2113137.10	5320.00	<1	
6041553.663	2113137.02	6350.00	<1	
6041554.676	2113136.94	6120.00	<1	
6041555.689	2113136.85	6150.00	<1	
6041556.702	2113136.77	6360.00	<1	
6041557.715	2113136.69	6350.00	<1	
6041558.728	2113136.60	6740.00	<1	
6041559.741	2113136.52	6540.00	<1	
6041560.754	2113136.44	5970.00	<1	

6549.09	Average
586.80	Std Dev
8309.48	3 Sigma
8160.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 62
Line: G

Main/Lateral: Lateral
Length (ft): 19
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 62 Data Set

Gamma Total CPS	
5900.00	Average
293.03	Std Dev
6779.09	3 Sigma
6400.00	Max

Sigma	Total Points
<1	10
1	3
2	0
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 62 Data Set	Comments
6041471.018	2113161.25	5570.00	<1	
6041471.017	2113159.81	6360.00	1	
6041471.016	2113158.37	5720.00	<1	
6041471.014	2113156.93	6000.00	<1	
6041471.013	2113155.49	5860.00	<1	
6041471.011	2113154.05	5620.00	<1	
6041471.01	2113152.61	5950.00	<1	
6041471.009	2113151.18	6400.00	1	
6041471.007	2113149.74	5720.00	<1	
6041471.006	2113148.30	5720.00	<1	
6041471.005	2113146.86	6030.00	<1	
6041471.003	2113145.42	6230.00	1	
6041471.002	2113143.98	5520.00	<1	

5900.00	Average
293.03	Std Dev
6779.09	3 Sigma
6400.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 63
Line: G

Main/Lateral: Main
Length (ft): 306
Pipe Diameter (in): 18

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 63 Data Set

Gamma Total CPS	
6194.80	Average
805.18	Std Dev
8610.35	3 Sigma
9020.00	Max

Sigma	Total Points
<1	298
1	52
2	5
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 63 Data Set	Comments
6041564.741	2113136.11	5290.00	<1	
6041565.588	2113136.04	6440.00	<1	
6041566.434	2113135.97	6960.00	<1	
6041567.281	2113135.90	5830.00	<1	
6041568.128	2113135.83	6090.00	<1	
6041568.974	2113135.76	6730.00	<1	
6041569.821	2113135.69	5340.00	<1	
6041570.668	2113135.62	5980.00	<1	
6041571.514	2113135.55	6280.00	<1	
6041572.361	2113135.48	7140.00	1	
6041573.208	2113135.41	5500.00	<1	
6041574.054	2113135.34	5800.00	<1	
6041574.901	2113135.27	6300.00	<1	
6041575.748	2113135.20	5410.00	<1	
6041576.594	2113135.13	5760.00	<1	
6041577.441	2113135.06	5760.00	<1	
6041578.288	2113134.99	5970.00	<1	
6041579.134	2113134.92	5870.00	<1	
6041579.981	2113134.85	6630.00	<1	
6041580.828	2113134.79	7590.00	1	

Easting	Northing	Reading	Reach 63 Data Set	Comments
6041581.674	2113134.72	8030.00	2	
6041582.521	2113134.65	6910.00	<1	
6041583.368	2113134.58	6920.00	<1	
6041584.214	2113134.51	6900.00	<1	
6041585.061	2113134.44	7010.00	1	
6041585.908	2113134.37	7560.00	1	
6041586.754	2113134.30	7480.00	1	
6041587.601	2113134.23	6620.00	<1	
6041588.448	2113134.16	7370.00	1	
6041589.294	2113134.09	6430.00	<1	
6041590.141	2113134.02	6560.00	<1	
6041590.988	2113133.95	7210.00	1	
6041591.834	2113133.88	6430.00	<1	
6041592.681	2113133.81	7650.00	1	
6041593.528	2113133.74	6510.00	<1	
6041594.374	2113133.67	5530.00	<1	
6041595.221	2113133.60	5330.00	<1	
6041596.068	2113133.53	5330.00	<1	
6041596.914	2113133.46	5540.00	<1	
6041597.761	2113133.39	5740.00	<1	
6041598.608	2113133.32	6000.00	<1	
6041599.454	2113133.25	6120.00	<1	
6041600.301	2113133.18	7220.00	1	
6041601.148	2113133.11	7190.00	1	
6041601.994	2113133.04	7270.00	1	
6041602.841	2113132.97	8280.00	2	
6041603.688	2113132.90	5900.00	<1	
6041604.534	2113132.84	6570.00	<1	
6041605.381	2113132.77	6040.00	<1	
6041606.228	2113132.70	5640.00	<1	
6041607.074	2113132.63	5650.00	<1	
6041607.921	2113132.56	5010.00	<1	
6041608.768	2113132.49	4830.00	<1	
6041609.614	2113132.42	4930.00	<1	
6041610.461	2113132.35	5270.00	<1	
6041611.308	2113132.28	4990.00	<1	
6041612.154	2113132.21	4820.00	<1	
6041613.001	2113132.14	5450.00	<1	
6041613.848	2113132.07	5450.00	<1	
6041614.694	2113132.00	5120.00	<1	
6041615.541	2113131.93	5960.00	<1	

Easting	Northing	Reading	Reach 63 Data Set	Comments
6041616.388	2113131.86	5630.00	<1	
6041617.234	2113131.79	5350.00	<1	
6041618.081	2113131.72	5000.00	<1	
6041618.928	2113131.65	4780.00	<1	
6041619.774	2113131.58	4780.00	<1	
6041620.621	2113131.51	4930.00	<1	
6041621.468	2113131.44	4650.00	<1	
6041622.314	2113131.37	5170.00	<1	
6041623.161	2113131.30	5530.00	<1	
6041624.008	2113131.23	5840.00	<1	
6041624.854	2113131.16	6080.00	<1	
6041625.701	2113131.09	7570.00	1	
6041626.548	2113131.02	5690.00	<1	
6041627.394	2113130.95	7170.00	1	
6041628.241	2113130.89	7170.00	1	
6041629.088	2113130.82	6320.00	<1	
6041629.934	2113130.75	6670.00	<1	
6041630.781	2113130.68	6600.00	<1	
6041631.628	2113130.61	6080.00	<1	
6041632.474	2113130.54	5330.00	<1	
6041633.321	2113130.47	6330.00	<1	
6041634.168	2113130.40	6260.00	<1	
6041635.014	2113130.33	6220.00	<1	
6041635.861	2113130.26	5870.00	<1	
6041636.708	2113130.19	6650.00	<1	
6041637.554	2113130.12	6970.00	<1	
6041638.401	2113130.05	7010.00	1	
6041639.248	2113129.98	7230.00	1	
6041640.094	2113129.91	6610.00	<1	
6041640.941	2113129.84	6560.00	<1	
6041641.788	2113129.77	6230.00	<1	
6041642.634	2113129.70	7690.00	1	
6041643.481	2113129.63	9020.00	3	
6041644.328	2113129.56	7480.00	1	
6041645.174	2113129.49	7270.00	1	
6041646.021	2113129.42	6100.00	<1	
6041646.868	2113129.35	5570.00	<1	
6041647.714	2113129.28	4630.00	<1	
6041648.561	2113129.21	5150.00	<1	
6041649.408	2113129.14	4720.00	<1	
6041650.254	2113129.07	5480.00	<1	

Easting	Northing	Reading	Reach 63 Data Set	Comments
6041651.101	2113129.00	6050.00	<1	
6041651.948	2113128.94	5790.00	<1	
6041652.794	2113128.87	5840.00	<1	
6041653.641	2113128.80	5550.00	<1	
6041654.488	2113128.73	5550.00	<1	
6041655.334	2113128.66	5660.00	<1	
6041656.181	2113128.59	6240.00	<1	
6041657.028	2113128.52	6010.00	<1	
6041657.874	2113128.45	5650.00	<1	
6041658.721	2113128.38	4660.00	<1	
6041659.568	2113128.31	4860.00	<1	
6041660.414	2113128.24	4790.00	<1	
6041661.261	2113128.17	4730.00	<1	
6041662.108	2113128.10	5220.00	<1	
6041662.954	2113128.03	5270.00	<1	
6041663.801	2113127.96	5790.00	<1	
6041664.648	2113127.89	5540.00	<1	
6041665.494	2113127.82	5810.00	<1	
6041666.341	2113127.75	5980.00	<1	
6041667.188	2113127.68	5700.00	<1	
6041668.034	2113127.61	5660.00	<1	
6041668.881	2113127.54	5760.00	<1	
6041669.728	2113127.47	6010.00	<1	
6041670.574	2113127.40	5710.00	<1	
6041671.421	2113127.33	5800.00	<1	
6041672.268	2113127.26	5630.00	<1	
6041673.114	2113127.19	6190.00	<1	
6041673.961	2113127.12	6750.00	<1	
6041674.808	2113127.06	6750.00	<1	
6041675.654	2113126.99	5710.00	<1	
6041676.501	2113126.92	4860.00	<1	
6041677.348	2113126.85	5340.00	<1	
6041678.194	2113126.78	5490.00	<1	
6041679.041	2113126.71	5190.00	<1	
6041679.888	2113126.64	5100.00	<1	
6041680.734	2113126.57	4740.00	<1	
6041681.581	2113126.50	4680.00	<1	
6041682.428	2113126.43	4530.00	<1	
6041683.274	2113126.36	5390.00	<1	
6041684.121	2113126.29	5860.00	<1	
6041684.968	2113126.22	5680.00	<1	

Easting	Northing	Reading	Reach 63 Data Set	Comments
6041685.814	2113126.15	6060.00	<1	
6041686.661	2113126.08	6110.00	<1	
6041687.508	2113126.01	5530.00	<1	
6041688.354	2113125.94	6240.00	<1	
6041689.201	2113125.87	6190.00	<1	
6041690.048	2113125.80	6020.00	<1	
6041690.894	2113125.73	6190.00	<1	
6041691.741	2113125.66	6690.00	<1	
6041692.588	2113125.59	6690.00	<1	
6041693.434	2113125.52	6250.00	<1	
6041694.281	2113125.45	5800.00	<1	
6041695.128	2113125.38	5910.00	<1	
6041695.974	2113125.31	6680.00	<1	
6041696.821	2113125.24	6730.00	<1	
6041697.668	2113125.17	7010.00	1	
6041698.514	2113125.11	7090.00	1	
6041699.361	2113125.04	6050.00	<1	
6041700.208	2113124.97	6470.00	<1	
6041701.054	2113124.90	6130.00	<1	
6041701.901	2113124.83	6470.00	<1	
6041702.748	2113124.76	6140.00	<1	
6041703.594	2113124.69	6410.00	<1	
6041704.441	2113124.62	6330.00	<1	
6041705.288	2113124.55	6900.00	<1	
6041706.134	2113124.48	5350.00	<1	
6041706.981	2113124.41	5200.00	<1	
6041707.828	2113124.34	4850.00	<1	
6041708.674	2113124.27	4980.00	<1	
6041709.521	2113124.20	4970.00	<1	
6041710.368	2113124.13	4870.00	<1	
6041711.214	2113124.06	5050.00	<1	
6041712.061	2113123.99	4990.00	<1	
6041712.908	2113123.92	4330.00	<1	
6041713.754	2113123.85	4680.00	<1	
6041714.601	2113123.78	4570.00	<1	
6041715.448	2113123.71	5970.00	<1	
6041716.294	2113123.64	6730.00	<1	
6041717.141	2113123.57	6980.00	<1	
6041717.988	2113123.50	7900.00	2	
6041718.834	2113123.43	6640.00	<1	
6041719.681	2113123.36	6380.00	<1	

Easting	Northing	Reading	Reach 63 Data Set	Comments
6041720.528	2113123.29	5750.00	<1	
6041721.374	2113123.22	6310.00	<1	
6041722.221	2113123.16	7170.00	1	
6041723.068	2113123.09	7290.00	1	
6041723.914	2113123.02	7290.00	1	
6041724.761	2113122.95	7230.00	1	
6041725.608	2113122.88	6530.00	<1	
6041726.454	2113122.81	7260.00	1	
6041727.301	2113122.74	6580.00	<1	
6041728.148	2113122.67	7260.00	1	
6041728.994	2113122.60	7290.00	1	
6041729.841	2113122.53	7400.00	1	
6041730.688	2113122.46	6170.00	<1	
6041731.534	2113122.39	6020.00	<1	
6041732.381	2113122.32	6030.00	<1	
6041733.228	2113122.25	5250.00	<1	
6041734.074	2113122.18	5030.00	<1	
6041734.921	2113122.11	4750.00	<1	
6041735.768	2113122.04	4610.00	<1	
6041736.614	2113121.97	4780.00	<1	
6041737.461	2113121.90	5010.00	<1	
6041738.308	2113121.83	5320.00	<1	
6041739.154	2113121.76	5350.00	<1	
6041740.001	2113121.69	5260.00	<1	
6041740.848	2113121.62	5570.00	<1	
6041741.694	2113121.55	5650.00	<1	
6041742.541	2113121.48	5990.00	<1	
6041743.388	2113121.41	6530.00	<1	
6041744.234	2113121.34	7360.00	1	
6041745.081	2113121.27	6720.00	<1	
6041745.928	2113121.21	5940.00	<1	
6041746.774	2113121.14	7030.00	1	
6041747.621	2113121.07	6230.00	<1	
6041748.468	2113121.00	6890.00	<1	
6041749.314	2113120.93	6530.00	<1	
6041750.161	2113120.86	7240.00	1	
6041751.008	2113120.79	6980.00	<1	
6041751.854	2113120.72	6980.00	<1	
6041752.701	2113120.65	6880.00	<1	
6041753.548	2113120.58	6650.00	<1	
6041754.394	2113120.51	7400.00	1	

Easting	Northing	Reading	Reach 63 Data Set	Comments
6041755.241	2113120.44	6780.00	<1	
6041756.088	2113120.37	8000.00	2	
6041756.934	2113120.30	7170.00	1	
6041757.781	2113120.23	6810.00	<1	
6041758.628	2113120.16	6670.00	<1	
6041759.474	2113120.09	7220.00	1	
6041760.321	2113120.02	7360.00	1	
6041761.168	2113119.95	6670.00	<1	
6041762.014	2113119.88	6660.00	<1	
6041762.861	2113119.81	7050.00	1	
6041763.708	2113119.74	6970.00	<1	
6041764.554	2113119.67	6220.00	<1	
6041765.401	2113119.60	7240.00	1	
6041766.248	2113119.53	6570.00	<1	
6041767.094	2113119.46	5530.00	<1	
6041767.941	2113119.39	6690.00	<1	
6041768.788	2113119.32	7380.00	1	
6041769.634	2113119.26	5760.00	<1	
6041770.481	2113119.19	6390.00	<1	
6041771.328	2113119.12	6900.00	<1	
6041772.174	2113119.05	6940.00	<1	
6041773.021	2113118.98	6610.00	<1	
6041773.868	2113118.91	6710.00	<1	
6041774.714	2113118.84	6590.00	<1	
6041775.561	2113118.77	6400.00	<1	
6041776.408	2113118.70	6960.00	<1	
6041777.254	2113118.63	6490.00	<1	
6041778.101	2113118.56	6240.00	<1	
6041778.948	2113118.49	6180.00	<1	
6041779.794	2113118.42	6180.00	<1	
6041780.641	2113118.35	6500.00	<1	
6041781.488	2113118.28	6880.00	<1	
6041782.334	2113118.21	6760.00	<1	
6041783.181	2113118.14	5940.00	<1	
6041784.028	2113118.07	6770.00	<1	
6041784.874	2113118.00	7170.00	1	
6041785.721	2113117.93	6920.00	<1	
6041786.568	2113117.86	6710.00	<1	
6041787.414	2113117.79	6260.00	<1	
6041788.261	2113117.72	7450.00	1	
6041789.108	2113117.65	6140.00	<1	

Easting	Northing	Reading	Reach 63 Data Set	Comments
6041789.954	2113117.58	6040.00	<1	
6041790.801	2113117.51	6900.00	<1	
6041791.648	2113117.44	6720.00	<1	
6041792.495	2113117.37	6650.00	<1	
6041793.341	2113117.31	6950.00	<1	
6041794.188	2113117.24	6170.00	<1	
6041795.035	2113117.17	6100.00	<1	
6041795.881	2113117.10	7090.00	1	
6041796.728	2113117.03	6130.00	<1	
6041797.575	2113116.96	5860.00	<1	
6041798.421	2113116.89	5960.00	<1	
6041799.268	2113116.82	6980.00	<1	
6041800.115	2113116.75	6480.00	<1	
6041800.961	2113116.68	6590.00	<1	
6041801.808	2113116.61	7070.00	1	
6041802.655	2113116.54	6730.00	<1	
6041803.501	2113116.47	5820.00	<1	
6041804.348	2113116.40	6390.00	<1	
6041805.195	2113116.33	5750.00	<1	
6041806.041	2113116.26	6680.00	<1	
6041806.888	2113116.19	6810.00	<1	
6041807.735	2113116.12	6580.00	<1	
6041808.581	2113116.05	6020.00	<1	
6041809.428	2113115.98	6020.00	<1	
6041810.275	2113115.91	6190.00	<1	
6041811.121	2113115.84	5820.00	<1	
6041811.968	2113115.77	6360.00	<1	
6041812.815	2113115.70	6810.00	<1	
6041813.661	2113115.63	7600.00	1	
6041814.508	2113115.56	7060.00	1	
6041815.355	2113115.49	6260.00	<1	
6041816.201	2113115.42	6330.00	<1	
6041817.048	2113115.36	6000.00	<1	
6041817.895	2113115.29	6070.00	<1	
6041818.741	2113115.22	6690.00	<1	
6041819.588	2113115.15	6130.00	<1	
6041820.435	2113115.08	6380.00	<1	
6041821.281	2113115.01	4770.00	<1	
6041822.128	2113114.94	4460.00	<1	
6041822.975	2113114.87	4860.00	<1	
6041823.821	2113114.80	4620.00	<1	

Easting	Northing	Reading	Reach 63 Data Set	Comments
6041824.668	2113114.73	4570.00	<1	
6041825.515	2113114.66	5300.00	<1	
6041826.361	2113114.59	5910.00	<1	
6041827.208	2113114.52	5690.00	<1	
6041828.055	2113114.45	6270.00	<1	
6041828.901	2113114.38	6570.00	<1	
6041829.748	2113114.31	5630.00	<1	
6041830.595	2113114.24	7460.00	1	
6041831.441	2113114.17	6320.00	<1	
6041832.288	2113114.10	5870.00	<1	
6041833.135	2113114.03	6040.00	<1	
6041833.981	2113113.96	6040.00	<1	
6041834.828	2113113.89	5920.00	<1	
6041835.675	2113113.82	6050.00	<1	
6041836.521	2113113.75	7020.00	1	
6041837.368	2113113.68	6520.00	<1	
6041838.215	2113113.61	6270.00	<1	
6041839.061	2113113.54	6210.00	<1	
6041839.908	2113113.48	6700.00	<1	
6041840.755	2113113.41	6950.00	<1	
6041841.601	2113113.34	5810.00	<1	
6041842.448	2113113.27	7230.00	1	
6041843.295	2113113.20	8360.00	2	
6041844.141	2113113.13	6860.00	<1	
6041844.988	2113113.06	6990.00	<1	
6041845.835	2113112.99	6860.00	<1	
6041846.681	2113112.92	5650.00	<1	
6041847.528	2113112.85	7270.00	1	
6041848.375	2113112.78	6590.00	<1	
6041849.221	2113112.71	6690.00	<1	
6041850.068	2113112.64	7060.00	1	
6041850.915	2113112.57	7020.00	1	
6041851.761	2113112.50	6380.00	<1	
6041852.608	2113112.43	5990.00	<1	
6041853.455	2113112.36	5900.00	<1	
6041854.301	2113112.29	5720.00	<1	
6041855.148	2113112.22	7080.00	1	
6041855.995	2113112.15	5800.00	<1	
6041856.841	2113112.08	6130.00	<1	
6041857.688	2113112.01	6950.00	<1	
6041858.535	2113111.94	5890.00	<1	

Easting	Northing	Reading	Reach 63 Data Set	Comments
6041859.381	2113111.87	6160.00	<1	
6041860.228	2113111.80	5960.00	<1	
6041861.075	2113111.73	5960.00	<1	
6041861.921	2113111.66	6060.00	<1	
6041862.768	2113111.59	5790.00	<1	
6041863.615	2113111.53	5570.00	<1	
6041864.461	2113111.46	6120.00	<1	
6041865.308	2113111.39	6060.00	<1	

6194.80	Average
805.18	Std Dev
8610.35	3 Sigma
9020.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 64
Line: G

Main/Lateral: Lateral
Length (ft): 19
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 64 Data Set

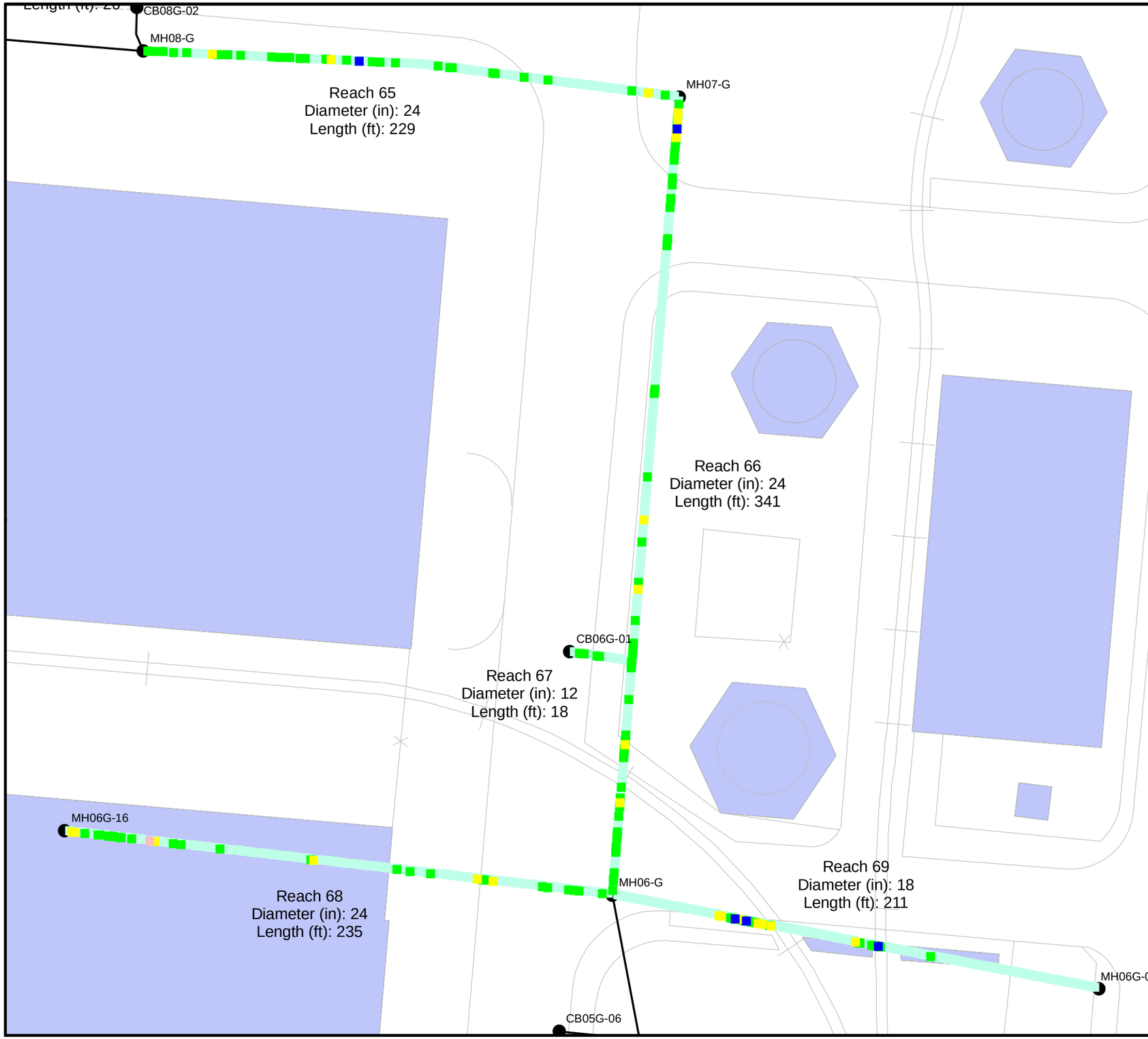
Gamma Total CPS	
5245.63	Average
443.03	Std Dev
6574.73	3 Sigma
6190.00	Max

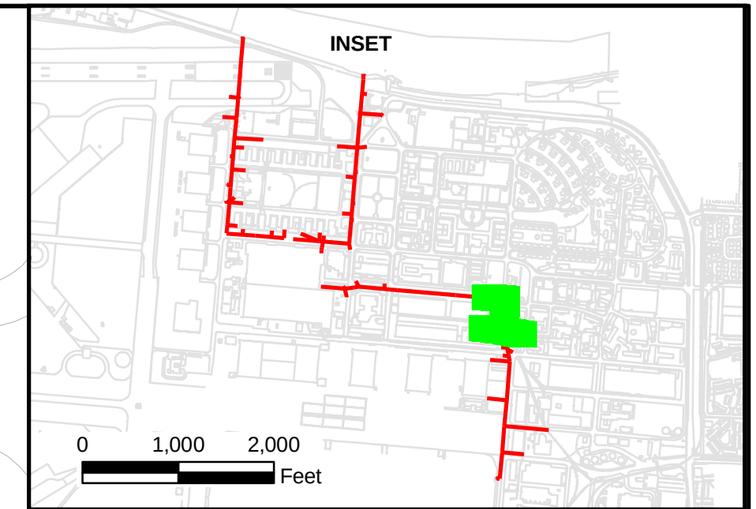
Sigma	Total Points
<1	14
1	1
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 64 Data Set	Comments
6041866.501	2113113.05	4520.00	<1	
6041866.047	2113114.10	4520.00	<1	
6041865.593	2113115.14	5110.00	<1	
6041865.139	2113116.18	5310.00	<1	
6041864.684	2113117.22	6190.00	2	
6041864.23	2113118.26	5890.00	1	
6041864.477	2113127.82	4710.00	<1	
6041864.453	2113126.87	5060.00	<1	
6041864.428	2113125.92	5460.00	<1	
6041864.404	2113124.97	5370.00	<1	
6041864.379	2113124.01	5410.00	<1	
6041864.354	2113123.06	5390.00	<1	
6041864.33	2113122.11	5130.00	<1	
6041864.305	2113121.16	5070.00	<1	
6041864.28	2113120.21	5250.00	<1	
6041864.256	2113119.26	5540.00	<1	

5245.63	Average
443.03	Std Dev
6574.73	3 Sigma
6190.00	Max

Easting	Northing	Reading	Reach 64 Data Set	Comments





Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
65	8718
66	8336
67	7050
68	8131
69	7606

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0 510 20 30 40
Feet

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 65 thru 69

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_65-69_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 65
Line: G

Main/Lateral: Main
Length (ft): 229
Pipe Diameter (in): 24

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 65 Data Set

Gamma Total CPS	
6788.69	Average
642.94	Std Dev
8717.52	3 Sigma
8790.00	Max

Sigma	Total Points
<1	176
1	34
2	3
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 65 Data Set	Comments
6041869.299	2113111.13	8040.00	1	
6041870.399	2113111.08	7500.00	1	
6041871.499	2113111.03	7580.00	1	
6041872.6	2113110.98	6810.00	<1	
6041873.7	2113110.92	7340.00	<1	
6041874.8	2113110.87	7820.00	1	
6041875.9	2113110.82	7460.00	1	
6041877	2113110.77	7390.00	<1	
6041878.101	2113110.72	7340.00	<1	
6041879.201	2113110.67	6700.00	<1	
6041880.301	2113110.62	7960.00	1	
6041881.401	2113110.57	7390.00	<1	
6041882.501	2113110.51	6960.00	<1	
6041883.602	2113110.46	7100.00	<1	
6041884.702	2113110.41	6450.00	<1	
6041885.802	2113110.36	7640.00	1	
6041886.902	2113110.31	6640.00	<1	
6041888.002	2113110.26	6890.00	<1	
6041889.103	2113110.21	5850.00	<1	
6041890.203	2113110.16	6610.00	<1	

Easting	Northing	Reading	Reach 65 Data Set	Comments
6041891.303	2113110.10	6060.00	<1	
6041892.403	2113110.05	7380.00	<1	
6041893.503	2113110.00	6590.00	<1	
6041894.604	2113109.95	7080.00	<1	
6041895.704	2113109.90	7430.00	<1	
6041896.804	2113109.85	8260.00	2	
6041897.904	2113109.80	6880.00	<1	
6041899.004	2113109.75	7620.00	1	
6041900.105	2113109.69	8040.00	1	
6041901.205	2113109.64	7460.00	1	
6041902.305	2113109.59	6510.00	<1	
6041903.405	2113109.54	8000.00	1	
6041904.505	2113109.49	5690.00	<1	
6041905.606	2113109.44	6300.00	<1	
6041906.706	2113109.39	6810.00	<1	
6041907.806	2113109.34	6480.00	<1	
6041908.906	2113109.29	7630.00	1	
6041910.006	2113109.23	6860.00	<1	
6041911.107	2113109.18	7200.00	<1	
6041912.207	2113109.13	6310.00	<1	
6041913.307	2113109.08	6580.00	<1	
6041914.407	2113109.03	5500.00	<1	
6041915.507	2113108.98	7050.00	<1	
6041916.608	2113108.93	6820.00	<1	
6041917.708	2113108.88	6790.00	<1	
6041918.808	2113108.82	7260.00	<1	
6041919.908	2113108.77	6650.00	<1	
6041921.008	2113108.72	7410.00	<1	
6041922.109	2113108.67	7550.00	1	
6041923.209	2113108.62	7240.00	<1	
6041924.309	2113108.57	7170.00	<1	
6041925.409	2113108.52	8040.00	1	
6041926.509	2113108.47	7640.00	1	
6041927.61	2113108.41	7290.00	<1	
6041928.71	2113108.36	7000.00	<1	
6041929.81	2113108.31	7520.00	1	
6041930.91	2113108.26	7120.00	<1	
6041932.01	2113108.21	6990.00	<1	
6041933.11	2113108.16	7210.00	<1	
6041934.211	2113108.11	7730.00	1	
6041935.311	2113108.06	7560.00	1	

Easting	Northing	Reading	Reach 65 Data Set	Comments
6041936.411	2113108.00	7760.00	1	
6041937.511	2113107.95	6310.00	<1	
6041938.611	2113107.90	7350.00	<1	
6041939.712	2113107.85	6950.00	<1	
6041940.812	2113107.80	6830.00	<1	
6041941.912	2113107.75	6570.00	<1	
6041943.012	2113107.70	6310.00	<1	
6041944.112	2113107.65	6020.00	<1	
6041945.213	2113107.59	7490.00	1	
6041946.313	2113107.54	7680.00	1	
6041947.413	2113107.49	8100.00	2	
6041948.513	2113107.44	6800.00	<1	
6041949.613	2113107.39	6430.00	<1	
6041950.714	2113107.34	7340.00	<1	
6041951.814	2113107.29	6580.00	<1	
6041952.914	2113107.24	6510.00	<1	
6041954.014	2113107.19	7580.00	1	
6041955.114	2113107.13	7250.00	<1	
6041956.215	2113107.08	6870.00	<1	
6041957.315	2113107.03	6090.00	<1	
6041958.415	2113106.98	6330.00	<1	
6041959.515	2113106.93	8790.00	3	
6041960.615	2113106.88	6920.00	<1	
6041961.716	2113106.83	6180.00	<1	
6041962.816	2113106.78	6950.00	<1	
6041963.916	2113106.72	7040.00	<1	
6041965.016	2113106.67	7520.00	1	
6041966.116	2113106.62	6760.00	<1	
6041967.217	2113106.57	6610.00	<1	
6041968.317	2113106.52	7800.00	1	
6041969.417	2113106.47	6620.00	<1	
6041970.517	2113106.42	6400.00	<1	
6041971.617	2113106.37	6570.00	<1	
6041972.718	2113106.31	6080.00	<1	
6041973.818	2113106.26	6710.00	<1	
6041974.918	2113106.21	7900.00	1	
6041976.018	2113106.16	6930.00	<1	
6041977.118	2113106.11	5970.00	<1	
6041978.219	2113106.06	6070.00	<1	
6041979.319	2113106.01	5900.00	<1	
6041980.419	2113105.96	6090.00	<1	

Easting	Northing	Reading	Reach 65 Data Set	Comments
6041981.519	2113105.90	6190.00	<1	
6041982.619	2113105.85	7310.00	<1	
6041983.72	2113105.80	7000.00	<1	
6041984.82	2113105.75	6560.00	<1	
6041985.92	2113105.70	6500.00	<1	
6041985.92	2113105.70	6080.00	<1	
6041986.94	2113105.57	6780.00	<1	
6041987.96	2113105.44	6990.00	<1	
6041988.98	2113105.31	7090.00	<1	
6041990	2113105.17	6140.00	<1	
6041991.02	2113105.04	6480.00	<1	
6041992.04	2113104.91	6370.00	<1	
6041993.061	2113104.78	7570.00	1	
6041994.081	2113104.65	6020.00	<1	
6041995.101	2113104.52	6580.00	<1	
6041996.121	2113104.39	6480.00	<1	
6041997.141	2113104.26	6850.00	<1	
6041998.161	2113104.12	7590.00	1	
6041999.181	2113103.99	7730.00	1	
6042000.201	2113103.86	6770.00	<1	
6042001.221	2113103.73	7360.00	<1	
6042002.241	2113103.60	5970.00	<1	
6042003.261	2113103.47	6410.00	<1	
6042004.281	2113103.34	5850.00	<1	
6042005.301	2113103.21	6650.00	<1	
6042006.322	2113103.07	6730.00	<1	
6042007.342	2113102.94	5540.00	<1	
6042008.362	2113102.81	5760.00	<1	
6042009.382	2113102.68	7000.00	<1	
6042010.402	2113102.55	6390.00	<1	
6042011.422	2113102.42	6410.00	<1	
6042012.442	2113102.29	6120.00	<1	
6042013.462	2113102.16	7010.00	<1	
6042014.482	2113102.02	6670.00	<1	
6042015.502	2113101.89	5960.00	<1	
6042016.522	2113101.76	7890.00	1	
6042017.542	2113101.63	7720.00	1	
6042018.562	2113101.50	6920.00	<1	
6042019.583	2113101.37	6550.00	<1	
6042020.603	2113101.24	7080.00	<1	
6042021.623	2113101.11	6490.00	<1	

Easting	Northing	Reading	Reach 65 Data Set	Comments
6042022.643	2113100.97	6650.00	<1	
6042023.663	2113100.84	6270.00	<1	
6042024.683	2113100.71	5700.00	<1	
6042025.703	2113100.58	6520.00	<1	
6042026.723	2113100.45	6770.00	<1	
6042027.743	2113100.32	6600.00	<1	
6042028.763	2113100.19	6190.00	<1	
6042029.783	2113100.06	7460.00	1	
6042030.803	2113099.92	5870.00	<1	
6042031.824	2113099.79	5950.00	<1	
6042032.844	2113099.66	7020.00	<1	
6042033.864	2113099.53	7140.00	<1	
6042034.884	2113099.40	7140.00	<1	
6042035.904	2113099.27	6470.00	<1	
6042036.924	2113099.14	6460.00	<1	
6042037.944	2113099.00	6990.00	<1	
6042038.964	2113098.87	6690.00	<1	
6042039.984	2113098.74	7540.00	1	
6042041.004	2113098.61	6170.00	<1	
6042042.024	2113098.48	6480.00	<1	
6042043.044	2113098.35	6310.00	<1	
6042044.064	2113098.22	5860.00	<1	
6042045.085	2113098.09	6700.00	<1	
6042046.105	2113097.95	6140.00	<1	
6042047.125	2113097.82	6200.00	<1	
6042048.145	2113097.69	6430.00	<1	
6042049.165	2113097.56	6480.00	<1	
6042050.185	2113097.43	7370.00	<1	
6042051.205	2113097.30	6180.00	<1	
6042052.225	2113097.17	6040.00	<1	
6042053.245	2113097.04	6450.00	<1	
6042054.265	2113096.90	6610.00	<1	
6042055.285	2113096.77	6650.00	<1	
6042056.305	2113096.64	6930.00	<1	
6042057.325	2113096.51	7030.00	<1	
6042058.346	2113096.38	6650.00	<1	
6042059.366	2113096.25	6140.00	<1	
6042060.386	2113096.12	7010.00	<1	
6042061.406	2113095.99	6850.00	<1	
6042062.426	2113095.85	6170.00	<1	
6042063.446	2113095.72	5870.00	<1	

Easting	Northing	Reading	Reach 65 Data Set	Comments
6042064.466	2113095.59	5260.00	<1	
6042065.486	2113095.46	6170.00	<1	
6042066.506	2113095.33	5920.00	<1	
6042067.526	2113095.20	6400.00	<1	
6042068.546	2113095.07	6370.00	<1	
6042069.566	2113094.94	6050.00	<1	
6042070.586	2113094.80	5570.00	<1	
6042071.607	2113094.67	6710.00	<1	
6042072.627	2113094.54	7010.00	<1	
6042073.647	2113094.41	7170.00	<1	
6042074.667	2113094.28	6610.00	<1	
6042075.687	2113094.15	7720.00	1	
6042076.707	2113094.02	6210.00	<1	
6042077.727	2113093.89	6880.00	<1	
6042078.747	2113093.75	5130.00	<1	
6042079.767	2113093.62	6380.00	<1	
6042080.787	2113093.49	7370.00	<1	
6042081.807	2113093.36	6720.00	<1	
6042082.827	2113093.23	8320.00	2	
6042083.847	2113093.10	6050.00	<1	
6042084.868	2113092.97	6120.00	<1	
6042085.888	2113092.83	5680.00	<1	
6042086.908	2113092.70	5690.00	<1	
6042087.928	2113092.57	7070.00	<1	
6042088.948	2113092.44	6520.00	<1	
6042089.968	2113092.31	7950.00	1	
6042090.988	2113092.18	7020.00	<1	
6042092.008	2113092.05	6390.00	<1	
6042093.028	2113091.92	6810.00	<1	
6042094.048	2113091.78	6660.00	<1	

6788.69	Average
642.94	Std Dev
8717.52	3 Sigma
8790.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 66
Line: G

Main/Lateral: Main
Length (ft): 341
Pipe Diameter (in): 24

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 66 Data Set

Gamma Total CPS	
6511.45	Average
608.30	Std Dev
8336.34	3 Sigma
8440.00	Max

Sigma	Total Points
<1	286
1	57
2	8
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 66 Data Set	Comments
6042095.864	2113089.54	6550.00	<1	
6042095.783	2113088.58	7560.00	1	
6042095.702	2113087.62	6960.00	<1	
6042095.621	2113086.66	6530.00	<1	
6042095.54	2113085.70	6510.00	<1	
6042095.459	2113084.75	8060.00	2	
6042095.378	2113083.79	7140.00	1	
6042095.298	2113082.83	7290.00	1	
6042095.217	2113081.87	7820.00	2	
6042095.136	2113080.91	7120.00	1	
6042095.055	2113079.95	7120.00	1	
6042094.974	2113079.00	7070.00	<1	
6042094.893	2113078.04	8440.00	3	
6042094.812	2113077.08	6240.00	<1	
6042094.732	2113076.12	7790.00	2	
6042094.651	2113075.16	6200.00	<1	
6042094.57	2113074.21	7980.00	2	
6042094.489	2113073.25	7470.00	1	
6042094.408	2113072.29	7370.00	1	
6042094.327	2113071.33	6300.00	<1	

Easting	Northing	Reading	Reach 66 Data Set	Comments
6042094.246	2113070.37	7340.00	1	
6042094.165	2113069.42	6800.00	<1	
6042094.085	2113068.46	5810.00	<1	
6042094.004	2113067.50	7200.00	1	
6042093.923	2113066.54	6550.00	<1	
6042093.842	2113065.58	5850.00	<1	
6042093.761	2113064.62	7490.00	1	
6042093.68	2113063.67	7110.00	<1	
6042093.599	2113062.71	5720.00	<1	
6042093.519	2113061.75	6710.00	<1	
6042093.438	2113060.79	6510.00	<1	
6042093.357	2113059.83	6220.00	<1	
6042093.276	2113058.88	6220.00	<1	
6042093.195	2113057.92	6440.00	<1	
6042093.114	2113056.96	7480.00	1	
6042093.033	2113056.00	6050.00	<1	
6042092.952	2113055.04	7010.00	<1	
6042092.872	2113054.08	7290.00	1	
6042092.791	2113053.13	6720.00	<1	
6042092.71	2113052.17	6980.00	<1	
6042092.629	2113051.21	6050.00	<1	
6042092.548	2113050.25	6310.00	<1	
6042092.467	2113049.29	6490.00	<1	
6042092.386	2113048.34	7490.00	1	
6042092.305	2113047.38	7320.00	1	
6042092.225	2113046.42	6510.00	<1	
6042092.144	2113045.46	6530.00	<1	
6042092.063	2113044.50	7240.00	1	
6042091.982	2113043.54	6790.00	<1	
6042091.901	2113042.59	6080.00	<1	
6042091.82	2113041.63	6110.00	<1	
6042091.739	2113040.67	5810.00	<1	
6042091.659	2113039.71	5890.00	<1	
6042091.578	2113038.75	5730.00	<1	
6042091.497	2113037.80	6160.00	<1	
6042091.416	2113036.84	5970.00	<1	
6042091.335	2113035.88	5930.00	<1	
6042091.254	2113034.92	5910.00	<1	
6042091.173	2113033.96	5910.00	<1	
6042091.092	2113033.00	5690.00	<1	
6042091.012	2113032.05	5750.00	<1	

Easting	Northing	Reading	Reach 66 Data Set	Comments
6042090.931	2113031.09	7150.00	1	
6042090.85	2113030.13	7440.00	1	
6042090.769	2113029.17	7090.00	<1	
6042090.688	2113028.21	7340.00	1	
6042090.607	2113027.26	6500.00	<1	
6042090.526	2113026.30	6590.00	<1	
6042090.445	2113025.34	6760.00	<1	
6042090.365	2113024.38	6540.00	<1	
6042090.284	2113023.42	6480.00	<1	
6042090.203	2113022.46	5640.00	<1	
6042090.122	2113021.51	5710.00	<1	
6042090.041	2113020.55	6970.00	<1	
6042089.96	2113019.59	5810.00	<1	
6042089.879	2113018.63	5980.00	<1	
6042089.799	2113017.67	6550.00	<1	
6042089.718	2113016.72	6330.00	<1	
6042089.637	2113015.76	6190.00	<1	
6042089.556	2113014.80	5790.00	<1	
6042089.475	2113013.84	6010.00	<1	
6042089.394	2113012.88	6560.00	<1	
6042089.313	2113011.92	5910.00	<1	
6042089.232	2113010.97	5680.00	<1	
6042089.152	2113010.01	5980.00	<1	
6042089.071	2113009.05	6270.00	<1	
6042088.99	2113008.09	6270.00	<1	
6042088.909	2113007.13	6040.00	<1	
6042088.828	2113006.18	6510.00	<1	
6042088.747	2113005.22	6980.00	<1	
6042088.666	2113004.26	5380.00	<1	
6042088.585	2113003.30	5810.00	<1	
6042088.505	2113002.34	6050.00	<1	
6042088.424	2113001.38	6300.00	<1	
6042088.343	2113000.43	5980.00	<1	
6042088.262	2112999.47	6610.00	<1	
6042088.181	2112998.51	6270.00	<1	
6042088.1	2112997.55	6210.00	<1	
6042088.019	2112996.59	7000.00	<1	
6042087.939	2112995.64	6900.00	<1	
6042087.858	2112994.68	6270.00	<1	
6042087.777	2112993.72	6120.00	<1	
6042087.696	2112992.76	5340.00	<1	

Easting	Northing	Reading	Reach 66 Data Set	Comments
6042087.615	2112991.80	5550.00	<1	
6042087.534	2112990.85	6060.00	<1	
6042087.453	2112989.89	5900.00	<1	
6042087.372	2112988.93	5530.00	<1	
6042087.292	2112987.97	6000.00	<1	
6042087.211	2112987.01	5890.00	<1	
6042087.13	2112986.05	5820.00	<1	
6042087.049	2112985.10	6180.00	<1	
6042086.968	2112984.14	6590.00	<1	
6042086.887	2112983.18	6470.00	<1	
6042086.806	2112982.22	6470.00	<1	
6042086.726	2112981.26	6810.00	<1	
6042086.645	2112980.31	7000.00	<1	
6042086.564	2112979.35	6310.00	<1	
6042086.483	2112978.39	6360.00	<1	
6042086.402	2112977.43	6190.00	<1	
6042086.321	2112976.47	7110.00	<1	
6042086.24	2112975.51	7060.00	<1	
6042086.159	2112974.56	5860.00	<1	
6042086.079	2112973.60	5820.00	<1	
6042085.998	2112972.64	6010.00	<1	
6042085.917	2112971.68	6010.00	<1	
6042085.836	2112970.72	6040.00	<1	
6042085.755	2112969.77	6830.00	<1	
6042085.674	2112968.81	6470.00	<1	
6042085.593	2112967.85	6970.00	<1	
6042085.512	2112966.89	7540.00	1	
6042085.432	2112965.93	7330.00	1	
6042085.351	2112964.97	7140.00	1	
6042085.27	2112964.02	5400.00	<1	
6042085.189	2112963.06	5940.00	<1	
6042085.108	2112962.10	5640.00	<1	
6042085.027	2112961.14	5890.00	<1	
6042084.946	2112960.18	5890.00	<1	
6042084.866	2112959.23	5640.00	<1	
6042084.785	2112958.27	5930.00	<1	
6042084.704	2112957.31	5460.00	<1	
6042084.623	2112956.35	5900.00	<1	
6042084.542	2112955.39	5940.00	<1	
6042084.461	2112954.43	5620.00	<1	
6042084.38	2112953.48	5850.00	<1	

Easting	Northing	Reading	Reach 66 Data Set	Comments
6042084.299	2112952.52	5780.00	<1	
6042084.219	2112951.56	6020.00	<1	
6042084.138	2112950.60	5860.00	<1	
6042084.057	2112949.64	5890.00	<1	
6042083.976	2112948.69	6410.00	<1	
6042083.895	2112947.73	6830.00	<1	
6042083.814	2112946.77	6980.00	<1	
6042083.733	2112945.81	6530.00	<1	
6042083.652	2112944.85	5810.00	<1	
6042083.572	2112943.89	6040.00	<1	
6042083.491	2112942.94	6390.00	<1	
6042083.41	2112941.98	6890.00	<1	
6042083.329	2112941.02	6930.00	<1	
6042083.248	2112940.06	6680.00	<1	
6042083.167	2112939.10	6670.00	<1	
6042083.086	2112938.15	5780.00	<1	
6042083.006	2112937.19	6060.00	<1	
6042082.925	2112936.23	6930.00	<1	
6042082.844	2112935.27	5600.00	<1	
6042082.763	2112934.31	6850.00	<1	
6042082.682	2112933.35	6610.00	<1	
6042082.601	2112932.40	6970.00	<1	
6042082.52	2112931.44	6230.00	<1	
6042082.439	2112930.48	5970.00	<1	
6042082.359	2112929.52	7150.00	1	
6042082.278	2112928.56	6340.00	<1	
6042082.197	2112927.61	6340.00	<1	
6042082.116	2112926.65	5860.00	<1	
6042082.035	2112925.69	5910.00	<1	
6042081.954	2112924.73	6580.00	<1	
6042081.873	2112923.77	6810.00	<1	
6042081.793	2112922.82	6280.00	<1	
6042081.712	2112921.86	5920.00	<1	
6042081.631	2112920.90	6290.00	<1	
6042081.55	2112919.94	5620.00	<1	
6042081.469	2112918.98	4940.00	<1	
6042081.388	2112918.02	5950.00	<1	
6042081.307	2112917.07	5580.00	<1	
6042081.226	2112916.11	5770.00	<1	
6042081.146	2112915.15	6180.00	<1	
6042081.065	2112914.19	6940.00	<1	

Easting	Northing	Reading	Reach 66 Data Set	Comments
6042080.984	2112913.23	5730.00	<1	
6042080.903	2112912.28	6200.00	<1	
6042080.822	2112911.32	7840.00	2	
6042080.741	2112910.36	5860.00	<1	
6042080.66	2112909.40	6300.00	<1	
6042080.579	2112908.44	6690.00	<1	
6042080.499	2112907.48	6700.00	<1	
6042080.418	2112906.53	6440.00	<1	
6042080.337	2112905.57	5790.00	<1	
6042080.256	2112904.61	6080.00	<1	
6042080.175	2112903.65	6330.00	<1	
6042080.094	2112902.69	6300.00	<1	
6042080.013	2112901.74	7160.00	1	
6042079.933	2112900.78	5910.00	<1	
6042079.852	2112899.82	6330.00	<1	
6042079.771	2112898.86	6100.00	<1	
6042079.69	2112897.90	5870.00	<1	
6042079.609	2112896.94	6280.00	<1	
6042079.528	2112895.99	5590.00	<1	
6042079.447	2112895.03	5590.00	<1	
6042079.366	2112894.07	6180.00	<1	
6042079.286	2112893.11	6780.00	<1	
6042079.205	2112892.15	6080.00	<1	
6042079.124	2112891.20	6500.00	<1	
6042079.043	2112890.24	6060.00	<1	
6042078.962	2112889.28	6720.00	<1	
6042078.881	2112888.32	6770.00	<1	
6042078.8	2112887.36	5740.00	<1	
6042078.719	2112886.40	5930.00	<1	
6042078.639	2112885.45	6960.00	<1	
6042078.558	2112884.49	7260.00	1	
6042078.477	2112883.53	6990.00	<1	
6042078.396	2112882.57	6130.00	<1	
6042078.315	2112881.61	8290.00	2	
6042078.234	2112880.66	6190.00	<1	
6042078.153	2112879.70	6850.00	<1	
6042078.073	2112878.74	6520.00	<1	
6042077.992	2112877.78	5900.00	<1	
6042077.911	2112876.82	6990.00	<1	
6042077.83	2112875.86	6840.00	<1	
6042077.749	2112874.91	6920.00	<1	

Easting	Northing	Reading	Reach 66 Data Set	Comments
6042077.668	2112873.95	6110.00	<1	
6042077.587	2112872.99	6550.00	<1	
6042077.506	2112872.03	6220.00	<1	
6042077.426	2112871.07	6380.00	<1	
6042077.345	2112870.12	7110.00	<1	
6042077.264	2112869.16	6870.00	<1	
6042077.183	2112868.20	7400.00	1	
6042077.102	2112867.24	6060.00	<1	
6042077.021	2112866.28	7040.00	<1	
6042076.94	2112865.32	6270.00	<1	
6042076.859	2112864.37	5310.00	<1	
6042076.779	2112863.41	6530.00	<1	
6042076.698	2112862.45	6900.00	<1	
6042076.617	2112861.49	6360.00	<1	
6042076.536	2112860.53	6900.00	<1	
6042076.455	2112859.58	6300.00	<1	
6042076.374	2112858.62	7240.00	1	
6042076.293	2112857.66	7240.00	1	
6042076.213	2112856.70	6700.00	<1	
6042076.132	2112855.74	7130.00	1	
6042076.051	2112854.79	6630.00	<1	
6042075.97	2112853.83	7410.00	1	
6042075.889	2112852.87	7020.00	<1	
6042075.808	2112851.91	6490.00	<1	
6042075.727	2112850.95	7290.00	1	
6042075.646	2112849.99	7150.00	1	
6042075.566	2112849.04	7180.00	1	
6042075.485	2112848.08	7140.00	1	
6042075.404	2112847.12	6130.00	<1	
6042075.323	2112846.16	6200.00	<1	
6042075.242	2112845.20	6230.00	<1	
6042075.161	2112844.25	6670.00	<1	
6042075.08	2112843.29	6460.00	<1	
6042075	2112842.33	6280.00	<1	
6042074.919	2112841.37	6380.00	<1	
6042074.838	2112840.41	6050.00	<1	
6042074.757	2112839.45	6990.00	<1	
6042074.676	2112838.50	6470.00	<1	
6042074.595	2112837.54	5650.00	<1	
6042074.514	2112836.58	5770.00	<1	
6042074.433	2112835.62	6650.00	<1	

Easting	Northing	Reading	Reach 66 Data Set	Comments
6042074.353	2112834.66	7120.00	1	
6042074.272	2112833.71	6600.00	<1	
6042074.191	2112832.75	6210.00	<1	
6042074.11	2112831.79	6130.00	<1	
6042074.029	2112830.83	5810.00	<1	
6042073.948	2112829.87	5810.00	<1	
6042073.867	2112828.91	6630.00	<1	
6042073.786	2112827.96	5790.00	<1	
6042073.706	2112827.00	6430.00	<1	
6042073.625	2112826.04	5580.00	<1	
6042073.544	2112825.08	5310.00	<1	
6042073.463	2112824.12	6370.00	<1	
6042073.382	2112823.17	5970.00	<1	
6042073.301	2112822.21	6020.00	<1	
6042073.22	2112821.25	5930.00	<1	
6042073.14	2112820.29	6550.00	<1	
6042073.059	2112819.33	7440.00	1	
6042072.978	2112818.37	6410.00	<1	
6042072.897	2112817.42	7400.00	1	
6042072.816	2112816.46	7310.00	1	
6042072.735	2112815.50	7780.00	2	
6042072.654	2112814.54	7080.00	<1	
6042072.573	2112813.58	7610.00	1	
6042072.493	2112812.63	7280.00	1	
6042072.412	2112811.67	7170.00	1	
6042072.331	2112810.71	6400.00	<1	
6042072.25	2112809.75	7670.00	1	
6042072.169	2112808.79	6880.00	<1	
6042072.088	2112807.83	6420.00	<1	
6042072.007	2112806.88	5970.00	<1	
6042071.926	2112805.92	7110.00	<1	
6042071.846	2112804.96	6680.00	<1	
6042071.765	2112804.00	6680.00	<1	
6042071.684	2112803.04	6290.00	<1	
6042071.603	2112802.09	6290.00	<1	
6042071.522	2112801.13	7110.00	<1	
6042071.441	2112800.17	5980.00	<1	
6042071.36	2112799.21	5780.00	<1	
6042071.28	2112798.25	6140.00	<1	
6042071.199	2112797.29	7550.00	1	
6042071.118	2112796.34	6570.00	<1	

Easting	Northing	Reading	Reach 66 Data Set	Comments
6042071.037	2112795.38	6710.00	<1	
6042070.956	2112794.42	6510.00	<1	
6042070.875	2112793.46	6370.00	<1	
6042070.794	2112792.50	7290.00	1	
6042070.713	2112791.55	6310.00	<1	
6042070.633	2112790.59	7960.00	2	
6042070.552	2112789.63	7470.00	1	
6042070.471	2112788.67	7270.00	1	
6042070.39	2112787.71	6900.00	<1	
6042070.309	2112786.76	6730.00	<1	
6042070.228	2112785.80	6130.00	<1	
6042070.147	2112784.84	7200.00	1	
6042070.067	2112783.88	6860.00	<1	
6042069.986	2112782.92	7010.00	<1	
6042069.905	2112781.96	7110.00	<1	
6042069.824	2112781.01	6990.00	<1	
6042069.743	2112780.05	6430.00	<1	
6042069.662	2112779.09	5790.00	<1	
6042069.581	2112778.13	7220.00	1	
6042069.5	2112777.17	7550.00	1	
6042069.42	2112776.22	7210.00	1	
6042069.339	2112775.26	7430.00	1	
6042069.258	2112774.30	6640.00	<1	
6042069.177	2112773.34	6620.00	<1	
6042069.096	2112772.38	5730.00	<1	
6042069.015	2112771.42	7480.00	1	
6042068.934	2112770.47	7600.00	1	
6042068.853	2112769.51	7510.00	1	
6042068.773	2112768.55	7020.00	<1	
6042068.692	2112767.59	6390.00	<1	
6042068.611	2112766.63	6460.00	<1	
6042068.53	2112765.68	6190.00	<1	
6042068.449	2112764.72	6920.00	<1	
6042068.368	2112763.76	6880.00	<1	
6042068.287	2112762.80	6400.00	<1	
6042068.207	2112761.84	6480.00	<1	
6042068.126	2112760.88	7440.00	1	
6042068.045	2112759.93	6110.00	<1	
6042067.964	2112758.97	6490.00	<1	
6042067.883	2112758.01	7170.00	1	
6042067.802	2112757.05	7330.00	1	

Easting	Northing	Reading	Reach 66 Data Set	Comments
6042067.721	2112756.09	5930.00	<1	
6042067.64	2112755.14	6980.00	<1	
6042067.56	2112754.18	6980.00	<1	
6042067.479	2112753.22	7430.00	1	

6511.45	Average
608.30	Std Dev
8336.34	3 Sigma
8440.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 67
Line: G

Main/Lateral: Lateral
Length (ft): 18
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 67 Data Set

Gamma Total CPS	
5780.00	Average
423.18	Std Dev
7049.54	3 Sigma
6490.00	Max

Sigma	Total Points
<1	18
1	5
2	0
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 67 Data Set	Comments
6042051.156	2112854.66	5140.00	<1	
6042052.228	2112854.49	5690.00	<1	
6042053.299	2112854.33	6490.00	1	
6042054.371	2112854.16	6490.00	1	
6042055.443	2112853.99	6290.00	1	
6042056.514	2112853.82	5770.00	<1	
6042057.586	2112853.65	5870.00	<1	
6042058.658	2112853.49	5790.00	<1	
6042059.729	2112853.32	5160.00	<1	
6042060.801	2112853.15	6280.00	1	
6042061.872	2112852.98	6420.00	1	
6042062.944	2112852.81	5260.00	<1	
6042064.016	2112852.65	5360.00	<1	
6042065.087	2112852.48	5360.00	<1	
6042066.159	2112852.31	5550.00	<1	
6042067.231	2112852.14	6030.00	<1	
6042068.302	2112851.97	5750.00	<1	
6042069.374	2112851.81	5280.00	<1	
6042070.446	2112851.64	5750.00	<1	
6042071.517	2112851.47	5530.00	<1	

Easting	Northing	Reading	Reach 67 Data Set	Comments
6042072.589	2112851.30	5840.00	<1	
6042073.66	2112851.13	6150.00	<1	
6042074.732	2112850.96	5690.00	<1	

5780.00	Average
423.18	Std Dev
7049.54	3 Sigma
6490.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 68
Line: G

Main/Lateral: Lateral
Length (ft): 235
Pipe Diameter (in): 24

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 68 Data Set

Gamma Total CPS	
6453.01	Average
559.20	Std Dev
8130.62	3 Sigma
9000.00	Max

Sigma	Total Points
<1	175
1	24
2	6
3	0
4	1
5	0
>6	0

Easting	Northing	Reading	Reach 68 Data Set	Comments
6041835.722	2112778.31	6780.00	<1	
6041836.831	2112778.18	7630.00	2	
6041837.94	2112778.05	7610.00	2	
6041839.049	2112777.92	6480.00	<1	
6041840.158	2112777.79	5740.00	<1	
6041841.267	2112777.66	6620.00	<1	
6041842.377	2112777.53	7190.00	1	
6041843.486	2112777.40	6640.00	<1	
6041844.595	2112777.27	6800.00	<1	
6041845.704	2112777.14	6200.00	<1	
6041846.813	2112777.01	6030.00	<1	
6041847.923	2112776.88	7320.00	1	
6041849.032	2112776.75	7130.00	1	
6041850.141	2112776.62	6700.00	<1	
6041851.25	2112776.50	5930.00	<1	
6041852.359	2112776.37	7140.00	1	
6041853.469	2112776.24	7030.00	1	
6041854.578	2112776.11	7080.00	1	
6041855.687	2112775.98	6920.00	<1	
6041856.796	2112775.85	7410.00	1	

Easting	Northing	Reading	Reach 68 Data Set	Comments
6041857.905	2112775.72	7180.00	1	
6041859.015	2112775.59	6970.00	<1	
6041860.124	2112775.46	6830.00	<1	
6041861.233	2112775.33	6830.00	<1	
6041862.342	2112775.20	7280.00	1	
6041863.451	2112775.07	6980.00	<1	
6041864.56	2112774.94	6960.00	<1	
6041865.67	2112774.81	6080.00	<1	
6041866.779	2112774.68	6570.00	<1	
6041870.106	2112774.29	9000.00	4	
6041871.216	2112774.16	6760.00	<1	
6041872.325	2112774.03	7800.00	2	
6041873.434	2112773.90	6540.00	<1	
6041874.543	2112773.77	6280.00	<1	
6041875.652	2112773.64	6230.00	<1	
6041876.762	2112773.51	5800.00	<1	
6041877.871	2112773.38	6640.00	<1	
6041878.98	2112773.25	6280.00	<1	
6041880.089	2112773.12	7230.00	1	
6041881.198	2112772.99	6750.00	<1	
6041882.308	2112772.86	6330.00	<1	
6041883.417	2112772.73	7200.00	1	
6041884.526	2112772.60	6350.00	<1	
6041885.635	2112772.47	6190.00	<1	
6041886.744	2112772.34	6250.00	<1	
6041887.853	2112772.21	6290.00	<1	
6041888.963	2112772.08	6020.00	<1	
6041890.072	2112771.95	6820.00	<1	
6041891.181	2112771.83	6010.00	<1	
6041892.29	2112771.70	6470.00	<1	
6041893.399	2112771.57	6800.00	<1	
6041894.509	2112771.44	6410.00	<1	
6041895.618	2112771.31	6300.00	<1	
6041896.727	2112771.18	6510.00	<1	
6041897.836	2112771.05	6040.00	<1	
6041898.945	2112770.92	6500.00	<1	
6041900.055	2112770.79	7160.00	1	
6041901.164	2112770.66	6760.00	<1	
6041902.273	2112770.53	6180.00	<1	
6041903.382	2112770.40	5880.00	<1	
6041904.491	2112770.27	6180.00	<1	

Easting	Northing	Reading	Reach 68 Data Set	Comments
6041905.601	2112770.14	6140.00	<1	
6041906.71	2112770.01	5750.00	<1	
6041907.819	2112769.88	6130.00	<1	
6041908.928	2112769.75	6330.00	<1	
6041910.037	2112769.62	6380.00	<1	
6041911.146	2112769.49	5880.00	<1	
6041912.256	2112769.36	5940.00	<1	
6041913.365	2112769.23	6500.00	<1	
6041914.474	2112769.10	6470.00	<1	
6041915.583	2112768.97	6670.00	<1	
6041916.692	2112768.84	6360.00	<1	
6041917.802	2112768.71	5650.00	<1	
6041918.911	2112768.58	6660.00	<1	
6041920.02	2112768.45	6320.00	<1	
6041921.129	2112768.32	6790.00	<1	
6041922.238	2112768.19	5720.00	<1	
6041923.348	2112768.06	6550.00	<1	
6041924.457	2112767.93	6690.00	<1	
6041925.566	2112767.80	6790.00	<1	
6041926.675	2112767.67	5960.00	<1	
6041927.784	2112767.54	5520.00	<1	
6041928.894	2112767.41	6100.00	<1	
6041930.003	2112767.28	5900.00	<1	
6041931.112	2112767.16	5990.00	<1	
6041932.221	2112767.03	5320.00	<1	
6041933.33	2112766.90	6010.00	<1	
6041934.44	2112766.77	6470.00	<1	
6041935.549	2112766.64	6010.00	<1	
6041936.658	2112766.51	6640.00	<1	
6041937.767	2112766.38	5680.00	<1	
6041938.876	2112766.25	7090.00	1	
6041939.985	2112766.12	7770.00	2	
6041941.095	2112765.99	5850.00	<1	
6041942.204	2112765.86	6560.00	<1	
6041943.313	2112765.73	6190.00	<1	
6041944.422	2112765.60	5940.00	<1	
6041945.531	2112765.47	6030.00	<1	
6041946.641	2112765.34	6090.00	<1	
6041947.75	2112765.21	5950.00	<1	
6041948.859	2112765.08	5540.00	<1	
6041949.968	2112764.95	5570.00	<1	

Easting	Northing	Reading	Reach 68 Data Set	Comments
6041951.077	2112764.82	6670.00	<1	
6041952.187	2112764.69	5800.00	<1	
6041953.296	2112764.56	6010.00	<1	
6041954.405	2112764.43	5870.00	<1	
6041955.514	2112764.30	6480.00	<1	
6041956.623	2112764.17	6060.00	<1	
6041957.733	2112764.04	6650.00	<1	
6041958.842	2112763.91	6100.00	<1	
6041959.951	2112763.78	6140.00	<1	
6041961.06	2112763.65	6070.00	<1	
6041962.169	2112763.52	5900.00	<1	
6041963.278	2112763.39	5750.00	<1	
6041964.388	2112763.26	5800.00	<1	
6041965.497	2112763.13	6300.00	<1	
6041966.606	2112763.00	6520.00	<1	
6041967.715	2112762.87	6010.00	<1	
6041968.824	2112762.74	5760.00	<1	
6041969.934	2112762.61	5910.00	<1	
6041971.043	2112762.48	6930.00	<1	
6041972.152	2112762.36	6020.00	<1	
6041973.261	2112762.23	5540.00	<1	
6041974.37	2112762.10	5850.00	<1	
6041975.48	2112761.97	7280.00	1	
6041976.589	2112761.84	6720.00	<1	
6041977.698	2112761.71	6920.00	<1	
6041978.807	2112761.58	6930.00	<1	
6041979.916	2112761.45	6890.00	<1	
6041981.026	2112761.32	7380.00	1	
6041982.135	2112761.19	6490.00	<1	
6041983.244	2112761.06	6480.00	<1	
6041984.353	2112760.93	6780.00	<1	
6041985.462	2112760.80	6070.00	<1	
6041986.571	2112760.67	6320.00	<1	
6041987.681	2112760.54	5770.00	<1	
6041988.79	2112760.41	5680.00	<1	
6041989.899	2112760.28	7280.00	1	
6041991.008	2112760.15	5790.00	<1	
6041992.117	2112760.02	5020.00	<1	
6041993.227	2112759.89	5640.00	<1	
6041994.336	2112759.76	6440.00	<1	
6041995.445	2112759.63	5670.00	<1	

Easting	Northing	Reading	Reach 68 Data Set	Comments
6041996.554	2112759.50	5770.00	<1	
6041997.663	2112759.37	6160.00	<1	
6041998.773	2112759.24	6970.00	<1	
6041999.882	2112759.11	5950.00	<1	
6042000.991	2112758.98	5730.00	<1	
6042002.1	2112758.85	6100.00	<1	
6042003.209	2112758.72	6790.00	<1	
6042004.319	2112758.59	6760.00	<1	
6042005.428	2112758.46	6250.00	<1	
6042006.537	2112758.33	6010.00	<1	
6042007.646	2112758.20	6210.00	<1	
6042008.755	2112758.07	6940.00	<1	
6042009.864	2112757.94	7750.00	2	
6042010.974	2112757.81	6760.00	<1	
6042012.083	2112757.69	7390.00	1	
6042013.192	2112757.56	7530.00	1	
6042014.301	2112757.43	6040.00	<1	
6042015.41	2112757.30	6910.00	<1	
6042016.52	2112757.17	7710.00	2	
6042017.629	2112757.04	6980.00	<1	
6042018.738	2112756.91	6540.00	<1	
6042019.847	2112756.78	6320.00	<1	
6042020.956	2112756.65	6320.00	<1	
6042022.066	2112756.52	6500.00	<1	
6042023.175	2112756.39	6190.00	<1	
6042024.284	2112756.26	6240.00	<1	
6042025.393	2112756.13	6210.00	<1	
6042026.502	2112756.00	5840.00	<1	
6042027.612	2112755.87	6310.00	<1	
6042028.721	2112755.74	6460.00	<1	
6042029.83	2112755.61	6400.00	<1	
6042030.939	2112755.48	6690.00	<1	
6042032.048	2112755.35	6410.00	<1	
6042033.157	2112755.22	5880.00	<1	
6042034.267	2112755.09	6820.00	<1	
6042035.376	2112754.96	5780.00	<1	
6042036.485	2112754.83	6770.00	<1	
6042037.594	2112754.70	7040.00	1	
6042038.703	2112754.57	6710.00	<1	
6042039.813	2112754.44	7180.00	1	
6042040.922	2112754.31	6100.00	<1	

Easting	Northing	Reading	Reach 68 Data Set	Comments
6042042.031	2112754.18	6520.00	<1	
6042043.14	2112754.05	6720.00	<1	
6042044.249	2112753.92	5820.00	<1	
6042045.359	2112753.79	6560.00	<1	
6042046.468	2112753.66	6020.00	<1	
6042047.577	2112753.53	6650.00	<1	
6042048.686	2112753.40	7300.00	1	
6042049.795	2112753.27	6830.00	<1	
6042050.905	2112753.14	7090.00	1	
6042052.014	2112753.02	6700.00	<1	
6042053.123	2112752.89	7170.00	1	
6042054.232	2112752.76	6800.00	<1	
6042055.341	2112752.63	5810.00	<1	
6042056.451	2112752.50	6000.00	<1	
6042057.56	2112752.37	6520.00	<1	
6042058.669	2112752.24	6720.00	<1	
6042059.778	2112752.11	5800.00	<1	
6042060.887	2112751.98	6280.00	<1	
6042061.996	2112751.85	6810.00	<1	
6042063.106	2112751.72	7140.00	1	
6042064.215	2112751.59	6620.00	<1	
6042065.324	2112751.46	6410.00	<1	

6453.01	Average
559.20	Std Dev
8130.62	3 Sigma
9000.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 69
Line: G

Main/Lateral: Lateral
Length (ft): 211
Pipe Diameter (in): 18

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 69 Data Set

Gamma Total CPS	
5506.49	Average
699.85	Std Dev
7606.04	3 Sigma
8160.00	Max

Sigma	Total Points
<1	184
1	17
2	7
3	3
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 69 Data Set	Comments
6042272.906	2112711.41	5300.00	<1	
6042271.937	2112711.60	4990.00	<1	
6042270.967	2112711.78	4610.00	<1	
6042269.997	2112711.97	4340.00	<1	
6042269.028	2112712.16	4340.00	<1	
6042268.058	2112712.35	4520.00	<1	
6042267.088	2112712.54	5060.00	<1	
6042266.119	2112712.72	5210.00	<1	
6042265.149	2112712.91	4810.00	<1	
6042264.179	2112713.10	4450.00	<1	
6042263.21	2112713.29	4800.00	<1	
6042262.24	2112713.47	5230.00	<1	
6042261.27	2112713.66	4700.00	<1	
6042260.301	2112713.85	5420.00	<1	
6042259.331	2112714.04	5420.00	<1	
6042258.361	2112714.23	4700.00	<1	
6042257.392	2112714.41	4850.00	<1	
6042256.422	2112714.60	5230.00	<1	
6042255.452	2112714.79	5600.00	<1	
6042254.483	2112714.98	5040.00	<1	

Easting	Northing	Reading	Reach 69 Data Set	Comments
6042253.513	2112715.16	4980.00	<1	
6042252.543	2112715.35	4920.00	<1	
6042251.573	2112715.54	4870.00	<1	
6042250.604	2112715.73	4520.00	<1	
6042249.634	2112715.92	4830.00	<1	
6042248.664	2112716.10	4830.00	<1	
6042247.695	2112716.29	4970.00	<1	
6042246.725	2112716.48	5150.00	<1	
6042245.755	2112716.67	4990.00	<1	
6042244.786	2112716.85	5170.00	<1	
6042243.816	2112717.04	5010.00	<1	
6042242.846	2112717.23	5320.00	<1	
6042241.877	2112717.42	5360.00	<1	
6042240.907	2112717.61	5030.00	<1	
6042239.937	2112717.79	5110.00	<1	
6042238.968	2112717.98	5110.00	<1	
6042237.998	2112718.17	4630.00	<1	
6042237.028	2112718.36	4750.00	<1	
6042236.059	2112718.54	4720.00	<1	
6042235.089	2112718.73	4620.00	<1	
6042234.119	2112718.92	4900.00	<1	
6042233.15	2112719.11	4970.00	<1	
6042232.18	2112719.30	4650.00	<1	
6042231.21	2112719.48	5020.00	<1	
6042230.241	2112719.67	5060.00	<1	
6042229.271	2112719.86	5060.00	<1	
6042228.301	2112720.05	4910.00	<1	
6042227.332	2112720.24	4770.00	<1	
6042226.362	2112720.42	4850.00	<1	
6042225.392	2112720.61	5140.00	<1	
6042224.422	2112720.80	4730.00	<1	
6042223.453	2112720.99	4680.00	<1	
6042222.483	2112721.17	4840.00	<1	
6042221.513	2112721.36	4990.00	<1	
6042220.544	2112721.55	4960.00	<1	
6042219.574	2112721.74	4960.00	<1	
6042218.604	2112721.93	5200.00	<1	
6042217.635	2112722.11	4790.00	<1	
6042216.665	2112722.30	4830.00	<1	
6042215.695	2112722.49	4770.00	<1	
6042214.726	2112722.68	5550.00	<1	

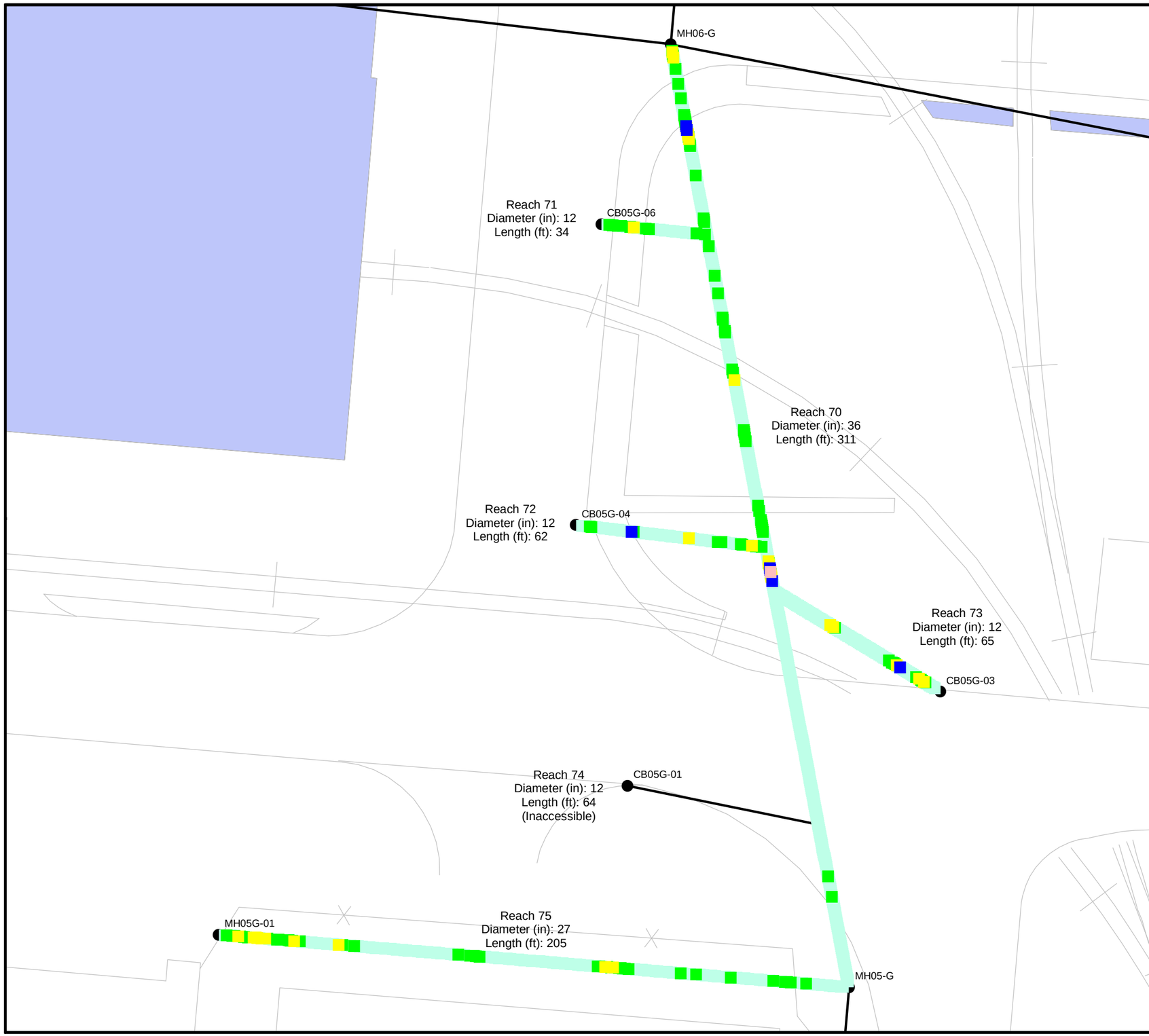
Easting	Northing	Reading	Reach 69 Data Set	Comments
6042213.756	2112722.86	5460.00	<1	
6042212.786	2112723.05	5310.00	<1	
6042211.817	2112723.24	4900.00	<1	
6042210.847	2112723.43	4790.00	<1	
6042209.877	2112723.62	4800.00	<1	
6042208.908	2112723.80	4800.00	<1	
6042207.938	2112723.99	4670.00	<1	
6042206.968	2112724.18	5090.00	<1	
6042205.999	2112724.37	4670.00	<1	
6042205.029	2112724.55	4800.00	<1	
6042204.059	2112724.74	4800.00	<1	
6042203.09	2112724.93	6630.00	1	
6042202.12	2112725.12	5670.00	<1	
6042201.15	2112725.31	5900.00	<1	
6042200.181	2112725.49	5710.00	<1	
6042199.211	2112725.68	5350.00	<1	
6042198.241	2112725.87	4290.00	<1	
6042197.272	2112726.06	5040.00	<1	
6042196.302	2112726.24	5240.00	<1	
6042195.332	2112726.43	4710.00	<1	
6042194.362	2112726.62	5180.00	<1	
6042193.393	2112726.81	4960.00	<1	
6042192.423	2112727.00	5110.00	<1	
6042191.453	2112727.18	5110.00	<1	
6042190.484	2112727.37	5260.00	<1	
6042189.514	2112727.56	5150.00	<1	
6042188.544	2112727.75	5310.00	<1	
6042187.575	2112727.93	5830.00	<1	
6042186.605	2112728.12	5830.00	<1	
6042185.635	2112728.31	5450.00	<1	
6042184.666	2112728.50	5940.00	<1	
6042183.696	2112728.69	5760.00	<1	
6042182.726	2112728.87	6190.00	<1	
6042181.757	2112729.06	6290.00	1	
6042180.787	2112729.25	7850.00	3	
6042179.817	2112729.44	6800.00	1	
6042178.848	2112729.62	6800.00	1	
6042177.878	2112729.81	6300.00	1	
6042176.908	2112730.00	5720.00	<1	
6042175.939	2112730.19	5410.00	<1	
6042174.969	2112730.38	5880.00	<1	

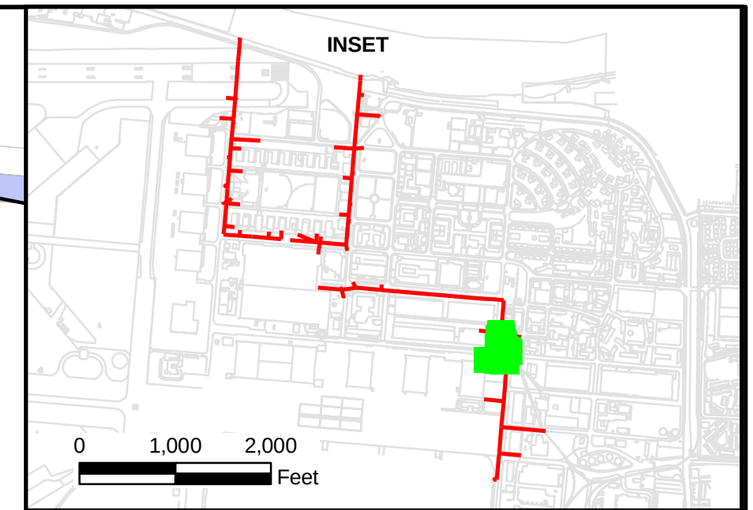
Easting	Northing	Reading	Reach 69 Data Set	Comments
6042173.999	2112730.56	5880.00	<1	
6042173.03	2112730.75	6480.00	1	
6042172.06	2112730.94	6720.00	1	
6042171.09	2112731.13	7310.00	2	
6042170.121	2112731.32	6150.00	<1	
6042169.151	2112731.50	6020.00	<1	
6042168.181	2112731.69	6080.00	<1	
6042167.211	2112731.88	6140.00	<1	
6042166.242	2112732.07	5800.00	<1	
6042165.272	2112732.25	5580.00	<1	
6042164.302	2112732.44	5690.00	<1	
6042163.333	2112732.63	5190.00	<1	
6042162.363	2112732.82	5190.00	<1	
6042161.393	2112733.01	5210.00	<1	
6042160.424	2112733.19	5490.00	<1	
6042159.454	2112733.38	5740.00	<1	
6042158.484	2112733.57	5460.00	<1	
6042157.515	2112733.76	5640.00	<1	
6042156.545	2112733.94	5380.00	<1	
6042155.575	2112734.13	5470.00	<1	
6042154.606	2112734.32	6090.00	<1	
6042153.636	2112734.51	4940.00	<1	
6042152.666	2112734.70	5300.00	<1	
6042151.697	2112734.88	5400.00	<1	
6042150.727	2112735.07	5280.00	<1	
6042149.757	2112735.26	5710.00	<1	
6042148.788	2112735.45	5400.00	<1	
6042147.818	2112735.63	5500.00	<1	
6042146.848	2112735.82	5500.00	<1	
6042145.879	2112736.01	5880.00	<1	
6042144.909	2112736.20	5590.00	<1	
6042143.939	2112736.39	5500.00	<1	
6042142.97	2112736.57	5380.00	<1	
6042142	2112736.76	5380.00	<1	
6042141.03	2112736.95	5480.00	<1	
6042140.061	2112737.14	5380.00	<1	
6042139.091	2112737.32	5300.00	<1	
6042138.121	2112737.51	5080.00	<1	
6042137.151	2112737.70	5080.00	<1	
6042136.182	2112737.89	6200.00	<1	
6042135.212	2112738.08	7140.00	2	

Easting	Northing	Reading	Reach 69 Data Set	Comments
6042134.242	2112738.26	6660.00	1	
6042133.273	2112738.45	5940.00	<1	
6042132.303	2112738.64	5940.00	<1	
6042131.333	2112738.83	6930.00	2	
6042130.364	2112739.01	5690.00	<1	
6042129.394	2112739.20	7060.00	2	
6042128.424	2112739.39	6620.00	1	
6042127.455	2112739.58	6890.00	1	
6042126.485	2112739.77	6900.00	1	
6042125.515	2112739.95	6760.00	1	
6042124.546	2112740.14	8160.00	3	
6042123.576	2112740.33	6820.00	1	
6042122.606	2112740.52	6820.00	1	
6042121.637	2112740.70	7230.00	2	
6042120.667	2112740.89	6640.00	1	
6042119.697	2112741.08	7740.00	3	
6042118.728	2112741.27	6590.00	1	
6042117.758	2112741.46	6590.00	1	
6042116.788	2112741.64	5930.00	<1	
6042115.819	2112741.83	5910.00	<1	
6042114.849	2112742.02	6170.00	<1	
6042113.879	2112742.21	7230.00	2	
6042112.91	2112742.40	7230.00	2	
6042111.94	2112742.58	6020.00	<1	
6042110.97	2112742.77	6140.00	<1	
6042110	2112742.96	5260.00	<1	
6042109.031	2112743.15	5030.00	<1	
6042108.061	2112743.33	5030.00	<1	
6042107.091	2112743.52	5160.00	<1	
6042106.122	2112743.71	5600.00	<1	
6042105.152	2112743.90	4970.00	<1	
6042104.182	2112744.09	5440.00	<1	
6042103.213	2112744.27	5440.00	<1	
6042102.243	2112744.46	5600.00	<1	
6042101.273	2112744.65	5930.00	<1	
6042100.304	2112744.84	5290.00	<1	
6042099.334	2112745.02	5820.00	<1	
6042098.364	2112745.21	5820.00	<1	
6042097.395	2112745.40	5630.00	<1	
6042096.425	2112745.59	5370.00	<1	
6042095.455	2112745.78	5290.00	<1	

Easting	Northing	Reading	Reach 69 Data Set	Comments
6042094.486	2112745.96	6050.00	<1	
6042093.516	2112746.15	5880.00	<1	
6042092.546	2112746.34	5390.00	<1	
6042091.577	2112746.53	5460.00	<1	
6042090.607	2112746.71	5320.00	<1	
6042089.637	2112746.90	5240.00	<1	
6042088.668	2112747.09	6010.00	<1	
6042087.698	2112747.28	5180.00	<1	
6042086.728	2112747.47	5610.00	<1	
6042085.759	2112747.65	5340.00	<1	
6042084.789	2112747.84	5590.00	<1	
6042083.819	2112748.03	5150.00	<1	
6042082.85	2112748.22	5670.00	<1	
6042081.88	2112748.40	5670.00	<1	
6042080.91	2112748.59	4930.00	<1	
6042079.94	2112748.78	5250.00	<1	
6042078.971	2112748.97	5820.00	<1	
6042078.001	2112749.16	5540.00	<1	
6042077.031	2112749.34	5540.00	<1	
6042076.062	2112749.53	5650.00	<1	
6042075.092	2112749.72	5710.00	<1	
6042074.122	2112749.91	5570.00	<1	
6042073.153	2112750.09	5330.00	<1	
6042072.183	2112750.28	5450.00	<1	
6042071.213	2112750.47	5620.00	<1	
6042070.244	2112750.66	5760.00	<1	
6042069.274	2112750.85	5820.00	<1	

5506.49	Average
699.85	Std Dev
7606.04	3 Sigma
8160.00	Max





Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
70	6411
71	7035
72	6959
73	7791
74	NA
75	8723

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0 5 10 20 30 40 Feet

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 70 thru 75

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_70-75_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 70
Line: G

Main/Lateral: Main
Length (ft): 311
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 70 Data Set

Gamma Total CPS	
5051.50	Average
453.23	Std Dev
6411.20	3 Sigma
6970.00	Max

Sigma	Total Points
<1	443
1	46
2	11
3	5
4	1
5	0
>6	0

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042067.682	2112749.26	5690.00	1	
6042067.795	2112748.66	6320.00	2	
6042067.907	2112748.07	5940.00	1	
6042068.02	2112747.47	5800.00	1	
6042068.133	2112746.87	6140.00	2	
6042068.246	2112746.27	5280.00	<1	
6042068.359	2112745.68	5450.00	<1	
6042068.472	2112745.08	5480.00	<1	
6042068.584	2112744.48	5040.00	<1	
6042068.697	2112743.89	5320.00	<1	
6042068.81	2112743.29	5770.00	1	
6042068.923	2112742.69	5300.00	<1	
6042069.036	2112742.09	5030.00	<1	
6042069.148	2112741.50	4790.00	<1	
6042069.261	2112740.90	4870.00	<1	
6042069.374	2112740.30	4980.00	<1	
6042069.487	2112739.70	5110.00	<1	
6042069.6	2112739.11	5180.00	<1	
6042069.713	2112738.51	5620.00	1	
6042069.825	2112737.91	5390.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042069.938	2112737.32	5190.00	<1	
6042070.051	2112736.72	5170.00	<1	
6042070.164	2112736.12	4650.00	<1	
6042070.277	2112735.52	4770.00	<1	
6042070.39	2112734.93	4980.00	<1	
6042070.502	2112734.33	5200.00	<1	
6042070.615	2112733.73	5700.00	1	
6042070.728	2112733.13	4990.00	<1	
6042070.841	2112732.54	4630.00	<1	
6042070.954	2112731.94	5040.00	<1	
6042071.067	2112731.34	5470.00	<1	
6042071.179	2112730.75	5120.00	<1	
6042071.292	2112730.15	5280.00	<1	
6042071.405	2112729.55	4770.00	<1	
6042071.518	2112728.95	5490.00	<1	
6042071.631	2112728.36	5590.00	1	
6042071.744	2112727.76	5510.00	1	
6042071.856	2112727.16	5770.00	1	
6042071.969	2112726.56	5880.00	1	
6042072.082	2112725.97	5850.00	1	
6042072.195	2112725.37	5910.00	1	
6042072.308	2112724.77	6580.00	3	
6042072.42	2112724.18	6320.00	2	
6042072.533	2112723.58	6630.00	3	
6042072.646	2112722.98	5330.00	<1	
6042072.759	2112722.38	6110.00	2	
6042072.872	2112721.79	6070.00	2	
6042072.985	2112721.19	5940.00	1	
6042073.097	2112720.59	6380.00	2	
6042073.21	2112719.99	4860.00	<1	
6042073.323	2112719.40	5350.00	<1	
6042073.436	2112718.80	5930.00	1	
6042073.549	2112718.20	5540.00	1	
6042073.662	2112717.61	4720.00	<1	
6042073.774	2112717.01	5390.00	<1	
6042073.887	2112716.41	5460.00	<1	
6042074	2112715.81	5040.00	<1	
6042074.113	2112715.22	5110.00	<1	
6042074.226	2112714.62	5090.00	<1	
6042074.339	2112714.02	5140.00	<1	
6042074.451	2112713.42	5050.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042074.564	2112712.83	5070.00	<1	
6042074.677	2112712.23	5330.00	<1	
6042074.79	2112711.63	4840.00	<1	
6042074.903	2112711.04	4890.00	<1	
6042075.016	2112710.44	4720.00	<1	
6042075.128	2112709.84	4960.00	<1	
6042075.241	2112709.24	5260.00	<1	
6042075.354	2112708.65	5620.00	1	
6042075.467	2112708.05	5470.00	<1	
6042075.58	2112707.45	5470.00	<1	
6042075.692	2112706.85	4870.00	<1	
6042075.805	2112706.26	5010.00	<1	
6042075.918	2112705.66	4680.00	<1	
6042076.031	2112705.06	5070.00	<1	
6042076.144	2112704.47	4620.00	<1	
6042076.257	2112703.87	4970.00	<1	
6042076.369	2112703.27	4780.00	<1	
6042076.482	2112702.67	4940.00	<1	
6042076.595	2112702.08	4680.00	<1	
6042076.708	2112701.48	4980.00	<1	
6042076.821	2112700.88	4390.00	<1	
6042076.934	2112700.28	4670.00	<1	
6042077.046	2112699.69	4640.00	<1	
6042077.159	2112699.09	4880.00	<1	
6042077.272	2112698.49	4870.00	<1	
6042077.385	2112697.90	4770.00	<1	
6042077.498	2112697.30	5330.00	<1	
6042077.611	2112696.70	5090.00	<1	
6042077.723	2112696.10	4880.00	<1	
6042077.836	2112695.51	5310.00	<1	
6042077.949	2112694.91	5800.00	1	
6042078.062	2112694.31	5560.00	1	
6042078.175	2112693.71	5630.00	1	
6042078.288	2112693.12	5130.00	<1	
6042078.4	2112692.52	4830.00	<1	
6042078.513	2112691.92	5210.00	<1	
6042078.626	2112691.33	5350.00	<1	
6042078.739	2112690.73	4810.00	<1	
6042078.852	2112690.13	4750.00	<1	
6042078.964	2112689.53	4850.00	<1	
6042079.077	2112688.94	4780.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042079.19	2112688.34	5000.00	<1	
6042079.303	2112687.74	4750.00	<1	
6042079.416	2112687.14	5030.00	<1	
6042079.529	2112686.55	4660.00	<1	
6042079.641	2112685.95	5640.00	1	
6042079.754	2112685.35	4880.00	<1	
6042079.867	2112684.76	4660.00	<1	
6042079.98	2112684.16	5060.00	<1	
6042080.093	2112683.56	5080.00	<1	
6042080.206	2112682.96	5040.00	<1	
6042080.318	2112682.37	4890.00	<1	
6042080.431	2112681.77	5470.00	<1	
6042080.544	2112681.17	5370.00	<1	
6042080.657	2112680.57	5130.00	<1	
6042080.77	2112679.98	5030.00	<1	
6042080.883	2112679.38	5110.00	<1	
6042080.995	2112678.78	5190.00	<1	
6042081.108	2112678.19	5260.00	<1	
6042081.221	2112677.59	5180.00	<1	
6042081.334	2112676.99	5000.00	<1	
6042081.447	2112676.39	5600.00	1	
6042081.56	2112675.80	5170.00	<1	
6042081.672	2112675.20	4950.00	<1	
6042081.785	2112674.60	4820.00	<1	
6042081.898	2112674.00	5210.00	<1	
6042082.011	2112673.41	5020.00	<1	
6042082.124	2112672.81	5220.00	<1	
6042082.236	2112672.21	4970.00	<1	
6042082.349	2112671.62	5060.00	<1	
6042082.462	2112671.02	5210.00	<1	
6042082.575	2112670.42	5730.00	1	
6042082.688	2112669.82	5110.00	<1	
6042082.801	2112669.23	5060.00	<1	
6042082.913	2112668.63	5090.00	<1	
6042083.026	2112668.03	5250.00	<1	
6042083.139	2112667.43	4610.00	<1	
6042083.252	2112666.84	5390.00	<1	
6042083.365	2112666.24	4620.00	<1	
6042083.478	2112665.64	5170.00	<1	
6042083.59	2112665.05	5150.00	<1	
6042083.703	2112664.45	5480.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042083.816	2112663.85	5400.00	<1	
6042083.929	2112663.25	5320.00	<1	
6042084.042	2112662.66	5720.00	1	
6042084.155	2112662.06	5550.00	1	
6042084.267	2112661.46	5420.00	<1	
6042084.38	2112660.86	5300.00	<1	
6042084.493	2112660.27	5330.00	<1	
6042084.606	2112659.67	5430.00	<1	
6042084.719	2112659.07	5500.00	<1	
6042084.831	2112658.48	5800.00	1	
6042084.944	2112657.88	5600.00	1	
6042085.057	2112657.28	5010.00	<1	
6042085.17	2112656.68	5070.00	<1	
6042085.283	2112656.09	5350.00	<1	
6042085.396	2112655.49	5350.00	<1	
6042085.508	2112654.89	5300.00	<1	
6042085.621	2112654.29	5270.00	<1	
6042085.734	2112653.70	5260.00	<1	
6042085.847	2112653.10	5330.00	<1	
6042085.96	2112652.50	5140.00	<1	
6042086.073	2112651.91	5340.00	<1	
6042086.185	2112651.31	5380.00	<1	
6042086.298	2112650.71	5350.00	<1	
6042086.411	2112650.11	5200.00	<1	
6042086.524	2112649.52	5380.00	<1	
6042086.637	2112648.92	5430.00	<1	
6042086.75	2112648.32	5330.00	<1	
6042086.862	2112647.72	5170.00	<1	
6042086.975	2112647.13	5180.00	<1	
6042087.088	2112646.53	4800.00	<1	
6042087.201	2112645.93	5590.00	1	
6042087.314	2112645.34	4930.00	<1	
6042087.427	2112644.74	5610.00	1	
6042087.539	2112644.14	5480.00	<1	
6042087.652	2112643.54	5000.00	<1	
6042087.765	2112642.95	5200.00	<1	
6042087.878	2112642.35	6170.00	2	
6042087.991	2112641.75	5410.00	<1	
6042088.103	2112641.15	5220.00	<1	
6042088.216	2112640.56	5040.00	<1	
6042088.329	2112639.96	5140.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042088.442	2112639.36	4880.00	<1	
6042088.555	2112638.77	5190.00	<1	
6042088.668	2112638.17	5310.00	<1	
6042088.78	2112637.57	4840.00	<1	
6042088.893	2112636.97	4630.00	<1	
6042089.006	2112636.38	4750.00	<1	
6042089.119	2112635.78	5290.00	<1	
6042089.232	2112635.18	4760.00	<1	
6042089.345	2112634.58	4970.00	<1	
6042089.457	2112633.99	5030.00	<1	
6042089.57	2112633.39	5110.00	<1	
6042089.683	2112632.79	5250.00	<1	
6042089.796	2112632.20	4900.00	<1	
6042089.909	2112631.60	5110.00	<1	
6042090.022	2112631.00	5060.00	<1	
6042090.134	2112630.40	5240.00	<1	
6042090.247	2112629.81	5330.00	<1	
6042090.36	2112629.21	5290.00	<1	
6042090.473	2112628.61	4690.00	<1	
6042090.586	2112628.01	4930.00	<1	
6042090.699	2112627.42	5280.00	<1	
6042090.811	2112626.82	5370.00	<1	
6042090.924	2112626.22	5760.00	1	
6042091.037	2112625.63	5740.00	1	
6042091.15	2112625.03	5570.00	1	
6042091.263	2112624.43	5160.00	<1	
6042091.375	2112623.83	5550.00	1	
6042091.488	2112623.24	5270.00	<1	
6042091.601	2112622.64	5530.00	1	
6042091.714	2112622.04	4910.00	<1	
6042091.827	2112621.44	4830.00	<1	
6042091.94	2112620.85	4840.00	<1	
6042092.052	2112620.25	5400.00	<1	
6042092.165	2112619.65	5250.00	<1	
6042092.278	2112619.06	4810.00	<1	
6042092.391	2112618.46	5230.00	<1	
6042092.504	2112617.86	4880.00	<1	
6042092.617	2112617.26	5180.00	<1	
6042092.729	2112616.67	5090.00	<1	
6042092.842	2112616.07	5460.00	<1	
6042092.955	2112615.47	4830.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042093.068	2112614.87	5430.00	<1	
6042093.181	2112614.28	5350.00	<1	
6042093.294	2112613.68	4940.00	<1	
6042093.406	2112613.08	5110.00	<1	
6042093.519	2112612.49	5110.00	<1	
6042093.632	2112611.89	5090.00	<1	
6042093.745	2112611.29	5420.00	<1	
6042093.858	2112610.69	5240.00	<1	
6042093.971	2112610.10	5390.00	<1	
6042094.083	2112609.50	5160.00	<1	
6042094.196	2112608.90	5080.00	<1	
6042094.309	2112608.30	4860.00	<1	
6042094.422	2112607.71	4940.00	<1	
6042094.535	2112607.11	5210.00	<1	
6042094.647	2112606.51	5310.00	<1	
6042094.76	2112605.92	4940.00	<1	
6042094.873	2112605.32	5290.00	<1	
6042094.986	2112604.72	5340.00	<1	
6042095.099	2112604.12	5070.00	<1	
6042095.212	2112603.53	5130.00	<1	
6042095.324	2112602.93	5260.00	<1	
6042095.437	2112602.33	5110.00	<1	
6042095.55	2112601.73	5760.00	1	
6042095.663	2112601.14	5370.00	<1	
6042095.776	2112600.54	5110.00	<1	
6042095.889	2112599.94	5520.00	1	
6042096.001	2112599.35	5210.00	<1	
6042096.114	2112598.75	5290.00	<1	
6042096.227	2112598.15	5190.00	<1	
6042096.34	2112597.55	5060.00	<1	
6042096.453	2112596.96	5720.00	1	
6042096.566	2112596.36	5580.00	1	
6042096.678	2112595.76	5750.00	1	
6042096.791	2112595.16	5690.00	1	
6042096.904	2112594.57	5900.00	1	
6042097.017	2112593.97	5750.00	1	
6042097.13	2112593.37	5710.00	1	
6042097.243	2112592.78	5370.00	<1	
6042097.355	2112592.18	5190.00	<1	
6042097.468	2112591.58	5380.00	<1	
6042097.581	2112590.98	5110.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042097.694	2112590.39	4940.00	<1	
6042097.807	2112589.79	5330.00	<1	
6042097.919	2112589.19	4870.00	<1	
6042098.032	2112588.59	4590.00	<1	
6042098.145	2112588.00	4810.00	<1	
6042098.258	2112587.40	4640.00	<1	
6042098.371	2112586.80	4880.00	<1	
6042098.484	2112586.21	4890.00	<1	
6042098.596	2112585.61	5050.00	<1	
6042098.709	2112585.01	5290.00	<1	
6042098.822	2112584.41	5180.00	<1	
6042098.935	2112583.82	6120.00	2	
6042099.048	2112583.22	5880.00	1	
6042099.161	2112582.62	6080.00	2	
6042099.273	2112582.03	5270.00	<1	
6042099.386	2112581.43	6460.00	3	
6042099.499	2112580.83	6730.00	3	
6042099.612	2112580.23	6970.00	4	
6042099.725	2112579.64	5930.00	1	
6042099.838	2112579.04	6030.00	2	
6042099.95	2112578.44	6290.00	2	
6042100.063	2112577.84	5460.00	<1	
6042100.176	2112577.25	6470.00	3	
6042100.289	2112576.65	5230.00	<1	
6042100.402	2112576.05	5340.00	<1	
6042100.514	2112575.46	5420.00	<1	
6042100.627	2112574.86	4920.00	<1	
6042100.74	2112574.26	4980.00	<1	
6042100.853	2112573.66	5180.00	<1	
6042100.966	2112573.07	4900.00	<1	
6042101.079	2112572.47	4720.00	<1	
6042101.191	2112571.87	5010.00	<1	
6042101.304	2112571.27	4770.00	<1	
6042101.417	2112570.68	4700.00	<1	
6042101.53	2112570.08	4530.00	<1	
6042101.643	2112569.48	5030.00	<1	
6042101.756	2112568.89	5090.00	<1	
6042101.868	2112568.29	4890.00	<1	
6042101.981	2112567.69	4430.00	<1	
6042102.094	2112567.09	5010.00	<1	
6042102.207	2112566.50	5230.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042102.32	2112565.90	5410.00	<1	
6042102.433	2112565.30	4910.00	<1	
6042102.545	2112564.70	4530.00	<1	
6042102.658	2112564.11	5050.00	<1	
6042102.771	2112563.51	5160.00	<1	
6042102.884	2112562.91	5330.00	<1	
6042102.997	2112562.32	4960.00	<1	
6042103.11	2112561.72	4860.00	<1	
6042103.222	2112561.12	4760.00	<1	
6042103.335	2112560.52	4800.00	<1	
6042103.448	2112559.93	5150.00	<1	
6042103.561	2112559.33	4980.00	<1	
6042103.674	2112558.73	5100.00	<1	
6042103.786	2112558.13	4810.00	<1	
6042103.899	2112557.54	5120.00	<1	
6042104.012	2112556.94	4860.00	<1	
6042104.125	2112556.34	4530.00	<1	
6042104.238	2112555.75	4130.00	<1	
6042104.351	2112555.15	4630.00	<1	
6042104.463	2112554.55	4460.00	<1	
6042104.576	2112553.95	5020.00	<1	
6042104.689	2112553.36	5040.00	<1	
6042104.802	2112552.76	5190.00	<1	
6042104.915	2112552.16	4870.00	<1	
6042105.028	2112551.56	4790.00	<1	
6042105.14	2112550.97	5020.00	<1	
6042105.253	2112550.37	4990.00	<1	
6042105.366	2112549.77	4620.00	<1	
6042105.479	2112549.18	4680.00	<1	
6042105.592	2112548.58	4620.00	<1	
6042105.705	2112547.98	4640.00	<1	
6042105.817	2112547.38	5310.00	<1	
6042105.93	2112546.79	4300.00	<1	
6042106.043	2112546.19	4550.00	<1	
6042106.156	2112545.59	4770.00	<1	
6042106.269	2112544.99	5220.00	<1	
6042106.382	2112544.40	4440.00	<1	
6042106.494	2112543.80	4410.00	<1	
6042106.607	2112543.20	4510.00	<1	
6042106.72	2112542.61	4740.00	<1	
6042106.833	2112542.01	4910.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042106.946	2112541.41	4570.00	<1	
6042107.058	2112540.81	4590.00	<1	
6042107.171	2112540.22	4090.00	<1	
6042107.284	2112539.62	5240.00	<1	
6042107.397	2112539.02	4820.00	<1	
6042107.51	2112538.42	4350.00	<1	
6042107.623	2112537.83	4330.00	<1	
6042107.735	2112537.23	4660.00	<1	
6042107.848	2112536.63	3930.00	<1	
6042107.961	2112536.04	4090.00	<1	
6042108.074	2112535.44	4570.00	<1	
6042108.187	2112534.84	4940.00	<1	
6042108.3	2112534.24	4880.00	<1	
6042108.412	2112533.65	4680.00	<1	
6042108.525	2112533.05	5000.00	<1	
6042108.638	2112532.45	4930.00	<1	
6042108.751	2112531.85	4960.00	<1	
6042108.864	2112531.26	4850.00	<1	
6042108.977	2112530.66	4260.00	<1	
6042109.089	2112530.06	4450.00	<1	
6042109.202	2112529.47	4860.00	<1	
6042109.315	2112528.87	4650.00	<1	
6042109.428	2112528.27	4840.00	<1	
6042109.541	2112527.67	4720.00	<1	
6042109.654	2112527.08	4430.00	<1	
6042109.766	2112526.48	3850.00	<1	
6042109.879	2112525.88	3780.00	<1	
6042109.992	2112525.28	4350.00	<1	
6042110.105	2112524.69	4540.00	<1	
6042110.218	2112524.09	4600.00	<1	
6042110.33	2112523.49	4700.00	<1	
6042110.443	2112522.90	4740.00	<1	
6042110.556	2112522.30	4740.00	<1	
6042110.669	2112521.70	4610.00	<1	
6042110.782	2112521.10	4330.00	<1	
6042110.895	2112520.51	4300.00	<1	
6042111.007	2112519.91	4540.00	<1	
6042111.12	2112519.31	4350.00	<1	
6042111.233	2112518.71	4600.00	<1	
6042111.346	2112518.12	4740.00	<1	
6042111.459	2112517.52	4880.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042111.572	2112516.92	4520.00	<1	
6042111.684	2112516.33	3980.00	<1	
6042111.797	2112515.73	4480.00	<1	
6042111.91	2112515.13	5200.00	<1	
6042112.023	2112514.53	4910.00	<1	
6042112.136	2112513.94	4650.00	<1	
6042112.249	2112513.34	4770.00	<1	
6042112.361	2112512.74	4540.00	<1	
6042112.474	2112512.14	4270.00	<1	
6042112.587	2112511.55	4600.00	<1	
6042112.7	2112510.95	4130.00	<1	
6042112.813	2112510.35	4150.00	<1	
6042112.926	2112509.76	4720.00	<1	
6042113.038	2112509.16	4120.00	<1	
6042113.151	2112508.56	4790.00	<1	
6042113.264	2112507.96	4820.00	<1	
6042113.377	2112507.37	5070.00	<1	
6042113.49	2112506.77	5060.00	<1	
6042113.602	2112506.17	4790.00	<1	
6042113.715	2112505.57	4730.00	<1	
6042113.828	2112504.98	4790.00	<1	
6042113.941	2112504.38	4860.00	<1	
6042114.054	2112503.78	4890.00	<1	
6042114.167	2112503.19	4720.00	<1	
6042114.279	2112502.59	4350.00	<1	
6042114.392	2112501.99	4540.00	<1	
6042114.505	2112501.39	4740.00	<1	
6042114.618	2112500.80	4740.00	<1	
6042114.731	2112500.20	4490.00	<1	
6042114.844	2112499.60	4480.00	<1	
6042114.956	2112499.00	4640.00	<1	
6042115.069	2112498.41	4900.00	<1	
6042115.182	2112497.81	4820.00	<1	
6042115.295	2112497.21	4880.00	<1	
6042115.408	2112496.62	4820.00	<1	
6042115.521	2112496.02	4800.00	<1	
6042115.633	2112495.42	5140.00	<1	
6042115.746	2112494.82	5290.00	<1	
6042115.859	2112494.23	5280.00	<1	
6042115.972	2112493.63	4220.00	<1	
6042116.085	2112493.03	4660.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042116.197	2112492.43	4880.00	<1	
6042116.31	2112491.84	4640.00	<1	
6042116.423	2112491.24	4960.00	<1	
6042116.536	2112490.64	4480.00	<1	
6042116.649	2112490.05	4650.00	<1	
6042116.762	2112489.45	4640.00	<1	
6042116.874	2112488.85	5100.00	<1	
6042116.987	2112488.25	5150.00	<1	
6042117.1	2112487.66	4470.00	<1	
6042117.213	2112487.06	4710.00	<1	
6042117.326	2112486.46	4510.00	<1	
6042117.439	2112485.86	4930.00	<1	
6042117.551	2112485.27	4820.00	<1	
6042117.664	2112484.67	4510.00	<1	
6042117.777	2112484.07	4970.00	<1	
6042117.89	2112483.48	5100.00	<1	
6042118.003	2112482.88	4770.00	<1	
6042118.116	2112482.28	5470.00	<1	
6042118.228	2112481.68	5560.00	1	
6042118.341	2112481.09	5100.00	<1	
6042118.454	2112480.49	5010.00	<1	
6042118.567	2112479.89	5050.00	<1	
6042118.68	2112479.29	4770.00	<1	
6042118.793	2112478.70	4320.00	<1	
6042118.905	2112478.10	4780.00	<1	
6042119.018	2112477.50	4520.00	<1	
6042119.131	2112476.91	5020.00	<1	
6042119.244	2112476.31	4850.00	<1	
6042119.357	2112475.71	4320.00	<1	
6042119.469	2112475.11	5700.00	1	
6042119.582	2112474.52	4970.00	<1	
6042119.695	2112473.92	4430.00	<1	
6042119.808	2112473.32	5100.00	<1	
6042119.921	2112472.72	4580.00	<1	
6042120.034	2112472.13	5360.00	<1	
6042120.146	2112471.53	5240.00	<1	
6042120.259	2112470.93	4530.00	<1	
6042120.372	2112470.34	4780.00	<1	
6042120.485	2112469.74	4890.00	<1	
6042120.598	2112469.14	4370.00	<1	
6042120.711	2112468.54	4770.00	<1	

Easting	Northing	Reading	Reach 70 Data Set	Comments
6042120.823	2112467.95	5000.00	<1	
6042120.936	2112467.35	5280.00	<1	
6042121.049	2112466.75	4730.00	<1	
6042121.162	2112466.15	4940.00	<1	
6042121.275	2112465.56	4290.00	<1	
6042121.388	2112464.96	4470.00	<1	
6042121.5	2112464.36	4900.00	<1	
6042121.613	2112463.77	5210.00	<1	
6042121.726	2112463.17	4610.00	<1	
6042121.839	2112462.57	5100.00	<1	
6042121.952	2112461.97	4800.00	<1	
6042122.065	2112461.38	5260.00	<1	
6042122.177	2112460.78	5090.00	<1	
6042122.29	2112460.18	5490.00	<1	
6042122.403	2112459.58	5270.00	<1	
6042122.516	2112458.99	4770.00	<1	
6042122.629	2112458.39	4230.00	<1	
6042122.741	2112457.79	4340.00	<1	
6042122.854	2112457.20	4510.00	<1	
6042122.967	2112456.60	4740.00	<1	
6042123.08	2112456.00	4630.00	<1	
6042123.193	2112455.40	4600.00	<1	
6042123.306	2112454.81	4550.00	<1	
6042123.418	2112454.21	4480.00	<1	
6042123.531	2112453.61	4580.00	<1	
6042123.644	2112453.01	4880.00	<1	
6042123.757	2112452.42	5020.00	<1	
6042123.87	2112451.82	4700.00	<1	
6042123.983	2112451.22	5010.00	<1	
6042124.095	2112450.63	4810.00	<1	
6042124.208	2112450.03	4610.00	<1	
6042124.321	2112449.43	4640.00	<1	
6042124.434	2112448.83	4990.00	<1	
6042124.547	2112448.24	5230.00	<1	
6042124.66	2112447.64	4790.00	<1	

5051.50	Average
453.23	Std Dev
6411.20	3 Sigma
6970.00	Max

Easting	Northing	Reading	Reach 70 Data Set	Comments

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 71
Line: G

Main/Lateral: Lateral
Length (ft): 34
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 71 Data Set

Gamma Total CPS	
5791.55	Average
414.56	Std Dev
7035.23	3 Sigma
6870.00	Max

Sigma	Total Points
<1	47
1	10
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 71 Data Set	Comments
6042046.742	2112692.77	5200.00	<1	
6042047.307	2112692.72	6560.00	1	
6042047.872	2112692.66	6040.00	<1	
6042048.437	2112692.61	6430.00	1	
6042049.002	2112692.55	5620.00	<1	
6042049.567	2112692.50	5820.00	<1	
6042050.132	2112692.44	6390.00	1	
6042050.697	2112692.38	6500.00	1	
6042051.262	2112692.33	6470.00	1	
6042051.827	2112692.27	5510.00	<1	
6042052.392	2112692.22	5540.00	<1	
6042052.957	2112692.16	5370.00	<1	
6042053.522	2112692.11	5880.00	<1	
6042054.087	2112692.05	6490.00	1	
6042054.652	2112692.00	5820.00	<1	
6042055.217	2112691.94	6870.00	2	
6042055.782	2112691.89	6010.00	<1	
6042056.347	2112691.83	5700.00	<1	
6042056.912	2112691.78	5770.00	<1	
6042057.477	2112691.72	5980.00	<1	

Easting	Northing	Reading	Reach 71 Data Set	Comments
6042058.041	2112691.66	5980.00	<1	
6042058.606	2112691.61	6180.00	<1	
6042059.171	2112691.55	6510.00	1	
6042059.736	2112691.50	6080.00	<1	
6042060.301	2112691.44	6300.00	1	
6042060.866	2112691.39	5370.00	<1	
6042061.431	2112691.33	5760.00	<1	
6042061.996	2112691.28	5470.00	<1	
6042062.561	2112691.22	5480.00	<1	
6042063.126	2112691.17	5850.00	<1	
6042063.691	2112691.11	5510.00	<1	
6042064.256	2112691.06	5420.00	<1	
6042064.821	2112691.00	5990.00	<1	
6042065.386	2112690.94	5150.00	<1	
6042065.951	2112690.89	5380.00	<1	
6042066.516	2112690.83	5190.00	<1	
6042067.081	2112690.78	5230.00	<1	
6042067.646	2112690.72	5580.00	<1	
6042068.211	2112690.67	5530.00	<1	
6042068.776	2112690.61	5510.00	<1	
6042069.341	2112690.56	5390.00	<1	
6042069.906	2112690.50	5500.00	<1	
6042070.471	2112690.45	5680.00	<1	
6042071.036	2112690.39	5640.00	<1	
6042071.601	2112690.34	5530.00	<1	
6042072.165	2112690.28	5240.00	<1	
6042072.73	2112690.22	5760.00	<1	
6042073.295	2112690.17	5120.00	<1	
6042073.86	2112690.11	5500.00	<1	
6042074.425	2112690.06	5810.00	<1	
6042074.99	2112690.00	5760.00	<1	
6042075.555	2112689.95	6240.00	1	
6042076.12	2112689.89	5870.00	<1	
6042076.685	2112689.84	5570.00	<1	
6042077.25	2112689.78	6020.00	<1	
6042077.815	2112689.73	5740.00	<1	
6042078.38	2112689.67	6360.00	1	
6042078.945	2112689.62	5740.00	<1	

5791.55	Average
414.56	Std Dev
7035.23	3 Sigma

Easting	Northing	Reading		Reach 71 Data Set	Comments
		6870.00	Max		

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 72
Line: G

Main/Lateral: Lateral
Length (ft): 62
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 72 Data Set

Gamma Total CPS	
5679.07	Average
426.66	Std Dev
6959.06	3 Sigma
7200.00	Max

Sigma	Total Points
<1	84
1	10
2	2
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 72 Data Set	Comments
6042038.497	2112595.23	4650.00	<1	
6042039.117	2112595.16	5180.00	<1	
6042039.736	2112595.09	5680.00	<1	
6042040.355	2112595.02	5500.00	<1	
6042040.975	2112594.94	6420.00	1	
6042041.594	2112594.87	6320.00	1	
6042042.214	2112594.80	5600.00	<1	
6042042.833	2112594.72	5570.00	<1	
6042043.453	2112594.65	5680.00	<1	
6042044.072	2112594.58	5310.00	<1	
6042044.692	2112594.50	5230.00	<1	
6042045.311	2112594.43	5410.00	<1	
6042045.931	2112594.36	5230.00	<1	
6042046.55	2112594.28	5500.00	<1	
6042047.17	2112594.21	5500.00	<1	
6042047.789	2112594.14	5460.00	<1	
6042048.409	2112594.07	5740.00	<1	
6042049.028	2112593.99	5480.00	<1	
6042049.648	2112593.92	5540.00	<1	
6042050.267	2112593.85	5190.00	<1	

Easting	Northing	Reading	Reach 72 Data Set	Comments
6042050.887	2112593.77	5170.00	<1	
6042051.506	2112593.70	5170.00	<1	
6042052.126	2112593.63	5860.00	<1	
6042052.745	2112593.55	5180.00	<1	
6042053.365	2112593.48	5160.00	<1	
6042053.984	2112593.41	5880.00	<1	
6042054.603	2112593.33	7200.00	3	
6042055.223	2112593.26	6200.00	1	
6042055.842	2112593.19	5100.00	<1	
6042056.462	2112593.12	5050.00	<1	
6042057.081	2112593.04	5510.00	<1	
6042057.701	2112592.97	5900.00	<1	
6042058.32	2112592.90	6090.00	<1	
6042058.94	2112592.82	5730.00	<1	
6042059.559	2112592.75	5040.00	<1	
6042060.179	2112592.68	5490.00	<1	
6042060.798	2112592.60	5780.00	<1	
6042061.418	2112592.53	5730.00	<1	
6042062.037	2112592.46	5790.00	<1	
6042062.657	2112592.38	5360.00	<1	
6042063.276	2112592.31	5400.00	<1	
6042063.896	2112592.24	5340.00	<1	
6042064.515	2112592.17	5400.00	<1	
6042065.135	2112592.09	5610.00	<1	
6042065.754	2112592.02	5710.00	<1	
6042066.374	2112591.95	4930.00	<1	
6042066.993	2112591.87	5370.00	<1	
6042067.613	2112591.80	5810.00	<1	
6042068.232	2112591.73	5430.00	<1	
6042068.851	2112591.65	5610.00	<1	
6042069.471	2112591.58	5760.00	<1	
6042070.09	2112591.51	5940.00	<1	
6042070.71	2112591.43	4870.00	<1	
6042071.329	2112591.36	5620.00	<1	
6042071.949	2112591.29	5680.00	<1	
6042072.568	2112591.22	5050.00	<1	
6042073.188	2112591.14	6860.00	2	
6042073.807	2112591.07	5740.00	<1	
6042074.427	2112591.00	5860.00	<1	
6042075.046	2112590.92	5950.00	<1	
6042075.666	2112590.85	6020.00	<1	

Easting	Northing	Reading	Reach 72 Data Set	Comments
6042076.285	2112590.78	5780.00	<1	
6042076.905	2112590.70	5300.00	<1	
6042077.524	2112590.63	5690.00	<1	
6042078.144	2112590.56	5800.00	<1	
6042078.763	2112590.49	5860.00	<1	
6042079.383	2112590.41	5780.00	<1	
6042080.002	2112590.34	5770.00	<1	
6042080.622	2112590.27	4950.00	<1	
6042081.241	2112590.19	5570.00	<1	
6042081.861	2112590.12	6000.00	<1	
6042082.48	2112590.05	6170.00	1	
6042083.1	2112589.97	5810.00	<1	
6042083.719	2112589.90	6310.00	1	
6042084.338	2112589.83	5720.00	<1	
6042084.958	2112589.75	5690.00	<1	
6042085.577	2112589.68	5840.00	<1	
6042086.197	2112589.61	5940.00	<1	
6042086.816	2112589.54	5720.00	<1	
6042087.436	2112589.46	5510.00	<1	
6042088.055	2112589.39	5610.00	<1	
6042088.675	2112589.32	5640.00	<1	
6042089.294	2112589.24	5850.00	<1	
6042089.914	2112589.17	6340.00	1	
6042090.533	2112589.10	6490.00	1	
6042091.153	2112589.02	5510.00	<1	
6042091.772	2112588.95	5860.00	<1	
6042092.392	2112588.88	5770.00	<1	
6042093.011	2112588.80	5970.00	<1	
6042093.631	2112588.73	6690.00	2	
6042094.25	2112588.66	6470.00	1	
6042094.87	2112588.59	6140.00	1	
6042095.489	2112588.51	5490.00	<1	
6042096.109	2112588.44	5660.00	<1	
6042096.728	2112588.37	6180.00	1	
6042097.348	2112588.29	5860.00	<1	
6042097.967	2112588.22	5590.00	<1	

5679.07	Average
426.66	Std Dev
6959.06	3 Sigma
7200.00	Max

Easting	Northing	Reading	Reach 72 Data Set	Comments

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 73
Line: G

Main/Lateral: Lateral
Length (ft): 65
Pipe Diameter (in): 12

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 73 Data Set

Gamma Total CPS	
5839.31	Average
650.56	Std Dev
7791.01	3 Sigma
7820.00	Max

Sigma	Total Points
<1	87
1	9
2	5
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 73 Data Set	Comments
6042152.859	2112542.53	4990.00	<1	
6042152.345	2112542.84	5500.00	<1	
6042151.831	2112543.15	5960.00	<1	
6042151.317	2112543.46	5270.00	<1	
6042150.803	2112543.77	5850.00	<1	
6042150.289	2112544.08	6430.00	<1	
6042149.775	2112544.39	6800.00	1	
6042149.261	2112544.70	7470.00	2	
6042148.747	2112545.01	6560.00	1	
6042148.233	2112545.33	6700.00	1	
6042147.719	2112545.64	7370.00	2	
6042147.205	2112545.95	5910.00	<1	
6042146.691	2112546.26	6660.00	1	
6042146.177	2112546.57	5970.00	<1	
6042145.663	2112546.88	5770.00	<1	
6042145.149	2112547.19	5440.00	<1	
6042144.634	2112547.50	5990.00	<1	
6042144.12	2112547.81	6010.00	<1	
6042143.606	2112548.12	6020.00	<1	
6042143.092	2112548.43	5720.00	<1	

Easting	Northing	Reading	Reach 73 Data Set	Comments
6042142.578	2112548.75	5470.00	<1	
6042142.064	2112549.06	5880.00	<1	
6042141.55	2112549.37	7820.00	3	
6042141.036	2112549.68	6480.00	<1	
6042140.522	2112549.99	7760.00	2	
6042140.008	2112550.30	7000.00	1	
6042139.494	2112550.61	6840.00	1	
6042138.98	2112550.92	6710.00	1	
6042138.466	2112551.23	6010.00	<1	
6042137.952	2112551.54	6570.00	1	
6042137.438	2112551.86	6000.00	<1	
6042136.923	2112552.17	5860.00	<1	
6042136.409	2112552.48	6120.00	<1	
6042135.895	2112552.79	6000.00	<1	
6042135.381	2112553.10	5670.00	<1	
6042134.867	2112553.41	5680.00	<1	
6042134.353	2112553.72	5390.00	<1	
6042133.839	2112554.03	5090.00	<1	
6042133.325	2112554.34	5170.00	<1	
6042132.811	2112554.65	5180.00	<1	
6042132.297	2112554.97	5410.00	<1	
6042131.783	2112555.28	5440.00	<1	
6042131.269	2112555.59	5190.00	<1	
6042130.755	2112555.90	5570.00	<1	
6042130.241	2112556.21	5690.00	<1	
6042129.727	2112556.52	5820.00	<1	
6042129.213	2112556.83	5350.00	<1	
6042128.698	2112557.14	5260.00	<1	
6042128.184	2112557.45	5480.00	<1	
6042127.67	2112557.76	5080.00	<1	
6042127.156	2112558.07	5510.00	<1	
6042126.642	2112558.39	5570.00	<1	
6042126.128	2112558.70	5210.00	<1	
6042125.614	2112559.01	5230.00	<1	
6042125.1	2112559.32	5610.00	<1	
6042124.586	2112559.63	5380.00	<1	
6042124.072	2112559.94	5740.00	<1	
6042123.558	2112560.25	5170.00	<1	
6042123.044	2112560.56	5390.00	<1	
6042122.53	2112560.87	5100.00	<1	
6042122.016	2112561.18	5060.00	<1	

Easting	Northing	Reading	Reach 73 Data Set	Comments
6042121.502	2112561.50	5540.00	<1	
6042120.988	2112561.81	5840.00	<1	
6042120.473	2112562.12	6960.00	1	
6042119.959	2112562.43	7530.00	2	
6042119.445	2112562.74	5940.00	<1	
6042118.931	2112563.05	7740.00	2	
6042118.417	2112563.36	6050.00	<1	
6042117.903	2112563.67	6080.00	<1	
6042117.389	2112563.98	5250.00	<1	
6042116.875	2112564.29	5450.00	<1	
6042116.361	2112564.61	5610.00	<1	
6042115.847	2112564.92	6100.00	<1	
6042115.333	2112565.23	5520.00	<1	
6042114.819	2112565.54	5320.00	<1	
6042114.305	2112565.85	5400.00	<1	
6042113.791	2112566.16	5510.00	<1	
6042113.277	2112566.47	4790.00	<1	
6042112.762	2112566.78	5430.00	<1	
6042112.248	2112567.09	5840.00	<1	
6042111.734	2112567.40	5290.00	<1	
6042111.22	2112567.71	5860.00	<1	
6042110.706	2112568.03	5740.00	<1	
6042110.192	2112568.34	5600.00	<1	
6042109.678	2112568.65	5740.00	<1	
6042109.164	2112568.96	6180.00	<1	
6042108.65	2112569.27	5450.00	<1	
6042108.136	2112569.58	5480.00	<1	
6042107.622	2112569.89	5210.00	<1	
6042107.108	2112570.20	5180.00	<1	
6042106.594	2112570.51	4910.00	<1	
6042106.08	2112570.82	5280.00	<1	
6042105.566	2112571.14	6270.00	<1	
6042105.052	2112571.45	5930.00	<1	
6042104.537	2112571.76	6430.00	<1	
6042104.023	2112572.07	5590.00	<1	
6042103.509	2112572.38	5980.00	<1	
6042102.995	2112572.69	5360.00	<1	
6042102.481	2112573.00	6000.00	<1	
6042101.967	2112573.31	6000.00	<1	
6042101.453	2112573.62	5780.00	<1	
6042100.939	2112573.93	6100.00	<1	

Easting	Northing	Reading		Reach 73 Data Set	Comments
		5839.31	Average		
		650.56	Std Dev		
		7791.01	3 Sigma		
		7820.00	Max		

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 75
Line: G

Main/Lateral: Lateral
Length (ft): 205
Pipe Diameter (in): 27

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 75 Data Set

Gamma Total CPS	
6675.86	Average
682.35	Std Dev
8722.90	3 Sigma
8700.00	Max

Sigma	Total Points
<1	272
1	39
2	10
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 75 Data Set	Comments
6041922.75	2112462.53	6530.00	<1	
6041923.376	2112462.47	7390.00	1	
6041924.002	2112462.42	6530.00	<1	
6041924.627	2112462.37	7010.00	<1	
6041925.253	2112462.32	7530.00	1	
6041925.879	2112462.26	7540.00	1	
6041926.505	2112462.21	6870.00	<1	
6041927.131	2112462.16	8280.00	2	
6041927.757	2112462.11	7850.00	1	
6041928.383	2112462.06	7140.00	<1	
6041929.009	2112462.00	7870.00	1	
6041929.635	2112461.95	6220.00	<1	
6041930.261	2112461.90	7950.00	1	
6041930.886	2112461.85	7070.00	<1	
6041931.512	2112461.80	7960.00	1	
6041932.138	2112461.74	8700.00	2	
6041932.764	2112461.69	8140.00	2	
6041933.39	2112461.64	8140.00	2	
6041934.016	2112461.59	7220.00	<1	
6041934.642	2112461.53	8060.00	2	

Easting	Northing	Reading	Reach 75 Data Set	Comments
6041935.268	2112461.48	7800.00	1	
6041935.894	2112461.43	8150.00	2	
6041936.52	2112461.38	7670.00	1	
6041937.145	2112461.33	7200.00	<1	
6041937.771	2112461.27	7230.00	<1	
6041938.397	2112461.22	5690.00	<1	
6041939.023	2112461.17	6350.00	<1	
6041939.649	2112461.12	7840.00	1	
6041940.275	2112461.07	7960.00	1	
6041940.901	2112461.01	7150.00	<1	
6041941.527	2112460.96	6210.00	<1	
6041942.153	2112460.91	6820.00	<1	
6041942.779	2112460.86	7020.00	<1	
6041943.404	2112460.80	7520.00	1	
6041944.03	2112460.75	8040.00	1	
6041944.656	2112460.70	7700.00	1	
6041945.282	2112460.65	8300.00	2	
6041945.908	2112460.60	7350.00	<1	
6041946.534	2112460.54	6740.00	<1	
6041947.16	2112460.49	7370.00	1	
6041947.786	2112460.44	7020.00	<1	
6041948.412	2112460.39	6580.00	<1	
6041949.038	2112460.34	6470.00	<1	
6041949.663	2112460.28	6970.00	<1	
6041950.289	2112460.23	6970.00	<1	
6041950.915	2112460.18	6680.00	<1	
6041951.541	2112460.13	6430.00	<1	
6041952.167	2112460.07	6960.00	<1	
6041952.793	2112460.02	6790.00	<1	
6041953.419	2112459.97	6030.00	<1	
6041954.045	2112459.92	6220.00	<1	
6041954.671	2112459.87	6650.00	<1	
6041955.297	2112459.81	7160.00	<1	
6041955.922	2112459.76	6540.00	<1	
6041956.548	2112459.71	6110.00	<1	
6041957.174	2112459.66	6800.00	<1	
6041957.8	2112459.61	6290.00	<1	
6041958.426	2112459.55	6120.00	<1	
6041959.052	2112459.50	6030.00	<1	
6041959.678	2112459.45	8190.00	2	
6041960.304	2112459.40	7250.00	<1	

Easting	Northing	Reading	Reach 75 Data Set	Comments
6041960.93	2112459.34	7570.00	1	
6041961.556	2112459.29	6770.00	<1	
6041962.181	2112459.24	6760.00	<1	
6041962.807	2112459.19	5370.00	<1	
6041963.433	2112459.14	5830.00	<1	
6041964.059	2112459.08	6380.00	<1	
6041964.685	2112459.03	7440.00	1	
6041965.311	2112458.98	6380.00	<1	
6041965.937	2112458.93	6440.00	<1	
6041966.563	2112458.88	6430.00	<1	
6041967.189	2112458.82	6430.00	<1	
6041967.815	2112458.77	6790.00	<1	
6041968.44	2112458.72	6220.00	<1	
6041969.066	2112458.67	5690.00	<1	
6041969.692	2112458.61	6420.00	<1	
6041970.318	2112458.56	6500.00	<1	
6041970.944	2112458.51	6590.00	<1	
6041971.57	2112458.46	6320.00	<1	
6041972.196	2112458.41	6670.00	<1	
6041972.822	2112458.35	6650.00	<1	
6041973.448	2112458.30	6130.00	<1	
6041974.074	2112458.25	7220.00	<1	
6041974.699	2112458.20	5840.00	<1	
6041975.325	2112458.15	6660.00	<1	
6041975.951	2112458.09	6650.00	<1	
6041976.577	2112458.04	6550.00	<1	
6041977.203	2112457.99	5730.00	<1	
6041977.829	2112457.94	6540.00	<1	
6041978.455	2112457.88	6450.00	<1	
6041979.081	2112457.83	6190.00	<1	
6041979.707	2112457.78	6750.00	<1	
6041980.333	2112457.73	6630.00	<1	
6041980.958	2112457.68	6290.00	<1	
6041981.584	2112457.62	6810.00	<1	
6041982.21	2112457.57	7190.00	<1	
6041982.836	2112457.52	6360.00	<1	
6041983.462	2112457.47	6210.00	<1	
6041984.088	2112457.42	6210.00	<1	
6041984.714	2112457.36	6260.00	<1	
6041985.34	2112457.31	6880.00	<1	
6041985.966	2112457.26	6810.00	<1	

Easting	Northing	Reading	Reach 75 Data Set	Comments
6041986.592	2112457.21	6200.00	<1	
6041987.217	2112457.15	5390.00	<1	
6041987.843	2112457.10	6010.00	<1	
6041988.469	2112457.05	6160.00	<1	
6041989.095	2112457.00	6920.00	<1	
6041989.721	2112456.95	6720.00	<1	
6041990.347	2112456.89	5610.00	<1	
6041990.973	2112456.84	6940.00	<1	
6041991.599	2112456.79	6580.00	<1	
6041992.225	2112456.74	6050.00	<1	
6041992.851	2112456.69	7140.00	<1	
6041993.476	2112456.63	6890.00	<1	
6041994.102	2112456.58	5970.00	<1	
6041994.728	2112456.53	6440.00	<1	
6041995.354	2112456.48	7180.00	<1	
6041995.98	2112456.42	6700.00	<1	
6041996.606	2112456.37	6900.00	<1	
6041997.232	2112456.32	5760.00	<1	
6041997.858	2112456.27	6100.00	<1	
6041998.484	2112456.22	7480.00	1	
6041999.11	2112456.16	5710.00	<1	
6041999.735	2112456.11	6210.00	<1	
6042000.361	2112456.06	6790.00	<1	
6042000.987	2112456.01	6790.00	<1	
6042001.613	2112455.96	6950.00	<1	
6042002.239	2112455.90	8020.00	1	
6042002.865	2112455.85	7350.00	<1	
6042003.491	2112455.80	7490.00	1	
6042004.117	2112455.75	7360.00	1	
6042004.743	2112455.69	7280.00	<1	
6042005.369	2112455.64	7920.00	1	
6042005.994	2112455.59	5750.00	<1	
6042006.62	2112455.54	6300.00	<1	
6042007.246	2112455.49	6270.00	<1	
6042007.872	2112455.43	6420.00	<1	
6042008.498	2112455.38	5680.00	<1	
6042009.124	2112455.33	5990.00	<1	
6042009.75	2112455.28	6550.00	<1	
6042010.376	2112455.23	6150.00	<1	
6042011.002	2112455.17	6910.00	<1	
6042011.628	2112455.12	6400.00	<1	

Easting	Northing	Reading	Reach 75 Data Set	Comments
6042012.253	2112455.07	6030.00	<1	
6042012.879	2112455.02	7280.00	<1	
6042013.505	2112454.96	5560.00	<1	
6042014.131	2112454.91	5160.00	<1	
6042014.757	2112454.86	5560.00	<1	
6042015.383	2112454.81	5800.00	<1	
6042016.009	2112454.76	6140.00	<1	
6042016.635	2112454.70	5960.00	<1	
6042017.261	2112454.65	6420.00	<1	
6042017.887	2112454.60	7200.00	<1	
6042018.512	2112454.55	5670.00	<1	
6042019.138	2112454.50	5290.00	<1	
6042019.764	2112454.44	5290.00	<1	
6042020.39	2112454.39	6480.00	<1	
6042021.016	2112454.34	5960.00	<1	
6042021.642	2112454.29	6680.00	<1	
6042022.268	2112454.23	6260.00	<1	
6042022.894	2112454.18	7030.00	<1	
6042023.52	2112454.13	5520.00	<1	
6042024.146	2112454.08	6820.00	<1	
6042024.771	2112454.03	6560.00	<1	
6042025.397	2112453.97	5530.00	<1	
6042026.023	2112453.92	5770.00	<1	
6042026.649	2112453.87	7160.00	<1	
6042027.275	2112453.82	6440.00	<1	
6042027.901	2112453.77	5850.00	<1	
6042028.527	2112453.71	6350.00	<1	
6042029.153	2112453.66	6690.00	<1	
6042029.779	2112453.61	6660.00	<1	
6042030.405	2112453.56	5770.00	<1	
6042031.03	2112453.50	5970.00	<1	
6042031.656	2112453.45	6820.00	<1	
6042032.282	2112453.40	7150.00	<1	
6042032.908	2112453.35	6550.00	<1	
6042033.534	2112453.30	6810.00	<1	
6042034.16	2112453.24	6530.00	<1	
6042034.786	2112453.19	6130.00	<1	
6042035.412	2112453.14	6830.00	<1	
6042036.038	2112453.09	5680.00	<1	
6042036.664	2112453.04	5970.00	<1	
6042037.289	2112452.98	6600.00	<1	

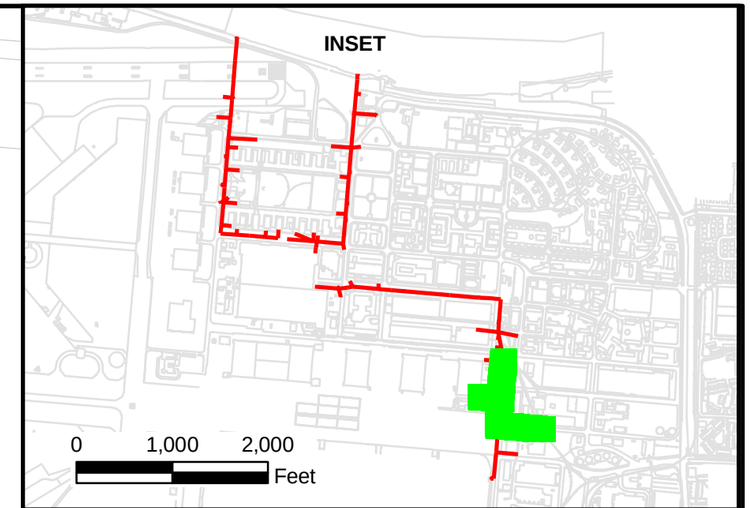
Easting	Northing	Reading	Reach 75 Data Set	Comments
6042037.915	2112452.93	5930.00	<1	
6042038.541	2112452.88	6690.00	<1	
6042039.167	2112452.83	5460.00	<1	
6042039.793	2112452.77	5810.00	<1	
6042040.419	2112452.72	6660.00	<1	
6042041.045	2112452.67	6660.00	<1	
6042041.671	2112452.62	6340.00	<1	
6042042.297	2112452.57	6300.00	<1	
6042042.923	2112452.51	6720.00	<1	
6042043.548	2112452.46	7360.00	1	
6042044.174	2112452.41	7600.00	1	
6042044.8	2112452.36	7090.00	<1	
6042045.426	2112452.31	7090.00	<1	
6042046.052	2112452.25	8380.00	2	
6042046.678	2112452.20	7960.00	1	
6042047.304	2112452.15	6110.00	<1	
6042047.93	2112452.10	7720.00	1	
6042048.556	2112452.04	8300.00	2	
6042049.182	2112451.99	7280.00	<1	
6042049.807	2112451.94	7180.00	<1	
6042050.433	2112451.89	7390.00	1	
6042051.059	2112451.84	7380.00	1	
6042051.685	2112451.78	7970.00	1	
6042052.311	2112451.73	7800.00	1	
6042052.937	2112451.68	7080.00	<1	
6042053.563	2112451.63	7490.00	1	
6042054.189	2112451.58	7230.00	<1	
6042054.815	2112451.52	7130.00	<1	
6042055.441	2112451.47	7330.00	<1	
6042056.066	2112451.42	6050.00	<1	
6042056.692	2112451.37	7200.00	<1	
6042057.318	2112451.31	7270.00	<1	
6042057.944	2112451.26	7240.00	<1	
6042058.57	2112451.21	6170.00	<1	
6042059.196	2112451.16	6610.00	<1	
6042059.822	2112451.11	6990.00	<1	
6042060.448	2112451.05	7340.00	<1	
6042061.074	2112451.00	5240.00	<1	
6042061.7	2112450.95	6010.00	<1	
6042062.325	2112450.90	7130.00	<1	
6042062.951	2112450.85	5850.00	<1	

Easting	Northing	Reading	Reach 75 Data Set	Comments
6042063.577	2112450.79	6230.00	<1	
6042064.203	2112450.74	6590.00	<1	
6042064.829	2112450.69	6730.00	<1	
6042065.455	2112450.64	6290.00	<1	
6042066.081	2112450.58	6120.00	<1	
6042066.707	2112450.53	5710.00	<1	
6042067.333	2112450.48	5710.00	<1	
6042067.959	2112450.43	5630.00	<1	
6042068.584	2112450.38	6150.00	<1	
6042069.21	2112450.32	6000.00	<1	
6042069.836	2112450.27	6670.00	<1	
6042070.462	2112450.22	7800.00	1	
6042071.088	2112450.17	6560.00	<1	
6042071.714	2112450.12	6810.00	<1	
6042072.34	2112450.06	6270.00	<1	
6042072.966	2112450.01	7260.00	<1	
6042073.592	2112449.96	6920.00	<1	
6042074.218	2112449.91	6800.00	<1	
6042074.843	2112449.85	7150.00	<1	
6042075.469	2112449.80	7710.00	1	
6042076.095	2112449.75	7070.00	<1	
6042076.721	2112449.70	6280.00	<1	
6042077.347	2112449.65	5230.00	<1	
6042077.973	2112449.59	7100.00	<1	
6042078.599	2112449.54	6330.00	<1	
6042079.225	2112449.49	6380.00	<1	
6042079.851	2112449.44	7060.00	<1	
6042080.477	2112449.39	6540.00	<1	
6042081.102	2112449.33	6380.00	<1	
6042081.728	2112449.28	6190.00	<1	
6042082.354	2112449.23	5280.00	<1	
6042082.98	2112449.18	5630.00	<1	
6042083.606	2112449.12	6060.00	<1	
6042084.232	2112449.07	5990.00	<1	
6042084.858	2112449.02	6270.00	<1	
6042085.484	2112448.97	5810.00	<1	
6042086.11	2112448.92	6950.00	<1	
6042086.736	2112448.86	7870.00	1	
6042087.361	2112448.81	6930.00	<1	
6042087.987	2112448.76	6890.00	<1	
6042088.613	2112448.71	6540.00	<1	

Easting	Northing	Reading	Reach 75 Data Set	Comments
6042089.239	2112448.66	7350.00	<1	
6042089.865	2112448.60	6850.00	<1	
6042090.491	2112448.55	7000.00	<1	
6042091.117	2112448.50	6420.00	<1	
6042091.743	2112448.45	6560.00	<1	
6042092.369	2112448.39	6310.00	<1	
6042092.995	2112448.34	6310.00	<1	
6042093.62	2112448.29	6810.00	<1	
6042094.246	2112448.24	5830.00	<1	
6042094.872	2112448.19	6580.00	<1	
6042095.498	2112448.13	6460.00	<1	
6042096.124	2112448.08	6010.00	<1	
6042096.75	2112448.03	7180.00	<1	
6042097.376	2112447.98	5750.00	<1	
6042098.002	2112447.93	5450.00	<1	
6042098.628	2112447.87	5910.00	<1	
6042099.254	2112447.82	6910.00	<1	
6042099.879	2112447.77	6920.00	<1	
6042100.505	2112447.72	7490.00	1	
6042101.131	2112447.66	6180.00	<1	
6042101.757	2112447.61	6860.00	<1	
6042102.383	2112447.56	6210.00	<1	
6042103.009	2112447.51	6940.00	<1	
6042103.635	2112447.46	7160.00	<1	
6042104.261	2112447.40	7380.00	1	
6042104.887	2112447.35	8010.00	1	
6042105.512	2112447.30	7070.00	<1	
6042106.138	2112447.25	7710.00	1	
6042106.764	2112447.20	6630.00	<1	
6042107.39	2112447.14	6460.00	<1	
6042108.016	2112447.09	6140.00	<1	
6042108.642	2112447.04	6620.00	<1	
6042109.268	2112446.99	7060.00	<1	
6042109.894	2112446.93	6880.00	<1	
6042110.52	2112446.88	6590.00	<1	
6042111.146	2112446.83	7360.00	1	
6042111.771	2112446.78	5880.00	<1	
6042112.397	2112446.73	6620.00	<1	
6042113.023	2112446.67	7070.00	<1	
6042113.649	2112446.62	6840.00	<1	
6042114.275	2112446.57	6760.00	<1	

Easting	Northing	Reading	Reach 75 Data Set	Comments
6042114.901	2112446.52	7190.00	<1	
6042115.527	2112446.47	6270.00	<1	
6042116.153	2112446.41	5860.00	<1	
6042116.779	2112446.36	6260.00	<1	
6042117.405	2112446.31	6430.00	<1	
6042118.03	2112446.26	5820.00	<1	
6042118.656	2112446.20	6520.00	<1	
6042119.282	2112446.15	6000.00	<1	
6042119.908	2112446.10	6390.00	<1	
6042120.534	2112446.05	7000.00	<1	
6042121.16	2112446.00	6390.00	<1	
6042121.786	2112445.94	6620.00	<1	
6042122.412	2112445.89	6660.00	<1	
6042123.038	2112445.84	6840.00	<1	

6675.86	Average
682.35	Std Dev
8722.90	3 Sigma
8700.00	Max



Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
76	5291
77	7962
78	5884
79	5311
80	7809

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0 10 20 40 60 80
Feet

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 76 thru 80

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_76-80_121220.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 76
Line: G

Main/Lateral: Main
Length (ft): 404
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 76 Data Set

Gamma Total CPS	
4363.54	Average
309.20	Std Dev
5291.15	3 Sigma
5270.00	Max

Sigma	Total Points
<1	288
1	54
2	8
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 76 Data Set	Comments
6042124.863	2112443.68	3720.00	<1	
6042124.767	2112442.54	3960.00	<1	
6042124.671	2112441.40	4560.00	<1	
6042124.575	2112440.25	4400.00	<1	
6042124.479	2112439.11	4400.00	<1	
6042124.383	2112437.97	4920.00	1	
6042124.287	2112436.83	4180.00	<1	
6042124.191	2112435.68	4030.00	<1	
6042124.095	2112434.54	4270.00	<1	
6042123.999	2112433.40	3990.00	<1	
6042123.903	2112432.26	4470.00	<1	
6042123.807	2112431.11	4460.00	<1	
6042123.711	2112429.97	4810.00	1	
6042123.615	2112428.83	4510.00	<1	
6042123.519	2112427.68	4380.00	<1	
6042123.423	2112426.54	4270.00	<1	
6042123.327	2112425.40	3990.00	<1	
6042123.231	2112424.26	5010.00	2	
6042123.135	2112423.11	5010.00	2	
6042123.039	2112421.97	4380.00	<1	

Easting	Northing	Reading	Reach 76 Data Set	Comments
6042122.943	2112420.83	4070.00	<1	
6042122.846	2112419.69	3880.00	<1	
6042122.75	2112418.54	4120.00	<1	
6042122.654	2112417.40	3960.00	<1	
6042122.558	2112416.26	4510.00	<1	
6042122.462	2112415.12	4330.00	<1	
6042122.366	2112413.97	4250.00	<1	
6042122.27	2112412.83	4370.00	<1	
6042122.174	2112411.69	4480.00	<1	
6042122.078	2112410.55	3830.00	<1	
6042121.982	2112409.40	3960.00	<1	
6042121.886	2112408.26	4130.00	<1	
6042121.79	2112407.12	4160.00	<1	
6042121.694	2112405.98	4530.00	<1	
6042121.598	2112404.83	4530.00	<1	
6042121.502	2112403.69	4690.00	1	
6042121.406	2112402.55	4010.00	<1	
6042121.31	2112401.41	3780.00	<1	
6042121.214	2112400.26	3980.00	<1	
6042121.118	2112399.12	3910.00	<1	
6042121.022	2112397.98	4220.00	<1	
6042120.926	2112396.84	4370.00	<1	
6042120.83	2112395.69	4520.00	<1	
6042120.734	2112394.55	4310.00	<1	
6042120.638	2112393.41	4030.00	<1	
6042120.542	2112392.26	4440.00	<1	
6042120.446	2112391.12	4630.00	<1	
6042120.35	2112389.98	4640.00	<1	
6042120.254	2112388.84	4190.00	<1	
6042120.157	2112387.69	4430.00	<1	
6042120.061	2112386.55	4430.00	<1	
6042119.965	2112385.41	4340.00	<1	
6042119.869	2112384.27	4510.00	<1	
6042119.773	2112383.12	4480.00	<1	
6042119.677	2112381.98	4620.00	<1	
6042119.581	2112380.84	4270.00	<1	
6042119.485	2112379.70	4280.00	<1	
6042119.389	2112378.55	4810.00	1	
6042119.293	2112377.41	4990.00	2	
6042119.197	2112376.27	4360.00	<1	
6042119.101	2112375.13	4390.00	<1	

Easting	Northing	Reading	Reach 76 Data Set	Comments
6042119.005	2112373.98	4900.00	1	
6042118.909	2112372.84	4590.00	<1	
6042118.813	2112371.70	4470.00	<1	
6042118.717	2112370.56	4530.00	<1	
6042118.621	2112369.41	4070.00	<1	
6042118.525	2112368.27	4300.00	<1	
6042118.429	2112367.13	4300.00	<1	
6042118.333	2112365.99	4340.00	<1	
6042118.237	2112364.84	4550.00	<1	
6042118.141	2112363.70	4370.00	<1	
6042118.045	2112362.56	4150.00	<1	
6042117.949	2112361.42	4160.00	<1	
6042117.853	2112360.27	4230.00	<1	
6042117.757	2112359.13	4290.00	<1	
6042117.661	2112357.99	4900.00	1	
6042117.564	2112356.84	4760.00	1	
6042117.468	2112355.70	3840.00	<1	
6042117.372	2112354.56	4260.00	<1	
6042117.276	2112353.42	4410.00	<1	
6042117.18	2112352.27	4310.00	<1	
6042117.084	2112351.13	4370.00	<1	
6042116.988	2112349.99	4420.00	<1	
6042116.892	2112348.85	4480.00	<1	
6042116.796	2112347.70	4480.00	<1	
6042116.7	2112346.56	4050.00	<1	
6042116.604	2112345.42	4260.00	<1	
6042116.508	2112344.28	4260.00	<1	
6042116.412	2112343.13	4120.00	<1	
6042116.316	2112341.99	4080.00	<1	
6042116.22	2112340.85	4610.00	<1	
6042116.124	2112339.71	4110.00	<1	
6042116.028	2112338.56	4750.00	1	
6042115.932	2112337.42	4680.00	1	
6042115.836	2112336.28	4070.00	<1	
6042115.74	2112335.14	3940.00	<1	
6042115.644	2112333.99	4290.00	<1	
6042115.548	2112332.85	3760.00	<1	
6042115.452	2112331.71	4470.00	<1	
6042115.356	2112330.57	4020.00	<1	
6042115.26	2112329.42	4020.00	<1	
6042115.164	2112328.28	3970.00	<1	

Easting	Northing	Reading	Reach 76 Data Set	Comments
6042115.068	2112327.14	4700.00	1	
6042114.971	2112326.00	4760.00	1	
6042114.875	2112324.85	4270.00	<1	
6042114.779	2112323.71	4220.00	<1	
6042114.683	2112322.57	4420.00	<1	
6042114.587	2112321.42	4260.00	<1	
6042114.491	2112320.28	4840.00	1	
6042114.395	2112319.14	4430.00	<1	
6042114.299	2112318.00	4080.00	<1	
6042114.203	2112316.85	3980.00	<1	
6042114.107	2112315.71	4220.00	<1	
6042114.011	2112314.57	4310.00	<1	
6042113.915	2112313.43	4040.00	<1	
6042113.819	2112312.28	3760.00	<1	
6042113.723	2112311.14	4180.00	<1	
6042113.627	2112310.00	4180.00	<1	
6042113.531	2112308.86	4560.00	<1	
6042113.435	2112307.71	4570.00	<1	
6042113.339	2112306.57	4610.00	<1	
6042113.243	2112305.43	4530.00	<1	
6042113.147	2112304.29	4160.00	<1	
6042113.051	2112303.14	4210.00	<1	
6042112.955	2112302.00	4280.00	<1	
6042112.859	2112300.86	4580.00	<1	
6042112.763	2112299.72	4780.00	1	
6042112.667	2112298.57	4820.00	1	
6042112.571	2112297.43	4680.00	1	
6042112.475	2112296.29	4610.00	<1	
6042112.378	2112295.15	4320.00	<1	
6042112.282	2112294.00	4280.00	<1	
6042112.186	2112292.86	4700.00	1	
6042112.09	2112291.72	4560.00	<1	
6042111.994	2112290.58	4740.00	1	
6042111.898	2112289.43	4480.00	<1	
6042111.802	2112288.29	4240.00	<1	
6042111.706	2112287.15	3930.00	<1	
6042111.61	2112286.00	3930.00	<1	
6042111.514	2112284.86	4560.00	<1	
6042111.418	2112283.72	4790.00	1	
6042111.322	2112282.58	5270.00	2	
6042111.226	2112281.43	4050.00	<1	

Easting	Northing	Reading	Reach 76 Data Set	Comments
6042111.13	2112280.29	4490.00	<1	
6042111.034	2112279.15	4550.00	<1	
6042110.938	2112278.01	4700.00	1	
6042110.842	2112276.86	4580.00	<1	
6042110.746	2112275.72	4650.00	<1	
6042110.65	2112274.58	4910.00	1	
6042110.554	2112273.44	4680.00	1	
6042110.458	2112272.29	4110.00	<1	
6042110.362	2112271.15	4480.00	<1	
6042110.266	2112270.01	4480.00	<1	
6042110.17	2112268.87	4320.00	<1	
6042110.074	2112267.72	4790.00	1	
6042109.978	2112266.58	4190.00	<1	
6042109.882	2112265.44	4180.00	<1	
6042109.785	2112264.30	4040.00	<1	
6042109.689	2112263.15	4150.00	<1	
6042109.593	2112262.01	4150.00	<1	
6042109.497	2112260.87	4390.00	<1	
6042109.401	2112259.73	4200.00	<1	
6042109.305	2112258.58	4080.00	<1	
6042109.209	2112257.44	4630.00	<1	
6042109.113	2112256.30	4530.00	<1	
6042109.017	2112255.16	4160.00	<1	
6042108.921	2112254.01	4370.00	<1	
6042108.825	2112252.87	4690.00	1	
6042108.729	2112251.73	4240.00	<1	
6042108.633	2112250.58	4150.00	<1	
6042108.537	2112249.44	4380.00	<1	
6042108.441	2112248.30	4480.00	<1	
6042108.345	2112247.16	3850.00	<1	
6042108.249	2112246.01	3960.00	<1	
6042108.153	2112244.87	3920.00	<1	
6042108.057	2112243.73	3980.00	<1	
6042107.961	2112242.59	3940.00	<1	
6042107.865	2112241.44	3870.00	<1	
6042107.769	2112240.30	3870.00	<1	
6042107.673	2112239.16	4170.00	<1	
6042107.577	2112238.02	4410.00	<1	
6042107.481	2112236.87	4370.00	<1	
6042107.385	2112235.73	4410.00	<1	
6042107.289	2112234.59	4540.00	<1	

Easting	Northing	Reading	Reach 76 Data Set	Comments
6042107.192	2112233.45	4090.00	<1	
6042107.096	2112232.30	4030.00	<1	
6042107	2112231.16	4420.00	<1	
6042106.904	2112230.02	4820.00	1	
6042106.808	2112228.88	4540.00	<1	
6042106.712	2112227.73	4000.00	<1	
6042106.616	2112226.59	3880.00	<1	
6042106.52	2112225.45	3880.00	<1	
6042106.424	2112224.31	3810.00	<1	
6042106.328	2112223.16	3800.00	<1	
6042106.232	2112222.02	3800.00	<1	
6042106.136	2112220.88	4200.00	<1	
6042106.04	2112219.74	3980.00	<1	
6042105.944	2112218.59	4000.00	<1	
6042105.848	2112217.45	4000.00	<1	
6042105.752	2112216.31	4050.00	<1	
6042105.656	2112215.16	3960.00	<1	
6042105.56	2112214.02	4510.00	<1	
6042105.464	2112212.88	4550.00	<1	
6042105.368	2112211.74	4280.00	<1	
6042105.272	2112210.59	4310.00	<1	
6042105.176	2112209.45	4430.00	<1	
6042105.08	2112208.31	4160.00	<1	
6042104.984	2112207.17	4800.00	1	
6042104.888	2112206.02	4530.00	<1	
6042104.792	2112204.88	4430.00	<1	
6042104.696	2112203.74	4400.00	<1	
6042104.599	2112202.60	4520.00	<1	
6042104.503	2112201.45	4520.00	<1	
6042104.407	2112200.31	4660.00	<1	
6042104.311	2112199.17	4290.00	<1	
6042104.215	2112198.03	3990.00	<1	
6042104.119	2112196.88	4360.00	<1	
6042104.023	2112195.74	4100.00	<1	
6042103.927	2112194.60	4220.00	<1	
6042103.831	2112193.46	4050.00	<1	
6042103.735	2112192.31	3890.00	<1	
6042103.639	2112191.17	4420.00	<1	
6042103.543	2112190.03	4880.00	1	
6042103.447	2112188.89	4110.00	<1	
6042103.351	2112187.74	4110.00	<1	

Easting	Northing	Reading	Reach 76 Data Set	Comments
6042103.255	2112186.60	4080.00	<1	
6042103.159	2112185.46	4070.00	<1	
6042103.063	2112184.32	4380.00	<1	
6042102.967	2112183.17	4440.00	<1	
6042102.871	2112182.03	4220.00	<1	
6042102.775	2112180.89	4220.00	<1	
6042102.679	2112179.74	4390.00	<1	
6042102.583	2112178.60	4430.00	<1	
6042102.487	2112177.46	4400.00	<1	
6042102.391	2112176.32	3780.00	<1	
6042102.295	2112175.17	3840.00	<1	
6042102.199	2112174.03	3940.00	<1	
6042102.103	2112172.89	4420.00	<1	
6042102.006	2112171.75	4680.00	1	
6042101.91	2112170.60	4820.00	1	
6042101.814	2112169.46	4590.00	<1	
6042101.718	2112168.32	4190.00	<1	
6042101.622	2112167.18	4390.00	<1	
6042101.526	2112166.03	4260.00	<1	
6042101.43	2112164.89	4390.00	<1	
6042101.334	2112163.75	4840.00	1	
6042101.238	2112162.61	4610.00	<1	
6042101.142	2112161.46	4600.00	<1	
6042101.046	2112160.32	4530.00	<1	
6042100.95	2112159.18	4560.00	<1	
6042100.854	2112158.04	4220.00	<1	
6042100.758	2112156.89	4290.00	<1	
6042100.662	2112155.75	4600.00	<1	
6042100.566	2112154.61	5050.00	2	
6042100.47	2112153.47	5050.00	2	
6042100.374	2112152.32	4890.00	1	
6042100.278	2112151.18	4800.00	1	
6042100.182	2112150.04	4550.00	<1	
6042100.086	2112148.90	4300.00	<1	
6042099.99	2112147.75	4350.00	<1	
6042099.894	2112146.61	4900.00	1	
6042099.798	2112145.47	4470.00	<1	
6042099.702	2112144.32	4980.00	1	
6042099.606	2112143.18	4910.00	1	
6042099.51	2112142.04	4460.00	<1	
6042099.413	2112140.90	3940.00	<1	

Easting	Northing	Reading	Reach 76 Data Set	Comments
6042099.317	2112139.75	4040.00	<1	
6042099.221	2112138.61	3990.00	<1	
6042099.125	2112137.47	4760.00	1	
6042099.029	2112136.33	4790.00	1	
6042098.933	2112135.18	4640.00	<1	
6042098.837	2112134.04	4170.00	<1	
6042098.741	2112132.90	4010.00	<1	
6042098.645	2112131.76	4140.00	<1	
6042098.549	2112130.61	4210.00	<1	
6042098.453	2112129.47	4210.00	<1	
6042098.357	2112128.33	4360.00	<1	
6042098.261	2112127.19	4300.00	<1	
6042098.165	2112126.04	4600.00	<1	
6042098.069	2112124.90	4780.00	1	
6042097.973	2112123.76	4820.00	1	
6042097.877	2112122.62	4560.00	<1	
6042097.781	2112121.47	4540.00	<1	
6042097.685	2112120.33	4560.00	<1	
6042097.589	2112119.19	4200.00	<1	
6042097.493	2112118.05	4780.00	1	
6042097.397	2112116.90	4010.00	<1	
6042097.301	2112115.76	4420.00	<1	
6042097.205	2112114.62	4360.00	<1	
6042097.109	2112113.48	4560.00	<1	
6042097.013	2112112.33	4800.00	1	
6042096.917	2112111.19	5010.00	2	
6042096.82	2112110.05	4850.00	1	
6042096.724	2112108.90	4680.00	1	
6042096.628	2112107.76	4670.00	<1	
6042096.532	2112106.62	4210.00	<1	
6042096.436	2112105.48	4170.00	<1	
6042096.34	2112104.33	3970.00	<1	
6042096.244	2112103.19	4250.00	<1	
6042096.148	2112102.05	4590.00	<1	
6042096.052	2112100.91	4590.00	<1	
6042095.956	2112099.76	4450.00	<1	
6042095.86	2112098.62	4690.00	1	
6042095.764	2112097.48	4550.00	<1	
6042095.668	2112096.34	4730.00	1	
6042095.572	2112095.19	4420.00	<1	
6042095.476	2112094.05	5030.00	2	

Easting	Northing	Reading	Reach 76 Data Set	Comments
6042095.38	2112092.91	4750.00	1	
6042095.284	2112091.77	4710.00	1	
6042095.188	2112090.62	4590.00	<1	
6042095.092	2112089.48	4480.00	<1	
6042094.996	2112088.34	4360.00	<1	
6042094.9	2112087.20	4580.00	<1	
6042094.804	2112086.05	3760.00	<1	
6042094.708	2112084.91	3840.00	<1	
6042094.612	2112083.77	3950.00	<1	
6042094.516	2112082.63	4250.00	<1	
6042094.42	2112081.48	4630.00	<1	
6042094.324	2112080.34	4760.00	1	
6042094.227	2112079.20	4520.00	<1	
6042094.131	2112078.06	4790.00	1	
6042094.035	2112076.91	4840.00	1	
6042093.939	2112075.77	4840.00	1	
6042093.843	2112074.63	4860.00	1	
6042093.747	2112073.48	4720.00	1	
6042093.651	2112072.34	4370.00	<1	
6042093.555	2112071.20	4370.00	<1	
6042093.459	2112070.06	4200.00	<1	
6042093.363	2112068.91	4540.00	<1	
6042093.267	2112067.77	3800.00	<1	
6042093.171	2112066.63	4160.00	<1	
6042093.075	2112065.49	4490.00	<1	
6042092.979	2112064.34	4610.00	<1	
6042092.883	2112063.20	4400.00	<1	
6042092.787	2112062.06	3930.00	<1	
6042092.691	2112060.92	4150.00	<1	
6042092.595	2112059.77	4370.00	<1	
6042092.499	2112058.63	4250.00	<1	
6042092.403	2112057.49	3780.00	<1	
6042092.307	2112056.35	3780.00	<1	
6042092.211	2112055.20	4180.00	<1	
6042092.115	2112054.06	3810.00	<1	
6042092.019	2112052.92	3970.00	<1	
6042091.923	2112051.78	4370.00	<1	
6042091.827	2112050.63	4460.00	<1	
6042091.731	2112049.49	4980.00	1	
6042091.634	2112048.35	4220.00	<1	
6042091.538	2112047.21	4380.00	<1	

Easting	Northing	Reading	Reach 76 Data Set	Comments
6042091.442	2112046.06	4280.00	<1	
6042091.346	2112044.92	4750.00	1	

4363.54	Average
309.20	Std Dev
5291.15	3 Sigma
5270.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 77
Line: G

Main/Lateral: Lateral
Length (ft): 205
Pipe Diameter (in): 21

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 77 Data Set

Gamma Total CPS	
5800.70	Average
720.51	Std Dev
7962.22	3 Sigma
7990.00	Max

Sigma	Total Points
<1	167
1	31
2	2
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 77 Data Set	Comments
6041888.801	2112059.85	6890.00	1	
6041889.803	2112059.77	6980.00	1	
6041890.805	2112059.68	5960.00	<1	
6041891.806	2112059.60	5920.00	<1	
6041892.808	2112059.52	5950.00	<1	
6041893.81	2112059.43	6210.00	<1	
6041894.812	2112059.35	6240.00	<1	
6041895.814	2112059.26	5920.00	<1	
6041896.816	2112059.18	6280.00	<1	
6041897.818	2112059.10	6090.00	<1	
6041898.82	2112059.01	7070.00	1	
6041899.822	2112058.93	5840.00	<1	
6041900.824	2112058.85	5470.00	<1	
6041901.826	2112058.76	6050.00	<1	
6041902.828	2112058.68	7030.00	1	
6041903.83	2112058.59	6470.00	<1	
6041904.831	2112058.51	6130.00	<1	
6041905.833	2112058.43	6440.00	<1	
6041906.835	2112058.34	6290.00	<1	
6041907.837	2112058.26	5730.00	<1	

Easting	Northing	Reading	Reach 77 Data Set	Comments
6041908.839	2112058.17	5870.00	<1	
6041909.841	2112058.09	6840.00	1	
6041910.843	2112058.01	7190.00	1	
6041911.845	2112057.92	6830.00	1	
6041912.847	2112057.84	5980.00	<1	
6041913.849	2112057.76	5650.00	<1	
6041914.851	2112057.67	5630.00	<1	
6041915.853	2112057.59	5830.00	<1	
6041916.855	2112057.50	6760.00	1	
6041917.857	2112057.42	6510.00	<1	
6041918.858	2112057.34	6300.00	<1	
6041919.86	2112057.25	6270.00	<1	
6041920.862	2112057.17	5750.00	<1	
6041921.864	2112057.09	6890.00	1	
6041922.866	2112057.00	5520.00	<1	
6041923.868	2112056.92	5500.00	<1	
6041924.87	2112056.83	5810.00	<1	
6041925.872	2112056.75	5900.00	<1	
6041926.874	2112056.67	6920.00	1	
6041927.876	2112056.58	6660.00	1	
6041928.878	2112056.50	6270.00	<1	
6041929.88	2112056.42	5790.00	<1	
6041930.882	2112056.33	6240.00	<1	
6041931.883	2112056.25	5970.00	<1	
6041932.885	2112056.16	6630.00	1	
6041933.887	2112056.08	5960.00	<1	
6041934.889	2112056.00	6090.00	<1	
6041935.891	2112055.91	6370.00	<1	
6041936.893	2112055.83	6920.00	1	
6041937.895	2112055.75	6940.00	1	
6041938.897	2112055.66	6130.00	<1	
6041939.899	2112055.58	6080.00	<1	
6041940.901	2112055.49	7990.00	3	
6041941.903	2112055.41	6080.00	<1	
6041942.905	2112055.33	6300.00	<1	
6041943.907	2112055.24	6100.00	<1	
6041944.909	2112055.16	7210.00	1	
6041945.91	2112055.07	6580.00	1	
6041946.912	2112054.99	6460.00	<1	
6041947.914	2112054.91	5800.00	<1	
6041948.916	2112054.82	6600.00	1	

Easting	Northing	Reading	Reach 77 Data Set	Comments
6041949.918	2112054.74	7070.00	1	
6041950.92	2112054.66	6320.00	<1	
6041951.922	2112054.57	5570.00	<1	
6041952.924	2112054.49	7270.00	2	
6041953.926	2112054.40	6330.00	<1	
6041954.928	2112054.32	6070.00	<1	
6041955.93	2112054.24	6250.00	<1	
6041956.932	2112054.15	7320.00	2	
6041957.934	2112054.07	5450.00	<1	
6041958.935	2112053.99	5540.00	<1	
6041959.937	2112053.90	5840.00	<1	
6041960.939	2112053.82	5940.00	<1	
6041961.941	2112053.73	5740.00	<1	
6041962.943	2112053.65	6800.00	1	
6041963.945	2112053.57	5830.00	<1	
6041964.947	2112053.48	6210.00	<1	
6041965.949	2112053.40	5900.00	<1	
6041966.951	2112053.32	5830.00	<1	
6041967.953	2112053.23	6100.00	<1	
6041968.955	2112053.15	6290.00	<1	
6041969.957	2112053.06	6540.00	1	
6041970.959	2112052.98	6110.00	<1	
6041971.961	2112052.90	6440.00	<1	
6041972.962	2112052.81	6850.00	1	
6041973.964	2112052.73	6470.00	<1	
6041974.966	2112052.65	5810.00	<1	
6041975.968	2112052.56	7190.00	1	
6041976.97	2112052.48	6010.00	<1	
6041977.972	2112052.39	5690.00	<1	
6041978.974	2112052.31	5480.00	<1	
6041979.976	2112052.23	5110.00	<1	
6041980.978	2112052.14	5620.00	<1	
6041981.98	2112052.06	5610.00	<1	
6041982.982	2112051.98	6330.00	<1	
6041983.984	2112051.89	6810.00	1	
6041984.986	2112051.81	6790.00	1	
6041985.987	2112051.72	6580.00	1	
6041986.989	2112051.64	6510.00	<1	
6041987.991	2112051.56	6830.00	1	
6041988.993	2112051.47	6420.00	<1	
6041989.995	2112051.39	6600.00	1	

Easting	Northing	Reading	Reach 77 Data Set	Comments
6041990.997	2112051.30	6810.00	1	
6041991.999	2112051.22	6060.00	<1	
6041993.001	2112051.14	6270.00	<1	
6041994.003	2112051.05	6110.00	<1	
6041995.005	2112050.97	7000.00	1	
6041996.007	2112050.89	6690.00	1	
6041997.009	2112050.80	5410.00	<1	
6041998.011	2112050.72	5030.00	<1	
6041999.013	2112050.63	4740.00	<1	
6042000.014	2112050.55	5740.00	<1	
6042001.016	2112050.47	5540.00	<1	
6042002.018	2112050.38	5650.00	<1	
6042003.02	2112050.30	5150.00	<1	
6042004.022	2112050.22	5050.00	<1	
6042005.024	2112050.13	4830.00	<1	
6042006.026	2112050.05	5690.00	<1	
6042007.028	2112049.96	5680.00	<1	
6042008.03	2112049.88	6770.00	1	
6042009.032	2112049.80	5590.00	<1	
6042010.034	2112049.71	5870.00	<1	
6042011.036	2112049.63	5810.00	<1	
6042012.038	2112049.55	5300.00	<1	
6042013.039	2112049.46	5980.00	<1	
6042014.041	2112049.38	5630.00	<1	
6042015.043	2112049.29	4910.00	<1	
6042016.045	2112049.21	4560.00	<1	
6042017.047	2112049.13	5280.00	<1	
6042018.049	2112049.04	4980.00	<1	
6042019.051	2112048.96	5050.00	<1	
6042020.053	2112048.88	4840.00	<1	
6042021.055	2112048.79	5380.00	<1	
6042022.057	2112048.71	5530.00	<1	
6042023.059	2112048.62	5670.00	<1	
6042024.061	2112048.54	5810.00	<1	
6042025.063	2112048.46	6510.00	<1	
6042026.065	2112048.37	5660.00	<1	
6042027.066	2112048.29	5410.00	<1	
6042028.068	2112048.20	4910.00	<1	
6042029.07	2112048.12	5390.00	<1	
6042030.072	2112048.04	5970.00	<1	
6042031.074	2112047.95	5730.00	<1	

Easting	Northing	Reading	Reach 77 Data Set	Comments
6042032.076	2112047.87	5640.00	<1	
6042033.078	2112047.79	5250.00	<1	
6042034.08	2112047.70	4800.00	<1	
6042035.082	2112047.62	4560.00	<1	
6042036.084	2112047.53	4720.00	<1	
6042037.086	2112047.45	4420.00	<1	
6042038.088	2112047.37	4690.00	<1	
6042039.09	2112047.28	4280.00	<1	
6042040.091	2112047.20	4510.00	<1	
6042041.093	2112047.12	4770.00	<1	
6042042.095	2112047.03	5240.00	<1	
6042043.097	2112046.95	5120.00	<1	
6042044.099	2112046.86	5550.00	<1	
6042045.101	2112046.78	4840.00	<1	
6042046.103	2112046.70	4230.00	<1	
6042047.105	2112046.61	4420.00	<1	
6042048.107	2112046.53	4850.00	<1	
6042049.109	2112046.45	4900.00	<1	
6042050.111	2112046.36	5010.00	<1	
6042051.113	2112046.28	4980.00	<1	
6042052.115	2112046.19	5150.00	<1	
6042053.117	2112046.11	5120.00	<1	
6042054.118	2112046.03	5950.00	<1	
6042055.12	2112045.94	5870.00	<1	
6042056.122	2112045.86	5950.00	<1	
6042057.124	2112045.78	5890.00	<1	
6042058.126	2112045.69	4930.00	<1	
6042059.128	2112045.61	4770.00	<1	
6042060.13	2112045.52	4730.00	<1	
6042061.132	2112045.44	4670.00	<1	
6042062.134	2112045.36	4920.00	<1	
6042063.136	2112045.27	4660.00	<1	
6042064.138	2112045.19	4890.00	<1	
6042065.14	2112045.10	4630.00	<1	
6042066.142	2112045.02	4540.00	<1	
6042067.143	2112044.94	5410.00	<1	
6042068.145	2112044.85	5340.00	<1	
6042069.147	2112044.77	5490.00	<1	
6042070.149	2112044.69	5550.00	<1	
6042071.151	2112044.60	5110.00	<1	
6042072.153	2112044.52	5170.00	<1	

Easting	Northing	Reading	Reach 77 Data Set	Comments
6042073.155	2112044.43	5230.00	<1	
6042074.157	2112044.35	4840.00	<1	
6042075.159	2112044.27	5230.00	<1	
6042076.161	2112044.18	5710.00	<1	
6042077.163	2112044.10	5320.00	<1	
6042078.165	2112044.02	5460.00	<1	
6042079.167	2112043.93	4900.00	<1	
6042080.168	2112043.85	5260.00	<1	
6042081.17	2112043.76	5790.00	<1	
6042082.172	2112043.68	5380.00	<1	
6042083.174	2112043.60	5380.00	<1	
6042084.176	2112043.51	5560.00	<1	
6042085.178	2112043.43	5230.00	<1	
6042086.18	2112043.35	5440.00	<1	
6042087.182	2112043.26	5050.00	<1	
6042088.184	2112043.18	5390.00	<1	
6042089.186	2112043.09	5710.00	<1	

5800.70	Average
720.51	Std Dev
7962.22	3 Sigma
7990.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 78
Line: G

Main/Lateral: Lateral
Length (ft): 49
Pipe Diameter (in): 10

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 78 Data Set

Gamma Total CPS	
4830.83	Average
351.01	Std Dev
5883.86	3 Sigma
5500.00	Max

Sigma	Total Points
<1	10
1	2
2	0
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 78 Data Set	Comments
6042103.561	2112041.81	4280.00	<1	
6042102.617	2112041.90	4730.00	<1	
6042101.672	2112041.98	4590.00	<1	
6042100.727	2112042.07	4600.00	<1	
6042099.783	2112042.15	4850.00	<1	
6042098.838	2112042.24	4850.00	<1	
6042097.894	2112042.32	5500.00	1	
6042096.949	2112042.41	5130.00	<1	
6042096.005	2112042.49	4890.00	<1	
6042095.06	2112042.58	5350.00	1	
6042094.115	2112042.66	4680.00	<1	
6042093.171	2112042.75	4520.00	<1	

4830.83	Average
351.01	Std Dev
5883.86	3 Sigma
5500.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 79
Line: G

Main/Lateral: Main
Length (ft): 274
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 79 Data Set

Gamma Total CPS	
4462.47	Average
282.92	Std Dev
5311.24	3 Sigma
5200.00	Max

Sigma	Total Points
<1	159
1	31
2	4
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 79 Data Set	Comments
6042068.311	2111772.01	4370.00	<1	
6042068.429	2111773.40	4240.00	<1	
6042068.546	2111774.80	4130.00	<1	
6042068.664	2111776.19	3880.00	<1	
6042068.782	2111777.58	4500.00	<1	
6042068.899	2111778.98	4700.00	<1	
6042069.017	2111780.37	5000.00	1	
6042069.134	2111781.76	4520.00	<1	
6042069.252	2111783.16	4840.00	1	
6042069.37	2111784.55	4380.00	<1	
6042069.487	2111785.94	4580.00	<1	
6042069.605	2111787.34	4570.00	<1	
6042069.723	2111788.73	4460.00	<1	
6042069.84	2111790.12	4580.00	<1	
6042069.958	2111791.52	4830.00	1	
6042070.075	2111792.91	4710.00	<1	
6042070.193	2111794.30	4680.00	<1	
6042070.311	2111795.70	4790.00	1	
6042070.428	2111797.09	4450.00	<1	
6042070.546	2111798.48	4400.00	<1	

Easting	Northing	Reading	Reach 79 Data Set	Comments
6042070.663	2111799.88	4330.00	<1	
6042070.781	2111801.27	4670.00	<1	
6042070.899	2111802.66	4480.00	<1	
6042071.016	2111804.06	3840.00	<1	
6042071.134	2111805.45	4160.00	<1	
6042071.251	2111806.84	4200.00	<1	
6042071.369	2111808.24	5100.00	2	
6042071.487	2111809.63	5140.00	2	
6042071.604	2111811.03	4530.00	<1	
6042071.722	2111812.42	4610.00	<1	
6042071.84	2111813.81	4680.00	<1	
6042071.957	2111815.21	4440.00	<1	
6042072.075	2111816.60	4490.00	<1	
6042072.192	2111817.99	4270.00	<1	
6042072.31	2111819.39	4430.00	<1	
6042072.428	2111820.78	4170.00	<1	
6042072.545	2111822.17	4210.00	<1	
6042072.663	2111823.57	4180.00	<1	
6042072.78	2111824.96	4450.00	<1	
6042072.898	2111826.35	4470.00	<1	
6042073.016	2111827.75	4250.00	<1	
6042073.133	2111829.14	4460.00	<1	
6042073.251	2111830.53	4270.00	<1	
6042073.369	2111831.93	4970.00	1	
6042073.486	2111833.32	4380.00	<1	
6042073.604	2111834.71	4520.00	<1	
6042073.721	2111836.11	4120.00	<1	
6042073.839	2111837.50	4360.00	<1	
6042073.957	2111838.89	4070.00	<1	
6042074.074	2111840.29	4350.00	<1	
6042074.192	2111841.68	4230.00	<1	
6042074.309	2111843.07	4420.00	<1	
6042074.427	2111844.47	4800.00	1	
6042074.545	2111845.86	4450.00	<1	
6042074.662	2111847.25	4630.00	<1	
6042074.78	2111848.65	4840.00	1	
6042074.898	2111850.04	4440.00	<1	
6042075.015	2111851.43	4480.00	<1	
6042075.133	2111852.83	4160.00	<1	
6042075.25	2111854.22	4460.00	<1	
6042075.368	2111855.61	4400.00	<1	

Easting	Northing	Reading	Reach 79 Data Set	Comments
6042075.486	2111857.01	4800.00	1	
6042075.603	2111858.40	4400.00	<1	
6042075.721	2111859.79	4100.00	<1	
6042075.838	2111861.19	4140.00	<1	
6042075.956	2111862.58	4160.00	<1	
6042076.074	2111863.97	4080.00	<1	
6042076.191	2111865.37	4580.00	<1	
6042076.309	2111866.76	4690.00	<1	
6042076.427	2111868.15	4780.00	1	
6042076.544	2111869.55	5060.00	2	
6042076.662	2111870.94	4700.00	<1	
6042076.779	2111872.33	4210.00	<1	
6042076.897	2111873.73	4150.00	<1	
6042077.015	2111875.12	4080.00	<1	
6042077.132	2111876.51	4070.00	<1	
6042077.25	2111877.91	4760.00	1	
6042077.367	2111879.30	4300.00	<1	
6042077.485	2111880.69	4810.00	1	
6042077.603	2111882.09	4220.00	<1	
6042077.72	2111883.48	4740.00	<1	
6042077.838	2111884.87	4850.00	1	
6042077.955	2111886.27	4510.00	<1	
6042078.073	2111887.66	4120.00	<1	
6042078.191	2111889.06	4320.00	<1	
6042078.308	2111890.45	4240.00	<1	
6042078.426	2111891.84	4380.00	<1	
6042078.544	2111893.24	4740.00	<1	
6042078.661	2111894.63	4680.00	<1	
6042078.779	2111896.02	4240.00	<1	
6042078.896	2111897.42	4690.00	<1	
6042079.014	2111898.81	4440.00	<1	
6042079.132	2111900.20	4620.00	<1	
6042079.249	2111901.60	4050.00	<1	
6042079.367	2111902.99	4650.00	<1	
6042079.484	2111904.38	3970.00	<1	
6042079.602	2111905.78	4230.00	<1	
6042079.72	2111907.17	4310.00	<1	
6042079.837	2111908.56	3800.00	<1	
6042079.955	2111909.96	4500.00	<1	
6042080.073	2111911.35	4230.00	<1	
6042080.19	2111912.74	4590.00	<1	

Easting	Northing	Reading	Reach 79 Data Set	Comments
6042080.308	2111914.14	4370.00	<1	
6042080.425	2111915.53	4430.00	<1	
6042080.543	2111916.92	4280.00	<1	
6042080.661	2111918.32	4150.00	<1	
6042080.778	2111919.71	4370.00	<1	
6042080.896	2111921.10	4280.00	<1	
6042081.013	2111922.50	4780.00	1	
6042081.131	2111923.89	4310.00	<1	
6042081.249	2111925.28	4760.00	1	
6042081.366	2111926.68	4350.00	<1	
6042081.484	2111928.07	4080.00	<1	
6042081.602	2111929.46	4110.00	<1	
6042081.719	2111930.86	4300.00	<1	
6042081.837	2111932.25	4300.00	<1	
6042081.954	2111933.64	4720.00	<1	
6042082.072	2111935.04	4860.00	1	
6042082.19	2111936.43	4660.00	<1	
6042082.307	2111937.82	4870.00	1	
6042082.425	2111939.22	4140.00	<1	
6042082.542	2111940.61	4360.00	<1	
6042082.66	2111942.00	4240.00	<1	
6042082.778	2111943.40	4050.00	<1	
6042082.895	2111944.79	3970.00	<1	
6042083.013	2111946.18	4050.00	<1	
6042083.131	2111947.58	4430.00	<1	
6042083.248	2111948.97	4550.00	<1	
6042083.366	2111950.36	4480.00	<1	
6042083.483	2111951.76	4500.00	<1	
6042083.601	2111953.15	4650.00	<1	
6042083.719	2111954.54	4630.00	<1	
6042083.836	2111955.94	4830.00	1	
6042083.954	2111957.33	4130.00	<1	
6042084.071	2111958.72	4350.00	<1	
6042084.189	2111960.12	4360.00	<1	
6042084.307	2111961.51	4200.00	<1	
6042084.424	2111962.90	4660.00	<1	
6042084.542	2111964.30	3840.00	<1	
6042084.659	2111965.69	3670.00	<1	
6042084.777	2111967.08	4030.00	<1	
6042084.895	2111968.48	4370.00	<1	
6042085.012	2111969.87	4680.00	<1	

Easting	Northing	Reading	Reach 79 Data Set	Comments
6042085.13	2111971.27	4770.00	1	
6042085.248	2111972.66	4580.00	<1	
6042085.365	2111974.05	4270.00	<1	
6042085.483	2111975.45	4190.00	<1	
6042085.6	2111976.84	3820.00	<1	
6042085.718	2111978.23	4430.00	<1	
6042085.836	2111979.63	4560.00	<1	
6042085.953	2111981.02	4270.00	<1	
6042086.071	2111982.41	4490.00	<1	
6042086.188	2111983.81	4520.00	<1	
6042086.306	2111985.20	4600.00	<1	
6042086.424	2111986.59	4550.00	<1	
6042086.541	2111987.99	4600.00	<1	
6042086.659	2111989.38	4420.00	<1	
6042086.777	2111990.77	4650.00	<1	
6042086.894	2111992.17	4430.00	<1	
6042087.012	2111993.56	4380.00	<1	
6042087.129	2111994.95	4340.00	<1	
6042087.247	2111996.35	4290.00	<1	
6042087.365	2111997.74	4260.00	<1	
6042087.482	2111999.13	4560.00	<1	
6042087.6	2112000.53	4120.00	<1	
6042087.717	2112001.92	4670.00	<1	
6042087.835	2112003.31	5200.00	2	
6042087.953	2112004.71	4390.00	<1	
6042088.07	2112006.10	4440.00	<1	
6042088.188	2112007.49	4920.00	1	
6042088.306	2112008.89	4810.00	1	
6042088.423	2112010.28	4630.00	<1	
6042088.541	2112011.67	4340.00	<1	
6042088.658	2112013.07	4750.00	1	
6042088.776	2112014.46	4550.00	<1	
6042088.894	2112015.85	4760.00	1	
6042089.011	2112017.25	4710.00	<1	
6042089.129	2112018.64	4970.00	1	
6042089.246	2112020.03	4780.00	1	
6042089.364	2112021.43	4890.00	1	
6042089.482	2112022.82	4530.00	<1	
6042089.599	2112024.21	4840.00	1	
6042089.717	2112025.61	4990.00	1	
6042089.835	2112027.00	4540.00	<1	

Easting	Northing	Reading	Reach 79 Data Set	Comments
6042089.952	2112028.39	4440.00	<1	
6042090.07	2112029.79	4430.00	<1	
6042090.187	2112031.18	4550.00	<1	
6042090.305	2112032.57	4790.00	1	
6042090.423	2112033.97	4960.00	1	
6042090.54	2112035.36	4860.00	1	
6042090.658	2112036.75	4320.00	<1	
6042090.775	2112038.15	4440.00	<1	
6042090.893	2112039.54	4580.00	<1	
6042091.011	2112040.93	4880.00	1	

4462.47	Average
282.92	Std Dev
5311.24	3 Sigma
5200.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 80
Line: G

Main/Lateral: Lateral
Length (ft): 467
Pipe Diameter (in): 18

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 80 Data Set

Gamma Total CPS	
6147.81	Average
553.64	Std Dev
7808.74	3 Sigma
8020.00	Max

Sigma	Total Points
<1	467
1	89
2	13
3	3
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042531.161	2111731.33	6670.00	<1	
6042530.354	2111731.40	7190.00	1	
6042529.547	2111731.47	5410.00	<1	
6042528.739	2111731.54	6050.00	<1	
6042527.932	2111731.60	6030.00	<1	
6042527.124	2111731.67	5890.00	<1	
6042526.317	2111731.74	6910.00	1	
6042525.51	2111731.81	7110.00	1	
6042524.702	2111731.87	5980.00	<1	
6042523.895	2111731.94	5030.00	<1	
6042523.087	2111732.01	5500.00	<1	
6042522.28	2111732.08	5870.00	<1	
6042521.473	2111732.14	5750.00	<1	
6042520.665	2111732.21	6490.00	<1	
6042519.858	2111732.28	6520.00	<1	
6042519.05	2111732.35	6210.00	<1	
6042518.243	2111732.41	5970.00	<1	
6042517.436	2111732.48	5880.00	<1	
6042516.628	2111732.55	5740.00	<1	
6042515.821	2111732.62	5870.00	<1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042515.013	2111732.68	5870.00	<1	
6042514.206	2111732.75	6070.00	<1	
6042513.399	2111732.82	5880.00	<1	
6042512.591	2111732.89	6200.00	<1	
6042511.784	2111732.95	6330.00	<1	
6042510.976	2111733.02	5940.00	<1	
6042510.169	2111733.09	5920.00	<1	
6042509.362	2111733.16	5270.00	<1	
6042508.554	2111733.22	6000.00	<1	
6042507.747	2111733.29	6260.00	<1	
6042506.939	2111733.36	5850.00	<1	
6042506.132	2111733.43	6390.00	<1	
6042505.325	2111733.49	6320.00	<1	
6042504.517	2111733.56	6810.00	1	
6042503.71	2111733.63	5610.00	<1	
6042502.902	2111733.70	5820.00	<1	
6042502.095	2111733.76	5910.00	<1	
6042501.288	2111733.83	5890.00	<1	
6042500.48	2111733.90	5850.00	<1	
6042499.673	2111733.97	6750.00	1	
6042498.865	2111734.03	6080.00	<1	
6042498.058	2111734.10	7060.00	1	
6042497.251	2111734.17	5650.00	<1	
6042496.443	2111734.24	5770.00	<1	
6042495.636	2111734.30	5880.00	<1	
6042494.828	2111734.37	6050.00	<1	
6042494.021	2111734.44	5520.00	<1	
6042493.214	2111734.50	6100.00	<1	
6042492.406	2111734.57	5810.00	<1	
6042491.599	2111734.64	5730.00	<1	
6042490.791	2111734.71	5470.00	<1	
6042489.984	2111734.77	6390.00	<1	
6042489.177	2111734.84	5510.00	<1	
6042488.369	2111734.91	6760.00	1	
6042487.562	2111734.98	7000.00	1	
6042486.754	2111735.04	6540.00	<1	
6042485.947	2111735.11	6590.00	<1	
6042485.14	2111735.18	6220.00	<1	
6042484.332	2111735.25	5990.00	<1	
6042483.525	2111735.31	6270.00	<1	
6042482.717	2111735.38	5630.00	<1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042481.91	2111735.45	7260.00	2	
6042481.103	2111735.52	5770.00	<1	
6042480.295	2111735.58	5720.00	<1	
6042479.488	2111735.65	5840.00	<1	
6042478.68	2111735.72	5770.00	<1	
6042477.873	2111735.79	5810.00	<1	
6042477.066	2111735.85	7110.00	1	
6042476.258	2111735.92	6770.00	1	
6042475.451	2111735.99	5870.00	<1	
6042474.643	2111736.06	6110.00	<1	
6042473.836	2111736.12	6390.00	<1	
6042473.029	2111736.19	5970.00	<1	
6042472.221	2111736.26	5600.00	<1	
6042471.414	2111736.33	6570.00	<1	
6042470.606	2111736.39	5770.00	<1	
6042469.799	2111736.46	6590.00	<1	
6042468.992	2111736.53	6310.00	<1	
6042468.184	2111736.60	6260.00	<1	
6042467.377	2111736.66	6250.00	<1	
6042466.569	2111736.73	6070.00	<1	
6042465.762	2111736.80	5980.00	<1	
6042464.955	2111736.87	8020.00	3	
6042464.147	2111736.93	6490.00	<1	
6042463.34	2111737.00	7200.00	1	
6042462.532	2111737.07	5980.00	<1	
6042461.725	2111737.14	5780.00	<1	
6042460.918	2111737.20	7340.00	2	
6042460.11	2111737.27	6690.00	<1	
6042459.303	2111737.34	7060.00	1	
6042458.495	2111737.41	6850.00	1	
6042457.688	2111737.47	5660.00	<1	
6042456.881	2111737.54	6110.00	<1	
6042456.073	2111737.61	7150.00	1	
6042455.266	2111737.68	5750.00	<1	
6042454.458	2111737.74	6970.00	1	
6042453.651	2111737.81	6160.00	<1	
6042452.844	2111737.88	6650.00	<1	
6042452.036	2111737.95	5600.00	<1	
6042451.229	2111738.01	5900.00	<1	
6042450.421	2111738.08	7240.00	1	
6042449.614	2111738.15	6850.00	1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042448.807	2111738.21	5710.00	<1	
6042447.999	2111738.28	5810.00	<1	
6042447.192	2111738.35	5670.00	<1	
6042446.384	2111738.42	5690.00	<1	
6042445.577	2111738.48	6590.00	<1	
6042444.77	2111738.55	7070.00	1	
6042443.962	2111738.62	6130.00	<1	
6042443.155	2111738.69	6440.00	<1	
6042442.347	2111738.75	6200.00	<1	
6042441.54	2111738.82	5920.00	<1	
6042440.733	2111738.89	6750.00	1	
6042439.925	2111738.96	6430.00	<1	
6042439.118	2111739.02	6330.00	<1	
6042438.31	2111739.09	6470.00	<1	
6042437.503	2111739.16	5770.00	<1	
6042436.696	2111739.23	5870.00	<1	
6042435.888	2111739.29	5920.00	<1	
6042435.081	2111739.36	6710.00	1	
6042434.273	2111739.43	6310.00	<1	
6042433.466	2111739.50	6430.00	<1	
6042432.659	2111739.56	6870.00	1	
6042431.851	2111739.63	6470.00	<1	
6042431.044	2111739.70	6370.00	<1	
6042430.236	2111739.77	6840.00	1	
6042429.429	2111739.83	6720.00	1	
6042428.622	2111739.90	6820.00	1	
6042427.814	2111739.97	6290.00	<1	
6042427.007	2111740.04	7020.00	1	
6042426.199	2111740.10	6230.00	<1	
6042425.392	2111740.17	5850.00	<1	
6042424.585	2111740.24	6270.00	<1	
6042423.777	2111740.31	6140.00	<1	
6042422.97	2111740.37	5880.00	<1	
6042422.162	2111740.44	5990.00	<1	
6042421.355	2111740.51	5960.00	<1	
6042420.548	2111740.58	5960.00	<1	
6042419.74	2111740.64	5440.00	<1	
6042418.933	2111740.71	7490.00	2	
6042418.125	2111740.78	6480.00	<1	
6042417.318	2111740.85	5850.00	<1	
6042416.511	2111740.91	6470.00	<1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042415.703	2111740.98	6060.00	<1	
6042414.896	2111741.05	6000.00	<1	
6042414.088	2111741.12	6800.00	1	
6042413.281	2111741.18	7140.00	1	
6042412.474	2111741.25	7000.00	1	
6042411.666	2111741.32	5630.00	<1	
6042410.859	2111741.39	5970.00	<1	
6042410.051	2111741.45	7340.00	2	
6042409.244	2111741.52	6260.00	<1	
6042408.437	2111741.59	6750.00	1	
6042407.629	2111741.66	5490.00	<1	
6042406.822	2111741.72	6190.00	<1	
6042406.014	2111741.79	6070.00	<1	
6042405.207	2111741.86	5820.00	<1	
6042404.4	2111741.92	6130.00	<1	
6042403.592	2111741.99	5910.00	<1	
6042402.785	2111742.06	6830.00	1	
6042401.977	2111742.13	6770.00	1	
6042401.17	2111742.19	6500.00	<1	
6042400.363	2111742.26	6160.00	<1	
6042399.555	2111742.33	6400.00	<1	
6042398.748	2111742.40	6400.00	<1	
6042397.94	2111742.46	6180.00	<1	
6042397.133	2111742.53	6930.00	1	
6042396.326	2111742.60	6440.00	<1	
6042395.518	2111742.67	6550.00	<1	
6042394.711	2111742.73	6640.00	<1	
6042393.903	2111742.80	6550.00	<1	
6042393.096	2111742.87	6540.00	<1	
6042392.289	2111742.94	5820.00	<1	
6042391.481	2111743.00	6000.00	<1	
6042390.674	2111743.07	7120.00	1	
6042389.866	2111743.14	6090.00	<1	
6042389.059	2111743.21	7310.00	2	
6042388.252	2111743.27	6940.00	1	
6042387.444	2111743.34	7520.00	2	
6042386.637	2111743.41	6560.00	<1	
6042385.829	2111743.48	6860.00	1	
6042385.022	2111743.54	6140.00	<1	
6042384.215	2111743.61	7130.00	1	
6042383.407	2111743.68	6320.00	<1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042382.6	2111743.75	6130.00	<1	
6042381.792	2111743.81	6060.00	<1	
6042380.985	2111743.88	6900.00	1	
6042380.178	2111743.95	6180.00	<1	
6042379.37	2111744.02	5860.00	<1	
6042378.563	2111744.08	7070.00	1	
6042377.755	2111744.15	6020.00	<1	
6042376.948	2111744.22	5920.00	<1	
6042376.141	2111744.29	6390.00	<1	
6042375.333	2111744.35	6890.00	1	
6042374.526	2111744.42	6480.00	<1	
6042373.718	2111744.49	6580.00	<1	
6042372.911	2111744.56	6300.00	<1	
6042372.104	2111744.62	6360.00	<1	
6042371.296	2111744.69	5300.00	<1	
6042370.489	2111744.76	5900.00	<1	
6042369.681	2111744.83	6830.00	1	
6042368.874	2111744.89	6430.00	<1	
6042368.067	2111744.96	6760.00	1	
6042367.259	2111745.03	7390.00	2	
6042366.452	2111745.10	5970.00	<1	
6042365.644	2111745.16	6800.00	1	
6042364.837	2111745.23	6440.00	<1	
6042364.03	2111745.30	7390.00	2	
6042363.222	2111745.36	6080.00	<1	
6042362.415	2111745.43	6750.00	1	
6042361.607	2111745.50	6500.00	<1	
6042360.8	2111745.57	6710.00	1	
6042359.993	2111745.63	6180.00	<1	
6042359.185	2111745.70	5810.00	<1	
6042358.378	2111745.77	6210.00	<1	
6042357.57	2111745.84	6970.00	1	
6042356.763	2111745.90	6480.00	<1	
6042355.956	2111745.97	7410.00	2	
6042355.148	2111746.04	6720.00	1	
6042354.341	2111746.11	5910.00	<1	
6042353.533	2111746.17	6190.00	<1	
6042352.726	2111746.24	6240.00	<1	
6042351.919	2111746.31	6800.00	1	
6042351.111	2111746.38	6250.00	<1	
6042350.304	2111746.44	6860.00	1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042349.496	2111746.51	6290.00	<1	
6042348.689	2111746.58	5950.00	<1	
6042347.882	2111746.65	6570.00	<1	
6042347.074	2111746.71	5470.00	<1	
6042346.267	2111746.78	6400.00	<1	
6042345.459	2111746.85	6170.00	<1	
6042344.652	2111746.92	5940.00	<1	
6042343.845	2111746.98	5280.00	<1	
6042343.037	2111747.05	5950.00	<1	
6042342.23	2111747.12	5660.00	<1	
6042341.422	2111747.19	5870.00	<1	
6042340.615	2111747.25	5850.00	<1	
6042339.808	2111747.32	6650.00	<1	
6042339	2111747.39	6880.00	1	
6042338.193	2111747.46	5960.00	<1	
6042337.385	2111747.52	5930.00	<1	
6042336.578	2111747.59	5840.00	<1	
6042335.771	2111747.66	5740.00	<1	
6042334.963	2111747.73	6380.00	<1	
6042334.156	2111747.79	5600.00	<1	
6042333.348	2111747.86	5960.00	<1	
6042332.541	2111747.93	6130.00	<1	
6042331.734	2111748.00	5470.00	<1	
6042330.926	2111748.06	6330.00	<1	
6042330.119	2111748.13	6150.00	<1	
6042329.311	2111748.20	5890.00	<1	
6042328.504	2111748.27	5950.00	<1	
6042327.697	2111748.33	5640.00	<1	
6042326.889	2111748.40	5810.00	<1	
6042326.082	2111748.47	5420.00	<1	
6042325.274	2111748.54	5000.00	<1	
6042324.467	2111748.60	5420.00	<1	
6042323.66	2111748.67	5690.00	<1	
6042322.852	2111748.74	6430.00	<1	
6042322.045	2111748.81	6140.00	<1	
6042321.237	2111748.87	6210.00	<1	
6042320.43	2111748.94	5490.00	<1	
6042319.623	2111749.01	5400.00	<1	
6042318.815	2111749.07	5910.00	<1	
6042318.008	2111749.14	5830.00	<1	
6042317.2	2111749.21	6040.00	<1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042316.393	2111749.28	5860.00	<1	
6042315.586	2111749.34	6820.00	1	
6042314.778	2111749.41	6490.00	<1	
6042313.971	2111749.48	5850.00	<1	
6042313.163	2111749.55	5940.00	<1	
6042312.356	2111749.61	6590.00	<1	
6042311.549	2111749.68	6360.00	<1	
6042310.741	2111749.75	5980.00	<1	
6042309.934	2111749.82	5920.00	<1	
6042309.126	2111749.88	5900.00	<1	
6042308.319	2111749.95	5750.00	<1	
6042307.512	2111750.02	5410.00	<1	
6042306.704	2111750.09	5580.00	<1	
6042305.897	2111750.15	6240.00	<1	
6042305.089	2111750.22	6040.00	<1	
6042304.282	2111750.29	6900.00	1	
6042303.475	2111750.36	5290.00	<1	
6042302.667	2111750.42	5770.00	<1	
6042301.86	2111750.49	6600.00	<1	
6042301.052	2111750.56	5490.00	<1	
6042300.245	2111750.63	6090.00	<1	
6042299.438	2111750.69	5470.00	<1	
6042298.63	2111750.76	6230.00	<1	
6042297.823	2111750.83	6670.00	<1	
6042297.015	2111750.90	6860.00	1	
6042296.208	2111750.96	6050.00	<1	
6042295.401	2111751.03	5970.00	<1	
6042294.593	2111751.10	6380.00	<1	
6042293.786	2111751.17	5220.00	<1	
6042292.978	2111751.23	5470.00	<1	
6042292.171	2111751.30	5770.00	<1	
6042291.364	2111751.37	6470.00	<1	
6042290.556	2111751.44	5850.00	<1	
6042289.749	2111751.50	5720.00	<1	
6042288.941	2111751.57	6200.00	<1	
6042288.134	2111751.64	6940.00	1	
6042287.327	2111751.71	7330.00	2	
6042286.519	2111751.77	6830.00	1	
6042285.712	2111751.84	6580.00	<1	
6042284.904	2111751.91	7850.00	3	
6042284.097	2111751.98	6750.00	1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042283.29	2111752.04	6720.00	1	
6042282.482	2111752.11	6520.00	<1	
6042281.675	2111752.18	6690.00	<1	
6042280.867	2111752.25	6310.00	<1	
6042280.06	2111752.31	6500.00	<1	
6042279.253	2111752.38	6240.00	<1	
6042278.445	2111752.45	6220.00	<1	
6042277.638	2111752.52	7120.00	1	
6042276.83	2111752.58	6760.00	1	
6042276.023	2111752.65	7350.00	2	
6042275.216	2111752.72	6760.00	1	
6042274.408	2111752.78	6280.00	<1	
6042273.601	2111752.85	5720.00	<1	
6042272.793	2111752.92	5680.00	<1	
6042271.986	2111752.99	5840.00	<1	
6042271.179	2111753.05	6300.00	<1	
6042270.371	2111753.12	6360.00	<1	
6042269.564	2111753.19	6800.00	1	
6042268.756	2111753.26	6160.00	<1	
6042267.949	2111753.32	5250.00	<1	
6042267.142	2111753.39	5330.00	<1	
6042266.334	2111753.46	6120.00	<1	
6042265.527	2111753.53	6060.00	<1	
6042264.719	2111753.59	7160.00	1	
6042263.912	2111753.66	6780.00	1	
6042263.105	2111753.73	6280.00	<1	
6042262.297	2111753.80	6370.00	<1	
6042261.49	2111753.86	5710.00	<1	
6042260.682	2111753.93	5930.00	<1	
6042259.875	2111754.00	6390.00	<1	
6042259.068	2111754.07	5860.00	<1	
6042258.26	2111754.13	6070.00	<1	
6042257.453	2111754.20	6010.00	<1	
6042256.645	2111754.27	6170.00	<1	
6042255.838	2111754.34	7320.00	2	
6042255.031	2111754.40	7100.00	1	
6042254.223	2111754.47	5680.00	<1	
6042253.416	2111754.54	5980.00	<1	
6042252.608	2111754.61	6790.00	1	
6042251.801	2111754.67	7020.00	1	
6042250.994	2111754.74	6100.00	<1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042250.186	2111754.81	6080.00	<1	
6042249.379	2111754.88	5870.00	<1	
6042248.571	2111754.94	6900.00	1	
6042247.764	2111755.01	5970.00	<1	
6042246.957	2111755.08	5920.00	<1	
6042246.149	2111755.15	6600.00	<1	
6042245.342	2111755.21	5960.00	<1	
6042244.534	2111755.28	6100.00	<1	
6042243.727	2111755.35	5890.00	<1	
6042242.92	2111755.42	5900.00	<1	
6042242.112	2111755.48	5720.00	<1	
6042241.305	2111755.55	5130.00	<1	
6042240.497	2111755.62	6620.00	<1	
6042239.69	2111755.69	5580.00	<1	
6042238.883	2111755.75	6160.00	<1	
6042238.075	2111755.82	6750.00	1	
6042237.268	2111755.89	6070.00	<1	
6042236.46	2111755.96	6990.00	1	
6042235.653	2111756.02	6610.00	<1	
6042234.846	2111756.09	6780.00	1	
6042234.038	2111756.16	6250.00	<1	
6042233.231	2111756.23	6380.00	<1	
6042232.423	2111756.29	6690.00	<1	
6042231.616	2111756.36	6900.00	1	
6042230.809	2111756.43	6870.00	1	
6042230.001	2111756.49	6580.00	<1	
6042229.194	2111756.56	6050.00	<1	
6042228.386	2111756.63	6520.00	<1	
6042227.579	2111756.70	6090.00	<1	
6042226.772	2111756.76	5830.00	<1	
6042225.964	2111756.83	5710.00	<1	
6042225.157	2111756.90	6100.00	<1	
6042224.349	2111756.97	5900.00	<1	
6042223.542	2111757.03	6520.00	<1	
6042222.735	2111757.10	6140.00	<1	
6042221.927	2111757.17	5320.00	<1	
6042221.12	2111757.24	6240.00	<1	
6042220.312	2111757.30	5430.00	<1	
6042219.505	2111757.37	6210.00	<1	
6042218.698	2111757.44	6370.00	<1	
6042217.89	2111757.51	6120.00	<1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042217.083	2111757.57	7140.00	1	
6042216.275	2111757.64	6690.00	<1	
6042215.468	2111757.71	6220.00	<1	
6042214.661	2111757.78	6610.00	<1	
6042213.853	2111757.84	6860.00	1	
6042213.046	2111757.91	7010.00	1	
6042212.238	2111757.98	6810.00	1	
6042211.431	2111758.05	7100.00	1	
6042210.624	2111758.11	6620.00	<1	
6042209.816	2111758.18	6980.00	1	
6042209.009	2111758.25	6810.00	1	
6042208.201	2111758.32	6190.00	<1	
6042207.394	2111758.38	7170.00	1	
6042206.587	2111758.45	6470.00	<1	
6042205.779	2111758.52	6820.00	1	
6042204.972	2111758.59	6700.00	<1	
6042204.164	2111758.65	6270.00	<1	
6042203.357	2111758.72	7060.00	1	
6042202.55	2111758.79	7810.00	3	
6042201.742	2111758.86	6770.00	1	
6042200.935	2111758.92	6090.00	<1	
6042200.127	2111758.99	5920.00	<1	
6042199.32	2111759.06	5870.00	<1	
6042198.513	2111759.13	6280.00	<1	
6042197.705	2111759.19	6560.00	<1	
6042196.898	2111759.26	5900.00	<1	
6042196.09	2111759.33	6480.00	<1	
6042195.283	2111759.40	6940.00	1	
6042194.476	2111759.46	7000.00	1	
6042193.668	2111759.53	6610.00	<1	
6042192.861	2111759.60	7280.00	2	
6042192.053	2111759.67	6360.00	<1	
6042191.246	2111759.73	5160.00	<1	
6042190.439	2111759.80	6620.00	<1	
6042189.631	2111759.87	5870.00	<1	
6042188.824	2111759.94	5920.00	<1	
6042188.016	2111760.00	5610.00	<1	
6042187.209	2111760.07	5730.00	<1	
6042186.402	2111760.14	5360.00	<1	
6042185.594	2111760.20	5800.00	<1	
6042184.787	2111760.27	6870.00	1	

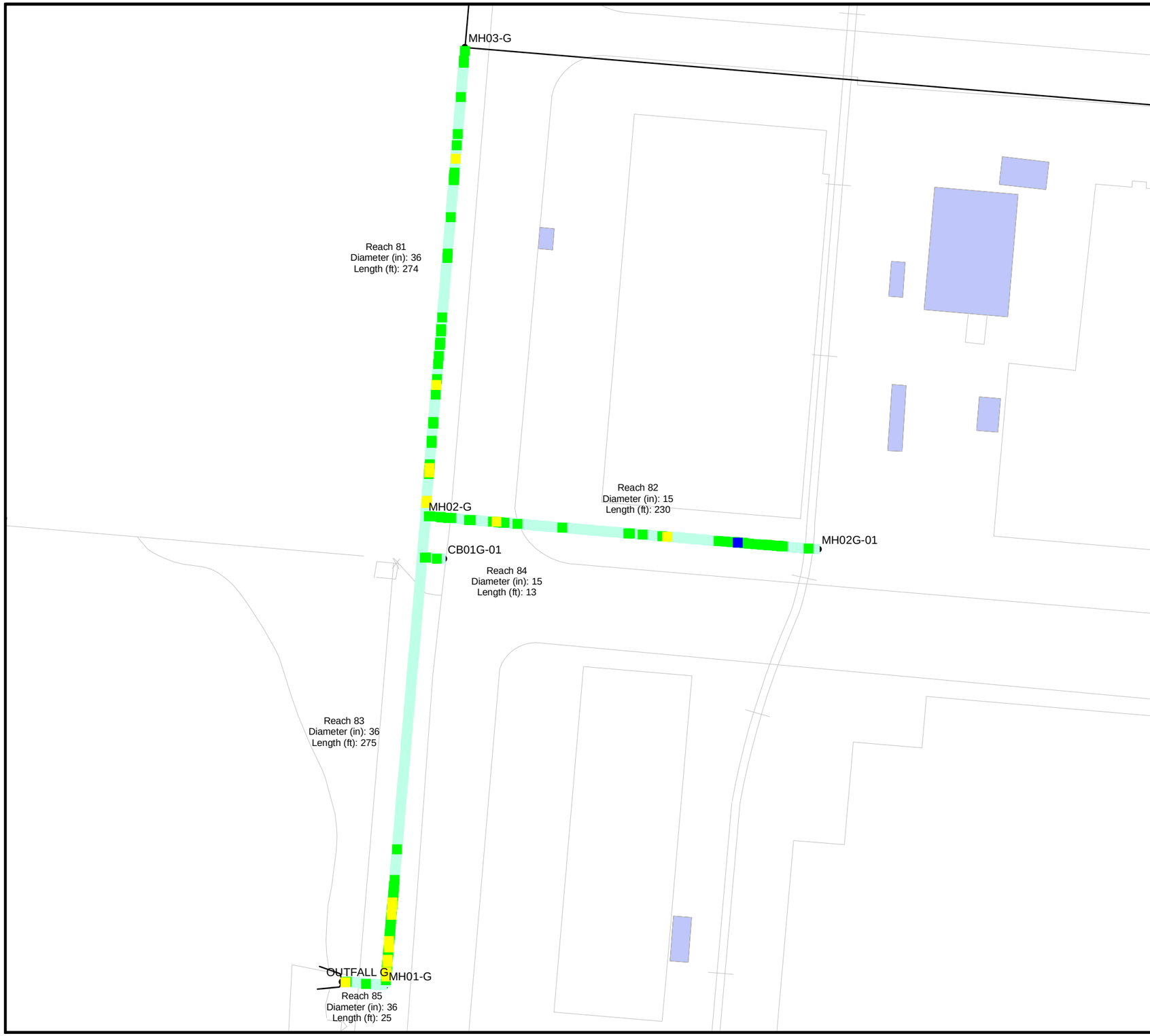
Easting	Northing	Reading	Reach 80 Data Set	Comments
6042183.979	2111760.34	6870.00	1	
6042183.172	2111760.41	5600.00	<1	
6042182.365	2111760.47	6520.00	<1	
6042181.557	2111760.54	6520.00	<1	
6042180.75	2111760.61	6430.00	<1	
6042179.942	2111760.68	6130.00	<1	
6042179.135	2111760.74	6280.00	<1	
6042178.328	2111760.81	6130.00	<1	
6042177.52	2111760.88	5960.00	<1	
6042176.713	2111760.95	5850.00	<1	
6042175.905	2111761.01	6370.00	<1	
6042175.098	2111761.08	6040.00	<1	
6042174.291	2111761.15	5710.00	<1	
6042173.483	2111761.22	5860.00	<1	
6042172.676	2111761.28	6020.00	<1	
6042171.868	2111761.35	6180.00	<1	
6042171.061	2111761.42	6730.00	1	
6042170.254	2111761.49	5650.00	<1	
6042169.446	2111761.55	5590.00	<1	
6042168.639	2111761.62	5610.00	<1	
6042167.831	2111761.69	6830.00	1	
6042167.024	2111761.76	6480.00	<1	
6042166.217	2111761.82	5960.00	<1	
6042165.409	2111761.89	5380.00	<1	
6042164.602	2111761.96	5730.00	<1	
6042163.794	2111762.03	6390.00	<1	
6042162.987	2111762.09	7190.00	1	
6042162.18	2111762.16	6400.00	<1	
6042161.372	2111762.23	5700.00	<1	
6042160.565	2111762.30	6300.00	<1	
6042159.757	2111762.36	5360.00	<1	
6042158.95	2111762.43	5860.00	<1	
6042158.143	2111762.50	5750.00	<1	
6042157.335	2111762.57	5260.00	<1	
6042156.528	2111762.63	5680.00	<1	
6042155.72	2111762.70	6550.00	<1	
6042154.913	2111762.77	5780.00	<1	
6042154.106	2111762.84	5990.00	<1	
6042153.298	2111762.90	6540.00	<1	
6042152.491	2111762.97	5420.00	<1	
6042151.683	2111763.04	5790.00	<1	

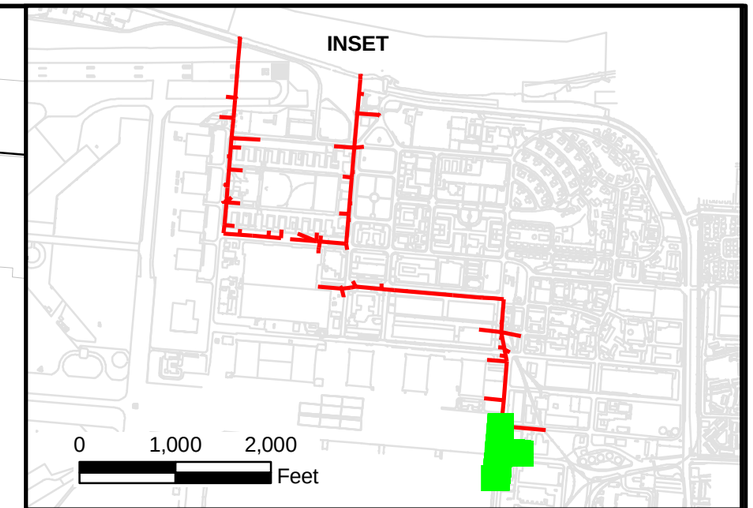
Easting	Northing	Reading	Reach 80 Data Set	Comments
6042150.876	2111763.11	5960.00	<1	
6042150.069	2111763.17	5930.00	<1	
6042149.261	2111763.24	6070.00	<1	
6042148.454	2111763.31	5950.00	<1	
6042147.646	2111763.38	5600.00	<1	
6042146.839	2111763.44	6020.00	<1	
6042146.032	2111763.51	5620.00	<1	
6042145.224	2111763.58	5460.00	<1	
6042144.417	2111763.64	5660.00	<1	
6042143.609	2111763.71	5600.00	<1	
6042142.802	2111763.78	6300.00	<1	
6042141.995	2111763.85	5390.00	<1	
6042141.187	2111763.91	5400.00	<1	
6042140.38	2111763.98	5200.00	<1	
6042139.572	2111764.05	5650.00	<1	
6042138.765	2111764.12	6190.00	<1	
6042137.958	2111764.18	5580.00	<1	
6042137.15	2111764.25	5720.00	<1	
6042136.343	2111764.32	5800.00	<1	
6042135.535	2111764.39	5790.00	<1	
6042134.728	2111764.45	5820.00	<1	
6042133.921	2111764.52	5550.00	<1	
6042133.113	2111764.59	6400.00	<1	
6042132.306	2111764.66	5580.00	<1	
6042131.498	2111764.72	5700.00	<1	
6042130.691	2111764.79	6670.00	<1	
6042129.884	2111764.86	5890.00	<1	
6042129.076	2111764.93	5790.00	<1	
6042128.269	2111764.99	5810.00	<1	
6042127.461	2111765.06	6350.00	<1	
6042126.654	2111765.13	6200.00	<1	
6042125.847	2111765.20	6650.00	<1	
6042125.039	2111765.26	5220.00	<1	
6042124.232	2111765.33	5910.00	<1	
6042123.424	2111765.40	5440.00	<1	
6042122.617	2111765.47	5710.00	<1	
6042121.81	2111765.53	5480.00	<1	
6042121.002	2111765.60	6500.00	<1	
6042120.195	2111765.67	5570.00	<1	
6042119.387	2111765.74	5850.00	<1	
6042118.58	2111765.80	6040.00	<1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042117.773	2111765.87	6110.00	<1	
6042116.965	2111765.94	5960.00	<1	
6042116.158	2111766.01	6300.00	<1	
6042115.35	2111766.07	6330.00	<1	
6042114.543	2111766.14	5610.00	<1	
6042113.736	2111766.21	5720.00	<1	
6042112.928	2111766.28	6110.00	<1	
6042112.121	2111766.34	6250.00	<1	
6042111.313	2111766.41	5630.00	<1	
6042110.506	2111766.48	6300.00	<1	
6042109.699	2111766.55	6200.00	<1	
6042108.891	2111766.61	5350.00	<1	
6042108.084	2111766.68	5140.00	<1	
6042107.276	2111766.75	5460.00	<1	
6042106.469	2111766.82	6210.00	<1	
6042105.662	2111766.88	5360.00	<1	
6042104.854	2111766.95	5670.00	<1	
6042104.047	2111767.02	5790.00	<1	
6042103.239	2111767.09	5800.00	<1	
6042102.432	2111767.15	6150.00	<1	
6042101.625	2111767.22	5140.00	<1	
6042100.817	2111767.29	5260.00	<1	
6042100.01	2111767.35	5410.00	<1	
6042099.202	2111767.42	5030.00	<1	
6042098.395	2111767.49	4960.00	<1	
6042097.588	2111767.56	4840.00	<1	
6042096.78	2111767.62	5240.00	<1	
6042095.973	2111767.69	5600.00	<1	
6042095.165	2111767.76	5190.00	<1	
6042094.358	2111767.83	5040.00	<1	
6042093.551	2111767.89	5770.00	<1	
6042092.743	2111767.96	4920.00	<1	
6042091.936	2111768.03	4880.00	<1	
6042091.128	2111768.10	4780.00	<1	
6042090.321	2111768.16	5410.00	<1	
6042089.514	2111768.23	5700.00	<1	
6042088.706	2111768.30	5400.00	<1	
6042087.899	2111768.37	5470.00	<1	
6042087.091	2111768.43	5620.00	<1	
6042086.284	2111768.50	5620.00	<1	
6042085.477	2111768.57	5860.00	<1	

Easting	Northing	Reading	Reach 80 Data Set	Comments
6042084.669	2111768.64	5470.00	<1	
6042083.862	2111768.70	5690.00	<1	
6042083.054	2111768.77	4760.00	<1	
6042082.247	2111768.84	5390.00	<1	
6042081.44	2111768.91	5050.00	<1	
6042080.632	2111768.97	4990.00	<1	
6042079.825	2111769.04	5250.00	<1	
6042079.017	2111769.11	5300.00	<1	
6042078.21	2111769.18	5280.00	<1	
6042077.403	2111769.24	5640.00	<1	
6042076.595	2111769.31	5410.00	<1	
6042075.788	2111769.38	5760.00	<1	
6042074.98	2111769.45	5540.00	<1	
6042074.173	2111769.51	5600.00	<1	
6042073.366	2111769.58	5690.00	<1	
6042072.558	2111769.65	5870.00	<1	
6042071.751	2111769.72	6060.00	<1	
6042070.943	2111769.78	5620.00	<1	
6042070.136	2111769.85	6460.00	<1	

6147.81	Average
553.64	Std Dev
7808.74	3 Sigma
8020.00	Max





Legend

- >6 sigma
- 5-6 sigma
- 4-5 sigma
- 3-4 sigma
- 2-3 sigma
- 1-2 sigma
- <1 sigma

Reach	3 Sigma (cpm)
81	5260
82	5954
83	6472
84	6252
85	5545

Meter Type: 2350-1
Meter Serial Number: 228691
Probe Type: 44-10-5
Probe Serial Number: PR319115

0 10 20 40 60 80
Feet

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

Reaches 81 thru 85

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Hydrojetting_Reaches_81-85_130128.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 81
Line: G

Main/Lateral: Main
Length (ft): 274
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 81 Data Set

Gamma Total CPS	
4455.04	Average
268.41	Std Dev
5260.26	3 Sigma
5090.00	Max

Sigma	Total Points
<1	203
1	31
2	6
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 81 Data Set	Comments
6042067.974	2111768.02	4840.00	1	
6042067.879	2111766.90	4510.00	<1	
6042067.784	2111765.77	4510.00	<1	
6042067.688	2111764.64	4490.00	<1	
6042067.593	2111763.52	4420.00	<1	
6042067.497	2111762.39	4970.00	1	
6042067.402	2111761.26	4770.00	1	
6042067.307	2111760.14	4500.00	<1	
6042067.211	2111759.01	4360.00	<1	
6042067.116	2111757.88	4480.00	<1	
6042067.021	2111756.76	4010.00	<1	
6042066.925	2111755.63	4170.00	<1	
6042066.83	2111754.50	4520.00	<1	
6042066.734	2111753.38	4380.00	<1	
6042066.639	2111752.25	4380.00	<1	
6042066.544	2111751.12	4460.00	<1	
6042066.448	2111750.00	4230.00	<1	
6042066.353	2111748.87	4470.00	<1	
6042066.258	2111747.74	4540.00	<1	
6042066.162	2111746.62	4310.00	<1	

Easting	Northing	Reading	Reach 81 Data Set	Comments
6042066.067	2111745.49	4550.00	<1	
6042065.972	2111744.36	4410.00	<1	
6042065.876	2111743.24	4250.00	<1	
6042065.781	2111742.11	4540.00	<1	
6042065.685	2111740.98	4760.00	1	
6042065.59	2111739.86	4660.00	<1	
6042065.495	2111738.73	4360.00	<1	
6042065.399	2111737.60	4170.00	<1	
6042065.304	2111736.48	4140.00	<1	
6042065.209	2111735.35	4140.00	<1	
6042065.113	2111734.22	4020.00	<1	
6042065.018	2111733.10	3870.00	<1	
6042064.922	2111731.97	4540.00	<1	
6042064.827	2111730.84	4510.00	<1	
6042064.732	2111729.72	4440.00	<1	
6042064.636	2111728.59	4300.00	<1	
6042064.541	2111727.46	4600.00	<1	
6042064.446	2111726.34	4550.00	<1	
6042064.35	2111725.21	4630.00	<1	
6042064.255	2111724.08	4340.00	<1	
6042064.16	2111722.96	3850.00	<1	
6042064.064	2111721.83	4470.00	<1	
6042063.969	2111720.70	4350.00	<1	
6042063.873	2111719.58	4760.00	1	
6042063.778	2111718.45	4220.00	<1	
6042063.683	2111717.32	4700.00	<1	
6042063.587	2111716.20	4700.00	<1	
6042063.492	2111715.07	4440.00	<1	
6042063.397	2111713.94	4610.00	<1	
6042063.301	2111712.82	4830.00	1	
6042063.206	2111711.69	4690.00	<1	
6042063.11	2111710.56	4460.00	<1	
6042063.015	2111709.44	4670.00	<1	
6042062.92	2111708.31	4380.00	<1	
6042062.824	2111707.18	4370.00	<1	
6042062.729	2111706.06	4280.00	<1	
6042062.634	2111704.93	5030.00	2	
6042062.538	2111703.80	4600.00	<1	
6042062.443	2111702.68	4420.00	<1	
6042062.348	2111701.55	4630.00	<1	
6042062.252	2111700.42	4500.00	<1	

Easting	Northing	Reading	Reach 81 Data Set	Comments
6042062.157	2111699.30	4030.00	<1	
6042062.061	2111698.17	4710.00	<1	
6042061.966	2111697.04	4820.00	1	
6042061.871	2111695.92	4820.00	1	
6042061.775	2111694.79	4880.00	1	
6042061.68	2111693.66	4970.00	1	
6042061.585	2111692.54	4790.00	1	
6042061.489	2111691.41	4680.00	<1	
6042061.394	2111690.28	4290.00	<1	
6042061.298	2111689.16	4320.00	<1	
6042061.203	2111688.03	4570.00	<1	
6042061.108	2111686.90	4000.00	<1	
6042061.012	2111685.77	4120.00	<1	
6042060.917	2111684.65	4140.00	<1	
6042060.822	2111683.52	3990.00	<1	
6042060.726	2111682.39	4700.00	<1	
6042060.631	2111681.27	4680.00	<1	
6042060.536	2111680.14	4490.00	<1	
6042060.44	2111679.01	4490.00	<1	
6042060.345	2111677.89	4210.00	<1	
6042060.249	2111676.76	4160.00	<1	
6042060.154	2111675.63	4430.00	<1	
6042060.059	2111674.51	4270.00	<1	
6042059.963	2111673.38	4550.00	<1	
6042059.868	2111672.25	4480.00	<1	
6042059.773	2111671.13	4780.00	1	
6042059.677	2111670.00	4260.00	<1	
6042059.582	2111668.87	4270.00	<1	
6042059.486	2111667.75	4140.00	<1	
6042059.391	2111666.62	4490.00	<1	
6042059.296	2111665.49	4160.00	<1	
6042059.2	2111664.37	4560.00	<1	
6042059.105	2111663.24	4450.00	<1	
6042059.01	2111662.11	4260.00	<1	
6042058.914	2111660.99	4260.00	<1	
6042058.819	2111659.86	4500.00	<1	
6042058.724	2111658.73	4520.00	<1	
6042058.628	2111657.61	4480.00	<1	
6042058.533	2111656.48	4320.00	<1	
6042058.437	2111655.35	4520.00	<1	
6042058.342	2111654.23	4130.00	<1	

Easting	Northing	Reading	Reach 81 Data Set	Comments
6042058.247	2111653.10	4420.00	<1	
6042058.151	2111651.97	4450.00	<1	
6042058.056	2111650.85	4700.00	<1	
6042057.961	2111649.72	4900.00	1	
6042057.865	2111648.59	4460.00	<1	
6042057.77	2111647.47	4910.00	1	
6042057.675	2111646.34	4250.00	<1	
6042057.579	2111645.21	4550.00	<1	
6042057.484	2111644.09	4450.00	<1	
6042057.388	2111642.96	4160.00	<1	
6042057.293	2111641.83	4420.00	<1	
6042057.198	2111640.71	4420.00	<1	
6042057.102	2111639.58	4180.00	<1	
6042057.007	2111638.45	3950.00	<1	
6042056.912	2111637.33	4560.00	<1	
6042056.816	2111636.20	4610.00	<1	
6042056.721	2111635.07	4430.00	<1	
6042056.625	2111633.95	4630.00	<1	
6042056.53	2111632.82	4370.00	<1	
6042056.435	2111631.69	4370.00	<1	
6042056.339	2111630.57	4350.00	<1	
6042056.244	2111629.44	4020.00	<1	
6042056.149	2111628.31	4390.00	<1	
6042056.053	2111627.19	3930.00	<1	
6042055.958	2111626.06	3970.00	<1	
6042055.863	2111624.93	4330.00	<1	
6042055.767	2111623.81	4400.00	<1	
6042055.672	2111622.68	4400.00	<1	
6042055.576	2111621.55	4430.00	<1	
6042055.481	2111620.43	4350.00	<1	
6042055.386	2111619.30	4370.00	<1	
6042055.29	2111618.17	4140.00	<1	
6042055.195	2111617.05	3750.00	<1	
6042055.1	2111615.92	3850.00	<1	
6042055.004	2111614.79	4500.00	<1	
6042054.909	2111613.67	4410.00	<1	
6042054.813	2111612.54	4730.00	1	
6042054.718	2111611.41	4160.00	<1	
6042054.623	2111610.29	4320.00	<1	
6042054.527	2111609.16	4360.00	<1	
6042054.432	2111608.03	4250.00	<1	

Easting	Northing	Reading	Reach 81 Data Set	Comments
6042054.337	2111606.91	4280.00	<1	
6042054.241	2111605.78	4930.00	1	
6042054.146	2111604.65	4960.00	1	
6042054.051	2111603.53	4100.00	<1	
6042053.955	2111602.40	4500.00	<1	
6042053.86	2111601.27	4690.00	<1	
6042053.764	2111600.15	4690.00	<1	
6042053.669	2111599.02	4430.00	<1	
6042053.574	2111597.89	4800.00	1	
6042053.478	2111596.77	4910.00	1	
6042053.383	2111595.64	4590.00	<1	
6042053.288	2111594.51	4590.00	<1	
6042053.192	2111593.39	4580.00	<1	
6042053.097	2111592.26	4660.00	<1	
6042053.001	2111591.13	4280.00	<1	
6042052.906	2111590.01	4870.00	1	
6042052.811	2111588.88	4660.00	<1	
6042052.715	2111587.75	4710.00	<1	
6042052.62	2111586.62	4510.00	<1	
6042052.525	2111585.50	4850.00	1	
6042052.429	2111584.37	4040.00	<1	
6042052.334	2111583.24	4100.00	<1	
6042052.239	2111582.12	4310.00	<1	
6042052.143	2111580.99	4010.00	<1	
6042052.048	2111579.86	4160.00	<1	
6042051.952	2111578.74	4420.00	<1	
6042051.857	2111577.61	4420.00	<1	
6042051.762	2111576.48	4750.00	1	
6042051.666	2111575.36	4420.00	<1	
6042051.571	2111574.23	4570.00	<1	
6042051.476	2111573.10	5090.00	2	
6042051.38	2111571.98	4570.00	<1	
6042051.285	2111570.85	4330.00	<1	
6042051.189	2111569.72	4200.00	<1	
6042051.094	2111568.60	4580.00	<1	
6042050.999	2111567.47	4730.00	1	
6042050.903	2111566.34	4320.00	<1	
6042050.808	2111565.22	4250.00	<1	
6042050.713	2111564.09	4370.00	<1	
6042050.617	2111562.96	4390.00	<1	
6042050.522	2111561.84	3830.00	<1	

Easting	Northing	Reading	Reach 81 Data Set	Comments
6042050.427	2111560.71	3670.00	<1	
6042050.331	2111559.58	4100.00	<1	
6042050.236	2111558.46	4320.00	<1	
6042050.14	2111557.33	4320.00	<1	
6042050.045	2111556.20	4590.00	<1	
6042049.95	2111555.08	4560.00	<1	
6042049.854	2111553.95	4120.00	<1	
6042049.759	2111552.82	4250.00	<1	
6042049.664	2111551.70	4750.00	1	
6042049.568	2111550.57	4770.00	1	
6042049.473	2111549.44	4310.00	<1	
6042049.377	2111548.32	3940.00	<1	
6042049.282	2111547.19	4020.00	<1	
6042049.187	2111546.06	4640.00	<1	
6042049.091	2111544.94	4610.00	<1	
6042048.996	2111543.81	4640.00	<1	
6042048.901	2111542.68	4050.00	<1	
6042048.805	2111541.56	4360.00	<1	
6042048.71	2111540.43	4850.00	1	
6042048.615	2111539.30	4850.00	1	
6042048.519	2111538.18	4530.00	<1	
6042048.424	2111537.05	4520.00	<1	
6042048.328	2111535.92	4520.00	<1	
6042048.233	2111534.80	4490.00	<1	
6042048.138	2111533.67	4560.00	<1	
6042048.042	2111532.54	4180.00	<1	
6042047.947	2111531.42	4360.00	<1	
6042047.852	2111530.29	4440.00	<1	
6042047.756	2111529.16	4560.00	<1	
6042047.661	2111528.04	4610.00	<1	
6042047.566	2111526.91	4770.00	1	
6042047.47	2111525.78	4770.00	1	
6042047.375	2111524.66	5030.00	2	
6042047.279	2111523.53	4880.00	1	
6042047.184	2111522.40	5070.00	2	
6042047.089	2111521.28	4780.00	1	
6042046.993	2111520.15	4380.00	<1	
6042046.898	2111519.02	4550.00	<1	
6042046.803	2111517.90	4400.00	<1	
6042046.707	2111516.77	4420.00	<1	
6042046.612	2111515.64	4420.00	<1	

Easting	Northing	Reading	Reach 81 Data Set	Comments
6042046.516	2111514.52	4550.00	<1	
6042046.421	2111513.39	3810.00	<1	
6042046.326	2111512.26	4450.00	<1	
6042046.23	2111511.14	4480.00	<1	
6042046.135	2111510.01	4610.00	<1	
6042046.04	2111508.88	4490.00	<1	
6042045.944	2111507.76	4550.00	<1	
6042045.849	2111506.63	4500.00	<1	
6042045.754	2111505.50	5010.00	2	
6042045.658	2111504.38	5000.00	2	
6042045.563	2111503.25	4720.00	<1	
6042045.467	2111502.12	4470.00	<1	
6042045.372	2111501.00	4620.00	<1	
6042045.277	2111499.87	4640.00	<1	
6042045.181	2111498.74	4550.00	<1	
		4455.04	Average	
		268.41	Std Dev	
		5260.26	3 Sigma	
		5090.00	Max	

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 82
Line: G

Main/Lateral: Lateral
Length (ft): 230
Pipe Diameter (in): 15

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 82 Data Set

Gamma Total CPS	
4934.36	Average
339.76	Std Dev
5953.64	3 Sigma
6010.00	Max

Sigma	Total Points
<1	200
1	38
2	2
3	1
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 82 Data Set	Comments
6042272.214	2111477.43	4830.00	<1	
6042271.276	2111477.51	4830.00	<1	
6042270.337	2111477.59	4560.00	<1	
6042269.399	2111477.67	5000.00	<1	
6042268.46	2111477.75	5350.00	1	
6042267.522	2111477.83	5020.00	<1	
6042266.584	2111477.91	4840.00	<1	
6042265.645	2111477.99	5190.00	<1	
6042264.707	2111478.07	4980.00	<1	
6042263.769	2111478.15	4700.00	<1	
6042262.83	2111478.23	4410.00	<1	
6042261.892	2111478.31	4740.00	<1	
6042260.954	2111478.39	4850.00	<1	
6042260.015	2111478.47	4960.00	<1	
6042259.077	2111478.55	4590.00	<1	
6042258.138	2111478.63	4590.00	<1	
6042257.2	2111478.71	4750.00	<1	
6042256.262	2111478.79	4600.00	<1	
6042255.323	2111478.87	4940.00	<1	
6042254.385	2111478.94	5230.00	<1	

Easting	Northing	Reading	Reach 82 Data Set	Comments
6042253.447	2111479.02	5580.00	1	
6042252.508	2111479.10	5590.00	1	
6042251.57	2111479.18	5510.00	1	
6042250.631	2111479.26	5530.00	1	
6042249.693	2111479.34	5480.00	1	
6042248.755	2111479.42	4650.00	<1	
6042247.816	2111479.50	4580.00	<1	
6042246.878	2111479.58	4820.00	<1	
6042245.94	2111479.66	5360.00	1	
6042245.001	2111479.74	5310.00	1	
6042244.063	2111479.82	5340.00	1	
6042243.125	2111479.90	5110.00	<1	
6042242.186	2111479.98	5450.00	1	
6042241.248	2111480.06	5450.00	1	
6042240.309	2111480.14	4860.00	<1	
6042239.371	2111480.22	4920.00	<1	
6042238.433	2111480.30	4580.00	<1	
6042237.494	2111480.38	5580.00	1	
6042236.556	2111480.46	4950.00	<1	
6042235.618	2111480.54	4690.00	<1	
6042234.679	2111480.62	4970.00	<1	
6042233.741	2111480.70	5520.00	1	
6042232.802	2111480.78	4800.00	<1	
6042231.864	2111480.86	4870.00	<1	
6042230.926	2111480.94	5360.00	1	
6042229.987	2111481.02	5340.00	1	
6042229.049	2111481.10	5180.00	<1	
6042228.111	2111481.18	5220.00	<1	
6042227.172	2111481.26	6010.00	3	
6042226.234	2111481.34	5260.00	<1	
6042225.296	2111481.42	5320.00	1	
6042224.357	2111481.50	5270.00	<1	
6042223.419	2111481.58	5490.00	1	
6042222.48	2111481.66	4790.00	<1	
6042221.542	2111481.74	4790.00	<1	
6042220.604	2111481.82	5200.00	<1	
6042219.665	2111481.90	5410.00	1	
6042218.727	2111481.98	4910.00	<1	
6042217.789	2111482.06	4780.00	<1	
6042216.85	2111482.14	4910.00	<1	
6042215.912	2111482.22	5410.00	1	

Easting	Northing	Reading	Reach 82 Data Set	Comments
6042214.973	2111482.30	4820.00	<1	
6042214.035	2111482.38	4560.00	<1	
6042213.097	2111482.46	5080.00	<1	
6042212.158	2111482.54	4760.00	<1	
6042211.22	2111482.62	5160.00	<1	
6042210.282	2111482.70	4860.00	<1	
6042209.343	2111482.78	4950.00	<1	
6042208.405	2111482.85	4750.00	<1	
6042207.466	2111482.93	4820.00	<1	
6042206.528	2111483.01	4230.00	<1	
6042205.59	2111483.09	4600.00	<1	
6042204.651	2111483.17	4730.00	<1	
6042203.713	2111483.25	5190.00	<1	
6042202.775	2111483.33	5190.00	<1	
6042201.836	2111483.41	4840.00	<1	
6042200.898	2111483.49	4840.00	<1	
6042199.96	2111483.57	4620.00	<1	
6042199.021	2111483.65	4790.00	<1	
6042198.083	2111483.73	5260.00	<1	
6042197.144	2111483.81	4650.00	<1	
6042196.206	2111483.89	5030.00	<1	
6042195.268	2111483.97	4810.00	<1	
6042194.329	2111484.05	4750.00	<1	
6042193.391	2111484.13	5090.00	<1	
6042192.453	2111484.21	4960.00	<1	
6042191.514	2111484.29	4590.00	<1	
6042190.576	2111484.37	5120.00	<1	
6042189.637	2111484.45	5120.00	<1	
6042188.699	2111484.53	4850.00	<1	
6042187.761	2111484.61	5270.00	<1	
6042186.822	2111484.69	5200.00	<1	
6042185.884	2111484.77	5730.00	2	
6042184.946	2111484.85	4930.00	<1	
6042184.007	2111484.93	5200.00	<1	
6042183.069	2111485.01	5490.00	1	
6042182.131	2111485.09	5010.00	<1	
6042181.192	2111485.17	4460.00	<1	
6042180.254	2111485.25	4890.00	<1	
6042179.315	2111485.33	4790.00	<1	
6042178.377	2111485.41	5120.00	<1	
6042177.439	2111485.49	4690.00	<1	

Easting	Northing	Reading	Reach 82 Data Set	Comments
6042176.5	2111485.57	4910.00	<1	
6042175.562	2111485.65	4660.00	<1	
6042174.624	2111485.73	4660.00	<1	
6042173.685	2111485.81	4400.00	<1	
6042172.747	2111485.89	4860.00	<1	
6042171.808	2111485.97	5450.00	1	
6042170.87	2111486.05	4830.00	<1	
6042169.932	2111486.13	4750.00	<1	
6042168.993	2111486.21	4710.00	<1	
6042168.055	2111486.29	5160.00	<1	
6042167.117	2111486.37	4690.00	<1	
6042166.178	2111486.45	4390.00	<1	
6042165.24	2111486.53	4660.00	<1	
6042164.302	2111486.61	5370.00	1	
6042163.363	2111486.68	5300.00	1	
6042162.425	2111486.76	4400.00	<1	
6042161.486	2111486.84	4590.00	<1	
6042160.548	2111486.92	4900.00	<1	
6042159.61	2111487.00	4270.00	<1	
6042158.671	2111487.08	4560.00	<1	
6042157.733	2111487.16	4650.00	<1	
6042156.795	2111487.24	4490.00	<1	
6042155.856	2111487.32	4660.00	<1	
6042154.918	2111487.40	4760.00	<1	
6042153.979	2111487.48	4460.00	<1	
6042153.041	2111487.56	4460.00	<1	
6042152.103	2111487.64	4170.00	<1	
6042151.164	2111487.72	4690.00	<1	
6042150.226	2111487.80	4820.00	<1	
6042149.288	2111487.88	5040.00	<1	
6042148.349	2111487.96	4950.00	<1	
6042147.411	2111488.04	4830.00	<1	
6042146.473	2111488.12	4630.00	<1	
6042145.534	2111488.20	4560.00	<1	
6042144.596	2111488.28	4620.00	<1	
6042143.657	2111488.36	4460.00	<1	
6042142.719	2111488.44	4800.00	<1	
6042141.781	2111488.52	4790.00	<1	
6042140.842	2111488.60	4490.00	<1	
6042139.904	2111488.68	5000.00	<1	
6042138.966	2111488.76	4950.00	<1	

Easting	Northing	Reading	Reach 82 Data Set	Comments
6042138.027	2111488.84	4610.00	<1	
6042137.089	2111488.92	4880.00	<1	
6042136.15	2111489.00	4890.00	<1	
6042135.212	2111489.08	4350.00	<1	
6042134.274	2111489.16	4770.00	<1	
6042133.335	2111489.24	5070.00	<1	
6042132.397	2111489.32	5070.00	<1	
6042131.459	2111489.40	4740.00	<1	
6042130.52	2111489.48	4720.00	<1	
6042129.582	2111489.56	4900.00	<1	
6042128.644	2111489.64	4390.00	<1	
6042127.705	2111489.72	4750.00	<1	
6042126.767	2111489.80	5070.00	<1	
6042125.828	2111489.88	4690.00	<1	
6042124.89	2111489.96	5330.00	1	
6042123.952	2111490.04	5200.00	<1	
6042123.013	2111490.12	5030.00	<1	
6042122.075	2111490.20	4880.00	<1	
6042121.137	2111490.28	5180.00	<1	
6042120.198	2111490.36	4720.00	<1	
6042119.26	2111490.44	4890.00	<1	
6042118.321	2111490.52	4700.00	<1	
6042117.383	2111490.59	5120.00	<1	
6042116.445	2111490.67	4680.00	<1	
6042115.506	2111490.75	4680.00	<1	
6042114.568	2111490.83	4420.00	<1	
6042113.63	2111490.91	4420.00	<1	
6042112.691	2111490.99	4280.00	<1	
6042111.753	2111491.07	4310.00	<1	
6042110.815	2111491.15	4630.00	<1	
6042109.876	2111491.23	4320.00	<1	
6042108.938	2111491.31	4830.00	<1	
6042107.999	2111491.39	4760.00	<1	
6042107.061	2111491.47	5100.00	<1	
6042106.123	2111491.55	4750.00	<1	
6042105.184	2111491.63	4500.00	<1	
6042104.246	2111491.71	4820.00	<1	
6042103.308	2111491.79	5190.00	<1	
6042102.369	2111491.87	5030.00	<1	
6042101.431	2111491.95	4400.00	<1	
6042100.492	2111492.03	4940.00	<1	

Easting	Northing	Reading	Reach 82 Data Set	Comments
6042099.554	2111492.11	4700.00	<1	
6042098.616	2111492.19	5340.00	1	
6042097.677	2111492.27	5180.00	<1	
6042096.739	2111492.35	5180.00	<1	
6042095.801	2111492.43	5050.00	<1	
6042094.862	2111492.51	5080.00	<1	
6042093.924	2111492.59	4800.00	<1	
6042092.986	2111492.67	4480.00	<1	
6042092.047	2111492.75	4630.00	<1	
6042091.109	2111492.83	5370.00	1	
6042090.17	2111492.91	5360.00	1	
6042089.232	2111492.99	5210.00	<1	
6042088.294	2111493.07	5490.00	1	
6042087.355	2111493.15	5550.00	1	
6042086.417	2111493.23	5730.00	2	
6042085.479	2111493.31	4950.00	<1	
6042084.54	2111493.39	5300.00	1	
6042083.602	2111493.47	4770.00	<1	
6042082.663	2111493.55	5080.00	<1	
6042081.725	2111493.63	4970.00	<1	
6042080.787	2111493.71	4760.00	<1	
6042079.848	2111493.79	5150.00	<1	
6042078.91	2111493.87	5200.00	<1	
6042077.972	2111493.95	4540.00	<1	
6042077.033	2111494.03	5060.00	<1	
6042076.095	2111494.11	4810.00	<1	
6042075.156	2111494.19	5020.00	<1	
6042074.218	2111494.27	5220.00	<1	
6042073.28	2111494.35	4250.00	<1	
6042072.341	2111494.43	5120.00	<1	
6042071.403	2111494.50	5480.00	1	
6042070.465	2111494.58	5590.00	1	
6042069.526	2111494.66	5070.00	<1	
6042068.588	2111494.74	4690.00	<1	
6042067.65	2111494.82	5130.00	<1	
6042066.711	2111494.90	4690.00	<1	
6042065.773	2111494.98	4690.00	<1	
6042064.834	2111495.06	4960.00	<1	
6042063.896	2111495.14	5270.00	<1	
6042062.958	2111495.22	5060.00	<1	
6042062.019	2111495.30	4580.00	<1	

Easting	Northing	Reading	Reach 82 Data Set	Comments
6042061.081	2111495.38	4540.00	<1	
6042060.143	2111495.46	5340.00	1	
6042059.204	2111495.54	4890.00	<1	
6042058.266	2111495.62	5590.00	1	
6042057.327	2111495.70	4530.00	<1	
6042056.389	2111495.78	5110.00	<1	
6042055.451	2111495.86	5030.00	<1	
6042054.512	2111495.94	5490.00	1	
6042053.574	2111496.02	5430.00	1	
6042052.636	2111496.10	4650.00	<1	
6042051.697	2111496.18	4920.00	<1	
6042050.759	2111496.26	4970.00	<1	
6042049.821	2111496.34	5100.00	<1	
6042048.882	2111496.42	5200.00	<1	
6042047.944	2111496.50	5610.00	1	
6042047.005	2111496.58	5500.00	1	

4934.36	Average
339.76	Std Dev
5953.64	3 Sigma
6010.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 83
Line: G

Main/Lateral: Main
Length (ft): 275
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 83 Data Set

Gamma Total CPS	
4724.19	Average
582.53	Std Dev
6471.77	3 Sigma
6190.00	Max

Sigma	Total Points
<1	182
1	33
2	12
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 83 Data Set	Comments
6042021.863	2111224.77	4990.00	<1	
6042021.965	2111225.96	5320.00	1	
6042022.067	2111227.16	5140.00	<1	
6042022.168	2111228.35	5960.00	2	
6042022.27	2111229.54	6150.00	2	
6042022.372	2111230.74	5980.00	2	
6042022.473	2111231.93	5620.00	1	
6042022.575	2111233.13	5720.00	1	
6042022.677	2111234.32	5700.00	1	
6042022.778	2111235.52	5680.00	1	
6042022.88	2111236.71	6090.00	2	
6042022.982	2111237.91	5950.00	2	
6042023.083	2111239.10	5700.00	1	
6042023.185	2111240.30	5700.00	1	
6042023.287	2111241.49	5740.00	1	
6042023.388	2111242.69	5540.00	1	
6042023.49	2111243.88	5480.00	1	
6042023.592	2111245.08	6190.00	2	
6042023.694	2111246.27	5960.00	2	
6042023.795	2111247.46	6110.00	2	

Easting	Northing	Reading	Reach 83 Data Set	Comments
6042023.897	2111248.66	6120.00	2	
6042023.999	2111249.85	5580.00	1	
6042024.1	2111251.05	5460.00	1	
6042024.202	2111252.24	5780.00	1	
6042024.304	2111253.44	5750.00	1	
6042024.405	2111254.63	5610.00	1	
6042024.507	2111255.83	5810.00	1	
6042024.609	2111257.02	5870.00	1	
6042024.71	2111258.22	5620.00	1	
6042024.812	2111259.41	5390.00	1	
6042024.914	2111260.61	5390.00	1	
6042025.015	2111261.80	5700.00	1	
6042025.117	2111262.99	5460.00	1	
6042025.219	2111264.19	5940.00	2	
6042025.32	2111265.38	4870.00	<1	
6042025.422	2111266.58	5420.00	1	
6042025.524	2111267.77	5510.00	1	
6042025.625	2111268.97	6060.00	2	
6042025.727	2111270.16	5760.00	1	
6042025.829	2111271.36	5970.00	2	
6042025.93	2111272.55	5460.00	1	
6042026.032	2111273.75	5140.00	<1	
6042026.134	2111274.94	5560.00	1	
6042026.236	2111276.14	5550.00	1	
6042026.337	2111277.33	5420.00	1	
6042026.439	2111278.53	5260.00	<1	
6042026.541	2111279.72	5400.00	1	
6042026.642	2111280.91	5660.00	1	
6042026.744	2111282.11	5190.00	<1	
6042026.846	2111283.30	5220.00	<1	
6042026.947	2111284.50	5400.00	1	
6042027.049	2111285.69	4630.00	<1	
6042027.151	2111286.89	4630.00	<1	
6042027.252	2111288.08	4000.00	<1	
6042027.354	2111289.28	4680.00	<1	
6042027.456	2111290.47	4340.00	<1	
6042027.557	2111291.67	4550.00	<1	
6042027.659	2111292.86	4750.00	<1	
6042027.761	2111294.06	4400.00	<1	
6042027.862	2111295.25	4230.00	<1	
6042027.964	2111296.44	3850.00	<1	

Easting	Northing	Reading	Reach 83 Data Set	Comments
6042028.066	2111297.64	4160.00	<1	
6042028.167	2111298.83	3810.00	<1	
6042028.269	2111300.03	4330.00	<1	
6042028.371	2111301.22	4980.00	<1	
6042028.472	2111302.42	5310.00	1	
6042028.574	2111303.61	4650.00	<1	
6042028.676	2111304.81	4270.00	<1	
6042028.778	2111306.00	4160.00	<1	
6042028.879	2111307.20	4350.00	<1	
6042028.981	2111308.39	4350.00	<1	
6042029.083	2111309.59	4590.00	<1	
6042029.184	2111310.78	4150.00	<1	
6042029.286	2111311.98	4220.00	<1	
6042029.388	2111313.17	4080.00	<1	
6042029.489	2111314.36	4150.00	<1	
6042029.591	2111315.56	4280.00	<1	
6042029.693	2111316.75	4370.00	<1	
6042029.794	2111317.95	3720.00	<1	
6042029.896	2111319.14	4070.00	<1	
6042029.998	2111320.34	3910.00	<1	
6042030.099	2111321.53	4690.00	<1	
6042030.201	2111322.73	4310.00	<1	
6042030.303	2111323.92	4240.00	<1	
6042030.404	2111325.12	4130.00	<1	
6042030.506	2111326.31	3850.00	<1	
6042030.608	2111327.51	3950.00	<1	
6042030.709	2111328.70	3900.00	<1	
6042030.811	2111329.90	3900.00	<1	
6042030.913	2111331.09	4240.00	<1	
6042031.014	2111332.28	3850.00	<1	
6042031.116	2111333.48	4010.00	<1	
6042031.218	2111334.67	4560.00	<1	
6042031.32	2111335.87	4950.00	<1	
6042031.421	2111337.06	4380.00	<1	
6042031.523	2111338.26	5060.00	<1	
6042031.625	2111339.45	4770.00	<1	
6042031.726	2111340.65	4710.00	<1	
6042031.828	2111341.84	4770.00	<1	
6042031.93	2111343.04	4470.00	<1	
6042032.031	2111344.23	4490.00	<1	
6042032.133	2111345.43	4950.00	<1	

Easting	Northing	Reading	Reach 83 Data Set	Comments
6042032.235	2111346.62	4580.00	<1	
6042032.336	2111347.81	5140.00	<1	
6042032.438	2111349.01	4580.00	<1	
6042032.54	2111350.20	4540.00	<1	
6042032.641	2111351.40	4060.00	<1	
6042032.743	2111352.59	4290.00	<1	
6042032.845	2111353.79	4490.00	<1	
6042032.946	2111354.98	4180.00	<1	
6042033.048	2111356.18	4180.00	<1	
6042033.15	2111357.37	4780.00	<1	
6042033.251	2111358.57	4330.00	<1	
6042033.353	2111359.76	4220.00	<1	
6042033.455	2111360.96	4320.00	<1	
6042033.557	2111362.15	4460.00	<1	
6042033.658	2111363.35	4880.00	<1	
6042033.76	2111364.54	4870.00	<1	
6042033.862	2111365.73	4280.00	<1	
6042033.963	2111366.93	4010.00	<1	
6042034.065	2111368.12	4050.00	<1	
6042034.167	2111369.32	4790.00	<1	
6042034.268	2111370.51	4590.00	<1	
6042034.37	2111371.71	4230.00	<1	
6042034.472	2111372.90	4570.00	<1	
6042034.573	2111374.10	4480.00	<1	
6042034.675	2111375.29	4280.00	<1	
6042034.777	2111376.49	4760.00	<1	
6042034.878	2111377.68	4490.00	<1	
6042034.98	2111378.88	5060.00	<1	
6042035.082	2111380.07	4650.00	<1	
6042035.183	2111381.26	4680.00	<1	
6042035.285	2111382.46	5010.00	<1	
6042035.387	2111383.65	5050.00	<1	
6042035.488	2111384.85	5050.00	<1	
6042035.59	2111386.04	4530.00	<1	
6042035.692	2111387.24	4920.00	<1	
6042035.793	2111388.43	4240.00	<1	
6042035.895	2111389.63	4360.00	<1	
6042035.997	2111390.82	4170.00	<1	
6042036.099	2111392.02	4660.00	<1	
6042036.2	2111393.21	4210.00	<1	
6042036.302	2111394.41	4280.00	<1	

Easting	Northing	Reading	Reach 83 Data Set	Comments
6042036.404	2111395.60	4690.00	<1	
6042036.505	2111396.80	4710.00	<1	
6042036.607	2111397.99	4420.00	<1	
6042036.709	2111399.18	4470.00	<1	
6042036.81	2111400.38	3920.00	<1	
6042036.912	2111401.57	4250.00	<1	
6042037.014	2111402.77	4380.00	<1	
6042037.115	2111403.96	4660.00	<1	
6042037.217	2111405.16	4660.00	<1	
6042037.319	2111406.35	3930.00	<1	
6042037.42	2111407.55	4320.00	<1	
6042037.522	2111408.74	4370.00	<1	
6042037.624	2111409.94	4760.00	<1	
6042037.725	2111411.13	4210.00	<1	
6042037.827	2111412.33	4460.00	<1	
6042037.929	2111413.52	4490.00	<1	
6042038.03	2111414.71	4750.00	<1	
6042038.132	2111415.91	4860.00	<1	
6042038.234	2111417.10	4640.00	<1	
6042038.335	2111418.30	4520.00	<1	
6042038.437	2111419.49	4350.00	<1	
6042038.539	2111420.69	4820.00	<1	
6042038.641	2111421.88	4010.00	<1	
6042038.742	2111423.08	4090.00	<1	
6042038.844	2111424.27	4240.00	<1	
6042038.946	2111425.47	4490.00	<1	
6042039.047	2111426.66	4490.00	<1	
6042039.149	2111427.86	4290.00	<1	
6042039.251	2111429.05	4860.00	<1	
6042039.352	2111430.25	5150.00	<1	
6042039.454	2111431.44	4830.00	<1	
6042039.556	2111432.63	4640.00	<1	
6042039.657	2111433.83	4670.00	<1	
6042039.759	2111435.02	4840.00	<1	
6042039.861	2111436.22	4740.00	<1	
6042039.962	2111437.41	4610.00	<1	
6042040.064	2111438.61	4830.00	<1	
6042040.166	2111439.80	4900.00	<1	
6042040.267	2111441.00	4580.00	<1	
6042040.369	2111442.19	4570.00	<1	
6042040.471	2111443.39	4440.00	<1	

Easting	Northing	Reading	Reach 83 Data Set	Comments
6042040.572	2111444.58	4690.00	<1	
6042040.674	2111445.78	4290.00	<1	
6042040.776	2111446.97	4120.00	<1	
6042040.877	2111448.17	4590.00	<1	
6042040.979	2111449.36	4590.00	<1	
6042041.081	2111450.55	4580.00	<1	
6042041.183	2111451.75	4400.00	<1	
6042041.284	2111452.94	4280.00	<1	
6042041.386	2111454.14	4030.00	<1	
6042041.488	2111455.33	4390.00	<1	
6042041.589	2111456.53	4400.00	<1	
6042041.691	2111457.72	4560.00	<1	
6042041.793	2111458.92	4390.00	<1	
6042041.894	2111460.11	4680.00	<1	
6042041.996	2111461.31	4610.00	<1	
6042042.098	2111462.50	5020.00	<1	
6042042.199	2111463.70	4440.00	<1	
6042042.301	2111464.89	4750.00	<1	
6042042.403	2111466.08	4630.00	<1	
6042042.504	2111467.28	4670.00	<1	
6042042.606	2111468.47	4670.00	<1	
6042042.708	2111469.67	5150.00	<1	
6042042.809	2111470.86	4250.00	<1	
6042042.911	2111472.06	4510.00	<1	
6042043.013	2111473.25	5070.00	<1	
6042043.114	2111474.45	4560.00	<1	
6042043.216	2111475.64	4560.00	<1	
6042043.318	2111476.84	4600.00	<1	
6042043.419	2111478.03	3950.00	<1	
6042043.521	2111479.23	4050.00	<1	
6042043.623	2111480.42	3970.00	<1	
6042043.725	2111481.62	4230.00	<1	
6042043.826	2111482.81	4220.00	<1	
6042043.928	2111484.00	4210.00	<1	
6042044.03	2111485.20	4490.00	<1	
6042044.131	2111486.39	4290.00	<1	
6042044.233	2111487.59	4490.00	<1	
6042044.335	2111488.78	4030.00	<1	
6042044.436	2111489.98	3930.00	<1	
6042044.538	2111491.17	4630.00	<1	
6042044.64	2111492.37	4740.00	<1	

Easting	Northing	Reading	Reach 83 Data Set	Comments
6042044.741	2111493.56	4590.00	<1	
6042044.843	2111494.76	4680.00	<1	

4724.19	Average
582.53	Std Dev
6471.77	3 Sigma
6190.00	Max

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 84
Line: G

Main/Lateral: Lateral
Length (ft): 13
Pipe Diameter (in): 15

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 84 Data Set

Gamma Total CPS	
4925.71	Average
442.09	Std Dev
6251.98	3 Sigma
5450.00	Max

Sigma	Total Points
<1	11
1	3
2	0
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 84 Data Set	Comments
6042053.916	2111471.76	3890.00	<1	
6042053.15	2111471.83	4700.00	<1	
6042052.384	2111471.89	5150.00	<1	
6042051.619	2111471.96	5370.00	1	
6042050.853	2111472.02	5260.00	<1	
6042050.087	2111472.09	4910.00	<1	
6042049.321	2111472.15	4520.00	<1	
6042048.555	2111472.22	4540.00	<1	
6042047.789	2111472.28	4770.00	<1	
6042047.023	2111472.35	4820.00	<1	
6042046.257	2111472.41	4820.00	<1	
6042045.491	2111472.48	5450.00	1	
6042044.725	2111472.54	5450.00	1	
6042043.959	2111472.61	5310.00	<1	

4925.71	Average
442.09	Std Dev
6251.98	3 Sigma
5450.00	Max

Easting	Northing	Reading	Reach 84 Data Set	Comments

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO5 Hydrojetting Data and Analysis

Line G Hydrojetting

Reach: 85
Line: G

Main/Lateral: Main
Length (ft): 25
Pipe Diameter (in): 36

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Instrument Type: 2350-1
Instrument Serial Number: 228691
Instrument Calibration Due Date: 7/25/2013

Probe Type: 44-10-5
Probe Serial Number: PR319115

Reach 85 Data Set

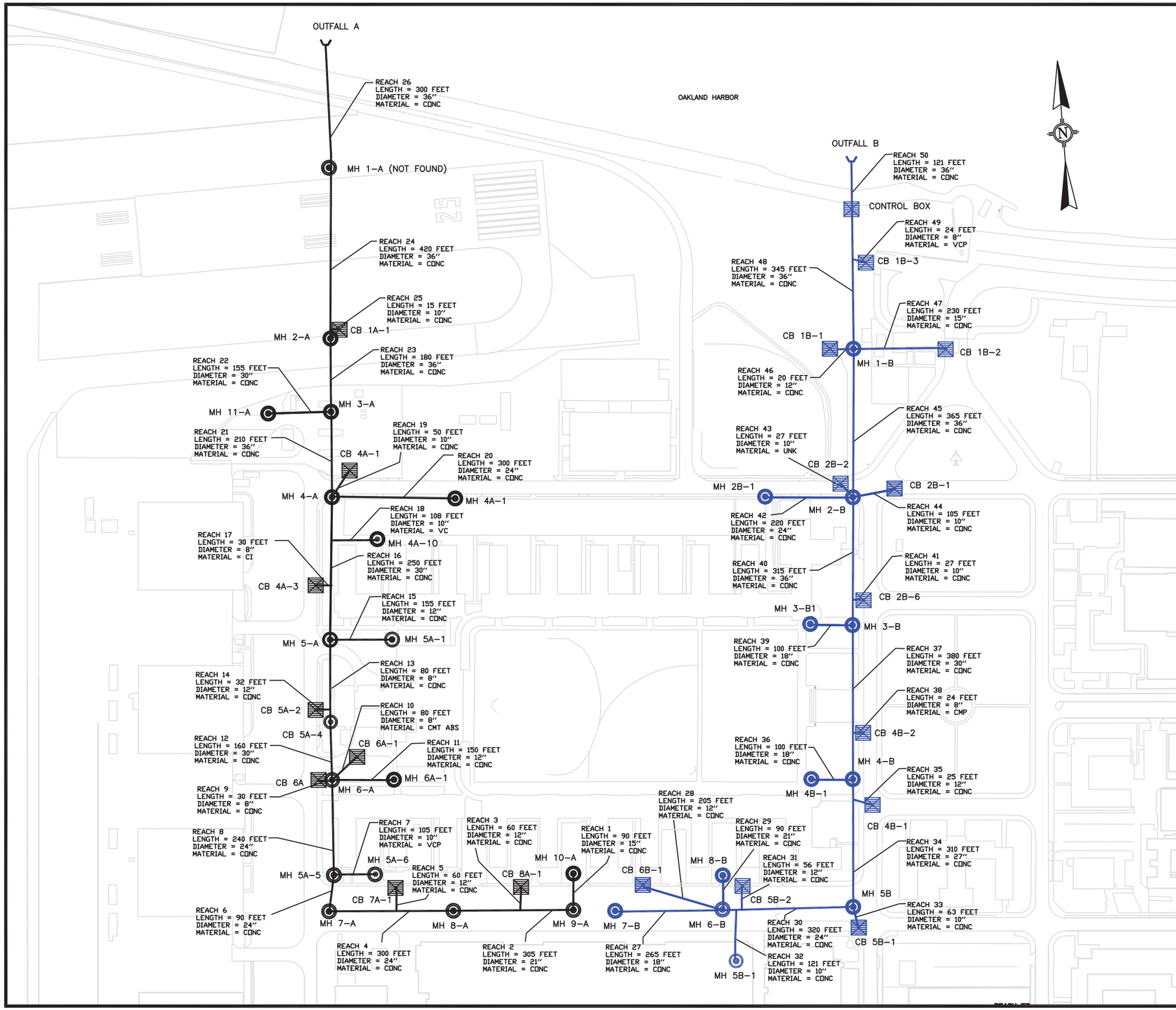
Gamma Total CPS	
4720.00	Average
274.94	Std Dev
5544.83	3 Sigma
5380.00	Max

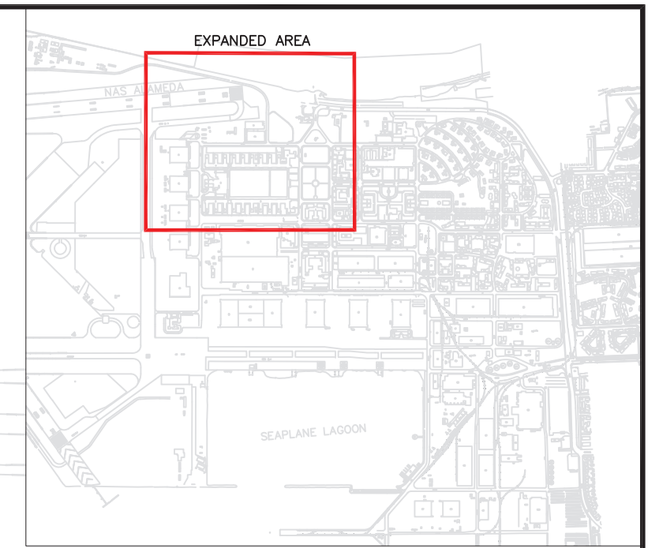
Sigma	Total Points
<1	28
1	2
2	1
3	0
4	0
5	0
>6	0

Easting	Northing	Reading	Reach 85 Data Set	Comments
6042019.702	2111222.96	4790.00	<1	
6042018.991	2111223.02	4940.00	<1	
6042018.28	2111223.09	4840.00	<1	
6042017.569	2111223.16	4840.00	<1	
6042016.858	2111223.22	4200.00	<1	
6042016.147	2111223.29	4740.00	<1	
6042015.436	2111223.35	4710.00	<1	
6042014.725	2111223.42	4760.00	<1	
6042014.014	2111223.49	4250.00	<1	
6042013.303	2111223.55	4710.00	<1	
6042012.592	2111223.62	4860.00	<1	
6042011.881	2111223.68	4830.00	<1	
6042011.17	2111223.75	4840.00	<1	
6042010.459	2111223.82	5160.00	1	
6042009.748	2111223.88	4650.00	<1	
6042009.037	2111223.95	4790.00	<1	
6042008.326	2111224.01	4790.00	<1	
6042007.615	2111224.08	4480.00	<1	
6042006.904	2111224.15	4640.00	<1	
6042006.192	2111224.21	4750.00	<1	

Easting	Northing	Reading	Reach 85 Data Set	Comments
6042005.481	2111224.28	4700.00	<1	
6042004.77	2111224.34	4650.00	<1	
6042004.059	2111224.41	4400.00	<1	
6042003.348	2111224.48	4150.00	<1	
6042002.637	2111224.54	4600.00	<1	
6042001.926	2111224.61	4520.00	<1	
6042001.215	2111224.67	4310.00	<1	
6042000.504	2111224.74	4950.00	<1	
6041999.793	2111224.81	4950.00	<1	
6041999.082	2111224.87	5140.00	1	
6041998.371	2111224.94	5380.00	2	

4720.00	Average
274.94	Std Dev
5544.83	3 Sigma
5380.00	Max





LOCATION MAP

LEGEND

- STORM SYSTEM A TO BE CLEANED & SURVEYED
- STORM SYSTEM B TO BE CLEANED & SURVEYED
- STORM SYSTEM A MANHOLE EXAMINED
- STORM SYSTEM A CATCH BASIN EXAMINED
- STORM SYSTEM B MANHOLE EXAMINED
- STORM SYSTEM B CATCH BASIN EXAMINED

ABBREVIATIONS

CB = CATCH BASIN
CI = CAST IRON
CMP = CORRUGATED METAL PIPE
CONC = CONCRETE PIPE
CMT.ABS = CEMENT ASBESTOS
IR = INSTALLATION RESTORATION
MH = MANHOLE
NAS = NAVAL AIR STATION
VCP = VITRIFIED CLAY PIPE

120 0 120 240
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

CTO 5 - OPERABLE UNIT 2C IR SITES 5 AND 10

STORM SYSTEM A & B

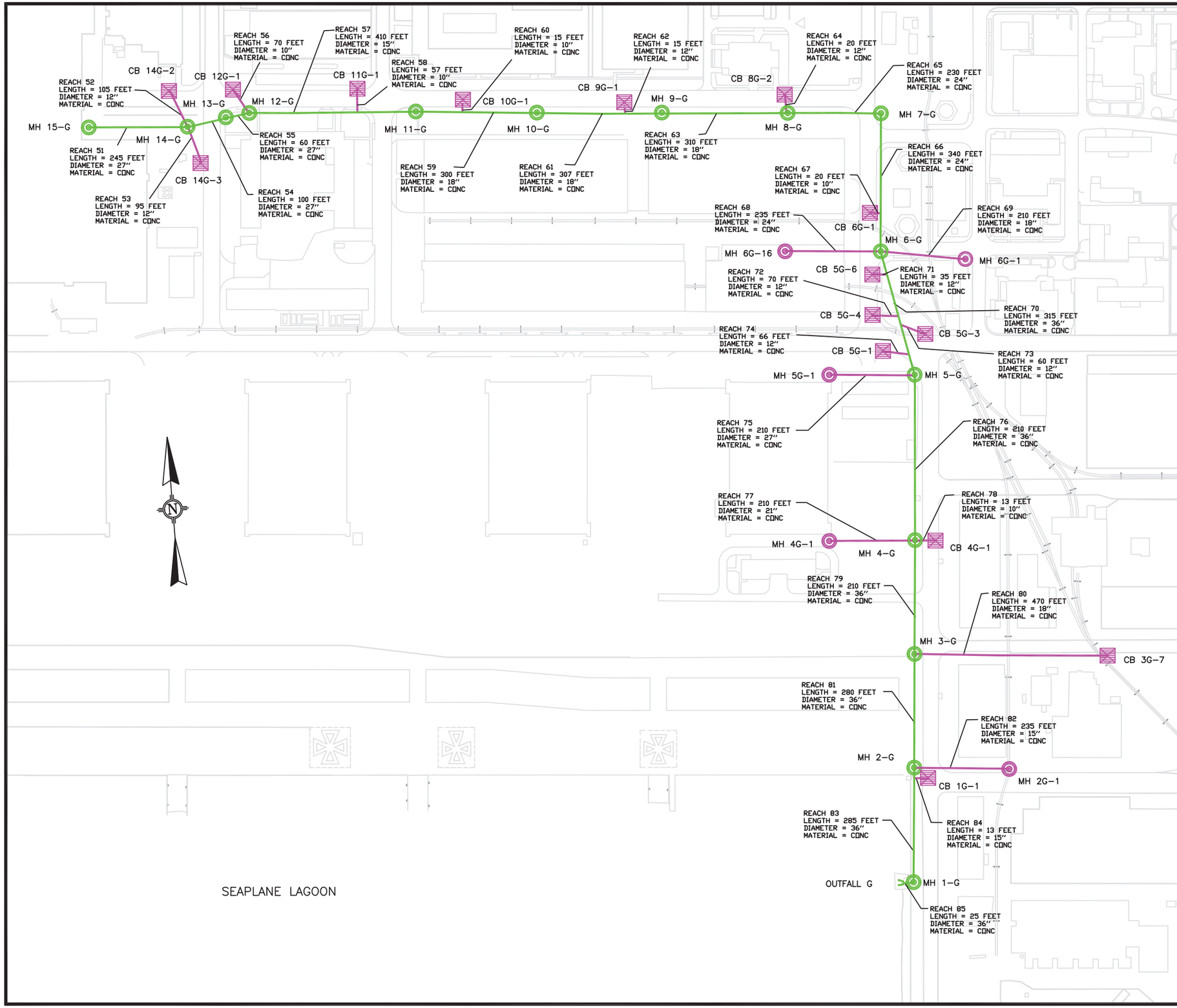
ALAMEDA, CALIFORNIA

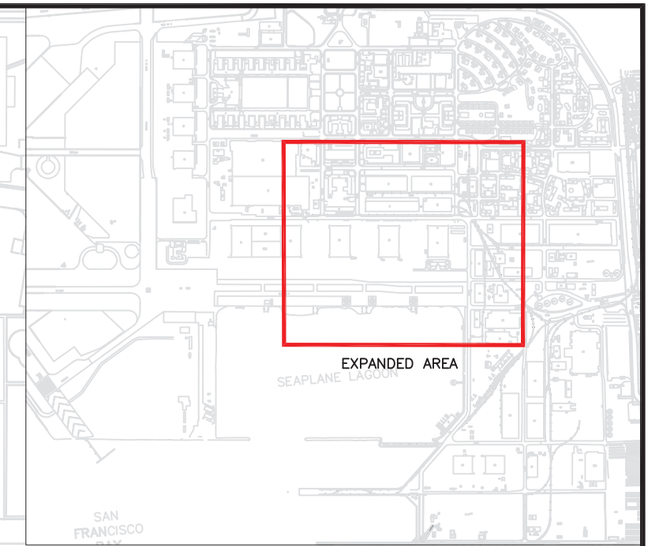
REVIEW: 0
AUTHOR: RS

FILE NUMBER: Figure 1.dwg

TETRA TECH EC, INC.

SHEET 1 OF 2





LOCATION MAP

LEGEND

- STORM SYSTEM G TO BE CLEANED & EXAMINED
- STORM SYSTEM G TO BE EXAMINED ONLY
- STORM SYSTEM G MANHOLE EXAMINED
- STORM SYSTEM G CATCH BASIN EXAMINED
- STORM SYSTEM G MANHOLE TO BE EXAMINED
- STORM SYSTEM G CATCH BASIN TO BE EXAMINED

ABBREVIATIONS

CB= CATCH BASIN
CONC= CONCRETE PIPE
IR = INSTALLATION RESTORATION
MH = MANHOLE
NAS = NAVAL AIR STATION

120 0 120 240
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

CTO 5 - OPERABLE UNIT 2C IR SITES 5 AND 10

STORM SYSTEM G

ALAMEDA, CALIFORNIA

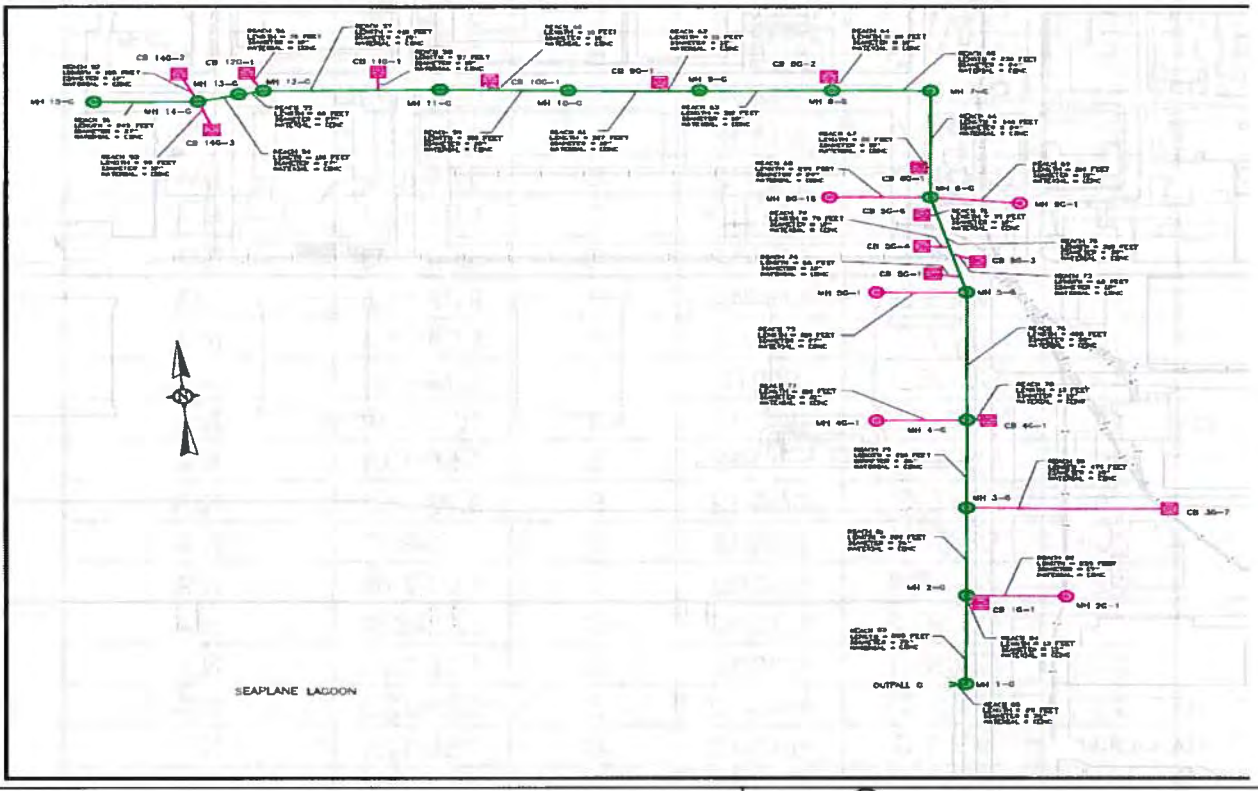
REVIEW: 0
AUTHOR: RS

FILE NUMBER: Figure 1.dwg

TETRA TECH EC, INC.

RADIATION/CONTAMINATION SURVEY FORM

Date Range: 8/12/12 to 9/18/12	INSTRUMENTATION USED						
	Model Inst/Det.	Serial Number	Calibration Due Date	Instrument % Efficiency	Total % Efficiency	MDC/MDA + (dpm/100cm²)	Background + (dpm/100cm²)
Survey Number: A-SDL-0001							
Location: Alameda Point							
Surveyor: C. Bell							
Cy D Bell	2350-1 44-10	260166 PR276593	3/19/2013				
Isotopes of Concern: ^{226}Ra	Static Count Time: 2 Minutes						
Survey Reason: Storm Drain Lines	Description of drawing: Storm Drain Manholes and Catch Basins on Line G						



Comments:

Survey performed after HydroJet cleaning

Bkgd for 2350# 260166 is 14283 cpm for brick manhole

3 sigma for 2350# 260166 is 20109 cpm for brick manhole

Bkgd for 2350# 260166 is 13201 cpm for concrete manhole

3 sigma for 2350# 260166 is 15522 cpm for concrete manhoe

Routine ☐ Non-routine ☒

(#) denotes swipe location or fixed α/β readings

# denotes G/A radiation readings

#/# denotes contact / 1 meter radiation readings.

* denotes highest radiation reading on contact

LAW denotes large area masslinn wipe

Δ denotes static location.

\+ Unless Otherwise Noted

All readings in µRem/hr unless otherwise noted

K = 1000

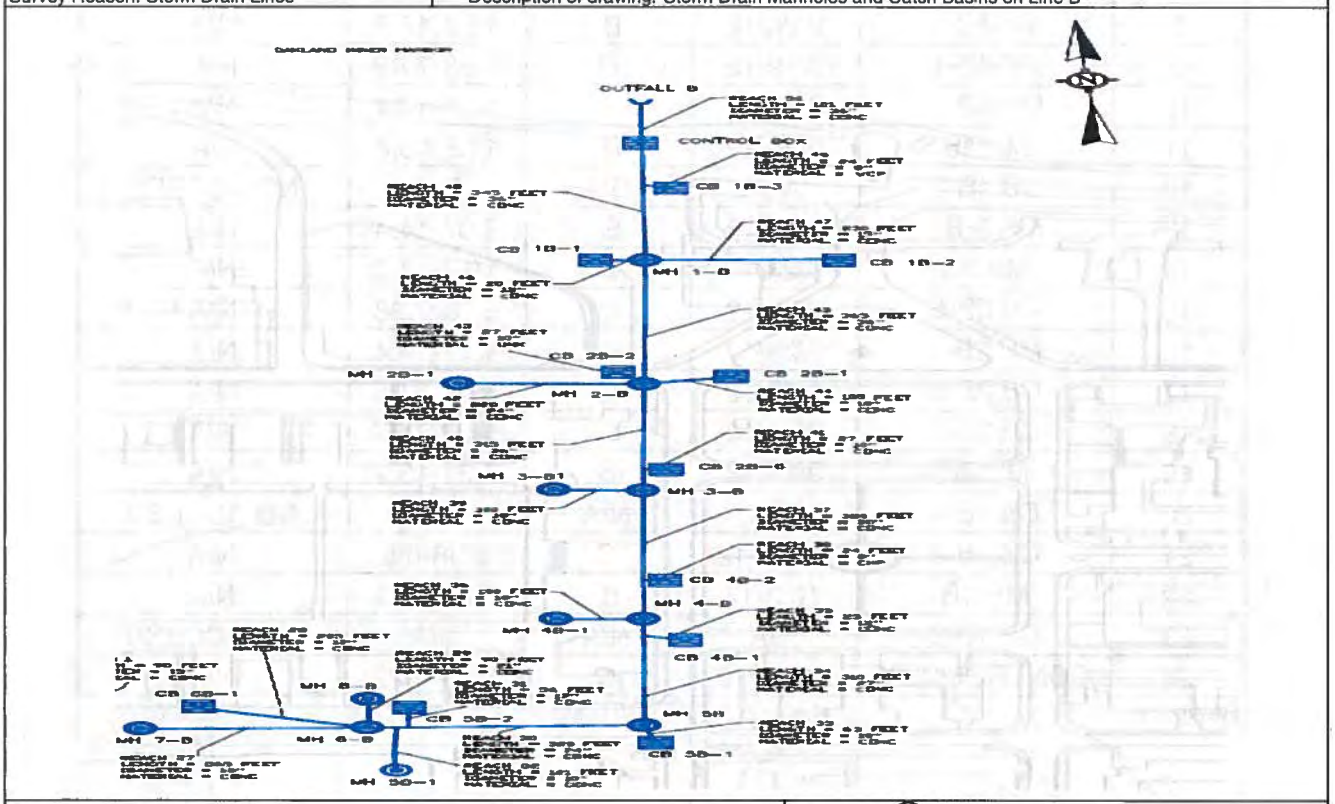
CTO 0005 - STORM DRAIN LINE G

	Manhole	Date Surveyed	Brick or Concreek (B or C)	Gamma Range (kcpm)	Comments
1	MH 15-G	9/18/12	B	7.22-17.2	N/A
2	CB 14G-2	8/21/12	C	5.64-8.02	N/A
3	CB 14G-3	8/21/12	C	5.47-7.57	N/A
4	MH-14-G	8/21/12	B	9.04-12.7	N/A
5	MH-13-G	8/21/12	B	10.6-11.7	N/A
6	CB 12G-1	8/13/12	C	5.47-7.7	N/A
7	MH 12-G	8/21/12	B	10.4-18.9	N/A
8	CB 11G-1	8/13/12	C	5.73-7.98	N/A
9	MH 11-G	8/15/12	B	9.46-12.4	N/A
10	CB 10G-1	8/12/12	C	5.43-8.08	N/A
11	MH 10-G	8/16/12	B	9.56-11.0	N/A
12	CB 9G-1	9/11/12	C	5.34-8.12	N/A
13	MH 9-G	8/20/12	B	5.24-17.3	N/A
14	CB 8G-2	9/11/12	C	5.64-7.53	N/A
15	MH 8-G	9/11/12	B	9.02-11.5	N/A
16	MH 7-G	9/11/12	B	9.94-11.4	N/A
17	CB 6G-1	9/4/12	C	5.19-7.83	N/A
18	MH 6-G16	9/10/12	B	10.0-11.8	N/A
19	MH 6-G1	9/10/12	B	9.55-10.1	N/A
20	MH 6-G	9/10/12	B	9.72-11.1	N/A
21	CB 5G-6	9/10/12	C	6.16-8.63	N/A
22	CB 5G-4	9/10/12	C	6.07-7.68	N/A
23	CB 5G-3	9/10/12	C	5.28-8.02	N/A
24	CB 5G-1	9/10/12	C	5.26-7.28	N/A
25	MH 5-G1	9/10/12	B	9.29-12.3	N/A
26	MH 5-G	9/10/12	B	9.58-17.1	N/A
27	MH 4-G1	9/10/12	B	11.3-13.5	N/A
28	CB 4G-1	9/10/12	C	5.89-8.12	N/A
29	MH 4-G	9/10/12	B	9.69-13.1	N/A
30	CB 3G-7	9/6/12	B	9.62-13.9	N/A
31	MH 3-G	9/10/12	B	8.67-12.9	N/A
32	MH 2G-1	9/10/12	B	7.18-12.1	N/A
33	MH 2-G	9/10/12	B	7.27-11.6	N/A
34	CB 1G-1	9/10/12	C	5.51-7.03	N/A
35	MH 1-G	9/10/12	B	6.63-16.3	N/A

Reviewer	Date: 9-19-12	RSO/RTM	Date: 9/21/12
	Time: 1035		Time: 07:13

RADIATION/CONTAMINATION SURVEY FORM

Date Range: 9/11/12 to 10/15/12	INSTRUMENTATION USED						
	Model Inst/Det.	Serial Number	Calibration Due Date	Instrument % Efficiency	Total % Efficiency	MDC/MDA + (dpm/100cm²)	Background + (dpm/100cm²)
Survey Number: A-SDL-0002							
Location: Alameda Point							
Surveyor: C. Bell							
	2350-1 44-10	260166 PR276593	3/19/2013				
Isotopes of Concern: ^{226}Ra	Static Count Time: 2 Minutes						
Survey Reason: Storm Drain Lines	Description of drawing: Storm Drain Manholes and Catch Basins on Line B						



Comments:

Survey performed after HydroJet cleaning

Bkgd for 2350# 260166 is 14283 cpm for brick manhole

3 sigma for 2350# 260166 is 20109 cpm for brick manhole

Bkgd for 2350# 260166 is 13201 cpm for concrete manhole

3 sigma for 2350# 260166 is 15522 cpm for concrete manhoe

Routine ☐ Non-routine ☒

(#)	denotes swipe location or fixed α/β readings
#	denotes G/A radiation readings
#/#	denotes contact / 1 meter radiation readings.
*	denotes highest radiation reading on contact
LAW	denotes large area masslinn wipe
Δ	denotes static location.
+	Unless Otherwise Noted
	All readings in µRem/hr unless otherwise noted
	K = 1000

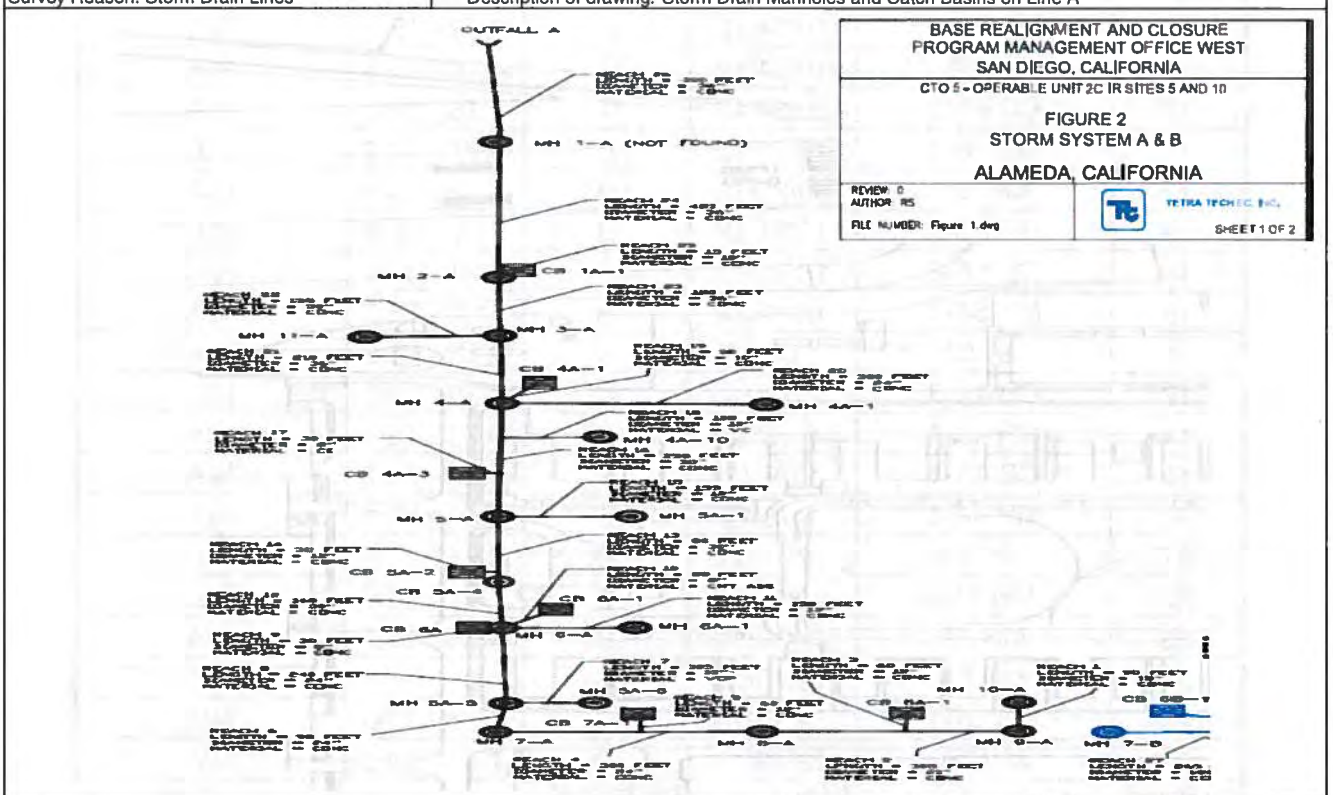
CTO 0005 - STORM DRAIN LINE B

	Manhole	Date Surveyed	Brick or Concreek (B or C)	Gamma Range (kcpm)	Comments
1	MH 7B	9/11/12	B	10.4-14.1	N/A
2	CB 6B-1	9/20/12	C	5.32-7.49	N/A
3	MH 8B	9/20/12	B	8.79-14.3	N/A
4	MH 6B	9/20/12	B	8.7-13.5	N/A
5	CB 5B-2	9/20/12	C	5.09-8.37	N/A
6	MH 5B-1	10/15/12	B	9.61-14.1	N/A
7	CB 5B-1	9/20/12	C	5.33-8.41	N/A
8	MH 5B-1	9/20/12	B	10.4-14.7	N/A
9	CB 4B-1	9/19/12	C	4.63-7.49	N/A
10	MH 4B-1	9/19/12	B	10.1-14.4	N/A
11	MH 4B	9/20/12	B	11.8-13.8	N/A
12	CB 4B-2	N/A	N/A	N/A	NO ACCESS
13	MH 3-B1	9/20/12	B	8.07-14.4	N/A
14	MH 3B	9/24/12	B	10.4-13.6	N/A
15	CB 2B-6	9/24/12	C	5.79-7.98	N/A
16	MH 2B-1	9/26/12	B	10.2-14.4	N/A
17	CB 2B-2	9/27/12	C	6.04-8.05	N/A
18	CB 2B-1	9/25/12	C	5.98-7.87	N/A
19	MH 2B	9/27/12	B	7.31-13.2	N/A
20	CB 1B-1	N/A	N/A	N/A	NO ACCESS
21	CB 1B-2	10/15/12	C	5.38-6.8	N/A
22	MH 1B	10/2/12	B	7.24-13.1	N/A
23	CB 1B-3	N/A	N/A	N/A	NO ACCESS
24	CONTROL BOX	10/15/12	C	4.43-5.22	N/A

Reviewer	Date: 10-22-12	RSO/RTM	Date: 10/25/12
	Time: 1110		Time: 10:30

RADIATION/CONTAMINATION SURVEY FORM

Date Range: 10/17/12 TO 12/19/12	INSTRUMENTATION USED						
	Model Inst/Det.	Serial Number	Calibration Due Date	Instrument % Efficiency	Total % Efficiency	MDC/MDA + (dpm/100cm²)	Background + (dpm/100cm²)
Survey Number: A-SDL-0003							
Location: Alameda Point							
Surveyor: C. Bell							
C. Bell	2350-1 44-10	260166 PR276593	3/19/2013				
Isotopes of Concern: ^{226}Ra	Static Count Time: 2 Minutes						
Survey Reason: Storm Drain Lines	Description of drawing: Storm Drain Manholes and Catch Basins on Line A						



Comments:

Survey performed after HydroJet cleaning

Bkgd for 2350# 260166 is 14283 cpm for brick manhole

3 sigma for 2350# 260166 is 20109 cpm for brick manhole

Bkgd for 2350# 260166 is 13201 cpm for concrete manhole

3 sigma for 2350# 260166 is 15522 cpm for concrete manhoe

Routine ☐ Non-routine ☒

(#)	denotes swipe location or fixed α/β readings
#	denotes G/A radiation readings
#/#	denotes contact / 1 meter radiation readings.
*	denotes highest radiation reading on contact
LAW	denotes large area masslinn wipe
Δ	denotes static location.
+	Unless Otherwise Noted
	All readings in µRem/hr unless otherwise noted
	K = 1000

CTO 0005 - STORM DRAIN LINE A

	Manhole	Date Surveyed	Brick or Concreek (B or C)	Gamma Range (kcpm)	Comments
1	MH 10A	10/28/12	B	10.8 - 14.5	N/A
2	MH 9A	10/28/12	B	8.47 - 14.7	N/A
3	CB 8A-1	10/28/12	C	4.72 - 7.68	N/A
4	MH 8A	12/19/12	B	11.4 - 13.9	N/A
5	CB 7A-1	12/19/12	C	4.86 - 8.12	N/A
6	MH 7A	10/23/12	B	8.70 - 14.1	N/A
7	MH 5A-6	10/23/12	B	10.1 - 16.1	N/A
8	MH 5A-5	10/24/12	C	8.32 - 15.1	N/A
9	CB 6A	10/24/12	C	4.46 - 7.05	N/A
10	CB 6A-1	10/24/12	C	4.16 - 6.61	N/A
11	MH 6A-1	10/25/12	B	8.07 - 13.8	N/A
12	MH 6A	10/31/12	B	11.3 - 13.4	N/A
13	MH 5A	10/31/12	B	12.7 - 15.4	N/A
14	CB 5A-2	10/31/12	C	5.81 - 8.04	N/A
15	MH 5A-1	12/19/12	B	11.2 - 13.2	N/A
16	MH 5A	11/8/12	B	9.28 - 12.6	N/A
17	CB 4A-3	11/8/12	C	4.60 - 6.35	N/A
18	MH 4A-1	11/8/12	B	9.72 - 15.4	N/A
19	CB 4A-1	11/8/12	C	4.89 - 7.57	N/A
20	MH 4A-1	11/8/12	B	9.28 - 12.1	N/A
21	MH 4A	12/19/12	B	8.95 - 11.6	N/A
22	MH 11A	12/19/12	C	6.8 - 8.2	N/A
23	MH 3A	12/19/12	B	9.68 - 11.7	N/A
24	MH 2A	12/19/12	B	9.8 - 11.2	N/A
25	CB 1A-1	12/19/12	C	4.76 - 7.96	N/A
26	MH 1A	12/19/12	C	7.81 - 10.8	N/A

Reviewer	Date: 12-22-12	RSO/RTM	Date: 12/22/12
	Time: 1500		Time: 09:15

Project/Location:		Alamada Naval Airstation					
Instrument Model:		2350-1			Instrument Serial No.	260166	
Calibration Due Date:		3/19/2013					
Detector Model:		44-10			Detector Serial No.:	276593	
Today's Date:		8/8/2012			Data Collected by:	D. Lewis	
	Alpha		Beta-Gamma		X	Gamma	
Remarks:							
Type of Surface:	Concrete Man Hole			Count Time:	1	Min	

Count Number	Gross Counts
1	**11473**
2	**13445**
3	**12439**
4	**13388**
5	**13571**
6	**13641**
7	**13294**
8	**13434**
9	**12458**
10	**13382**
11	**13630**
12	**11386**
13	**13602**
14	**13497**
15	**12512**
16	**13738**
17	**13920**
18	**13288**
19	**14489**
20	***13441***
Mean Count: ($\overline{X}$)	**13201**
Standard Deviation (σ)	773.58

+ 3 σ Value:	**15522**		
Background Count Rate:	13201.40	CPM	
Calculations Completed by:		C. WILLETT	Date: 8/8/2012
Reviewed by:		C. CARCHIDI	Date: 8/8/2012

Project/Location:		Alamada Naval Airstation					
Instrument Model:		2350-1			Instrument Serial No.	260166	
Calibration Due Date:		3/19/2013					
Detector Model:		44-10			Detector Serial No.:	276593	
Today's Date:		8/8/2012			Data Collected by:	D. Lewis	
	Alpha		Beta-Gamma		X	Gamma	
Remarks:							
Type of Surface:		Brick Man Hole		Count Time:	1	Min	

Count Number	Gross Counts
1	13141
2	18452
3	12453
4	15200
5	18683
6	14309
7	13551
8	16428
9	13424
10	10553
11	12322
12	13248
13	13334
14	13470
15	14389
16	14500
17	15100
18	13322
19	14291
20	*15501*
Mean Count: ($\overline{X}$)	14284
Standard Deviation (σ)	1941.70

Standard Deviation (σ)	1941.70	+ 3 σ Value:	20109
Background Count Rate:		14283.55	CPM

Calculations Completed by:	C. Willett	Date:	8/8/2012
Reviewed by:	C. Carchidi	Date:	8/8/2012

APPENDIX E

PROJECT PHOTOGRAPHS
(on CD only)

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Downstream hydrojetting setup

One of the hydrojetting heads

One of the camera crawlers

Downstream hydrojetting setup

A smaller camera crawler with gamma detector attached

Vacuum truck preparing to place sediment in dewatering pad

Hydrojetting of outfalls was scheduled around the tides

Condition of Outfall A prior to cleaning

Outfall A when cleaning was nearly complete

Condition of Outfall B prior to cleaning

Outfall B during cleaning

Example of debris removed from Outfalls

Manhole MH5-A sinkhole

Close-up of Manhole MH5-A sinkhole

Manhole MH5-A rebricking

APPENDIX F

WORK PLAN FIELD CHANGE FORMS
(on CD only)

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TtEC, NAVFAC SW RMAC CONTRACT NO. N62473-10-D-0809, CTO N0. 0005

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	0005	FCR #	05-1	DATE	07/2/12
LOCATION	Alameda Point OU-2U IR Site 5 and 10	ROICC	Gregory Grace		
SUBJECT: Additional Storm Drain Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC			

1. Document to be changed. Identify revision, date, section, drawing, etc.

Final Remedial Action Work Plan, January, 2011. DCN: RMA-0809-0006-0001.R1; Revise Section 1.5, Section 8.0, DFW Table in Appendix F, Appendix L, Section 1.0 and Section 8, and add new Work Instructions to Appendix Q.

2. Description of existing requirements and proposed change (Attach sheet if necessary)

Existing Requirements: TtEC CTO No. 0006 and 0010 work activities that focus on the remediation of the Site 17 area are dictated by the referenced RAWP and included source removal work on the storm drain line G main trunk, which originated from the OU-2C area of NAS Alameda Point. At the Navy's direction, TtEC, under NAVFAC SW Radiological EMAC CTO 0005, will perform characterization/health and safety activities on the remaining radiologically-impacted storm drain lines originating from the OU-2C Building 5. The work will be conducted in accordance to the RAWP and the revisions incorporated into it by this and other previously issued FCRs.

Change:

1) **Section 1.5 has been modified with an additional paragraph at the end of the section.**

The attached document provides the additional text added to the RAWP

2) **Appendix F, Contractor Quality Control Plan has been modified to reflect new activity numbers reflected in the DFW table and provide a CTO No. 0005 schedule.**

The attached document provides the table revisions.

3) **Appendix L, Installation Restoration Site 17 Source Control Remedial Action Work Plan has been modified to reflect new activities.**

The attached document provides the text revisions.

4) **Appendix Q, Work Instructions will contain Work Instructions for Hydrojetting of Storm Drain Lines A, B and G, and Vacuum Excavation of Radiology Impacted Soil.**

The attached Work Instructions will be placed in Appendix Q of the RAWP

3. Reason for Change (Attach sheet if necessary)

The above referenced RAWP was prepared to address the TtEC work elements awarded under CTO No. 0006 and CTO No. 0010, and must be amended to ensure that it adequately addresses the tasks to be executed under CTO 0005.

4. Cost and Schedule Implications (if any)

Associated impacts have been addressed in proposals to the Navy.

Originator: (Print name and sign) Vince Richards		Title TtEC Project QC Manager	Date 7/27/12
Reviewed by: (Print name and sign) Nathan Smith		Title TtEC's RSOR	Date 7/27/12
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date 7/31/12
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date 7-27-12
TtEC Program QC Manager (Print name and sign) Greg Joyce	Date 7-31-12	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date 8-2-12	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date 8/15/12

TtEC, NAVFAC SW RMAC CONTRACT NO. N62473-10-D-0809, CTO N0. 0005

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	0005	FCR #	05-1	DATE	07/2/12
LOCATION	Alameda Point OU-2U IR Site 5 and 10	ROICC		Gregory Grace	
SUBJECT: Additional Storm Drain Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC			

1. Document to be changed. Identify revision, date, section, drawing, etc.

Final Remedial Action Work Plan, January, 2011. DCN: RMA-0809-0006-0001.R1; Revise Section ~~1.0~~ 1.5, Section 8.0, DFW Table in Appendix F, Appendix L, Section 1.0 and Section 8, and add new Work Instructions to Appendix Q.

2. Description of existing requirements and proposed change (Attach sheet if necessary)

Existing Requirements: TtEC CTO No. 0006 and 0010 work activities that focus on the remediation of the Site 17 area are dictated by the referenced RAWP and included source removal work on the storm drain line G main trunk, which originated from the OU-2C area of NAS Alameda Point. At the Navy's direction, TtEC, under NAVFAC SW Radiological EMAC CTO 0005, will perform characterization/health and safety activities on the remaining radiologically-impacted storm drain lines originating from the OU-2C Building 5. The work will be conducted in accordance to the RAWP and the revisions incorporated into it by this and other previously issued FCRs.

Change:

1) **Section 1.5 has been modified with an additional paragraph at the end of the section.**

The attached document provides the additional text added to the RAWP

2) **Appendix F, Contractor Quality Control Plan has been modified to reflect new activity numbers reflected in the DFW table and provide a CTO No. 0005 schedule.**

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3) **Appendix L, Installation Restoration Site 17 Source Control Remedial Action Work Plan has been modified to reflect new activities.**

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4) **Appendix Q, Work Instructions will contain Work Instructions for Hydrojetting of Storm Drain Lines A, B and G, and Vacuum Excavation of Radiology Impacted Soil.**

The attached Work Instructions will be placed in Appendix Q of the RAWP

3. Reason for Change (Attach sheet if necessary)

The above referenced RAWP was prepared to address the TtEC work elements awarded under CTO No. 0006 and CTO No. 0010, and must be amended to ensure that it adequately addresses the tasks to be executed under CTO 0005.

4. Cost and Schedule Implications (if any)

Associated impacts have been addressed in proposals to the Navy.

Originator: (Print name and sign) Vince Richards		Title TtEC Project QC Manager	Date 7/27/12
Reviewed by: (Print name and sign) Nathan Smith		Title TtEC's RSOR	Date 7/27/12
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date 7/31/12
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date 7-27-12
TtEC Program QC Manager (Print name and sign) Greg Joyce	Date 7-31-12	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date 8-2-12	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date

Background: In May 2011, under Contract N62473-07-D-4013, Contact Task Order (CTO) No. 0037, Battelle Memorial Institute (Battelle) prepared the Final Feasibility Study (FS) Report for Operable Unit (OU)-2C Installation Restoration (IR) Sites 5 and 10 which addressed potential and known radiologically impacted drain lines beneath OU-2C Buildings 5 and 400. In January 20012, under Contract N62473-10-D-0809, CTO No. 0005, Tetra Tech EC (TtEC) prepared Addendum 1 to the OU-2C FS for IR Sites 5 and 10 which supplemented the FS Report by Battelle and addressed potential and known radiologically impacted drain lines that originate from OU-2C and are located outside Buildings 5 and 400. Although Storm Drain Lines F and FF originated in OU-2C, they were previously removed and replaced, and therefore were not addressed in the FS Addendum.

Based on the alternatives presented in the FS Addendum TtEC has been tasked with gathering additional information on the status of storm drain lines A, B and G at Alameda Naval Air Station (NAS), Alameda Point, Alameda, CA. The task required for the data collection will include (1) hydro-jetting all of the main lines and laterals connected to the main lines; (2) determine the line condition with the use of a camera system; (3) document the radiation levels in the mainline and laterals; (4) management of the sediment and water generated for the operation. The combination of the camera investigation results, gamma survey results, and radiological sediment processing results will be used by the Navy to evaluate further action, if required, for these storm drain lines.

To provide a framework to perform the work described above the Navy has determined that the existing Remedial Action Work Plan (RAWP) for IR Site 17 Seaplane Lagoon, Alameda Point Alameda California and associated Field Change Requests (FCRs) prepared by TtEC under Contract N62473-10-D-0809 CTO No. 0006 and 0010 will govern the work to be performed Contract N62473-10-D-0809 CTO No. 0005.

Included as appendices to the RAWP with FCRs are the individual plans listed below. All work activities conducted under CTO No. 5 shall adhere to these plans in addition to the Radiological Standard Operating Procedures (SOPs) included in the RAWP and the specific work instructions included in this FCR.

- Site Safety and Health Plan (SSHP)
- Sampling and Analysis Plan (SAP)
- Dust Control and Air Monitoring Plan
- Contractor Quality Control Plan
- Stormwater Pollution and Spill Prevention Plan
- Waste Management/Transportation and Disposal Plan
- Data Management Plan
- Installation Restoration Site 17 Source Control Remedial Action Work Plan

The rationale for using the existing plans is that the TtEC scope of work for CTO No. 0006 and CTO No. 10 as defined by the RAWP and associated FCRs, included performing radiation control services, constructing a sediment dewatering pad, dredging and processing dredge sediments (includes radiological and chemical screening), installing and operating a wastewater treatment plant and transporting/disposing of the sediment. The RAWP also included source removal activities including, specifically, the removal of storm drain line G radiological sources by hydrojetting techniques. The work activities required for CTO No. 0005 are similar in nature to the work conducted under CTO No. 0006 and 0010 and therefore the Navy considers it prudent to use existing plans with any necessary modifications.

Change: The FCR05-01 form and this attachment has been prepared to address the plan requirements for CTO 0010 to incorporate necessary changes this FCR will adopt (as indicated on the following pages) in order to amend the existing CTO No. 0010 RAWP and appendices for use under CTO 0005.

Specific RAWP Changes

1. RAWP (main text) Section 1.5 – Remedial Action

Insert the following paragraph at the end of RAWP Section 1.5 to incorporate the requirements for additional evaluations of OU-2C storm drain lines associated with the work to be performed under CTO No. 0005 in the IR Sites 5 and 10 remediation areas.

"The DON required source control RA as described above to address removing radiological sources that originated in the OU-2C Buildings 5 and 400 and discharged into SPL. In January 2012, TtEC prepared Addendum 1 to theOU-2C FS Report for IR Sites 5 and 10 at Alameda Point in Alameda, California (FS Addendum). The FS Addendum was prepared under direction of the Department of the Navy (DON), Contract No. N62473-10-D-0809, Contract Task Order (CTO) No. 0005. The FS Addendum in part addressed potential and known radiologically impacted drain lines that originate from OU-2C and are located outside Buildings 5 and 400, as well as discharge points in Oakland Harbor. The Addendum supplements the final FS Report for OU-2C IR Sites 5 and 10 (FS Report), which was prepared by Battelle under Contract No. N62473-07-D-4013, CTO No. 0037 (Battelle 2011). Based on the recommendations presented in the FS Addendum the Navy directed TtEC under CTO No. 0005 to collect additional information on storm drain lines A, B and G, which originate in OU-2C Buildings 5 and 400 at NAS Alameda Point. The data collection process is discussed further in Appendix L. The purpose of the purpose of the work is to address possible human health risk associated with potential and known radiologically impacted drains lines that originate from the OU-2C buildings.

2. RAWP (main text) Section 8.0 – References

Add the reference for TtEC's FS Addendum and Battelle 2011 to the existing list.

TtEC. 2012. Final Addendum 1 to the Operable Unit 2C Feasibility Study Report IR Sites 5 and 10, Alameda Point, Alameda, California. January 13.

Battelle. 2011. Final Feasibility Study Report Operable Unit 2C IR Sites 5 and 10, Alameda Point, Alameda, California. May 20.

3. Appendix F - Contractor Quality Control Plan

Amend the Definable Feature of Work Table F4-1 with the attached amended pages. Table F4-1 has been amended to assign TtEC Activity Number where necessary. Incorporate the CTO No. 0005 baseline project schedule reflecting Activity Numbers. See attachments after the last page of text.

4. Appendix L – Installation Restoration Site 17 Source Control Remedial Action Work Plan

Insert the following paragraph at the end of Source Control RAWP, Section 1.0, Introduction, to reflect the current work requirements for storm drain line data collection tasks to be performed under CTO No. 0005 in the OU-2C remediation area.

"As part of the process to further characterize drains lines originating from OU-2C Buildings 5 and 400 (FS Addendum), the Navy has directed TtEC to perform work task associated with cleaning and removing sediment from existing storm drain lines A, B and G at NAS Alameda Point. The work will be implemented in conjunction with the current RAWP and applicable appendices. The evaluation work addresses the following task.

- Storm Drain Line Data Collection
  - The task will include (1) hydrojetting all of the main lines (except for Line G which was previously evaluated) and laterals connected to the main lines; (2) determine the line condition with the use of a camera system; (3) document the radiation levels in the mainline and laterals; (4) management of the sediment and water generated for the operation. The combination of the camera investigation results, gamma survey results, and radiological sediment processing results will be used by the Navy to evaluate further action, if required, for these storm drains. In addition to the requirement of performing the work in accordance with the existing RAWP, the activities will also be performed in accordance with the Radiological Work Instructions for the Hydrojetting of Storm Drain Lines A, B and G, and Vacuum Excavation of Radiologically Impacted Soil which will be added to Appendix Q of the RAWP.

Add the reference for FS Addendum in Section 4.0, References.

TtEC. 2012. Final Addendum 1 to the Operable Unit 2C Feasibility Study Report IR Sites 5 and 10, Alameda Point, Alameda, California. January 13.

5. Appendix Q – Work Instructions

Add Radiological Work Instructions for the Hydrojetting of Storm Drain Lines A, B and G, and Vacuum Excavation of Radiologically Impacted Soil to Appendix Q.

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
BATT4. TtEC4, TT10-5. Utility surveying (Battelle/TtEC)	• Review AHAs. • Verify that sensitive locations at the site are delineated and work crews are aware of restricted areas. • Review control points. • Review the RAWP. • Verify that radiation awareness training has been completed and training is documented.		• Verify that utility locations are marked in the field and identified to the equipment operators. • Verify that a qualified RCT and SSHO are present at active work areas.		• Verify that a qualified RCT and SSHO are present at active work areas. • Verify that utility locations are marked in the field and identified to the equipment operators. • Verify that boundaries of survey have been met. • Verify that site activities are being photographed. • Verify that photographs are logged and stored.	
BATT5a and b. TtEC7b and d, TT10-9. Baseline and final bathymetric surveying (Battelle/TtEC. TtEC includes debris piles area)	• Review project documents and verify that all meetings have been conducted and documented and that all notifications have been made. • Verify that proper base benchmark has been obtained. • Verify with the DON that site locations and off-site easements have been confirmed. • Review submittals from contractors. • Review AHAs for this activity.		• Verify that all site personnel including contractors have submitted health and safety documentation. • Review traffic access and base security requirements. • Verify that project documents have been reviewed and will be followed.		• Verify that contractor performs work as specified in the RAWP. • Verify that contractor has provided a copy of daily survey logbooks and listed control points used. • Verify that survey data and staking points are in accordance with the standard specified.	
Site Preparation, Setup, and Mobilization						
BATT6. TtEC1. TT10-1. TT10-5 Mobilization/site setup (Battelle/TtEC) **A1340 CTO. No. 0005**	• Verify that all pertinent documents are approved. • Review project documents and verify that all meetings have been conducted and documented and that all notifications have been made. • Verify that all site personnel including contractors have submitted health and safety documentation. • Review traffic access and base security requirements. • Review AHAs for this activity.		• Verify that materials and equipment delivered to the site are as identified in the RAWP. • Verify that work zones, including decontamination areas, are being constructed and/or delineated in accordance with the RAWP and APP. • Verify that stormwater management procedures are followed. • Verify that base traffic and security requirements are being followed.		• Verify that temporary facilities have been installed as per the RAWP. • Verify compliance. • Review base security. • Observe site traffic.	
BATT6a. TtEC1. TT10-5 Installation and setup of office trailer (Battelle/TtEC)	• Review the RAWP. • Review AHAs for this activity. • Verify that electrical work is conducted by a certified electrician.		• Verify that electrical work is conducted in accordance to the APP.		• Verify that all work has been performed in compliance with the RAWP.	
BATT 6b. TtEC1. TT10-5 Installation of temporary fencing and gates (Battelle/TtEC)	• Review site drawings and fence specification. • Verify that site security requirements have been reviewed.		• Verify that fence is installed as shown in the site plan drawing and in accordance with specifications. • Verify that site security requirements have been followed.		• Inspect fence installation.	
BATT7. TtEC1. TT10-5 Implementation of temporary erosion and sediment control measures (Battelle/TtEC)	• Verify that a site plan identifying sensitive areas is prepared. • Review AHAs for this activity. • Verify that equipment and products are appropriate for work and are stored on site.		• Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Identify inspection requirements. • Identify sensitive areas in field. • Verify that stormwater BMPs are implemented.		• Inspect field control BMPs. • Verify implementation of stormwater BMPs. • Inspect recordkeeping. • Review BMPs and update, if needed.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
BATT4. TtEC4, TT10-5. Utility surveying (Battelle/TtEC)	• Review AHAs. • Verify that sensitive locations at the site are delineated and work crews are aware of restricted areas. • Review control points. • Review the RAWP. • Verify that radiation awareness training has been completed and training is documented.		• Verify that utility locations are marked in the field and identified to the equipment operators. • Verify that a qualified RCT and SSHO are present at active work areas.		• Verify that a qualified RCT and SSHO are present at active work areas. • Verify that utility locations are marked in the field and identified to the equipment operators. • Verify that boundaries of survey have been met. • Verify that site activities are being photographed. • Verify that photographs are logged and stored.	
BATT5a and b. TtEC7b and d, TT10-9. Baseline and final bathymetric surveying (Battelle/TtEC. TtEC includes debris piles area)	• Review project documents and verify that all meetings have been conducted and documented and that all notifications have been made. • Verify that proper base benchmark has been obtained. • Verify with the DON that site locations and off-site easements have been confirmed. • Review submittals from contractors. • Review AHAs for this activity.		• Verify that all site personnel including contractors have submitted health and safety documentation. • Review traffic access and base security requirements. • Verify that project documents have been reviewed and will be followed.		• Verify that contractor performs work as specified in the RAWP. • Verify that contractor has provided a copy of daily survey logbooks and listed control points used. • Verify that survey data and staking points are in accordance with the standard specified.	
Site Preparation, Setup, and Mobilization						
BATT6. TtEC1. TT10-1. TT10-5 Mobilization/site setup (Battelle/TtEC) **A1340 CTO. No. 0005**	• Verify that all pertinent documents are approved. • Review project documents and verify that all meetings have been conducted and documented and that all notifications have been made. • Verify that all site personnel including contractors have submitted health and safety documentation. • Review traffic access and base security requirements. • Review AHAs for this activity.		• Verify that materials and equipment delivered to the site are as identified in the RAWP. • Verify that work zones, including decontamination areas, are being constructed and/or delineated in accordance with the RAWP and APP. • Verify that stormwater management procedures are followed. • Verify that base traffic and security requirements are being followed.		• Verify that temporary facilities have been installed as per the RAWP. • Verify compliance. • Review base security. • Observe site traffic.	
BATT6a. TtEC1. TT10-5 Installation and setup of office trailer (Battelle/TtEC)	• Review the RAWP. • Review AHAs for this activity. • Verify that electrical work is conducted by a certified electrician.		• Verify that electrical work is conducted in accordance to the APP.		• Verify that all work has been performed in compliance with the RAWP.	
BATT 6b. TtEC1. TT10-5 Installation of temporary fencing and gates (Battelle/TtEC)	• Review site drawings and fence specification. • Verify that site security requirements have been reviewed.		• Verify that fence is installed as shown in the site plan drawing and in accordance with specifications. • Verify that site security requirements have been followed.		• Inspect fence installation.	
BATT7. TtEC1. TT10-5 Implementation of temporary erosion and sediment control measures (Battelle/TtEC)	• Verify that a site plan identifying sensitive areas is prepared. • Review AHAs for this activity. • Verify that equipment and products are appropriate for work and are stored on site.		• Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Identify inspection requirements. • Identify sensitive areas in field. • Verify that stormwater BMPs are implemented.		• Inspect field control BMPs. • Verify implementation of stormwater BMPs. • Inspect recordkeeping. • Review BMPs and update, if needed.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC8. TT10-13 Screening of potentially radiologically impacted materials (TtEC) **A1370 CTO. No. 0005**	• Verify that the DON and the RASO have been notified. • Verify that the stormwater BMP requirements have been reviewed. • Verify that material and equipment for erosion control meet requirements for stormwater at the site. • Verify that equipment and products are appropriate for work and are stored on site. • Review work with the DON and verify the work area. • Verify that all workers have required health and safety documentation. • Review the RAWP. • Verify that materials and equipment delivered to the site are as identified in the RAWP. • Verify that safety checks on all heavy equipment have been completed. • Verify that all equipment operators are certified to operate the equipment and completed radiological training. • Review AHAs for this activity. • Verify that the relevant SOPs and/or manufacturers' instructions are available and have been reviewed for equipment to be used for radiological surveys. • Verify that dust control and erosion control measures are in place per the RAWP. • Verify that background reference area(s) for instrument background determinations have been identified. • Verify current calibration of survey instrument. • Verify that a daily operation check instrument logbook or data sheet is available.		• Verify that stormwater BMPs are implemented. • Verify equipment maintenance and safety conditions. • Verify that sediment free of radioactive debris is segregated and placed in the proper stockpile area. • Verify that the background reference area measurements for each instrument being used to survey have been obtained using the procedure described in the RAWP. • Verify that daily checks are performed on all portable survey instruments. • Verify that required dosimetry is being worn. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP and relevant SOPs.		• Inspect field control BMPs. • Verify implementation of the stormwater BMPs. • Verify that work area is protected from water runoff. • Verify that all radiological safety procedures are being followed. • Verify equipment maintenance and safety. • Verify that any suspected material location is marked, flagged, and documented. • Verify that daily instrument checks and background measurements are obtained and documented. • Verify that survey results are documented as required by the RAWP and SOPs. • Verify that RWP is available at the work site. • Verify that personnel have read and signed the revised RWP, if revision is required. • Verify that survey data and sample analysis results are reviewed and approved as required per the RAWP and SOPs.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
. TtEC10. Radiological surveys including personnel and equipment (TtEC) **A1370 CTO. No. 0005**	• Verify that the RPM, RASO, and CSO are notified. • Verify that an approved RWP is available and has been read and signed by assigned personnel. • Verify that the RAWP and AHAs have been reviewed. • Verify that assigned personnel are trained and qualified. • Verify that training record documentation is being maintained. • Verify that personnel have been given an emergency notification procedure. • Verify that workers assigned dosimetry have completed NRC Form 4. • Verify that the relevant SOPs and/or manufacturers' instructions are available and have been reviewed for equipment to be used for radiological surveys. • Verify that the limits and boundaries of surveys have been established and are understood. • Verify background reference area(s) for instrument background determinations has been identified. • Verify that calibration of survey instrument is current. • Verify that equipment is on site. • Verify that traffic schedule has been approved by CSO. • Verify that instrument a daily operation check logbook or data sheet is available.		• Verify that radiological instruments are as specified in the RAWP. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that site activities are being photographed. • Verify that the background reference area measurements for each instrument being used to survey have been obtained using the procedure described in the RAWP • Verify that daily checks are performed on all portable survey instruments. • Verify that required dosimetry is being worn. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP, SAP, and relevant SOPs. • Verify that the limits and boundaries of the survey are being met.		• Verify that the site is properly posted and secured, if necessary. • Conduct ongoing inspection of material and equipment. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that required dosimetry is being worn. • Verify that any suspected material location is marked, flagged, and documented. • Verify that daily instrument checks and background measurements are obtained and documented. • Verify that survey results are documented as required by the RAWP and SOPs. • Verify that the RWP is available at the work site. • Verify that personnel have read and signed the revised RWP, if revision is required. • Verify that survey data and sample analysis results are reviewed as required by the RAWP, SAP, and SOPs. • Verify that survey activities conform to the RAWP and SOPs. • Verify that the boundaries of the survey have been met. • Verify that survey instrument is recalibrated after repairs or modifications. • Verify that personnel surveys are performed for all personnel leaving a radiologically controlled area. • Verify that equipment surveys are performed for all equipment leaving a radiologically controlled area. • Verify that the RASO is notified of discovered radioactive material. • Verify that areas known or suspected to contain radioactive material are isolated. • Verify that site activities are being photographed. • Verify that photographs are logged and stored.	•

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC5 and 6. Excavation and removal of soil/piping (TtEC) (Continued)	•				• Verify that photographs are logged and stored. • Verify that traffic control procedures are being followed.	
TtEC3. Cleaning of storm drain system pipe (TtEC) **A1350 CTO. No. 0005**	• Notify the DON, the RASO, and agencies. • Verify that activities will be conducted in accordance with approved RAWP. • Review AHAs for this activity. • Verify CSO has approved the Traffic Control Plan. • Verify that the RWP is in place and that all workers have read the requirements.		• Verify water storage tanks appropriately placed. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that air monitoring per SSHP is being followed. • Verify that required dosimetry is being worn. • Verify that all personnel have signed the RWP(s). • Verify that the cleaning protocol, as described in the RAWP and work instructions, is being followed. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP and relevant SOPs. • Verify Traffic Control Plan is being followed. • Verify photographs are being taken. • Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Verify that SPSPP BMPs are implemented. • Verify equipment maintenance and safety conditions. • Verify that work boundary is properly delineated.		• Verify that required dosimetry is being worn. • Verify that daily safety briefings discuss status of RWP(s). • Verify that RWP is available at the work location. • Verify that RWP is modified in the event of changes to the conditions. • Verify that the RASO concurred with the modified RWP and concurrence is documented. • Verify that tools, material, and equipment are cleaned, wiped down, and surveyed prior to removal from work areas. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Inspect field control BMPs. • Verify water storage tanks are inspected daily and water transferred to the water treatment plant in a timely manner	
BATT19. TtEC7e and 9. TT10-10 Confirmation sediment sampling (BattelleTtEC[non-impacted soil or sediments]/TtEC [suspected LLRW materials])	• Notify the DON, the RASO, and agencies. • Conduct activities in accordance with approved RAWP. • Verify that appropriate containers and sampling equipment are available. • Review AHAs for this activity. • Review shipping and handling of samples requirements. • Review testing laboratory certifications.		• Confirm that samples will be collected and analyzed in accordance with the RAWP. • Inspect sampling equipment. • Verify that appropriate containers and sample preservatives are used. • Verify proper handling and packaging of samples. • Follow equipment decontamination procedures.		• Conduct ongoing inspection of proper sampling and equipment decontamination techniques. • Follow up with laboratory to ensure proper delivery of all collected samples. • Confirm receipt of analytical data.	
BATT20. TtEC 13. TT10-13 Decontamination and final radiological screening of project site (Battelle/TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs.		• Verify that decontamination and survey procedures are being followed. • Verify that required dosimetry is being worn. • Verify documentation. • Verify that site activities are being photographed. • Verify that surveys are being documented on the appropriate form.		• Conduct ongoing inspection of decontamination and survey activities. • Verify that required dosimetry is being worn. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that survey forms are properly completed and stored.	

TABLE F.4-1

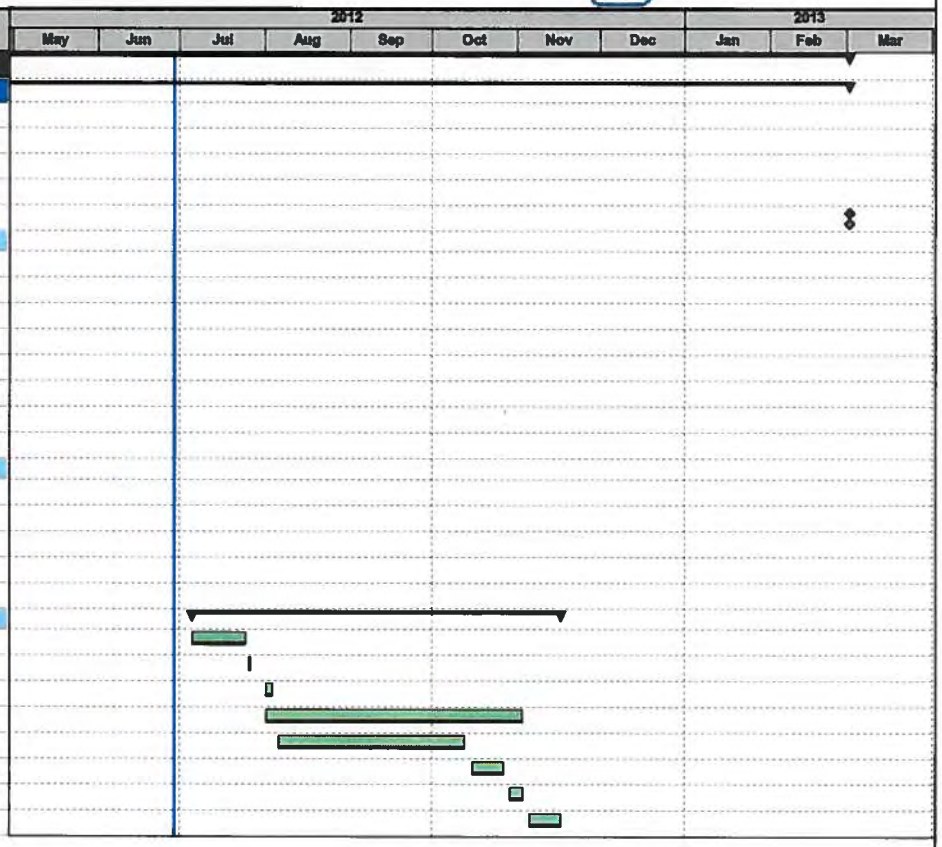
DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC11. TT10-14 Transportation and disposal of RCRA, non-RCRA, and nonhazardous soil, sediment, and debris (TtEC)	• Verify that all transporters are authorized to haul the particular type of waste being transported. • Verify that the ROICC and CSO have been notified. • Review the RAWP and RWP for the portal monitor operations. • Verify that waste profiles have been approved by disposal sites. • Verify that the waste manifest has been approved and signed by DON representative. • Verify that all traffic or other (if any) permits from Alameda County have been obtained. • Verify that locations of disposal with the ROICC have been confirmed. • Review submittal load tickets process from contractors. • Review the traffic pattern. • Review the road closure and traffic plan with ROICC and CSO. • Review signage requirements with ROICC and CSO. • Review truck decontamination requirements. • Review the AHA for this activity.		• Verify that all transporters are authorized to haul the particular type of waste being transported. • Verify trucks are passing portal monitor during ingress to the site and egress from the site. • Verify drivers sign manifest. • Verify that the contractor performs work as specified in the RAWP and Waste Management/Transportation and Disposal Plan. • Review load ticket record procedures. • Verify that truck decontamination is being conducted in accordance with the RAWP.		• Verify RSOR has monitored use of portal monitor • Verify manifest are signed and originals given to CSO • Verify that the contractor has provided delivery logs. • Verify that disposal loads are in accordance with the standard requirements of the RAWP. • Verify that all load tickets are accounted for.	
BATT20. TtEC13. TT10-12 Decontamination (Battelle/TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs.		• Verify that decontamination and survey procedures are being followed. • Verify documentation. • Verify that site activities are being photographed. • Verify that surveys are being documented on the appropriate form.		• Conduct ongoing inspection of decontamination and survey activities. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that survey forms are properly completed and stored.	
Site Restoration and Demobilization						
TtEC14. TT10-12 Site Restoration (TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs. • Review site restoration activities and procedure.		• Verify that site demobilization procedures have concurrence from the DON. • Inspect site restoration activities. • Verify that site activities are being photographed (before/after photographs).		• Conduct ongoing inspection of site restoration activities. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that radiological survey is being conducted in accordance with the RAWP. • Verify that construction-related damages are repaired.	
BATT23. TtEC15. TT10-12 Demobilization (Battelle/TtEC) **A1380 CTO. No. 0005**	• Notify the DON and the RASO. • Review AHAs. • Review site demobilization production. • Verify that the final inspection checklist has been prepared.		• Verify that all construction material and equipment have been free released, prior to removal from the site. • Verify that the site activities are photographed. • Verify that the punch list items identified during the final inspection are included on the inspection report.		• Verify that all equipment and materials are removed from the site. • Verify that all the punch list items on the inspection reports are completed. • Verify that survey forms are properly completed and stored. • Verify that all equipment and material have been inspected, screened, and approved prior to removing from the site.	

Contract No. N62473-10-D-0809
106-40440005

TETRA TECH FC INC

Activity ID	Activity Description	Rem Dur	Start	Finish
RAD EMAC Task 5 - OU-2C Sewerline Rad Strategy		167	02-Sep-10 A	01-Mar-13
POP		167	02-Sep-10 A	01-Mar-13
A1010	Award Date	0	02-Sep-10 A	
A1020	Kick-off Meeting	0	14-Sep-10 A	
A1030	Strategy Formulation	0	15-Sep-10 A	10-Mar-11 A
A1040	Strategy Decision Date	0	10-Mar-11 A	
A1050	Contractual Completion Date	0		01-Mar-13
FS Addendum		0	11-Mar-11 A	13-Jan-12 A
A1060	Internal Draft FS Addendum	0	11-Mar-11 A	16-May-11 A
A1070	Navy Review of Internal Draft FS Addendum	0	17-May-11 A	24-Jun-11 A
A1080	Comment Resolution through Production	0	20-Jun-11 A	09-Aug-11 A
A1090	Regulatory Agency Review of Draft FS Addendum	0	10-Aug-11 A	12-Oct-11 A
A1100	Draft Final FS Addendum	0	13-Oct-11 A	06-Dec-11 A
A1110	Regulatory Agency Review of Draft Final FS Addendum	0	07-Dec-11 A	09-Jan-12 A
A1120	Draft Final Agency Concurrence	0	09-Jan-12 A	
A1130	Final FS Addendum	0	10-Jan-12 A	13-Jan-12 A
Reports and Data Submission		0	11-Mar-11 A	13-Jan-12 A
A1150	Internal Draft Tech Memo	0	11-Mar-11 A	16-May-11 A
A1160	Navy Review of Internal Draft Tech Memo	0	17-May-11 A	24-Jun-11 A
A1170	Draft/Draft Final Tech Memo Preparation, Review, and Comment Resolu	0	25-Jun-11 A	09-Jan-12 A
A1200	Agency Concurrence	0	09-Jan-12 A	
A1190	Final Tech Memo	0	10-Jan-12 A	13-Jan-12 A
Modification 1		96	05-Jul-12	16-Nov-12
A1320	Field Change Request	14	05-Jul-12	24-Jul-12
A1330	Pre-Construction Meeting	1	26-Jul-12	26-Jul-12
A1340	Mobilization	3	01-Aug-12	03-Aug-12
A1370	Radiological Controls	67	01-Aug-12	02-Nov-12
A1350	Hydrojet/Gamma Scan Storm Drain Lines A, B, & G	49	06-Aug-12	12-Oct-12
A1360	Process Sediments	10	15-Oct-12	26-Oct-12
A1380	Demobilization	5	29-Oct-12	02-Nov-12
A1390	Completion Report	10	05-Nov-12	16-Nov-12



Summary
Level of Effort
Milestone
Baseline Milestone
Actual Work
Critical Work
Remaining Work
Primary Baseline

Project Schedule
RAD EMAC Task 5

OU-2C Sewerline Radiological Strategy
Alameda Point, CA

Data Date: 29-Jun-12

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1 of 1

INSTALLATION RESTORATION SITES 5 AND 10
OPERABLE UNIT 2-C (OU-2C), SEWELINE RADIOLOGICAL
STRATEGY AT ALAMEDA POINT, ALAMEDA, CA

Contract No. N62473-10-D-0809
CTO No. 0005

WORK INSTRUCTION
HYDROJETTING OF STORM DRAIN LINES A, B AND G

June 15, 2012

ALAMEDA POINT
ALAMEDA, CALIFORNIA

TETRA TECH EC, INC.
1230 Columbia Street, Suite 750
San Diego, California 92101

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1.0 Purpose

The purpose of this work instruction is to establish the requirements for hydro-jetting and additional characterization of storm drain lines A, B and G at Alameda Naval Air Station (NAS), Alameda Point, Alameda, CA. The activities include (1) hydro-jetting all of the main lines and laterals connected to the main lines; (2) document the line condition with the use of a camera system; (3) document the radiation levels in the mainline and laterals; (4) management of the sediment and water generated for the operation. The combination of the camera investigation results, gamma survey results, and radiological sediment processing results will be used by the Navy to evaluate further action, if required, for these storm drain lines.

This work instruction covers specific activities in relation to the pipe sediment removal process and associated activities and is to be used in conjunction with Final Remedial Action Work Plan, Installation Restoration Site 17 Seaplane Lagoon, Alameda Point Alameda California and its associated appendices such as the Standard Operating Procedures (SOPs), Health and Safety Plan and Sample and Analysis Plan.

The pipe sediment removal system and camera equipment will be operated in accordance with the manufacturer's operating instructions. Pipe sediment removal operations will be subject to the requirements of a Tetra Tech EC, Inc. (TtEC) site specific Radioactive Work Permit (RWP) and activity hazard analysis (AHA) and this work instruction.

The work is being done based on the alternatives presented in the Internal Draft Radiological Addendum 1 to the Feasibility Study Report Operable Unit 2C IR Sites 5 and 10, May 16 2011, Co. No. N62473-10-D-0890, CTO No. 0005.

2.0 Sediment Removal Process

2.1. Initial Setup

The hydro-jetting process will focus on one or two reaches of pipe at a time (span between two or three manholes/catch basins). Figure 1 shows the main run of Lines A, B and G and associated laterals, manholes and catch basins. The plan is to start hydro-jetting from the upstream manholes and proceed to the out falls. Sediment removal

operations will not take place during rain events. However, in the event of a rain event while a section of the line is plugged, water from upstream of the isolated area will be pumped around to a manhole within Lines A, B and G that is further down in the system.

The work area around an upstream and downstream manhole will be covered with impervious material and posted as an RCA as indicated in Section 5 below. The manholes will be plugged to prevent water and sediment from leaving the section of line being worked on. The upstream side of the upstream manhole and the downstream side of the downstream manhole will be plugged. Laterals that feed into the manholes will also be plugged. Manholes upstream and downstream of the manholes being worked on will be checked periodically to verify that the plugs are not leaking. The first step in the sediment removal process will be to run a camera through the line to verify the condition of the line and the amount of sediment present. Information from the camera run will be maintained for verification purposes.

2.2. Hydro-Jetting

Each section of the main lines and laterals will be cleaned with hydro-jetting equipment. A hydro-jetting nozzle, connected to a high pressure water pump, will be pulled through the line by use of cables and reels at the upstream and downstream manholes. Cleaning is accomplished by pulling the nozzle back through the pipe (repeatedly, if necessary) until the water runs clear. The water and sediment from hydro-jetting will be flushed in to a downstream manhole and removed using the vacuum truck. The vacuum truck will be operated in accordance with the Work Instruction, Vacuum Excavation of Radiologically Impacted Soils. The vacuum truck will operate until it is full of sediment. During operation, water will be removed from the vacuum truck and pumped to holding tanks. When the vacuum truck is full of sediment the suction line will be capped and bagged and the truck will be moved on a dewatering pad constructed under the Final Remedial Action Work Plan Installation Restoration Site 17 Seaplane Lagoon Alameda Point, Alameda, California (IR Site 17 RAWP). The truck will be emptied on the dewatering pad and the material will be

handled under the procedures for processing sediments described in the IR Site 17 RAWP.

Following the hydro-jetting process, of each section of line, a camera will be drawn through the line to verify the condition of the line and document the removal of all sediment. If required additional hydro-jetting will be conducted to remove the remaining sediment. Hydro-jetting of each section will be determined complete based on field interpretation of the camera results. Information from the camera run will be provided to the Navy for verification purposes and further evaluation.

Following removal of the sediment, and review of the camera data, a water proof gamma detector, Ludlum Model 44-10-5, connected to a Ludlum Model 2350-1will be pulled through the line and the readings recorded. The results of this survey will be provided to the Navy for evaluation.

2.3. Water and Sediment Processing

Water from the vacuum truck will be pumped into water storage tanks. Following hydro-jetting, camera and radiological evaluation the equipment will be moved to the next location. Water from the storage tanks will be transported to the existing IR Site 17, 350,000-gallon holding tank and batched, filtered, sampled, and, contingent upon sample results and approval, discharged into Seaplane Lagoon.

Sediment form the vacuum truck will be transported to the Site 17 dewatering pad and segregated by storm drain line (A, B and G) and processed in accordance with the requirements in the Site 17 Work Plan. Sediment will be placed on screening pads and surveyed using the Vehicle Towed Array (VTA). Following the VTA scanning, the sediment will be moved to 40 cubic yard sampling/holding cells and sampled for radiological and chemical constituents. Subject to characterization, the waste sediment will be 1) transported to the runway area for IR Site 2 landfill use, 2) transported off-site by TtEC for disposal (non-LLRW), or 3) turned over to the Navy's LLRW waste broker for further disposition. Data for the radiological screening and sampling of sediment from each line will be provided to the Navy for evaluation.

3.0 Air Monitoring Requirements

The sediment removal process is a wet process and is not likely to generate airborne concentration greater than 10 percent of a DAC. However, to assure levels are maintained below the DAC, air monitoring for radiological constituents will be performed continuously in accordance with standard operating procedure (SOP) 9, *Air Sampling and Analysis*. Air sampling will be performed in the immediate vicinity of sediment removal activities (each manhole) by taking an upwind sample, a downwind sample, and a grab sample at the location of the work. Upwind and downwind will be sampled 100% of the time during operation. Grab samples will be collected during each operation.

If the airborne concentration exceeds 10 percent of the DAC activities will cease and the affected location will be posted until the source of the airborne concentration is eliminated and levels are confirmed to be below 10 percent of the DAC.

4.0 Radioactive Material Control

Equipment used for the sediment removal process will be surveyed and decontaminated to the maximum extent practicable. If radioactive contamination exceeding the release criteria in Table 1 is identified on items that will need to be released, decontamination will be performed in accordance with SOP 7, *Decontamination of Tools and Equipment*. Any decontaminated item deemed reusable that continues to exhibit fixed activity will be inventoried and controlled under the applicable radioactive materials license (and program). Likewise, reusable material and equipment exhibiting fixed activity will be segregated and stored in an approved Radioactive Materials Area (RMA). Items designated as radioactive material will be permanently identified and marked as such. In the event that disposal of contaminated items and material is necessary, all will be managed according to the Department of the Navy's low-level radioactive waste (LLRW) program. Free release surveys of applicable tools, materials, and equipment associated with the removal action will be conducted in accordance with SOP 1, *Radiation and Contamination Surveys*.

TABLE 1
MATERIALS AND EQUIPMENT RELEASE CRITERIA

Radionuclide	Radiation	Half-life (years)	Surfaces[a] (dpm/100 cm^2)	Soil[b] (pCi/g)	Water[d] (pCi/L)
Cesium-137	Beta, gamma	30.1	5,000	0.113	119
Radium-226	Alpha, gamma	1,600	100	1.0[c]	5[e]
Strontium-90	Beta	28.78	1,000	0.331	8

Notes:

a These limits are based on AEC *Regulatory Guide 1.86* (1974). Limits for removable surface activity are 20 percent of these values.

b EPA Preliminary remediation goals.

c Limit is 1 pCi/g above background, per agreement with EPA.

d Release criteria for water have been derived from *Radionuclides Notice of Data Availability Technical Document*, (EPA, 2000) by comparing the limits from two criteria and using the most conservative limit.

e Limit is for total radium concentration.

cm^2 – square centimeters
dpm – disintegrations per minute
EPA – U.S. Environmental Protection Agency
pCi/g – picocuries per gram

5.0 Radiological Control Considerations

5.1. Contamination Controls

Work areas in the immediate vicinity of the manholes where the operations will be conducted, locations where hose connections will be connected and disconnected, and tank interiors will be controlled as Radiologically Controlled Areas (RCAs). RCAs will be established in accordance with SOP 5, *Radiological Protective Clothing Selection, Monitoring, and Decontamination.* Impervious material will be spread on the ground and the areas will be delineated with ropes and signs marked CAUTION RADIOLOGICALLY CONTROLLED AREA. In the case of spills, spill response will be performed in accordance with TtEC's Nuclear Regulatory Commission license procedure *NLP-06: Managing Radiological Emergencies* in the event of a spill of potentially radioactive material. Shoe covers and gloves will be required in the area. Full coverall anti-contamination clothing, cotton liners, rubber gloves, rubbers

overshoes, and thermal luminescent dosimeters (TLDs) will be required when removing hoses and equipment from the manholes/catch basins.

All participating personnel will have been previously trained in the proper donning and doffing procedures for anti-contamination clothing. Donning and doffing of anti-contamination clothing will be performed in accordance with SOP 5, *Radiological Protective Clothing Selection, Monitoring, and Decontamination.* Whole body exit surveys will be required. Whole body surveys will be performed with a Ludlum 43-89 scintillation probe connected to a Ludlum 2360 meter or equivalent in accordance with SOP 5, *Radiological Protective Clothing Selection, Monitoring, and Decontamination.* All whole body exit surveys will be conducted by a radiological control technician. Self-surveys will not be allowed.

All items and equipment will be subject to survey in accordance with SOP 1, *Radiation and Contamination Surveys,* upon removal from the area. All work inside RCAs will require constant radiological control coverage from a radiological control technician.

5.2. Radiological Controls for Hoses

Commercially available poly tubing will be used to sheath the hose connections, outside of the manhole and sewer lines, to minimize the chance of spills. During operation of the sediment removal equipment, the vacuum truck and hydro-jetting equipment and associated hoses will be controlled within an RCA and any liquid/slurry will be handled as if it is contaminated. Impervious material will be placed on the ground underneath all sediment removal equipment while the system is in operation and all sediment removal equipment and hose ends will be wrapped in plastic prior to transport to another radiologically controlled area. To prevent material from escaping from the suction hoses and pumps when not in use, the hose and pump openings will be plugged and/or capped and wrapped in plastic. Installation of plastic coverings will be verified by the radiological control technician prior to allowing the hoses and pumps to be relocated. While removing hoses and cables from a manhole the hoses and cables will be rinsed back into the manhole and wiped down to minimize the amount of contamination on the outside of the hose and cables and therefore minimize chances of the spread of contamination.

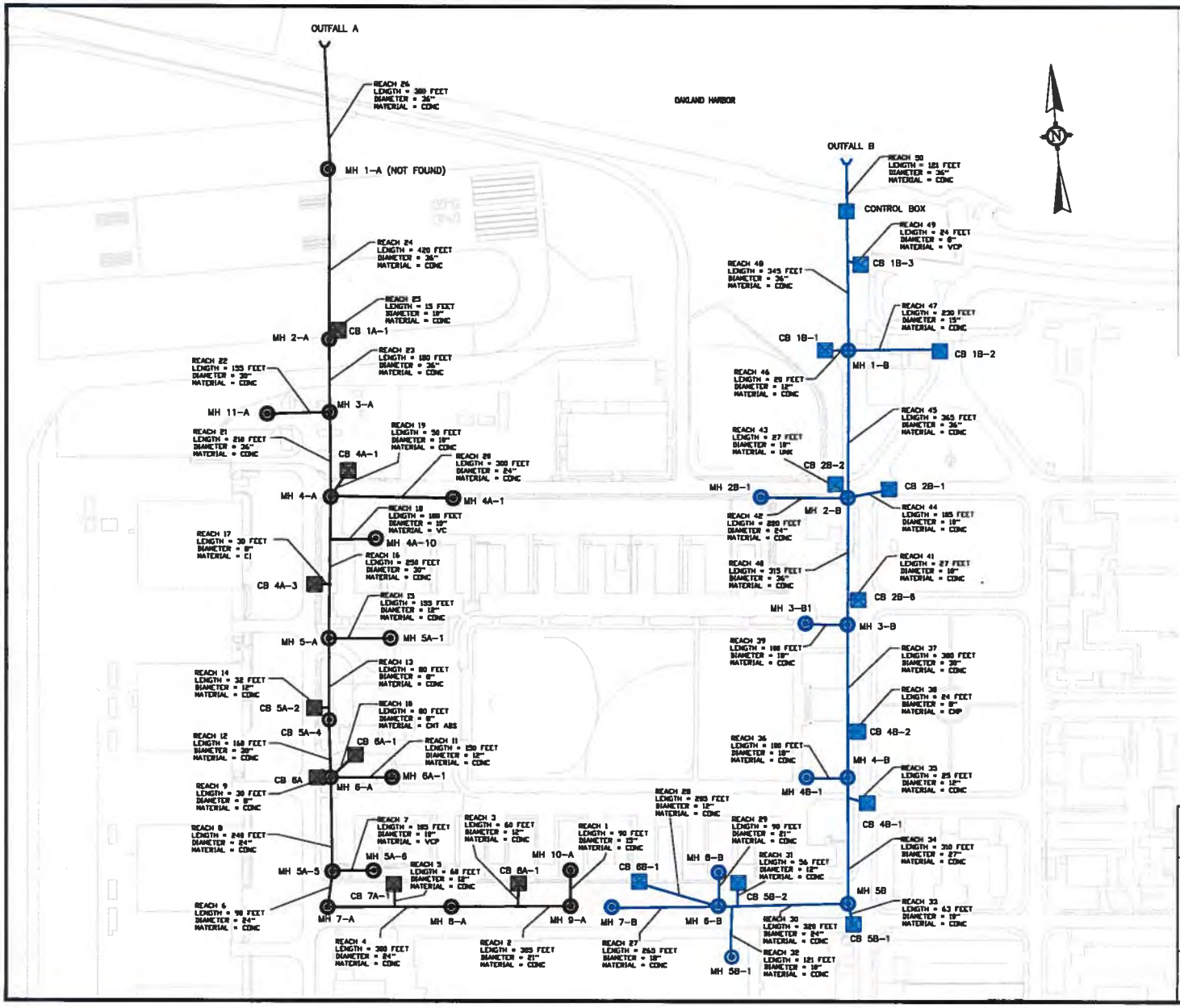
5.3. Radiological Controls for the Vacuum Truck

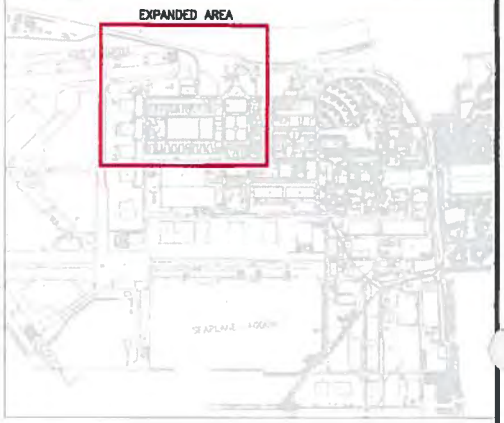
The vacuum truck, while being filled, will be controlled inside an RCA. If contamination is identified outside of an RCA, operations will stop and the RASO will be notified.

The interior and exterior of the vacuum truck will be cleaned, visually verified free of debris, large area wiped, and gamma scanned after each time that the truck is emptied in order to minimize the possibility of spreading contamination. At the completion of the sediment removal process all equipment, including the vacuum truck, that was used will be surveyed and decontaminated. Surveys will be conducted in accordance with SOP 1, *Radiation and Contamination Surveys.* To minimize generation of radioactive waste, surveys will be completed prior to any decontamination method being used. If necessary, decontamination will be performed in accordance with SOP 7, *Decontamination of Tools and Equipment.*

A visual inspection for debris, damage, and deterioration of the rear door gasket on the vacuum truck will be performed in order to ensure a proper seal of the rear door before every use. If necessary, the gasket will be cleaned of materials that could prevent a seal before closing the debris body after emptying a load.

Periodically during operation and prior to movement of the vacuum truck, the exterior radiation levels will be checked with a Bicron Micro Rem dose rate meter by a radiological controls technician. If radiation levels are found to be greater than 2 mrem/hr, operations with the system will be stopped and the RSO and the RASO will be notified. At a minimum for work to continue, radiation areas will be established around the vacuum truck to the extent that all dose rates 2 mrem/hr and greater will be contained within a radiation area. Radiation areas will be established in accordance with TtEC's Nuclear Regulatory Commission licensed procedure *NLP-04: Radiological Entry Control Program.*





LOCATION MAP

LEGEND

- STORM SYSTEM A TO BE CLEANED & SURVEYED
- STORM SYSTEM B TO BE CLEANED & SURVEYED
- STORM SYSTEM A MANHOLE EXAMINED
- STORM SYSTEM A CATCH BASIN EXAMINED
- STORM SYSTEM B MANHOLE EXAMINED
- STORM SYSTEM B CATCH BASIN EXAMINED

ABBREVIATIONS

CB = CATCH BASIN
CI = CAST IRON
CMP = CORRUGATED METAL PIPE
CONC = CONCRETE PIPE
CMT.ABS = CEMENT ASBESTOS
IR = INSTALLATION RESTORATION
MH = MANHOLE
NAS = NAVAL AIR STATION
VCP = VITRIFIED CLAY PIPE

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(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

CTO 5 - OPERABLE UNIT 2C IR SITES 5 AND 10

FIGURE 1
STORM SYSTEM A & B

ALAMEDA, CALIFORNIA

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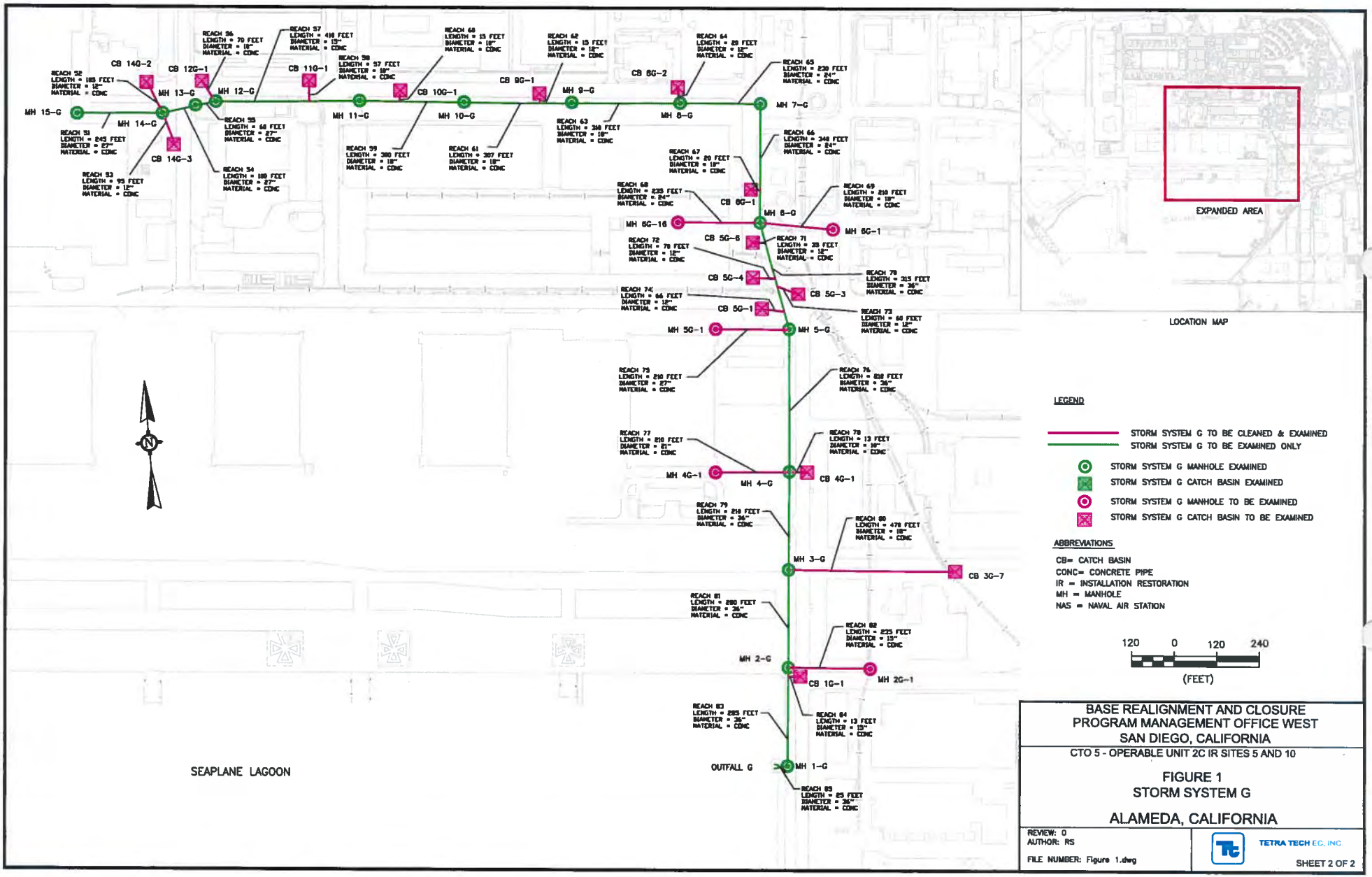
FILE NUMBER: Figure 1.dwg

TETRA TECH EC, INC.

SHEET 1 OF 2



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

CTO 5 - OPERABLE UNIT 2C IR SITES 5 AND 10

FIGURE 1
STORM SYSTEM G

ALAMEDA, CALIFORNIA

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AUTHOR: RS
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TETRA TECH EC, INC

SHEET 2 OF 2

INSTALLATION RESTORATION SITES 5 AND 10
OPERABLE UNIT 2-C (OU-2C), SEWELINE
RADIOLOGICAL STRATEGY AT ALAMEDA POINT,
ALAMEDA, CA

Contract No. N62473-10-D-0809
CTO No. 0005

WORK INSTRUCTION
VACUUM EXCAVATION OF
RADIOLOGICALLY IMPACTED SOILS

June 15, 2012

ALAMEDA POINT
ALAMEDA, CALIFORNIA

TETRA TECH EC, INC.
1230 Columbia Street, Suite 750
San Diego, California 92101

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3.0 Air Monitoring Requirements 2

4.0 Radioactive Material Control 2

5.0 Special Considerations for the Guzzler Vacuum System Manufactured by Vactor 3

1.0 Purpose

The purpose of this work instruction is to provide supporting information regarding the use of a vacuum system for removal of potentially radiologically contaminated soils and sediments at Alameda Naval Air Station (NAS), Alameda Point, Alameda, CA. The vacuum system will be operated in accordance with the manufacturer's operating procedure.

Work will be performed in accordance with the requirements of the Final Remedial Action Work Plan (RAWP), Installation Restoration Site 17 Seaplane Lagoon, Alameda Point Alameda California and the Tetra Tech EC, Inc. (TtEC) site specific Radioactive Work Permit (RWP) and activity hazard analysis (AHA) and this work instruction.

The primary use of this vacuum system is for vacuuming of soils and sediments in conjunction with the removal of potentially radiologically contaminated storm drains and sanitary sewers.

2.0 Vacuum System Description

The system is a powerful, efficient, heavy duty, dust-free, single mode, mobile vacuum loading unit for the pneumatic removal of dry materials, sludges, slurries and liquids from remote and inaccessible locations through suction lines. The system consists of a positive displacement type vacuum pump, hydraulic and pneumatic control systems, multiple air filtration systems, and a dump type hydraulically sealed payload debris tank. It is capable of vacuuming a wide range of wet or dry materials in a variety of viscosities and weights.

The system has a four-stage filtration system that includes an 18-cubic yard debris tank which creates a velocity drop releasing the materials into the tank that removes approximately 98% of the solid materials from the air flow; a cyclone separator where centrifugal force hurls finer particles to the cyclone wall and spirals them downward into a collection hopper; followed by a baghouse containing sixty 70-inch Dacron filters that remove fine particles down to 5 micron; and a final micro strainer that prevents foreign objects from entering the blower. Vacuum units of this type are widely used for removing soil and sediments from around utilities without

causing damage, as well as for industrial cleaning where mixtures of coarse materials and fine dusts must be removed and contained.

3.0 Air Monitoring Requirements

To minimize potential worker exposure during excavation activities, air monitoring for radiological constituents will be performed continuously in accordance with standard operating procedure (SOP) 9, *Air Sampling and Analysis*. Air sampling will be performed in the immediate vicinity of the removal action by taking an upwind sample, a downwind, a grab sample of the location of the removal and at the exhaust of the air inlet silencer during operation. Upwind, downwind and the exhaust of the air inlet silencer will be sampled 100% of the time during operation. A minimum of one 20 min grab sample will be collected during each operation.

If airborne concentrations exceed 10 percent of the DAC, as identified in Table 4-1 of the RAWP, ongoing activities will cease and the affected location will be posted until the source of the airborne concentration is eliminated and levels are confirmed to be below 10 percent of the DAC.

4.0 Radioactive Material Control

At the conclusion of project operations with the vacuum system, materials and equipment that may have potential internal contamination that cannot be decontaminated will be segregated and stored in an approved Radioactive Materials Area for possible reuse. Potentially contaminated items will be surveyed to the maximum extent practicable before being inventoried and controlled under the applicable radioactive materials license. Potentially contaminated items will be permanently identified and marked. In the event disposal of these potentially internally contaminated items is necessary, they will be managed according to the Department of the Navy's LLRW program. Filters will not be released back to the vendor after having been used during excavation, and will be disposed of as LLRW.

Free release surveys of all tools, materials, and equipment associated with the vacuum system will be conducted in accordance with SOP 1, *Radiation and Contamination Surveys. Surveys* will

focus on the baghouse, the cyclone separator, in the debris body, and in other areas where the potentially contaminated media and air mixture came into contact with the machine. Items that cannot be adequately surveyed, based on how they were used and surface accessibility, will be disposed of as LLRW. To minimize generation of radiological waste streams, surveys will be completed prior to any chemical decontamination method being used. If radioactive contamination is identified that is above the appropriate release criteria in Table 4-3 of the RAWP, decontamination will be performed in accordance with SOP 7, *Decontamination of Tools and Equipment.*

5.0 Special Considerations for the Guzzler Vacuum System Manufactured by Vactor

- To prevent material from escaping from the suction hose when not in use, the suction hose will be sealed using the water tight cap supplied by the manufacturer. Cap installation will be verified by the radiological control technician prior to allowing the system to be transferred between radiological areas.
- Periodically during operation and prior to movement of the system, the exterior radiation levels will be checked by an RCT. If radiation levels are found to be greater than 2 mrem/hr operations with system will be stopped and the RSO will be notified.
- To prevent material from escaping from the rear valve on the debris body when not in use, the rear valve will be sealed using the water tight plug supplied by the manufacturer and the valve will be placed in the shut position. Plug installation and valve position will be verified by the radiological control technician prior to allowing the system to be transferred between radiological areas.
- Occasionally the system will need to be transported between radiological areas. In these cases, the system will remain under the constant supervision of a radiologically trained worker while in transit in accordance with TtEC's license procedure NLP-02, Radioactive Material Accountability.
- With the exception of during transport between radiologically controlled areas, the system will be stored inside radiological areas until a free release survey of the system is

performed in accordance with SOP 3 *Release of Materials and Equipment from Radiologically Controlled Areas*.

- A visual inspection for debris, damage and deterioration of the rear door gaskets will be performed in order to ensure a proper seal of the debris body before every use. If necessary, the gasket will be cleaned of materials that could prevent a seal before closing the debris body after emptying a load.
- To prevent material from escaping from the rear door of the debris body when not in use or during transport the integrity of the seal will be visually inspected for leaks prior to allowing the system to be transferred between radiological areas.
- After the system has emptied a load, the inside of the debris body and exterior of the system will be cleaned, visually verified free of debris, large area wiped and gamma scanned after each time that the system is emptied in order to minimize the possibility of contaminating future remediated soils that may be left in the debris body and to ensure that the system is not externally contaminated prior to transport to another radiologically controlled area.
- If at any time during use the exterior of the system becomes contaminated or visual debris is found on the system's exterior, the system will be cleaned, visually verified free of debris, large area wiped and gamma scanned in order to minimize the possibility of contaminating future remediated soils that may be left in the debris body and to ensure that the system is not externally contaminated prior to transport to another radiologically controlled area.
- If water saturated soil or sediment is being vacuum excavated, the rear valve on the debris body will be carefully opened over the dewatering pad in the radiological screening yard to determine the water content of the load. If controlled discharge of the load cannot be accomplished due to excessive water, water will be drained from the load, through the valve, onto the dewatering pad, prior to opening the rear door and discharging the soil load. Wet material will only be allowed to be emptied onto screening pads specifically designed for dewatering.

TtEC, NAVFAC SW RMAC CONTRACT NO. N62473-10-D-0809, CTO N0. 0005

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	0005	FCR # 05-2	DATE 11/22/12
LOCATION	Alameda Point OU-2U IR Site 5 and 10	ROICC	Gregory Grace
SUBJECT: Industrial Waste Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC	

1. Document to be changed. Identify revision, date, section, drawing, etc.

Final Remedial Action Work Plan, January, 2011. DCN: RMA-0809-0006-0001.R1, Appendix L, Section 1.0

2. Description of existing requirements and proposed change (Attach sheet if necessary)

Existing Requirements: TtEC CTO No. 0006 and 0010 work activities that focus on the remediation of the Site 17 area are dictated by the referenced RAWP and included source removal work on the storm drain line G main trunk, which originated from the OU-2C area of NAS Alameda Point. At the Navy's direction, TtEC, under NAVFAC SW Radiological EMAC CTO 0005, will perform characterization/health and safety activities on the remaining radiologically-impacted storm drain lines originating from the OU-2C Building 5. The work will be conducted in accordance to the RAWP and the revisions incorporated into it by this and other previously issued FCRs.

Change: Add this bullet/paragraph to the end of Section 1.0 of Appendix L

- TtEC will perform an investigation of the possible IW line manhole discovered near former Structure 29. TtEC plans on removing all the sediment from the manhole and placing the material on a screening pad within the CTO 10 laydown area. A towed array will be performed per SOP 13, "Vehicle Towed Array (VTA)", of the sediment and two biased samples will be collected and analyzed. Gamma/alpha/beta scans and statics will be performed per SOP 1, "Radiation and Contamination Surveys" as practicable within the manhole and swipe samples will be collected. The sediments will be removed from the manhole with using the vacuum/Guzzler truck in accordance with the "Vacuum Excavation of Radiologically Impacted Soils Work Instruction". Procedures and Work Plans currently being used for hydro-jetting of lines A, B and G, will be followed during the investigation. Figure L-1.1 depicts location of work.

3. Reason for Change (Attach sheet if necessary)

The above referenced RAWP was prepared to address the TtEC work elements awarded under CTO No. 0006 and CTO No. 0010, and must be amended to ensure that it adequately addresses the tasks to be executed under CTO 0005.

4. Cost and Schedule Implications (if any)

NA

Originator: (Print name and sign) Vince Richards		Title TtEC Project QC Manager	Date 12/11/12
Reviewed by: (Print name and sign) Nathan Smith		Title needs RASO TtEC's RSOR	Date 12/11/12
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date 12/17/12
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date 12-11-12
TtEC Program QC Manager (Print name and sign) Greg Joyce	Date	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date 12-17-12	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date 12/20/12

TtEC, NAVFAC SW RMAC CONTRACT NO. N62473-10-D-0809, CTO N0. 0005

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	0005	FCR #	05-2	DATE	11/22/12
LOCATION	Alameda Point OU-2U IR Site 5 and 10	ROICC	Gregory Grace		
SUBJECT: Industrial Waste Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC			

1. Document to be changed. Identify revision, date, section, drawing, etc.

Final Remedial Action Work Plan, January, 2011. DCN: RMA-0809-0006-0001.R1, Appendix L, Section 1.0

2. Description of existing requirements and proposed change (Attach sheet if necessary)

Existing Requirements: TtEC CTO No. 0006 and 0010 work activities that focus on the remediation of the Site 17 area are dictated by the referenced RAWP and included source removal work on the storm drain line G main trunk, which originated from the OU-2C area of NAS Alameda Point. At the Navy's direction, TtEC, under NAVFAC SW Radiological EMAC CTO 0005, will perform characterization/health and safety activities on the remaining radiologically-impacted storm drain lines originating from the OU-2C Building 5. The work will be conducted in accordance to the RAWP and the revisions incorporated into it by this and other previously issued FCRs.

Change: Add this bullet/paragraph to the end of Section 1.0 of Appendix L

- TtEC will perform an investigation of the possible IW line manhole discovered near former Structure 29. TtEC plans on removing all the sediment from the manhole and placing the material on a screening pad within the CTO 10 laydown area. A towed array will be performed per SOP 13, "Vehicle Towed Array (VTA)", of the sediment and two biased samples will be collected and analyzed. Gamma/alpha/beta scans and statics will be performed per SOP 1, "Radiation and Contamination Surveys" as practicable within the manhole and swipe samples will be collected. The sediments will be removed from the manhole with using the vacuum/Guzzler truck in accordance with the "Vacuum Excavation of Radiologically Impacted Soils Work Instruction". Procedures and Work Plans currently being used for hydro-jetting of lines A, B and G, will be followed during the investigation. Figure L-1.1 depicts location of work.

3. Reason for Change (Attach sheet if necessary)

The above referenced RAWP was prepared to address the TtEC work elements awarded under CTO No. 0006 and CTO No. 0010, and must be amended to ensure that it adequately addresses the tasks to be executed under CTO 0005.

4. Cost and Schedule Implications (if any)

NA

Originator: (Print name and sign) Vince Richards		Title TtEC Project QC Manager	Date
Reviewed by: (Print name and sign) Nathan Smith		Title TtEC's RSOR	Date
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date
TtEC Program QC Manager (Print name and sign) Greg Joyce Gregory D Joyce	Date 12/17/12	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date

TtEC, NAVFAC SW RMAC CONTRACT NO. N62473-10-D-0809, CTO N0. 0005

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	0005	FCR #	05-2	DATE	11/22/12
LOCATION	Alameda Point OU-2U IR Site 5 and 10	ROICC	Gregory Grace		
SUBJECT: Industrial Waste Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC			

1. Document to be changed. Identify revision, date, section, drawing, etc.

Final Remedial Action Work Plan, January, 2011. DCN: RMA-0809-0006-0001.R1, Appendix L, Section 1.0

2. Description of existing requirements and proposed change (Attach sheet if necessary)

Existing Requirements: TtEC CTO No. 0006 and 0010 work activities that focus on the remediation of the Site 17 area are dictated by the referenced RAWP and included source removal work on the storm drain line G main trunk, which originated from the OU-2C area of NAS Alameda Point. At the Navy's direction, TtEC, under NAVFAC SW Radiological EMAC CTO 0005, will perform characterization/health and safety activities on the remaining radiologically-impacted storm drain lines originating from the OU-2C Building 5. The work will be conducted in accordance to the RAWP and the revisions incorporated into it by this and other previously issued FCRs.

Change: Add this bullet/paragraph to the end of Section 1.0 of Appendix L

- TtEC will perform an investigation of the possible IW line manhole discovered near former Structure 29. TtEC plans on removing all the sediment from the manhole and placing the material on a screening pad within the CTO 10 laydown area. A towed array will be performed per SOP 13, "Vehicle Towed Array (VTA)", of the sediment and two biased samples will be collected and analyzed. Gamma/alpha/beta scans and statics will be performed per SOP 1, "Radiation and Contamination Surveys" as practicable within the manhole and swipe samples will be collected. The sediments will be removed from the manhole with using the vacuum/Guzzler truck in accordance with the "Vacuum Excavation of Radiologically Impacted Soils Work Instruction". Procedures and Work Plans currently being used for hydro-jetting of lines A, B and G, will be followed during the investigation. Figure L-1.1 depicts location of work.

3. Reason for Change (Attach sheet if necessary)

The above referenced RAWP was prepared to address the TtEC work elements awarded under CTO No. 0006 and CTO No. 0010, and must be amended to ensure that it adequately addresses the tasks to be executed under CTO 0005.

4. Cost and Schedule Implications (if any)

NA

Originator: (Print name and sign) Vince Richards		Title TtEC Project QC Manager	Date 12/11/12
Reviewed by: (Print name and sign) Nathan Smith		Title needs RASO TtEC's RSOR	Date 12/11/12
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date 12/11/12
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date 12-11-12
TtEC Program QC Manager (Print name and sign) Greg Joyce	Date	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date

TtEC, NAVFAC SW RMAC CONTRACT NO. N62473-10-D-0809, CTO N0. 0005

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	0005	FCR #	05-2	DATE	11/22/12
LOCATION	Alameda Point OU-2U IR Site 5 and 10	ROICC	Gregory Grace		
SUBJECT: Industrial Waste Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC			

1. Document to be changed. Identify revision, date, section, drawing, etc.

Final Remedial Action Work Plan, January, 2011. DCN: RMA-0809-0006-0001.R1, Appendix L, Section 1.0

2. Description of existing requirements and proposed change (Attach sheet if necessary)

Existing Requirements: TtEC CTO No. 0006 and 0010 work activities that focus on the remediation of the Site 17 area are dictated by the referenced RAWP and included source removal work on the storm drain line G main trunk, which originated from the OU-2C area of NAS Alameda Point. At the Navy's direction, TtEC, under NAVFAC SW Radiological EMAC CTO 0005, will perform characterization/health and safety activities on the remaining radiologically-impacted storm drain lines originating from the OU-2C Building 5. The work will be conducted in accordance to the RAWP and the revisions incorporated into it by this and other previously issued FCRs.

Change: Add this bullet/paragraph to the end of Section 1.0 of Appendix L

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3. Reason for Change (Attach sheet if necessary)

The above referenced RAWP was prepared to address the TtEC work elements awarded under CTO No. 0006 and CTO No. 0010, and must be amended to ensure that it adequately addresses the tasks to be executed under CTO 0005.

4. Cost and Schedule Implications (if any)

NA

Originator: (Print name and sign) Vince Richards		Title TtEC Project QC Manager	Date 12/11/12
Reviewed by: (Print name and sign) Nathan Smith		Title needs RASO TtEC's RSOR	Date 12/11/12
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date 12-11-12
TtEC Program QC Manager (Print name and sign) Greg Joyce	Date	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date

APPENDIX G

HAZARDOUS WASTE MANIFEST
(on CD only)

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Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CA2170023236
2. Page 1 of 1
3. Emergency Response Phone: 415-728-5445
4. Manifest Tracking Number: 009499285 JJK

5. Generator's Name and Mailing Address
U.S. Navy BRAC PMO-W (Alameda Pt)
1 Avenue of the Palms, Ste. 161
San Francisco, CA 94130-1807 USA

Generator's Site Address (if different than mailing address)
1090 1/2 W. Tower Ave (CTO-5 Seaplane Lagoon)
Alameda, CA 94501 USA

Generator's Phone: 415-743-4713

6. Transporter 1 Company Name: 18 TRUCKING
U.S. EPA ID Number: CAR000184788

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Clean Harbors Buttonwillow LLC
2500 West Lokern Road
Buttonwillow, CA 93206 USA
U.S. EPA ID Number: CAD980675276

Facility's Phone: 661-762-6200

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. NON-RCRA HAZARDOUS WASTE, SOLID (Soil with Lead)	1	DT	18	Y	611		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
Generator contact: D. DeLong, E CIV OASN (EI&E), BRAC PMO West Douglas.delong@navy.mil
Wear proper PPE when handling waste. Wt tix and certs of disposal req. by Generator. Box #3 - 18 Trkng 24/7 contact #.
Profile #: CH524148B Sales Order #: DJ4942674 Tracking #: TRUCK # 204 9E57834 7583

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DOUGLAS DeLONG
Signature:
Month 01 Day 28 Year 13

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: ROBIN FABRY
Signature:
Month 01 Day 28 Year 13

Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Dennis Barton
Signature:
Month 01 Day 28 Year 13

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CA2170023236
2. Page 1 of 1
3. Emergency Response Phone: 415-726-5445
4. Manifest Tracking Number: 009499286 JJK

5. Generator's Name and Mailing Address
U.S. Navy BRAC PMO-W (Alameda Pt)
1 Avenue of the Palms, Ste. 161
San Francisco, CA 94130-1807 USA

Generator's Site Address (if different than mailing address)
1090 1/2 W. Tower Ave.(CTO-5 Seaplane Lagoon)
Alameda, CA 94501 USA

Generator's Phone: 415-743-4713

6. Transporter 1 Company Name: Sanchez Transport Inc
U.S. EPA ID Number: CAR000175828

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Clean Harbors Buttonwillow LLC
2500 West Lokern Road
Buttonwillow, CA 93206 USA

U.S. EPA ID Number: CAD980875276

Facility's Phone: 661-762-6200

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. NON-RCRA HAZARDOUS WASTE, SOLID (Soil with Lead)	1	DT	16	Y	611		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
Generator contact: D. DeLong, E CIV OASN (EI&E), BRAC PMO West Douglas.delong@navy.mil
Wear proper PPE when handling waste. Wt tix and certs of disposal req. by Generator. Box #3 - 18 Trkng 24/7 contact #.
Profile #: CH524148B Sales Order #: DJ4942674 Tracking #: 7584

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: DOUGLAS DELONG
Signature:
Month 1 Day 28 Year 13

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Gonzalo Sanchez
Signature:
Month 1 Day 28 Year 13

Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Richard Andrews
Signature:
Month 1 Day 28 Year 13

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CA2170023236
2. Page 1 of 1
3. Emergency Response Phone: 415-726-5445
4. Manifest Tracking Number: 009499287 JJK

5. Generator's Name and Mailing Address
U.S. Navy BRAC PMO-W (Alameda Pt)
1 Avenue of the Palms, Ste. 161
San Francisco, CA 94130-1807 USA
Generator's Phone 415-743-4713

Generator's Site Address (if different than mailing address)
1090 1/2 W. Tower Ave.(CTO-5 Seaplane Lagoon)
Alameda, CA 94501 USA

6. Transporter 1 Company Name: Chapman Trucking
U.S. EPA ID Number: CAR000092296

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors Buttonwillow LLC
2500 West Lokern Road
Buttonwillow, CA 93206 USA
Facility's Phone: 661-762-6200
U.S. EPA ID Number: CAD980675276

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	1. NON-RCRA HAZARDOUS WASTE, SOLID (Soil with Lead)	1	DT	16	Y	611		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
Generator contact: D. DeLong, E CIV OASN (EI&E), BRAC PMO West Douglas.delong@navy.mil
Wear proper PPE when handling waste. Wt tix and certs of disposal req. by Generator. Box #3 - 18 Trking 24/7 contact #.
Profile #: CH524148B Sales Order #: DJ4942874 Tracking #:
TRK Lic# 3187198
TRK #1
7585

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Douglas DeLong
Signature
Month Day Year

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Matt Chapman
Signature
Month 01 Day 28 Year 13
Transporter 2 Printed/Typed Name
Signature
Month Day Year

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Dennis T Sexton
Signature
Month 01 Day 28 Year 13

GENERATOR

INT'L

TRANSPORTER

DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

APPENDIX H

LABORATORY REPORTS – HAZARDOUS WASTE CHARACTERIZATION (on CD only)

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TETRA TECH EC INC.

Chain-of Custody Record

NUMBER: 50001

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7939 1329 3390
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID: FZJ240412 10-31

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/80158 (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-001	10-23-12	1330	3	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-G	/	/	N

Relinquished by: (signature)	Date: 10-23-12	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom
Company: Tetra Tech/FedEx	Time: 1400	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

H

G-Line Sediment

Soil too wet to collect Encore.

~~Got~~ MS 3-8oz Jars

50001

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 40440005

Alameda CTO5

Lot #: F2J240412

Sabina Sudoko

Tetra Tech EC Inc
17885 Von Karman Ave
Ste 500
Irvine, CA 92614

TESTAMERICA LABORATORIES, INC.

Erika Starman
Project Manager

October 31, 2012

13715 Rider Trail North Earth City, MO 63045 **tel** 314.298.8566 **fax** 314.298.8757 **www.testamericainc.com**
TestAmerica Laboratories, Inc.

Case Narrative
LOT NUMBER: F2J240412

This report contains the analytical results for the two samples received under chain of custody by TestAmerica St. Louis on October 24, 2012. These samples are associated with your Alameda CTO5 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

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RPD and RER results that are outside QC limits for non-detected analytes are statistically invalid. Non-detect results were duplicated, and the RPD/RER can be ignored.

Sample receiving issues are noted on the CUR form and written communications pertaining to these issues are included in the CoC section of the report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. Ra-226 analysis by gamma spectroscopy is performed on an as-received basis unless sample containers were received cracked or broken. Analysis parameters for cracked or broken samples will be listed in the narrative.

Ra-226 results analyzed by method EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on samples in this data set. Specific methods employed are documented on the batch extraction logs.

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

Volatile Petroleum Hydrocarbons (SW846 8015 MOD)

Batch 2303032
The Method Blank surrogate recovery is outside acceptance limits. Sample associated with this method blank demonstrated acceptable surrogate recoveries indicating the surrogate excursion is isolated to the method blank and not indicative of the batch.

The MSD surrogate recoveries are outside acceptance limits. MS/MSD spike recoveries are within QC limits demonstrating acceptable sample extraction and instrument performance.

The MS/MSD RPD is not within method acceptance criteria. MS/MSD recoveries are within QC limits demonstrating good extraction performance in the sample matrix.

Affected Samples:
F2J240412 (1): 05-001

Semivolatile Organic Compounds by GC/MS (SW846 8270C)

Batch 2299043
The LCS recovery for Hexachlorocyclopentadiene is outside the upper QC limit, indicating a potential positive bias for that analyte. This analyte was not observed above the reporting limit in the associated samples; therefore the sample data was not adversely affected by this excursion.

The MS recovery for Hexachlorocyclopentadiene and 3,3-Dichlorobenzidine and MSD recovery for 2-Methylphenol, Hexachlorocyclopentadiene, 4,6-Dinitro-2-methylphenol, and 3,3-Dichlorobenzidine are outside the established QC limits. The RPD is not within method acceptance criteria for 4,6-Dinitro-2-methylphenol and 2,4-Dinitrophenol. Matrix interference is physically and visibly evident in the sample chromatogram. Sample extracts were dark brown and thick. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:
F2J240412 (1): 05-001

PCBs by SW-846 (SW846 8082)

Batch 2299046
The MS/MSD recovery for Aroclor 1260 is outside the established QC limits. The RPD is within method acceptance criteria indicating possible matrix interference. Method performance is demonstrated by acceptable LCS recovery.

The SW-846 method 8082 requires 3-5 peaks be used for PCB quantitation. Due to the presence of matrix interferences or matrix interference in the sample, only 3-4 peaks were used for quantitation.

The %D between the primary and secondary column result for Aroclor 1254 is greater than 40%. SW method 8000C prescribes reporting the lower of the two column results in the absence of chromatographic anomalies observed on the column yielding the lower result. The lower result is reported.

Affected Samples:
F2J240412 (1): 05-001

Organochlorine Pesticides (SW846 8081A)

Batch 2299047
The MS recovery for beta-BHC, 4,4'-DDD, 4,4'-DDT, Dieldrin, Endosulfan II, and Heptachlor epoxide; the MSD recovery for 4,4'-DDD, Dieldrin, Endosulfan II, and Heptachlor epoxide is outside the established QC limits. The RPD is not within method acceptance criteria for Heptachlor epoxide and 4,4-DDD. Matrix interference is physically evident in the sample. The sample extracts were brown in color. Method performance is demonstrated by acceptable LCS recovery.

For the Toxaphene cal, we have not been able to find a second vendor with a suitable compatible standard. Therefore the ICV is from the same vendor but from a different lot. The lab will continue to look for a compatible second vendor.

Samples, MS, and MSD surrogate recovery is outside established QC limits. This excursion is attributed to a matrix interference which is physically evident in the sample. The sample extracts were brown in color.

The closing CCV recovery was outside the lower QC limit (greater than 20% D) for Toxaphene, 4,4'-DDD, Endosulfan II, 4,4'-DDT, Endrin aldehyde, Methoxychlor, Endosulfan sulfate, Endrin ketone, and surrogate DCB on the A column; Toxaphene, 4,4'-DDT, Endrin aldehyde, Methoxychlor, Endrin ketone, and surrogate DCB on the B column indicating a potential low bias for those analytes in the samples associated with this CCV. Samples were re-analyzed with similar CCV failure indicating matrix interference present in the samples.

The %D between the primary and secondary column result for 4,4'-DDD and 4,4'-DDT is greater than 40%. SW method 8000C prescribes reporting the lower of the two column results in the absence of chromatographic anomalies observed on the column yielding the lower result. The lower result is reported.

Affected Samples:
F2J240412 (1): 05-001

Extractable Petroleum Hydrocarbons DRO (SW846 8015 MOD)

Batch 2299045
Analysis of the sample designated for MS/MSD required significant dilution as to render the MS/MSD analysis ineffective. No data reported for MS/MSD.

The samples were analyzed at a dilution due to high concentrations of target analytes. The sample extracts were dark and oily which analyzed undiluted has historically caused instrumentation problems. The surrogate recoveries were diluted out as a result of the dilutions. The reporting limit has been adjusted for the dilutions since no analysis at a lesser dilution was performed.

The samples exhibited hydrocarbons peaks in the Diesel chromatography range. The sample pattern does not match Diesel which may be indicative of the presence of an unknown hydrocarbon.

Affected Samples:
F2J240412 (1): 05-001

Mercury in Solid Waste (Manual Cold Vapor) (SW846 7471A)

Batch 2304016
The samples were analyzed at a 5X dilution due to high concentrations of the target analyte Mercury. The reporting limit has been adjusted only for those targets reported from the dilution run.

The MS/MSD recoveries for Mercury are outside the established QC limits. The RPD is also outside of QC limits. Matrix interference is physically evident in the sample. The sample matrix is similar to wet sand. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:
F2J240412 (1): 05-001

ICP-MS (SW846 6020)

Batch 2299025
The MS/MSD recovery for copper, zinc and barium are outside the established QC limits. The said analyte concentration in the original sample is greater than four times the amount spiked, making percent recovery information ineffective. Method performance is demonstrated by acceptable LCS recovery.

The MS and/or MSD recovery for beryllium and lead is outside the established QC limits. The RPD is within method acceptance criteria indicating possible matrix interference. Method performance is demonstrated by acceptable LCS recovery.

The MS/MSD recovery for silver is outside the established QC limits. The RPD is also outside of QC limits. Matrix interference is physically evident in the sample. The sample is a non-homogenous mixture of rock and soil. Method performance is demonstrated by acceptable LCS recovery.

The serial dilution percent difference is not within QC limits for cobalt, copper, and nickel. The serial dilution failing is evidence of a possible matrix interference and the results are flagged accordingly.

Affected Samples:
F2J240412 (1): 05-001

STLC Inductively Coupled Plasma Metals (SW846 6010B)

Batch 2300072
The samples were analyzed at a dilution due to the presence of matrix interferences which cause QC failures when run at a lesser dilution. The reporting limit has been adjusted for the dilution.

The MS (MSD) recovery for lead is outside the established QC limits. The RPD is within method acceptance criteria indicating possible matrix interference. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:
F2J240412 (2): 05-001

There were no other nonconformances or observations noted with any analysis on this lot.

METHODS SUMMARY

F2J240412

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Extractable Petroleum Hydrocarbons	SW846 8015 MOD	SW846 3550
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	
ICP-MS (6020)	SW846 6020	SW846 3050
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
Organochlorine Pesticides	SW846 8081A	SW846 3550B
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
PCBs by SW-846 8082	SW846 8082	SW846 3550B/366
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3550B
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B
Volatile Petroleum Hydrocarbons	SW846 8015 MOD	SW846 5030

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F2J240412

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MW31J	001	05-001	10/23/12	13:30
MW31P	002	05-001	10/23/12	13:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Tetra Tech EC Inc

Client Sample ID: 05-001

GC/MS Volatiles

Lot-Sample #...: F2J240412-001 **Work Order #...:** MW31J1A4 **Matrix.....:** SOLID
Date Sampled...: 10/23/12 13:30 **Date Received..:** 10/24/12
Prep Date.....: 10/26/12 **Analysis Date..:** 10/26/12
Prep Batch #...: 2300062 **Analysis Time..:** 17:19
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	23.3	ug/kg	7.55
Benzene	ND	5.83	ug/kg	0.295
Bromodichloromethane	ND	5.83	ug/kg	0.296
Bromoform	ND	5.83	ug/kg	0.427
Bromomethane	ND	5.83	ug/kg	1.28
Carbon tetrachloride	ND	5.83	ug/kg	0.599
Chlorobenzene	ND	5.83	ug/kg	0.446
Dibromochloromethane	ND	5.83	ug/kg	0.474
Chloroethane	ND	11.7	ug/kg	0.602
Chloroform	ND	5.83	ug/kg	0.439
Chloromethane	ND	11.7	ug/kg	0.758
1,1-Dichloroethane	ND	5.83	ug/kg	0.457
1,2-Dichloroethane	ND	5.83	ug/kg	1.01
1,1-Dichloroethene	ND	5.83	ug/kg	1.88
cis-1,2-Dichloroethene	ND	5.83	ug/kg	0.697
trans-1,2-Dichloroethene	ND	5.83	ug/kg	1.10
1,2-Dichloropropane	ND	5.83	ug/kg	0.447
cis-1,3-Dichloropropene	ND	5.83	ug/kg	0.694
trans-1,3-Dichloropropene	ND	5.83	ug/kg	0.407
Ethylbenzene	ND	5.83	ug/kg	0.349
2-Hexanone	ND	23.3	ug/kg	2.07
Methylene chloride	ND	5.83	ug/kg	1.84
4-Methyl-2-pentanone	ND	11.7	ug/kg	0.854
Styrene	ND	5.83	ug/kg	0.405
1,1,2,2-Tetrachloroethane	ND	5.83	ug/kg	0.468
Tetrachloroethene	ND	5.83	ug/kg	0.376
Toluene	ND	5.83	ug/kg	0.817
1,1,1-Trichloroethane	ND	5.83	ug/kg	0.503
1,1,2-Trichloroethane	ND	5.83	ug/kg	0.669
Trichloroethene	ND	5.83	ug/kg	0.449
Vinyl chloride	ND	5.83	ug/kg	0.499
Xylenes (total)	ND	11.7	ug/kg	0.996
2-Butanone (MEK)	ND	11.7	ug/kg	2.24
Methyl tert-butyl ether (MTBE)	ND	5.83	ug/kg	0.555

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	111	(65.- 135)
1,2-Dichloroethane-d4	109	(65.- 135)
4-Bromofluorobenzene	131	(65.- 135)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-001

GC/MS Volatiles

Lot-Sample #...: F2J240412-001 Work Order #...: MW31J1A4 Matrix.....: SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F2J240412 **Work Order #...:** MW5FV1AA **Matrix.....:** SOLID
MB Lot-Sample #: F2J260000-062

Prep Date.....: 10/26/12 **Analysis Time..:** 13:01
Analysis Date..: 10/26/12 **Prep Batch #...:** 2300062
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20.0	ug/kg	SW846 8260B
Benzene	ND	5.00	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.00	ug/kg	SW846 8260B
Bromoform	ND	5.00	ug/kg	SW846 8260B
Bromomethane	ND	5.00	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.00	ug/kg	SW846 8260B
Chlorobenzene	ND	5.00	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.00	ug/kg	SW846 8260B
Chloroethane	ND	10.0	ug/kg	SW846 8260B
Chloroform	ND	5.00	ug/kg	SW846 8260B
Chloromethane	ND	10.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.00	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.00	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.00	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.00	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.00	ug/kg	SW846 8260B
Ethylbenzene	ND	5.00	ug/kg	SW846 8260B
2-Hexanone	ND	20.0	ug/kg	SW846 8260B
Methylene chloride	ND	5.00	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	10.0	ug/kg	SW846 8260B
Styrene	ND	5.00	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.00	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.00	ug/kg	SW846 8260B
Toluene	ND	5.00	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.00	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.00	ug/kg	SW846 8260B
Trichloroethene	ND	5.00	ug/kg	SW846 8260B
Vinyl chloride	ND	5.00	ug/kg	SW846 8260B
Xylenes (total)	ND	10.0	ug/kg	SW846 8260B
2-Butanone (MEK)	ND	10.0	ug/kg	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	5.00	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	101	(65.0- 135)
1,2-Dichloroethane-d4	104	(65.0- 135)
4-Bromofluorobenzene	99.0	(65.0- 135)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F2J240412 Work Order #...: MW5FV1AA Matrix.....: SOLID

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F2J240412 Work Order #...: MW5FV1AC Matrix.....: SOLID
LCS Lot-Sample#: F2J260000-062
Prep Date.....: 10/26/12 Analysis Date..: 10/26/12
Prep Batch #...: 2300062 Analysis Time..: 11:50
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	**100**	**(65.0- 135**	**SW846 8260B**
Benzene	**98.5**	**(65.0- 135**	**SW846 8260B**
Trichloroethene	**98.9**	**(65.0- 135**	**SW846 8260B**
Toluene	**98.4**	**(65.0- 135**	**SW846 8260B**
Chlorobenzene	**102**	**(65.0- 135**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	97.8	(65.0- 135
1,2-Dichloroethane-d4	104	(65.0- 135
4-Bromofluorobenzene	93.7	(65.0- 135

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F2J240412 **Work Order #...:** MW31J1DL-MS **Matrix.....:** SOLID
MS Lot-Sample #: F2J240412-001 MW31J1DM-MSD
Date Sampled...: 10/23/12 13:30 **Date Received..:** 10/24/12
Prep Date.....: 10/26/12 **Analysis Date..:** 10/26/12
Prep Batch #...: 2300062 **Analysis Time..:** 15:22
Dilution Factor: 1 **% Moisture.....:** 14

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**104**	**(65.0- 135**			**SW846 8260B**
	104	**(65.0- 135**	**0.91**	**(0-30.0)**	**SW846 8260B**
Benzene	**96.7**	**(65.0- 135**			**SW846 8260B**
	98.7	**(65.0- 135**	**2.02**	**(0-30.0)**	**SW846 8260B**
Trichloroethene	**97.4**	**(65.0- 135**			**SW846 8260B**
	101	**(65.0- 135**	**3.97**	**(0-30.0)**	**SW846 8260B**
Toluene	**106**	**(65.0- 135**			**SW846 8260B**
	107	**(65.0- 135**	**0.79**	**(0-30.0)**	**SW846 8260B**
Chlorobenzene	**102**	**(65.0- 135**			**SW846 8260B**
	104	**(65.0- 135**	**1.66**	**(0-30.0)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	106	(65.0- 135
	108	(65.0- 135
1,2-Dichloroethane-d4	103	(65.0- 135
	107	(65.0- 135
4-Bromofluorobenzene	123	(65.0- 135
	122	(65.0- 135

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-001

GC/MS Semivolatiles

Lot-Sample #...: F2J240412-001 **Work Order #...:** MW31J1AD **Matrix.....:** SOLID
Date Sampled...: 10/23/12 13:30 **Date Received..:** 10/24/12
Prep Date.....: 10/25/12 **Analysis Date..:** 10/26/12
Prep Batch #...: 2299043 **Analysis Time..:** 11:22
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Pyridine	ND	770	ug/kg	77.7
Phenol	ND	385	ug/kg	38.9
bis(2-Chloroethyl)-ether	ND	385	ug/kg	39.0
2-Chlorophenol	ND	385	ug/kg	38.9
1,3-Dichlorobenzene	ND	385	ug/kg	38.9
1,4-Dichlorobenzene	ND	385	ug/kg	38.9
1,2-Dichlorobenzene	ND	385	ug/kg	38.9
2-Methylphenol	ND	385	ug/kg	38.9
3-Methylphenol & 4-Methylphenol	ND	770	ug/kg	77.7
bis(2-Chloroisopropyl) ether	ND	385	ug/kg	38.9
N-Nitrosodi-n-propyl-amine	ND	385	ug/kg	38.9
Hexachloroethane	ND	385	ug/kg	38.9
2-Nitrophenol	ND	385	ug/kg	38.9
2,4-Dimethylphenol	ND	385	ug/kg	38.9
Nitrobenzene	ND	385	ug/kg	38.9
bis(2-Chloroethoxy) methane	ND	385	ug/kg	38.9
2,4-Dichlorophenol	ND	385	ug/kg	38.9
1,2,4-Trichloro-benzene	ND	385	ug/kg	38.9
Naphthalene	ND	385	ug/kg	38.9
4-Chloroaniline	ND	385	ug/kg	38.9
Hexachlorobutadiene	ND	385	ug/kg	38.9
4-Chloro-3-methylphenol	ND	385	ug/kg	38.9
Hexachlorocyclopenta-diene	ND	1870	ug/kg	385
2,4,6-Trichloro-phenol	ND	385	ug/kg	38.9
2,4,5-Trichloro-phenol	ND	385	ug/kg	38.9
2-Chloronaphthalene	ND	385	ug/kg	38.9
2-Nitroaniline	ND	1870	ug/kg	38.9
Dimethyl phthalate	ND	385	ug/kg	38.9
Acenaphthene	**61.3 J**	**385**	**ug/kg**	**38.9**

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-001

GC/MS Semivolatiles

Lot-Sample #...: F2J240412-001 **Work Order #...:** MW31J1AD **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthylene	ND	385	ug/kg	38.9
2,6-Dinitrotoluene	ND	385	ug/kg	38.9
3-Nitroaniline	ND	1870	ug/kg	38.9
2,4-Dinitrophenol	ND	1870	ug/kg	385
4-Nitrophenol	ND	1870	ug/kg	385
Dibenz(a,h)anthracene	**56.7 J**	**385**	**ug/kg**	**38.9**
Dibenzofuran	ND	385	ug/kg	38.9
2,4-Dinitrotoluene	ND	385	ug/kg	38.9
Diethyl phthalate	ND	385	ug/kg	38.9
Fluorene	**54.8 J**	**385**	**ug/kg**	**38.9**
4-Chlorophenyl phenyl ether	ND	385	ug/kg	38.9
4-Nitroaniline	ND	1870	ug/kg	385
4,6-Dinitro-2-methylphenol	ND	1870	ug/kg	385
N-Nitrosodiphenylamine	ND	385	ug/kg	38.9
Pyrene	**1040**	**385**	**ug/kg**	**38.9**
4-Bromophenyl phenyl ether	ND	385	ug/kg	38.9
Hexachlorobenzene	ND	385	ug/kg	38.9
Pentachlorophenol	ND	770	ug/kg	385
Phenanthrene	**457**	**385**	**ug/kg**	**38.9**
Anthracene	**93.9 J**	**385**	**ug/kg**	**38.9**
Di-n-butyl phthalate	**44.9 J**	**385**	**ug/kg**	**38.9**
Fluoranthene	**1290**	**385**	**ug/kg**	**38.9**
Butyl benzyl phthalate	**58.5 J**	**385**	**ug/kg**	**38.9**
Benzo(a)anthracene	**567**	**385**	**ug/kg**	**38.9**
3,3'-Dichlorobenzidine	ND	1870	ug/kg	38.9
Chrysene	**774**	**385**	**ug/kg**	**38.9**
bis(2-Ethylhexyl) phthalate	**782**	**385**	**ug/kg**	**52.9**
Di-n-octyl phthalate	ND	385	ug/kg	38.9
Benzo(b)fluoranthene	**776**	**385**	**ug/kg**	**38.9**
Benzo(k)fluoranthene	**276 J**	**385**	**ug/kg**	**38.9**
Benzo(a)pyrene	**447**	**385**	**ug/kg**	**38.9**
Indeno(1,2,3-cd)pyrene	**218 J**	**385**	**ug/kg**	**38.9**
Benzo(ghi)perylene	**201 J**	**385**	**ug/kg**	**38.9**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	80.8	(35.- 105)
Phenol-d5	84.6	(40.- 100)
Nitrobenzene-d5	84.4	(35.- 100)
2-Fluorobiphenyl	80.4	(45.- 105)
2,4,6-Tribromophenol	78.0	(35.- 125)
Terphenyl-d14	79.8	(30.- 125)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-001

GC/MS Semivolatiles

Lot-Sample #...: F2J240412-001 Work Order #...: MW31J1AD Matrix.....: SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F2J240412 **Work Order #...:** MW4HK1AA **Matrix.....:** SOLID
MB Lot-Sample #: F2J250000-043

Prep Date.....: 10/25/12 **Analysis Time..:** 10:18
Analysis Date..: 10/26/12 **Prep Batch #...:** 2299043
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Pyridine	ND	660	ug/kg	SW846 8270C
Phenol	ND	330	ug/kg	SW846 8270C
bis(2-Chloroethyl)-ether	ND	330	ug/kg	SW846 8270C
2-Chlorophenol	ND	330	ug/kg	SW846 8270C
1,3-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,4-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,2-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
2-Methylphenol	ND	330	ug/kg	SW846 8270C
3-Methylphenol & 4-Methylphenol	ND	660	ug/kg	SW846 8270C
bis(2-Chloroisopropyl) ether	ND	330	ug/kg	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	330	ug/kg	SW846 8270C
Hexachloroethane	ND	330	ug/kg	SW846 8270C
2-Nitrophenol	ND	330	ug/kg	SW846 8270C
2,4-Dimethylphenol	ND	330	ug/kg	SW846 8270C
Nitrobenzene	ND	330	ug/kg	SW846 8270C
bis(2-Chloroethoxy) methane	ND	330	ug/kg	SW846 8270C
2,4-Dichlorophenol	ND	330	ug/kg	SW846 8270C
1,2,4-Trichloro-benzene	ND	330	ug/kg	SW846 8270C
Naphthalene	ND	330	ug/kg	SW846 8270C
4-Chloroaniline	ND	330	ug/kg	SW846 8270C
Hexachlorobutadiene	ND	330	ug/kg	SW846 8270C
4-Chloro-3-methylphenol	ND	330	ug/kg	SW846 8270C
Hexachlorocyclopenta-diene	ND	1600	ug/kg	SW846 8270C
2,4,6-Trichloro-phenol	ND	330	ug/kg	SW846 8270C
2,4,5-Trichloro-phenol	ND	330	ug/kg	SW846 8270C
2-Chloronaphthalene	ND	330	ug/kg	SW846 8270C
2-Nitroaniline	ND	1600	ug/kg	SW846 8270C
Dimethyl phthalate	ND	330	ug/kg	SW846 8270C
Acenaphthene	ND	330	ug/kg	SW846 8270C
Acenaphthylene	ND	330	ug/kg	SW846 8270C
2,6-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
3-Nitroaniline	ND	1600	ug/kg	SW846 8270C

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F2J240412 **Work Order #...:** MW4HK1AA **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,4-Dinitrophenol	ND	1600	ug/kg	SW846 8270C
4-Nitrophenol	ND	1600	ug/kg	SW846 8270C
Dibenz(a,h)anthracene	ND	330	ug/kg	SW846 8270C
Dibenzofuran	ND	330	ug/kg	SW846 8270C
2,4-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
Diethyl phthalate	ND	330	ug/kg	SW846 8270C
Fluorene	ND	330	ug/kg	SW846 8270C
4-Chlorophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
4-Nitroaniline	ND	1600	ug/kg	SW846 8270C
4,6-Dinitro-2-methylphenol	ND	1600	ug/kg	SW846 8270C
N-Nitrosodiphenylamine	ND	330	ug/kg	SW846 8270C
Pyrene	ND	330	ug/kg	SW846 8270C
4-Bromophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
Hexachlorobenzene	ND	330	ug/kg	SW846 8270C
Pentachlorophenol	ND	660	ug/kg	SW846 8270C
Phenanthrene	ND	330	ug/kg	SW846 8270C
Anthracene	ND	330	ug/kg	SW846 8270C
Di-n-butyl phthalate	ND	330	ug/kg	SW846 8270C
Fluoranthene	ND	330	ug/kg	SW846 8270C
Butyl benzyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(a)anthracene	ND	330	ug/kg	SW846 8270C
3,3'-Dichlorobenzidine	ND	1600	ug/kg	SW846 8270C
Chrysene	ND	330	ug/kg	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	330	ug/kg	SW846 8270C
Di-n-octyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(b)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(k)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(a)pyrene	ND	330	ug/kg	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	330	ug/kg	SW846 8270C
Benzo(ghi)perylene	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	85.0	(35.0- 105)
Phenol-d5	89.2	(40.0- 100)
Nitrobenzene-d5	84.9	(35.0- 100)
2-Fluorobiphenyl	77.2	(45.0- 105)
2,4,6-Tribromophenol	65.7	(35.0- 125)
Terphenyl-d14	100	(30.0- 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F2J240412 Work Order #...: MW4HK1AC Matrix.....: SOLID
LCS Lot-Sample#: F2J250000-043
Prep Date.....: 10/25/12 Analysis Date..: 10/26/12
Prep Batch #...: 2299043 Analysis Time..: 10:50
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Phenol	69.7	(40.0- 100	SW846 8270C
bis(2-Chloroethyl)-ether	75.9	(40.0- 105	SW846 8270C
2-Chlorophenol	76.1	(45.0- 105	SW846 8270C
1,3-Dichlorobenzene	71.4	(40.0- 100	SW846 8270C
1,4-Dichlorobenzene	70.7	(35.0- 105	SW846 8270C
1,2-Dichlorobenzene	73.2	(45.0- 95.	SW846 8270C
2-Methylphenol	81.2	(40.0- 105	SW846 8270C
3-Methylphenol & 4-Methylphenol	69.5	(40.0- 105	SW846 8270C
2,2'-oxybis (1-Chloropropane)	92.7	(20.0- 115	SW846 8270C
N-Nitrosodi-n-propyl-amine	90.2	(40.0- 115	SW846 8270C
Hexachloroethane	77.7	(35.0- 110	SW846 8270C
2-Nitrophenol	74.5	(40.0- 110	SW846 8270C
2,4-Dimethylphenol	90.0	(30.0- 105	SW846 8270C
Nitrobenzene	83.0	(40.0- 115	SW846 8270C
bis(2-Chloroethoxy) methane	79.4	(45.0- 110	SW846 8270C
2,4-Dichlorophenol	70.0	(45.0- 110	SW846 8270C
1,2,4-Trichloro-benzene	74.9	(45.0- 110	SW846 8270C
Naphthalene	76.1	(40.0- 105	SW846 8270C
4-Chloroaniline	58.1	(28.0- 80.	SW846 8270C
Hexachlorobutadiene	74.3	(40.0- 115	SW846 8270C
4-Chloro-3-methylphenol	73.2	(45.0- 115	SW846 8270C
Hexachlorocyclopenta-diene	120 a	(38.0- 107	SW846 8270C
2,4,6-Trichloro-phenol	74.8	(45.0- 110	SW846 8270C
2,4,5-Trichloro-phenol	72.9	(50.0- 110	SW846 8270C
2-Chloronaphthalene	78.5	(45.0- 105	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F2J240412 Work Order #...: MW4HK1AC Matrix.....: SOLID
LCS Lot-Sample#: F2J250000-043

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2-Nitroaniline	87.8	(45.0- 120	SW846 8270C
Dimethyl phthalate	77.3	(50.0- 110	SW846 8270C
Acenaphthylene	80.6	(45.0- 105	SW846 8270C
Acenaphthene	80.1	(45.0- 110	SW846 8270C
2,6-Dinitrotoluene	75.1	(50.0- 110	SW846 8270C
3-Nitroaniline	69.1	(25.0- 110	SW846 8270C
2,4-Dinitrophenol	52.1	(15.0- 130	SW846 8270C
4-Nitrophenol	80.1	(15.0- 140	SW846 8270C
Dibenzofuran	75.9	(50.0- 105	SW846 8270C
Dibenz(a,h)anthracene	83.9	(40.0- 125	SW846 8270C
2,4-Dinitrotoluene	77.0	(50.0- 115	SW846 8270C
Diethyl phthalate	78.8	(50.0- 115	SW846 8270C
Fluorene	77.8	(50.0- 110	SW846 8270C
4-Chlorophenyl phenyl ether	75.4	(45.0- 110	SW846 8270C
4-Nitroaniline	67.9	(35.0- 115	SW846 8270C
4,6-Dinitro-2-methylphenol	74.8	(30.0- 135	SW846 8270C
N-Nitrosodiphenylamine	108	(50.0- 115	SW846 8270C
Pyrene	83.9	(45.0- 125	SW846 8270C
4-Bromophenyl phenyl ether	80.7	(45.0- 115	SW846 8270C
Hexachlorobenzene	77.8	(52.0- 107	SW846 8270C
Pentachlorophenol	62.0	(25.0- 120	SW846 8270C
Phenanthrene	81.2	(50.0- 110	SW846 8270C
Anthracene	80.7	(55.0- 105	SW846 8270C
Di-n-butyl phthalate	84.0	(55.0- 110	SW846 8270C
Fluoranthene	78.2	(55.0- 115	SW846 8270C
Butyl benzyl phthalate	88.8	(50.0- 125	SW846 8270C
Benzo(a)anthracene	92.9	(50.0- 110	SW846 8270C
3,3'-Dichlorobenzidine	69.8	(24.0- 101	SW846 8270C
Chrysene	80.6	(55.0- 110	SW846 8270C
bis(2-Ethylhexyl) phthalate	90.2	(45.0- 125	SW846 8270C
Di-n-octyl phthalate	88.1	(40.0- 130	SW846 8270C
Benzo(b)fluoranthene	87.5	(45.0- 115	SW846 8270C
Benzo(k)fluoranthene	87.7	(45.0- 125	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F2J240412 **Work Order #...:** MW4HK1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F2J250000-043

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(a)pyrene	**82.8**	**(50.0- 110**	**SW846 8270C**
Indeno(1,2,3-cd)pyrene	**91.1**	**(40.0- 120**	**SW846 8270C**
Benzo(ghi)perylene	**89.8**	**(40.0- 125**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	80.6	(35.0- 105
Phenol-d5	81.5	(40.0- 100
Nitrobenzene-d5	85.7	(35.0- 100
2-Fluorobiphenyl	78.8	(45.0- 105
2,4,6-Tribromophenol	70.8	(35.0- 125
Terphenyl-d14	91.0	(30.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F2J240412 Work Order #...: MW31J1DC-MS Matrix.....: SOLID
MS Lot-Sample #: F2J240412-001 MW31J1DD-MSD
Date Sampled...: 10/23/12 13:30 Date Received..: 10/24/12
Prep Date.....: 10/25/12 Analysis Date..: 10/26/12
Prep Batch #...: 2299043 Analysis Time..: 11:55
Dilution Factor: 1 % Moisture.....: 14

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Phenol	70.8	(40.0- 100			SW846 8270C
	66.8	(40.0- 100	5.39	(0-30.0)	SW846 8270C
bis(2-Chloroethyl)-ether	71.6	(40.0- 105			SW846 8270C
	64.6	(40.0- 105	9.96	(0-30.0)	SW846 8270C
2-Chlorophenol	74.3	(45.0- 105			SW846 8270C
	69.7	(45.0- 105	6.11	(0-30.0)	SW846 8270C
1,3-Dichlorobenzene	57.4	(40.0- 100			SW846 8270C
	50.4	(40.0- 100	12.7	(0-30.0)	SW846 8270C
1,4-Dichlorobenzene	58.1	(35.0- 105			SW846 8270C
	51.3	(35.0- 105	12.2	(0-30.0)	SW846 8270C
1,2-Dichlorobenzene	62.1	(45.0- 95.			SW846 8270C
	54.6	(45.0- 95.	12.6	(0-30.0)	SW846 8270C
2-Methylphenol	83.3	(40.0- 105			SW846 8270C
	106 a	(40.0- 105	24.5	(0-30.0)	SW846 8270C
3-Methylphenol & 4-Methylphenol	72.3	(40.0- 105			SW846 8270C
	68.6	(40.0- 105	4.83	(0-30.0)	SW846 8270C
2,2'-oxybis (1-Chloropropane)	84.2	(20.0- 115			SW846 8270C
	74.8	(20.0- 115	11.6	(0-30.0)	SW846 8270C
N-Nitrosodi-n-propyl-amine	91.2	(40.0- 115			SW846 8270C
	90.9	(40.0- 115	0.03	(0-30.0)	SW846 8270C
Hexachloroethane	58.2	(35.0- 110			SW846 8270C
	46.6	(35.0- 110	21.8	(0-30.0)	SW846 8270C
2-Nitrophenol	74.0	(40.0- 110			SW846 8270C
	68.4	(40.0- 110	7.45	(0-30.0)	SW846 8270C
2,4-Dimethylphenol	95.7	(30.0- 105			SW846 8270C
	89.5	(30.0- 105	6.28	(0-30.0)	SW846 8270C
Nitrobenzene	79.8	(40.0- 115			SW846 8270C
	71.3	(40.0- 115	10.8	(0-30.0)	SW846 8270C
bis(2-Chloroethoxy) methane	79.4	(45.0- 110			SW846 8270C
	73.9	(45.0- 110	6.84	(0-30.0)	SW846 8270C

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F2J240412 Work Order #...: MW31J1DC-MS Matrix.....: SOLID
MS Lot-Sample #: F2J240412-001 MW31J1DD-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-Dichlorophenol	72.5	(45.0- 110			SW846 8270C
	70.6	(45.0- 110	2.36	(0-30.0)	SW846 8270C
1,2,4-Trichloro-benzene	67.4	(45.0- 110			SW846 8270C
	61.9	(45.0- 110	8.11	(0-30.0)	SW846 8270C
Naphthalene	71.2	(40.0- 105			SW846 8270C
	65.4	(40.0- 105	8.12	(0-30.0)	SW846 8270C
4-Chloroaniline	50.7	(28.0- 80.			SW846 8270C
	52.3	(28.0- 80.	3.39	(0-30.0)	SW846 8270C
Hexachlorobutadiene	65.5	(40.0- 115			SW846 8270C
	59.4	(40.0- 115	9.41	(0-30.0)	SW846 8270C
4-Chloro-3-methylphenol	78.3	(45.0- 115			SW846 8270C
	75.3	(45.0- 115	3.61	(0-30.0)	SW846 8270C
Hexachlorocyclopenta-diene	0.0 a	(38.0- 107			SW846 8270C
	0.0 a	(38.0- 107	0.0	(0-30.0)	SW846 8270C
2,4,6-Trichloro-phenol	75.6	(45.0- 110			SW846 8270C
	70.1	(45.0- 110	7.24	(0-30.0)	SW846 8270C
2,4,5-Trichloro-phenol	71.6	(50.0- 110			SW846 8270C
	69.9	(50.0- 110	2.08	(0-30.0)	SW846 8270C
2-Chloronaphthalene	74.7	(45.0- 105			SW846 8270C
	70.0	(45.0- 105	6.12	(0-30.0)	SW846 8270C
2-Nitroaniline	87.4	(45.0- 120			SW846 8270C
	81.1	(45.0- 120	7.08	(0-30.0)	SW846 8270C
Dimethyl phthalate	81.1	(50.0- 110			SW846 8270C
	75.7	(50.0- 110	6.61	(0-30.0)	SW846 8270C
Acenaphthylene	77.7	(45.0- 105			SW846 8270C
	74.0	(45.0- 105	4.57	(0-30.0)	SW846 8270C
Acenaphthene	76.2	(45.0- 110			SW846 8270C
	73.1	(45.0- 110	3.79	(0-30.0)	SW846 8270C
2,6-Dinitrotoluene	78.3	(50.0- 110			SW846 8270C
	73.5	(50.0- 110	6.03	(0-30.0)	SW846 8270C
3-Nitroaniline	61.8	(25.0- 110			SW846 8270C
	57.7	(25.0- 110	6.61	(0-30.0)	SW846 8270C
2,4-Dinitrophenol	34.9	(15.0- 130			SW846 8270C
	21.8 p	(15.0- 130	45.9	(0-30.0)	SW846 8270C

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F2J240412 Work Order #...: MW31J1DC-MS Matrix.....: SOLID
MS Lot-Sample #: F2J240412-001 MW31J1DD-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
4-Nitrophenol	83.0	(15.0- 140			SW846 8270C
	78.2	(15.0- 140	5.53	(0-30.0)	SW846 8270C
Dibenzofuran	74.7	(50.0- 105			SW846 8270C
	71.5	(50.0- 105	4.12	(0-30.0)	SW846 8270C
Dibenz(a,h)anthracene	62.5	(40.0- 125			SW846 8270C
	65.1	(40.0- 125	4.34	(0-30.0)	SW846 8270C
2,4-Dinitrotoluene	78.9	(50.0- 115			SW846 8270C
	75.3	(50.0- 115	4.37	(0-30.0)	SW846 8270C
Diethyl phthalate	81.4	(50.0- 115			SW846 8270C
	76.5	(50.0- 115	5.95	(0-30.0)	SW846 8270C
Fluorene	76.3	(50.0- 110			SW846 8270C
	73.1	(50.0- 110	3.88	(0-30.0)	SW846 8270C
4-Chlorophenyl phenyl ether	75.3	(45.0- 110			SW846 8270C
	71.6	(45.0- 110	4.68	(0-30.0)	SW846 8270C
4-Nitroaniline	59.6	(35.0- 115			SW846 8270C
	55.2	(35.0- 115	7.40	(0-30.0)	SW846 8270C
4,6-Dinitro-2-methylphenol	38.9	(30.0- 135			SW846 8270C
	22.7 a,p	(30.0- 135	52.4	(0-30.0)	SW846 8270C
N-Nitrosodiphenylamine	96.7	(50.0- 115			SW846 8270C
	92.4	(50.0- 115	4.17	(0-30.0)	SW846 8270C
Pyrene	47.6	(45.0- 125			SW846 8270C
	46.3	(45.0- 125	1.47	(0-30.0)	SW846 8270C
4-Bromophenyl phenyl ether	74.7	(45.0- 115			SW846 8270C
	70.3	(45.0- 115	5.65	(0-30.0)	SW846 8270C
Hexachlorobenzene	70.9	(52.0- 107			SW846 8270C
	70.5	(52.0- 107	0.25	(0-30.0)	SW846 8270C
Pentachlorophenol	60.1	(25.0- 120			SW846 8270C
	54.2	(25.0- 120	9.92	(0-30.0)	SW846 8270C
Phenanthrene	69.0	(50.0- 110			SW846 8270C
	65.3	(50.0- 110	4.35	(0-30.0)	SW846 8270C
Anthracene	74.5	(55.0- 105			SW846 8270C
	72.5	(55.0- 105	2.42	(0-30.0)	SW846 8270C
Di-n-butyl phthalate	93.1	(55.0- 110			SW846 8270C
	79.3	(55.0- 110	15.4	(0-30.0)	SW846 8270C
Fluoranthene	58.3	(55.0- 115			SW846 8270C
	58.4	(55.0- 115	0.39	(0-30.0)	SW846 8270C

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F2J240412 **Work Order #...:** MW31J1DC-MS **Matrix.....:** SOLID
MS Lot-Sample #: F2J240412-001 MW31J1DD-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Butyl benzyl phthalate	75.4	(50.0- 125			SW846 8270C
	70.8	(50.0- 125	5.89	(0-30.0)	SW846 8270C
Benzo(a)anthracene	77.9	(50.0- 110			SW846 8270C
	75.4	(50.0- 110	2.47	(0-30.0)	SW846 8270C
3,3'-Dichlorobenzidine	17.8 a	(24.0- 101			SW846 8270C
	15.0 a	(24.0- 101	16.8	(0-30.0)	SW846 8270C
Chrysene	63.1	(55.0- 110			SW846 8270C
	62.4	(55.0- 110	0.61	(0-30.0)	SW846 8270C
bis(2-Ethylhexyl) phthalate	81.8	(45.0- 125			SW846 8270C
	67.9	(45.0- 125	14.3	(0-30.0)	SW846 8270C
Di-n-octyl phthalate	89.4	(40.0- 130			SW846 8270C
	86.4	(40.0- 130	3.01	(0-30.0)	SW846 8270C
Benzo(b)fluoranthene	72.6	(45.0- 115			SW846 8270C
	72.1	(45.0- 115	0.26	(0-30.0)	SW846 8270C
Benzo(k)fluoranthene	79.0	(45.0- 125			SW846 8270C
	80.6	(45.0- 125	2.15	(0-30.0)	SW846 8270C
Benzo(a)pyrene	69.6	(50.0- 110			SW846 8270C
	67.1	(50.0- 110	2.75	(0-30.0)	SW846 8270C
Indeno(1,2,3-cd)pyrene	62.9	(40.0- 120			SW846 8270C
	67.1	(40.0- 120	6.27	(0-30.0)	SW846 8270C
Benzo(ghi)perylene	56.7	(40.0- 125			SW846 8270C
	62.8	(40.0- 125	9.70	(0-30.0)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	80.0	(35.0- 105
	73.7	(35.0- 105
Phenol-d5	83.1	(40.0- 100
	77.7	(40.0- 100
Nitrobenzene-d5	85.4	(35.0- 100
	75.3	(35.0- 100
2-Fluorobiphenyl	76.9	(45.0- 105
	71.5	(45.0- 105
2,4,6-Tribromophenol	74.7	(35.0- 125
	70.7	(35.0- 125
Terphenyl-d14	73.4	(30.0- 125
	69.7	(30.0- 125

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F2J240412 **Work Order #...:** MW31J1DC-MS **Matrix.....:** SOLID
MS Lot-Sample #: F2J240412-001 MW31J1DD-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-001

GC Volatiles

Lot-Sample #...:	F2J240412-001	**Work Order #...:**	MW31J1AH	**Matrix.....:**	SOLID
Date Sampled...:	10/23/12 13:30	**Date Received..:**	10/24/12		
Prep Date.....:	10/29/12	**Analysis Date..:**	10/29/12		
Prep Batch #...:	2303032	**Analysis Time..:**	11:05		
Dilution Factor:	1				
% Moisture.....:	14	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Gasoline Range Organics	ND	0.117	mg/kg	0.0117

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	103	(49.- 112)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: F2J240412 **Work Order #...:** MW5XG1AA **Matrix.....:** SOLID
MB Lot-Sample #: F2J290000-032

Prep Date.....: 10/29/12 **Analysis Time..:** 09:58
Analysis Date..: 10/29/12 **Prep Batch #...:** 2303032
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Gasoline Range Organics	ND	0.100	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	114 *	(49.0- 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

* Surrogate recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: F2J240412 **Work Order #...:** MW5XG1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F2J290000-032
Prep Date.....: 10/29/12 **Analysis Date..:** 10/29/12
Prep Batch #...: 2303032 **Analysis Time..:** 10:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Gasoline Range Organics	**94.4**	**(64.0- 133**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	108	(85.0- 115

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...:	F2J240412	**Work Order #...:**	MW31J1DN-MS	**Matrix.....:**	SOLID
MS Lot-Sample #:	F2J240412-001		MW31J1DP-MSD		
Date Sampled...:	10/23/12 13:30	**Date Received..:**	10/24/12		
Prep Date.....:	10/29/12	**Analysis Date..:**	10/29/12		
Prep Batch #...:	2303032	**Analysis Time..:**	11:39		
Dilution Factor:	1	**% Moisture.....:**	14		

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Gasoline Range Organics	**37.7**	**(15.0- 124**			**SW846 8015 MOD**
	23.3 p	**(15.0- 124**	**47.8**	**(0-30.0)**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	60.4	(49.0- 112
	32.7 *	(49.0- 112

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

* Surrogate recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-001

GC Semivolatiles

Lot-Sample #...:	F2J240412-001	Work Order #...:	MW31J1AG	Matrix.....:	SOLID
Date Sampled...:	10/23/12 13:30	Date Received..:	10/24/12		
Prep Date.....:	10/25/12	Analysis Date..:	10/26/12		
Prep Batch #...:	2299045	Analysis Time..:	12:32		
Dilution Factor:	50				
% Moisture.....:	14	Method.....:	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	74.5 J,D	1460	mg/kg	19.4
Motor Oil Range Organics	531 J,D	1460	mg/kg	37.2

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	0.0 *,DIL	(49.- 133)

NOTE(S):

* Surrogate recovery is outside stated control limits.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

The reported UNKOWN HYDROCARBON was quantified as diesel.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F2J240412 **Work Order #...:** MW4H11AA **Matrix.....:** SOLID
MB Lot-Sample #: F2J250000-045

Prep Date.....: 10/25/12 **Analysis Time..:** 11:38
Analysis Date..: 10/26/12 **Prep Batch #...:** 2299045
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	ND	25.0	mg/kg	SW846 8015 MOD
Motor Oil Range Organics	ND	25.0	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	80.3	(49.0- 133)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F2J240412 Work Order #...: MW4H11AC Matrix.....: SOLID
LCS Lot-Sample#: F2J250000-045
Prep Date.....: 10/25/12 Analysis Date..: 10/26/12
Prep Batch #...: 2299045 Analysis Time..: 12:05
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Diesel Range Organics	**71.1**	**(38.0- 124**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	83.7	(59.0- 129

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Tetra Tech EC Inc

Client Sample ID: 05-001

GC Semivolatiles

Lot-Sample #...: F2J240412-001 **Work Order #...:** MW31J1AE **Matrix.....:** SOLID
Date Sampled...: 10/23/12 13:30 **Date Received..:** 10/24/12
Prep Date.....: 10/25/12 **Analysis Date..:** 10/25/12
Prep Batch #...: 2299047 **Analysis Time..:** 23:09
Dilution Factor: 1
% Moisture.....: 14 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aldrin	ND	1.98	ug/kg	0.357
alpha-BHC	ND	1.98	ug/kg	0.216
beta-BHC	ND	1.98	ug/kg	0.350
delta-BHC	ND	1.98	ug/kg	0.282
gamma-BHC (Lindane)	ND	1.98	ug/kg	0.396
Chlordane (technical)	ND	19.8	ug/kg	4.35
4,4'-DDD	**17.1 PG**	**1.98**	**ug/kg**	**0.258**
4,4'-DDE	**11.3**	**1.98**	**ug/kg**	**0.455**
4,4'-DDT	**6.17 PG**	**1.98**	**ug/kg**	**0.733**
Dieldrin	ND	1.98	ug/kg	0.251
Endosulfan I	ND	1.98	ug/kg	0.665
Endosulfan II	ND	1.98	ug/kg	0.274
Endosulfan sulfate	ND	1.98	ug/kg	0.397
Endrin	ND	1.98	ug/kg	0.184
Endrin aldehyde	ND	1.98	ug/kg	0.454
Endrin ketone	ND	1.98	ug/kg	0.487
Heptachlor	ND	1.98	ug/kg	0.238
Heptachlor epoxide	ND	1.98	ug/kg	0.501
Methoxychlor	ND	3.85	ug/kg	0.839
Toxaphene	ND	78.2	ug/kg	17.7

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	54.1 *	(70.- 125)
Decachlorobiphenyl	115	(55.- 130)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

PG The percent difference between the original and confirmation analyses is greater than 40%.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F2J240412 **Work Order #...:** MW4H71AA **Matrix.....:** SOLID
MB Lot-Sample #: F2J250000-047

Prep Date.....: 10/25/12 **Analysis Time..:** 21:27
Analysis Date..: 10/25/12 **Prep Batch #...:** 2299047
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aldrin	ND	1.70	ug/kg	SW846 8081A
alpha-BHC	ND	1.70	ug/kg	SW846 8081A
beta-BHC	ND	1.70	ug/kg	SW846 8081A
delta-BHC	ND	1.70	ug/kg	SW846 8081A
gamma-BHC (Lindane)	ND	1.70	ug/kg	SW846 8081A
Chlordane (technical)	ND	17.0	ug/kg	SW846 8081A
4,4'-DDD	ND	1.70	ug/kg	SW846 8081A
4,4'-DDE	ND	1.70	ug/kg	SW846 8081A
4,4'-DDT	ND	1.70	ug/kg	SW846 8081A
Dieldrin	ND	1.70	ug/kg	SW846 8081A
Endosulfan I	ND	1.70	ug/kg	SW846 8081A
Endosulfan II	ND	1.70	ug/kg	SW846 8081A
Endosulfan sulfate	ND	1.70	ug/kg	SW846 8081A
Endrin	ND	1.70	ug/kg	SW846 8081A
Endrin aldehyde	ND	1.70	ug/kg	SW846 8081A
Endrin ketone	ND	1.70	ug/kg	SW846 8081A
Heptachlor	ND	1.70	ug/kg	SW846 8081A
Heptachlor epoxide	ND	1.70	ug/kg	SW846 8081A
Methoxychlor	ND	3.30	ug/kg	SW846 8081A
Toxaphene	ND	67.0	ug/kg	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	83.9	(70.0- 125)
Decachlorobiphenyl	84.2	(55.0- 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F2J240412 Work Order #...: MW4H71AC Matrix.....: SOLID
LCS Lot-Sample#: F2J250000-047
Prep Date.....: 10/25/12 Analysis Date..: 10/25/12
Prep Batch #...: 2299047 Analysis Time..: 21:47
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
alpha-BHC	**87.4**	**(60.0- 125**	**SW846 8081A**
beta-BHC	**84.3**	**(60.0- 125**	**SW846 8081A**
delta-BHC	**92.1**	**(55.0- 130**	**SW846 8081A**
gamma-BHC (Lindane)	**81.3**	**(60.0- 125**	**SW846 8081A**
Heptachlor	**81.8**	**(50.0- 140**	**SW846 8081A**
Aldrin	**88.9**	**(45.0- 140**	**SW846 8081A**
Heptachlor epoxide	**85.3**	**(65.0- 130**	**SW846 8081A**
Endosulfan I	**56.3**	**(15.0- 135**	**SW846 8081A**
Dieldrin	**87.7**	**(65.0- 125**	**SW846 8081A**
4,4'-DDE	**92.2**	**(70.0- 125**	**SW846 8081A**
Endrin	**89.8**	**(60.0- 135**	**SW846 8081A**
Endosulfan II	**63.4**	**(35.0- 140**	**SW846 8081A**
4,4'-DDD	**93.1**	**(30.0- 135**	**SW846 8081A**
Endosulfan sulfate	**88.8**	**(60.0- 135**	**SW846 8081A**
4,4'-DDT	**93.9**	**(45.0- 140**	**SW846 8081A**
Methoxychlor	**95.2**	**(55.0- 145**	**SW846 8081A**
Endrin ketone	**88.1**	**(65.0- 135**	**SW846 8081A**
Endrin aldehyde	**83.1**	**(35.0- 145**	**SW846 8081A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	85.3	(70.0- 125
Decachlorobiphenyl	93.5	(55.0- 130

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F2J240412 Work Order #...: MW31J1DJ-MS Matrix.....: SOLID
MS Lot-Sample #: F2J240412-001 MW31J1DK-MSD
Date Sampled...: 10/23/12 13:30 Date Received..: 10/24/12
Prep Date.....: 10/25/12 Analysis Date..: 10/25/12
Prep Batch #...: 2299047 Analysis Time..: 23:29
Dilution Factor: 1 % Moisture.....: 14

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
alpha-BHC	81.8	(60.0- 125			SW846 8081A
	79.6	(60.0- 125	2.69	(0-30.0)	SW846 8081A
beta-BHC	150 a	(60.0- 125			SW846 8081A
	114	(60.0- 125	27.3	(0-30.0)	SW846 8081A
delta-BHC	77.6	(55.0- 130			SW846 8081A
	75.7	(55.0- 130	2.44	(0-30.0)	SW846 8081A
gamma-BHC (Lindane)	75.7	(60.0- 125			SW846 8081A
	72.2	(60.0- 125	4.71	(0-30.0)	SW846 8081A
Heptachlor	72.5	(50.0- 140			SW846 8081A
	70.8	(50.0- 140	2.42	(0-30.0)	SW846 8081A
Aldrin	92.3	(45.0- 140			SW846 8081A
	86.6	(45.0- 140	6.38	(0-30.0)	SW846 8081A
Heptachlor epoxide	413 a	(65.0- 130			SW846 8081A
	283 a,p	(65.0- 130	37.4	(0-30.0)	SW846 8081A
Endosulfan I	32.0	(15.0- 135			SW846 8081A
	30.0	(15.0- 135	6.26	(0-30.0)	SW846 8081A
Dieldrin	64.0 a	(65.0- 125			SW846 8081A
	64.4 a	(65.0- 125	0.68	(0-30.0)	SW846 8081A
4,4'-DDE	113	(70.0- 125			SW846 8081A
	91.8	(70.0- 125	13.1	(0-30.0)	SW846 8081A
Endrin	73.5	(60.0- 135			SW846 8081A
	67.6	(60.0- 135	8.27	(0-30.0)	SW846 8081A
Endosulfan II	33.4 a	(35.0- 140			SW846 8081A
	33.2 a	(35.0- 140	0.50	(0-30.0)	SW846 8081A
4,4'-DDD	236 a	(30.0- 135			SW846 8081A
	149 a,p	(30.0- 135	31.1	(0-30.0)	SW846 8081A
Endosulfan sulfate	89.0	(60.0- 135			SW846 8081A
	79.2	(60.0- 135	11.6	(0-30.0)	SW846 8081A
4,4'-DDT	172 a	(45.0- 140			SW846 8081A
	137	(45.0- 140	18.6	(0-30.0)	SW846 8081A
Methoxychlor	88.6	(55.0- 145			SW846 8081A
	98.3	(55.0- 145	10.4	(0-30.0)	SW846 8081A
Endrin ketone	75.0	(65.0- 135			SW846 8081A
	96.6	(65.0- 135	25.2	(0-30.0)	SW846 8081A
Endrin aldehyde	74.6	(35.0- 145			SW846 8081A
	69.7	(35.0- 145	6.73	(0-30.0)	SW846 8081A

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F2J240412 **Work Order #...:** MW31J1DJ-MS **Matrix.....:** SOLID
MS Lot-Sample #: F2J240412-001 MW31J1DK-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	93.6	(70.0- 125
	67.9 *	(70.0- 125
Decachlorobiphenyl	145 *	(55.0- 130
	214 *	(55.0- 130

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

p Relative percent difference (RPD) is outside stated control limits.

* Surrogate recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-001

GC Semivolatiles

Lot-Sample #...:	F2J240412-001	**Work Order #...:**	MW31J1AF	**Matrix.....:**	SOLID
Date Sampled...:	10/23/12 13:30	**Date Received..:**	10/24/12		
Prep Date.....:	10/25/12	**Analysis Date..:**	10/29/12		
Prep Batch #...:	2299046	**Analysis Time..:**	11:37		
Dilution Factor:	1				
% Moisture.....:	14	**Method.....:**	SW846 8082		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	38.5	ug/kg	10.2
Aroclor 1221	ND	38.5	ug/kg	10.2
Aroclor 1232	ND	38.5	ug/kg	10.2
Aroclor 1242	ND	38.5	ug/kg	10.2
Aroclor 1248	ND	38.5	ug/kg	10.2
Aroclor 1254	**205 PG**	**38.5**	**ug/kg**	**6.42**
Aroclor 1260	**145**	**38.5**	**ug/kg**	**6.42**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	93.2	(60.- 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

PG The percent difference between the original and confirmation analyses is greater than 40%.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F2J240412 **Work Order #...:** MW4H31AA **Matrix.....:** SOLID
MB Lot-Sample #: F2J250000-046

Prep Date.....: 10/25/12 **Analysis Time..:** 11:00
Analysis Date..: 10/29/12 **Prep Batch #...:** 2299046
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	33.0	ug/kg	SW846 8082
Aroclor 1221	ND	33.0	ug/kg	SW846 8082
Aroclor 1232	ND	33.0	ug/kg	SW846 8082
Aroclor 1242	ND	33.0	ug/kg	SW846 8082
Aroclor 1248	ND	33.0	ug/kg	SW846 8082
Aroclor 1254	ND	33.0	ug/kg	SW846 8082
Aroclor 1260	ND	33.0	ug/kg	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	84.1	(60.0- 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F2J240412 **Work Order #...:** MW4H31AC **Matrix.....:** SOLID
LCS Lot-Sample#: F2J250000-046
Prep Date.....: 10/25/12 **Analysis Date..:** 10/29/12
Prep Batch #...: 2299046 **Analysis Time..:** 11:19
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Aroclor 1016	**100**	**(40.0- 140**	**SW846 8082**
Aroclor 1260	**97.4**	**(60.0- 130**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	90.8	(60.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...:	F2J240412	**Work Order #...:**	MW31J1DG-MS	**Matrix.....:**	SOLID
MS Lot-Sample #:	F2J240412-001		MW31J1DH-MSD		
Date Sampled...:	10/23/12 13:30	**Date Received..:**	10/24/12		
Prep Date.....:	10/25/12	**Analysis Date..:**	10/29/12		
Prep Batch #...:	2299046	**Analysis Time..:**	11:56		
Dilution Factor:	1	**% Moisture.....:**	14		

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**64.3**	**(40.0- 140**			**SW846 8082**
	51.2	**(40.0- 140**	**22.5**	**(0-30.0)**	**SW846 8082**
Aroclor 1260	**32.5 a**	**(60.0- 130**			**SW846 8082**
	22.5 a	**(60.0- 130**	**9.78**	**(0-30.0)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	91.8	(60.0- 125
	116	(60.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-001

TOTAL Metals

Lot-Sample #...: F2J240412-001 Matrix.....: SOLID
Date Sampled...: 10/23/12 13:30 Date Received..: 10/24/12
% Moisture.....: 14

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2299025						
Silver	11.8 N*	0.23	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AW
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.028	
Arsenic	3.9	1.2	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AK
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.30	
Barium	529 N*	2.3	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AL
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.11	
Beryllium	0.13 N	0.12	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AM
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.030	
Cadmium	4.6	0.07	mg/kg	SW846 6020	10/25-10/27/12	MW31J1AN
		Dilution Factor: 1		Analysis Time..: 04:48	MDL.....: 0.019	
Cobalt	6.8 E	0.23	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AP
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.050	
Chromium	70.0	2.2	mg/kg	SW846 6020	10/25-10/26/12	MW31J1A2
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.53	
Copper	536 NE	1.2	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AQ
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.12	
Molybdenum	2.0	0.58	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AT
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.14	
Nickel	45.0 E	0.58	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AU
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.12	
Lead	223 N	0.35	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AR
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.12	
Antimony	1.3	0.58	mg/kg	SW846 6020	10/25-10/26/12	MW31J1A3
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.19	
Selenium	0.35 B	0.58	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AV
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.18	

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-001

TOTAL Metals

Lot-Sample #...: F2J240412-001 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium	ND	0.53	mg/kg	SW846 6020	10/25-10/26/12	MW31J1AX
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.18	
Vanadium	23.6	1.2	mg/kg	SW846 6020	10/25-10/26/12	MW31J1A0
		Dilution Factor: 1		Analysis Time..: 19:17	MDL.....: 0.86	
Zinc	482 N	2.3	mg/kg	SW846 6020	10/25-10/27/12	MW31J1A1
		Dilution Factor: 1		Analysis Time..: 04:48	MDL.....: 1.6	
Prep Batch #...: 2304016						
Mercury	0.61 N*	0.23	mg/kg	SW846 7471A	10/25/12	MW31J1AJ
		Dilution Factor: 5		Analysis Time..: 13:48	MDL.....: 0.065	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

E Matrix interference.

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-001

STLC Metals

Lot-Sample #...: F2J240412-002 Matrix.....: SOLID
Date Sampled...: 10/23/12 13:30 Date Received..: 10/24/12
Leach Date.....: 10/24/12 Leach Batch #..: P229803

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2300072						
Cadmium	280	125	ug/L	SW846 6010B	10/26-10/30/12	MW31P1AC
		Dilution Factor: 5		Analysis Time..: 08:55	MDL.....: 22.8	
Chromium	822	625	ug/L	SW846 6010B	10/26-10/30/12	MW31P1AD
		Dilution Factor: 5		Analysis Time..: 08:55	MDL.....: 78.5	
Lead	10900 N	2500	ug/L	SW846 6010B	10/26-10/30/12	MW31P1AE
		Dilution Factor: 5		Analysis Time..: 08:55	MDL.....: 31.8	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

N Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F2J240412 **Matrix.....:** SOLID

MB Lot-Sample #: F2J250000-025 **Prep Batch #...:** 2299025

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Antimony	ND	0.5	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AT
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Arsenic	ND	1	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AA
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Barium	ND	2	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AC
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Beryllium	ND	0.1	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AD
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Cadmium	ND	0.06	mg/kg	SW846 6020	10/25-10/27/12	MW4E11AE
		Dilution Factor: 1				
		Analysis Time..: 04:35				
Chromium	ND	1.9	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AR
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Cobalt	ND	0.2	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AF
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Copper	ND	1	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AG
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Lead	ND	0.3	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AH
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Molybdenum	ND	0.5	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AJ
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Nickel	ND	0.5	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AK
		Dilution Factor: 1				
		Analysis Time..: 19:03				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F2J240412 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.5	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AL
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Silver	**0.033 B**	**0.2**	**mg/kg**	**SW846 6020**	**10/25-10/26/12**	**MW4E11AM**
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Thallium	ND	0.45	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AN
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Vanadium	ND	1	mg/kg	SW846 6020	10/25-10/26/12	MW4E11AP
		Dilution Factor: 1				
		Analysis Time..: 19:03				
Zinc	ND	2	mg/kg	SW846 6020	10/25-10/27/12	MW4E11AQ
		Dilution Factor: 1				
		Analysis Time..: 04:35				

MB Lot-Sample #: F2J300000-016 **Prep Batch #...:** 2304016

Mercury	ND	0.04	mg/kg	SW846 7471A	10/25/12	MW6DJ1AA
		Dilution Factor: 1				
		Analysis Time..: 12:33				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

STLC Metals

Client Lot #...: F2J240412 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F2J240000-062 **Prep Batch #...:** 2300072						
Leach Date.....: 10/24/12 **Leach Batch #..:** P229803						
Cadmium	ND	125	ug/L	SW846 6010B	10/26-10/30/12	MW36H1AA
		Dilution Factor: 5				
		Analysis Time..: 08:48				
Chromium	ND	625	ug/L	SW846 6010B	10/26-10/30/12	MW36H1AC
		Dilution Factor: 5				
		Analysis Time..: 08:48				
Lead	ND	2500	ug/L	SW846 6010B	10/26-10/30/12	MW36H1AD
		Dilution Factor: 5				
		Analysis Time..: 08:48				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F2J240412 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F2J250000-025 **Prep Batch #...:** 2299025					
Arsenic	96	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11AU
		Dilution Factor: 1	Analysis Time..: 19:10		
Barium	105	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11AV
		Dilution Factor: 1	Analysis Time..: 19:10		
Beryllium	102	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11AW
		Dilution Factor: 1	Analysis Time..: 19:10		
Cadmium	99	(80 - 120)	SW846 6020	10/25-10/27/12	MW4E11AX
		Dilution Factor: 1	Analysis Time..: 04:42		
Cobalt	97	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11A0
		Dilution Factor: 1	Analysis Time..: 19:10		
Copper	98	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11A1
		Dilution Factor: 1	Analysis Time..: 19:10		
Lead	100	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11A2
		Dilution Factor: 1	Analysis Time..: 19:10		
Molybdenum	99	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11A3
		Dilution Factor: 1	Analysis Time..: 19:10		
Nickel	95	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11A4
		Dilution Factor: 1	Analysis Time..: 19:10		
Selenium	98	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11A5
		Dilution Factor: 1	Analysis Time..: 19:10		
Silver	100	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11A6
		Dilution Factor: 1	Analysis Time..: 19:10		
Thallium	101	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11A7
		Dilution Factor: 1	Analysis Time..: 19:10		
Vanadium	98	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11A8
		Dilution Factor: 1	Analysis Time..: 19:10		
Zinc	92	(80 - 120)	SW846 6020	10/25-10/27/12	MW4E11A9
		Dilution Factor: 1	Analysis Time..: 04:42		

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F2J240412 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	102	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11CA
		Dilution Factor: 1	Analysis Time..: 19:10		
Antimony	102	(80 - 120)	SW846 6020	10/25-10/26/12	MW4E11CC
		Dilution Factor: 1	Analysis Time..: 19:10		

LCS Lot-Sample#: F2J300000-016 **Prep Batch #...:** 2304016

Mercury	97	(80 - 120)	SW846 7471A	10/25/12	MW6DJ1AC
		Dilution Factor: 1	Analysis Time..: 12:34		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

STLC Metals

Client Lot #...: F2J240412 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F2J260000-072 **Prep Batch #...:** 2300072					
Cadmium	98	(80 - 120)	SW846 6010B	10/26-10/30/12	MW5G91AA
		Dilution Factor: 5	Analysis Time..: 08:51		
Chromium	94	(80 - 120)	SW846 6010B	10/26-10/30/12	MW5G91AC
		Dilution Factor: 5	Analysis Time..: 08:51		
Lead	96	(80 - 120)	SW846 6010B	10/26-10/30/12	MW5G91AD
		Dilution Factor: 5	Analysis Time..: 08:51		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F2J240412 **Matrix.....:** SOLID
Date Sampled...: 10/23/12 13:30 **Date Received..:** 10/24/12

MS Lot-Sample #: F2J240412-001 **Prep Batch #...:** 2299025

% Moisture.....: 14

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Antimony	81	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1C5
	96	(80 - 120)	17	(0-20)	SW846 6020	10/25-10/26/12	MW31J1C6
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Arsenic	101	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1A5
	100	(80 - 120)	0.59	(0-20)	SW846 6020	10/25-10/26/12	MW31J1A6
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Barium	0 N	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1A7
	0 N,N*	(80 - 120)	0.0	(0-20)	SW846 6020	10/25-10/26/12	MW31J1A8
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Beryllium	104	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1A9
	121 N	(80 - 120)	15	(0-20)	SW846 6020	10/25-10/26/12	MW31J1CA
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Cadmium	101	(80 - 120)			SW846 6020	10/25-10/27/12	MW31J1CC
	96	(80 - 120)	5.3	(0-20)	SW846 6020	10/25-10/27/12	MW31J1CD
		Dilution Factor: 1					
		Analysis Time..: 05:02					
Chromium	80	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1C3
	93	(80 - 120)	9.1	(0-20)	SW846 6020	10/25-10/26/12	MW31J1C4
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Cobalt	99	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1CE
	98	(80 - 120)	1.2	(0-20)	SW846 6020	10/25-10/26/12	MW31J1CF
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Copper	0 N	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1CG
	0 N	(80 - 120)	0.0	(0-20)	SW846 6020	10/25-10/26/12	MW31J1CH
		Dilution Factor: 1					
		Analysis Time..: 19:31					

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F2J240412 **Matrix.....:** SOLID
Date Sampled...: 10/23/12 13:30 **Date Received..:** 10/24/12

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Lead	138 N	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1CJ
	148 N	(80 - 120)	3.0	(0-20)	SW846 6020	10/25-10/26/12	MW31J1CK
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Molybdenum	104	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1CL
	119	(80 - 120)	13	(0-20)	SW846 6020	10/25-10/26/12	MW31J1CM
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Nickel	97	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1CN
	96	(80 - 120)	0.96	(0-20)	SW846 6020	10/25-10/26/12	MW31J1CP
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Selenium	103	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1CQ
	100	(80 - 120)	2.8	(0-20)	SW846 6020	10/25-10/26/12	MW31J1CR
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Silver	57 N	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1CT
	122	(80 - 120)	34	(0-20)	SW846 6020	10/25-10/26/12	MW31J1CU
		Qualifiers: N,*,N*					
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Thallium	102	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1CV
	119	(80 - 120)	16	(0-20)	SW846 6020	10/25-10/26/12	MW31J1CW
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Vanadium	105	(80 - 120)			SW846 6020	10/25-10/26/12	MW31J1CX
	99	(80 - 120)	5.0	(0-20)	SW846 6020	10/25-10/26/12	MW31J1C0
		Dilution Factor: 1					
		Analysis Time..: 19:31					
Zinc	0 N	(80 - 120)			SW846 6020	10/25-10/27/12	MW31J1C1
	0 N	(80 - 120)	0.0	(0-20)	SW846 6020	10/25-10/27/12	MW31J1C2
		Dilution Factor: 1					
		Analysis Time..: 05:02					

MS Lot-Sample #: F2J240412-001 **Prep Batch #...:** 2304016

% Moisture.....: 14

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F2J240412 **Matrix.....:** SOLID
Date Sampled...: 10/23/12 13:30 **Date Received..:** 10/24/12

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Mercury	299 N	(80 - 120)			SW846 7471A	10/25/12	MW31J1DQ
	912	(80 - 120)	67	(0-20)	SW846 7471A	10/25/12	MW31J1DR

Qualifiers: N,*,N*
Dilution Factor: 5
Analysis Time..: 13:52

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

* Relative percent difference (RPD) is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

MATRIX SPIKE SAMPLE EVALUATION REPORT

STLC Metals

Client Lot #...: F2J240412 **Matrix.....:** SOLID
Date Sampled...: 10/23/12 13:30 **Date Received..:** 10/24/12

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F2J240412-002		**Prep Batch #...:** 2300072					
Leach Date.....: 10/24/12		**Leach Batch #..:** P229803				**% Moisture.....:**	
Cadmium	93	(80 - 120)			SW846 6010B	10/26-10/30/12	MW31P1AF
	100	(80 - 120)	7.0	(0-20)	SW846 6010B	10/26-10/30/12	MW31P1AG
		Dilution Factor: 5					
		Analysis Time..: 09:02					
Chromium	83	(80 - 120)			SW846 6010B	10/26-10/30/12	MW31P1AH
	86	(80 - 120)	2.8	(0-20)	SW846 6010B	10/26-10/30/12	MW31P1AJ
		Dilution Factor: 5					
		Analysis Time..: 09:02					
Lead	76 N	(80 - 120)			SW846 6010B	10/26-10/30/12	MW31P1AK
	90	(80 - 120)	4.7	(0-20)	SW846 6010B	10/26-10/30/12	MW31P1AL
		Dilution Factor: 5					
		Analysis Time..: 09:02					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

N Spiked analyte recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-001

General Chemistry

Lot-Sample #...: F2J240412-001 Work Order #...: MW31J Matrix.....: SOLID
Date Sampled...: 10/23/12 13:30 Date Received..: 10/24/12
% Moisture.....: 14

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	14.3	0.100	%	MCAWW 160.3 MOD	10/25-10/26/12	2299015

Dilution Factor: 1 Analysis Time..: 00:00 MDL.....:

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F2J240412 **Work Order #...:** MW2GT-SMP MW2GT-DUP **Matrix.....:** SOLID

Date Sampled...: 10/04/12 **Date Received..:** 10/19/12

% Moisture.....: 2.8

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	F2J190433-001	
	2.84	2.74	%	3.58	(0-30.0	MCAWW 160.3 MOD	10/25-10/26/12	2299015

Dilution Factor: 1 Analysis Time..: 00:00

F2J240412

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-176,VS24

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440010 Alameda CTO10

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS in LOT: 0

Date Received: 2012-10-24

Analytical Due Date: 2012-10-30

Report Due Date: 2012-10-31

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)
***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters If TAR above 2.5 (log for Ra226)
If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L
PCBs: waters/solls must be extracted within 7/14 days per client SAP (regardless of EPA method).

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	05-001			2012-10-23 / 1330	MW31J	SOLID

SAMPLE COMMENTS:

XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	QJ	SW846	8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
CD	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
CO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
CR	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
BE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
MO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
BA	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
AS	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
NI	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
CU	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
AG	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
ZN	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
HG	O9	SW846	7471A	SOLID, 7471, Mercury 2 of 2	70	METALS, TOTAL (Method Exclusive) - Solids	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	QL	SW846	8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N	
XX	QK	SW846	8260B	SOLID, 8260B, Volatile Organics, GC/MS (	15	PURGE AND TRAP - 5 mL purge	AP	CLIENT: HUNTERS POINT	PROT: A	WRK LOC	06	TIC: N	
XX	ZV		RAD SCREEN	SOLID, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT: A	WRK LOC	06		
XX	WM	MCAW W	160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
2	05-001			2012-10-23 / 1330	MW31P	SOLID

SAMPLE COMMENTS:

CD	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CR	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
PB	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
XX	ZZ	NONE	NONE	SOLID, STLC Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06

COC 208

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50001

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7939 1329 3390
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 N/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-001	10-23-12	1330	#3	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-G	/	/	N

Relinquished by: (signature)	Date: 10-23-12	Received by (signature) S. 12/24/12	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom
Company: Tetra Tech/FedEx	Time: 1400	Company: TT 0930	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

G-Line Sediment

Soil too wet to collect Encore. ~~Got~~ 3-8oz jars

50001

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Lot #(s): F2J240412

CUR Form #: 2 0 8

CONDITION UPON RECEIPT FORM

Client: Tetra Tech

Quote No: 90022

COC/RFA No: 50061

Initiated By: BD Date: 10/24/12 Time: 0930

Shipping Information

Shipper: (FedEx) UPS DHL Courier Client Other: _____ Multiple Packages: Y (N)

Shipping # (s):*		Sample Temperature (s):**	
1. 7939 1329 3390	6.	1. 2	6.
2.	7.	2.	7.
3.	8.	3.	8.
4.	9.	4.	9.
5.	10.	5.	10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	(Y) N	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y (N) N/A	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N (N/A)	Was sample received with proper pH[1]? (If not, make note below)
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes:

Corrective Action:

☐ Client Contact Name: _____ Informed by: _____

☐ Sample(s) processed "as is"

☐ Sample(s) on hold until: _____ If released, notify: _____

Project Management Review: [signature] Date: 10/26/12

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004 rev13, REVISED 05/27/11 \\Slsvr01\QA\FORMS\ST-LOUIS\ADMIN\Admin-0004 CUR.doc

TETRA TECH EC INC.

Chain-of Custody Record

NUMBER: 50001

Project Name	Alameda Site 17, CTO 05
PO Number	1036773-14
Project Location	Alameda, CA
Project Number	106-4044-0005
Sampler Name	V. Richards / W. Solorzano
Airbill Number	7939 1329 3390
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	F2K010418 - STLC/TCLP 11-7; F2J240412 10-31

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-001	10-23-12	1330	3	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-G	/	/	N

Relinquished by: (signature)	Date: 10-23-12	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom
Company: Tetra Tech/FedEx	Time: 1400	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

G-Line Sediment

Soil too wet to collect Encore.

~~Got~~ 3-8oz Jars

50001

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 40440005

Alameda CTO5

Lot #: F2K010418

Sabina Sudoko

Tetra Tech EC Inc
17885 Von Karman Ave
Ste 500
Irvine, CA 92614

TESTAMERICA LABORATORIES, INC.

Erika Starman
Project Manager

November 7, 2012

13715 Rider Trail North Earth City, MO 63045 **tel** 314.298.8566 **fax** 314.298.8757 **www.testamericainc.com**

Case Narrative
LOT NUMBER: F2K010418

This report contains the analytical results for the sample received under chain of custody by TestAmerica St. Louis on November 1, 2012. This sample is associated with your Alameda CTO5 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

This report shall not be reproduced, except in full, without the written approval of the laboratory.

RPD and RER results that are outside QC limits for non-detected analytes are statistically invalid. Non-detect results were duplicated, and the RPD/RER can be ignored.

Sample receiving issues are noted on the CUR form and written communications pertaining to these issues are included in the CoC section of the report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. Ra-226 analysis by gamma spectroscopy is performed on an as-received basis unless sample containers were received cracked or broken. Analysis parameters for cracked or broken samples will be listed in the narrative.

Ra-226 results analyzed by method EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on samples in this data set. Specific methods employed are documented on the batch extraction logs.

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

STLC Inductively Coupled Plasma Metals (SW846 6010B)

Batch 2310077
The samples were analyzed at a dilution due to the presence of matrix interferences which cause QC failures when run at a lesser dilution. The reporting limit has been adjusted for the dilution.

Affected Samples:
F2K010418 (1): 05-001

There were no other nonconformances or observations noted with any analysis on this lot.

METHODS SUMMARY

F2K010418

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F2K010418

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MW7C2	001	05-001	10/23/12	13:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Tetra Tech EC Inc

Client Sample ID: 05-001

TCLP Metals

Lot-Sample #...: F2K010418-001 Matrix.....: SOLID
Date Sampled...: 10/23/12 13:30 Date Received..: 11/01/12
Leach Date.....: 11/01/12 Leach Batch #..: P230603

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2310079						
Lead	97.2 B	250	ug/L	SW846 6010B	11/05-11/06/12	MW7C21AG
		Dilution Factor: 1		Analysis Time..: 10:29	MDL.....: 3.2	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-001

STLC Metals

Lot-Sample #...: F2K010418-001 Matrix.....: SOLID
Date Sampled...: 10/23/12 13:30 Date Received..: 11/01/12
Leach Date.....: 11/02/12 Leach Batch #..: P230701

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 2310077						
Copper	2980	625	ug/L	SW846 6010B	11/05-11/06/12	MW7C21AK
		Dilution Factor: 5		Analysis Time..: 10:54	MDL.....: 114	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: F2K010418 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F2K010000-080		**Prep Batch #...:** 2310079				
Leach Date.....: 11/01/12		**Leach Batch #..:** P230603				
Lead	ND	250	ug/L	SW846 6010B	11/05-11/06/12	MW7G91AA
		Dilution Factor: 1				
		Analysis Time..: 10:22				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

STLC Metals

Client Lot #...: F2K010418 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F2K020000-095		**Prep Batch #...:** 2310077				
Leach Date.....: 11/02/12		**Leach Batch #..:** P230701				
Copper	ND	625	ug/L	SW846 6010B	11/05-11/06/12	MW7T21AA
		Dilution Factor: 5				
		Analysis Time..: 10:47				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F2K010418 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F2K050000-079 **Prep Batch #...:** 2310079					
Lead	102	(80 - 120)	SW846 6010B	11/05-11/06/12	MW7681AA
		Dilution Factor: 1	Analysis Time..: 10:26		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

STLC Metals

Client Lot #...: F2K010418 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F2K050000-077 **Prep Batch #...:** 2310077					
Copper	98	(80 - 120)	SW846 6010B	11/05-11/06/12	MW7671AA
		Dilution Factor: 5	Analysis Time..: 10:51		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F2K010418 **Matrix.....:** SOLID
Date Sampled...: 10/23/12 13:30 **Date Received..:** 11/01/12

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F2K010418-001 **Prep Batch #...:** 2310079							
Leach Date.....: 11/01/12 **Leach Batch #..:** P230603							
Lead	100	(80 - 120)			SW846 6010B	11/05-11/06/12	MW7C21AN
	94	(80 - 120)	5.3	(0-20)	SW846 6010B	11/05-11/06/12	MW7C21AP

Dilution Factor: 1
Analysis Time..: 10:36

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

STLC Metals

Client Lot #...: F2K010418 **Matrix.....:** SOLID
Date Sampled...: 10/23/12 13:30 **Date Received..:** 11/01/12

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F2K010418-001		**Prep Batch #...:** 2310077					
Leach Date.....: 11/02/12		**Leach Batch #..:** P230701				**% Moisture.....:**	
Copper	93	(80 - 120)			SW846 6010B	11/05-11/06/12	MW7C21AL
	96	(80 - 120)	2.2	(0-20)	SW846 6010B	11/05-11/06/12	MW7C21AM

Dilution Factor: 5
Analysis Time..: 11:08

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

F2K010418

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-176

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440010 Alameda CTO10

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS In LOT: 1

Date Received: 2012-11-01

Analytical Due Date: 2012-11-06

Report Due Date: 2012-11-07

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)
***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)
If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L
PCBs: waters/soils must be extracted within 7/14 days per client SAP (regardless of EPA method).

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	05-001			2012-10-23 / 1330	MW7C2	SOLID

SAMPLE COMMENTS:

PB	QO	SW846 6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06
Cu NT	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06

ZLB 11/2/12

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

REANALYSIS / SUB-CONTRACT / CLIENT RETURN FORM

Request Initiated by: Starman
Request Date: 11/1/12
Quote Number: 90022
Client Number: 494696
SDG Number:

Request is for (check one):

- [ ] Return to Client – *(Client FedEx #)*
- [ ] Reanalysis
- [ ] Sub-Contract Sample
- [X] Additional Analysis

New Lot (check one):

- [X] Yes
- [ ] No

Old Lot Number: F2J240412

Client ID	Sampled date/time*	Shelf Location	Line item from quote (include Rad Screen if required)
05-001	10/23/12 1330	2-176	SOLID, STLC ICP Cu SOLID, TLCP ICP Pb

* or attach original Chain of Custody

Due Date for New Login:

Analytical	Report
11/6/12	11/7/12

For Sub-Contract or Return to Client ONLY

Shipping Address:

Contact Person:
Phone Number:

Project Manager Signature:

DO NOT HAVE LAB PULL ORIGINAL SAMPLE

Completed by: B T Date: 11/1/12

New Login Lot Number: F2K010418 (place copy of this form in old file)

Initial that Containers were Re-labeled: BO (place below lot number of old label)

Starman, Erika

From:	Sudoko, Sabina [Sabina.Sudoko@tetratech.com]
Sent:	Wednesday, October 31, 2012 3:48 PM
To:	Starman, Erika
Cc:	Richards, Vincent
Subject:	Alameda - F2J240412 - Additional Metals Analysis - TCLP / STLC
Importance:	High
Follow Up Flag:	Follow up
Flag Status:	Red

Erika,

Please add the following STLC / TCLP metals analysis to sample listed below on a 5 days TAT

F2J240412-001 (05-001)

- STLC – copper
- TCLP – lead

Thank You..

Sabina R. Sudoko | Chemist
Direct: 949.809.5022 | Fax: 949.809.5004
sabina.sudoko@tetratech.com

Tetra Tech EC | Sciences
17885 Von Karman Ave., Suite 500 | Irvine, CA 92614 - 6213 | www.tetratech.com

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Think Green - Not every email needs to be printed.

From: Starman, Erika [mailto:Erika.Starman@testamericainc.com]
Sent: Wednesday, October 31, 2012 12:58 PM
To: Sudoko, Sabina
Subject: Alameda Lot F2J240412

Sabina,
Attached are the analytical results and EDD for lot F2J240412.

~Happy Halloween~
ERIKA K. STARMAN
Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
13715 Rider Trail North
Earth City, MO 63045
314.298.8566 I Fax 314.298.8757
www.testamericainc.com

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

ENTERED

TETRA TECH

Chain-of Custody Record

NUMBER: 50003

Project Name	Alameda Site 17, CTO 05
PO Number	1036773-14
Project Location	Alameda, CA
Project Number	106-4044-0005
Sampler Name	V. Richards / W. Solorzano
Airbill Number	7945 1530 0707
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	F3A150406 1-22

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-002A	1/14/13	1400	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP - Pb
Company: Tetra tech / FedEX	Time: 1445	Company	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

A-Line Sediment

50003

TETRA TECH INC

Chain-of Custody Record

NUMBER: 50002

ENTERED

Project Name	Alameda Site 17, CTO 05
PO Number	1036773-14
Project Location	Alameda, CA
Project Number	106-4044-0005
Sampler Name	V. Richards / W. Solorzano
Airbill Number	7945 1530 0707
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	F3A150406

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-003	1/14/13	1410	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-B	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP-Pb
Company: Tetra tech/ Fedex	Time: 1445	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

B-Line Sediment

50002

TETRA TECH

Chain-of Custody Record

NUMBER: 50004

ENTERED

Project Name	Alameda Site 17, CTO 05
PO Number	1036773-14
Project Location	Alameda, CA
Project Number	106-4044-0005
Sampler Name	V. Richards / W. Solorzano
Airbill Number	7945 1630 0707
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	F3A150406

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-004	1/14/13	1420	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-MH5A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP - Pb.
Company: Tetra tech/Pedex	Time: 1445	Company	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

MH5A Sediment

Pad

50004

TETRA TECH

Chain-of Custody Record

NUMBER: 50005

ENTERED

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945153007 07
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022
Laboratory Name: Test America St. Louis	Laboratory ID: F3A150406

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-005	1/14/13	1430	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-MH2A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP - Pb
Company: TT/Fedex	Time: 1445	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: MH2A Sediment cells

50005

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 40440005

Alameda CTO05

Lot #: F3A150406

Sabina Sudoko

Tetra Tech EC Inc
17885 Von Karman Ave
Ste 500
Irvine, CA 92614

TESTAMERICA LABORATORIES, INC.

Erika Starman
Project Manager

January 23, 2013

13715 Rider Trail North Earth City, MO 63045 **tel** 314.298.8566 **fax** 314.298.8757 **www.testamericainc.com**

Case Narrative
LOT NUMBER: F3A150406

This report contains the analytical results for the eight samples received under chain of custody by TestAmerica St. Louis on January 15, 2013. These samples are associated with your Alameda CTO05 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

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RPD and RER results that are outside QC limits for non-detected analytes are statistically invalid. Non-detect results were duplicated, and the RPD/RER can be ignored.

Sample receiving issues are noted on the CUR form and written communications pertaining to these issues are included in the CoC section of the report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. Ra-226 analysis by gamma spectroscopy is performed on an as-received basis unless sample containers were received cracked or broken. Analysis parameters for cracked or broken samples will be listed in the narrative.

Ra-226 results analyzed by method EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on samples in this data set. Specific methods employed are documented on the batch extraction logs.

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

Volatile Organic Compounds by GC/MS (SW846 8260B)

Batch 3016017
The surrogate recovery for 4-BFB is outside the upper QC limit, indicating a potential positive bias. There were no target analytes associated with this surrogate observed above the reporting limit in the sample; therefore the sample data was not adversely affected by this excursion.

The internal standard(s) recovery is outside the lower QC limit, indicating a potential positive bias. There were no target analytes associated with this internal standard observed above the reporting limit in the sample; therefore the sample data was not adversely affected by this excursion.

Affected Samples:
F3A150406 (2): 05-003
F3A150406 (3): 05-004

Volatile Petroleum Hydrocarbons (SW846 8015 MOD)

Batch 3016025
Sample exhibited hydrocarbons peaks in the Gasoline chromatography range. The sample pattern does not match Gasoline which may be attributed to degradation or indicative of the presence an unknown hydrocarbon.

Semivolatile Organic Compounds by GC/MS (SW846 8270C)

Batch 3016016
N-Nitrosodiphenylamine and Hexachlorocyclopentadiene recovered high (outside DoD criteria) in the ICV giving these compounds a potential high bias in the samples associated with this ICV.

3 & 4-Methylphenol recovered low (outside DoD criteria) in the ICV giving this compound a potential low bias in the samples associated with this ICV.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004
F3A150406 (4): 05-005

PCBs by SW-846 (SW846 8082)

Batch 3016020
The sample surrogate recovery for DCB is outside the upper QC limits. The surrogate excursion is confirmed by the MS/MSD, which also have an elevated surrogate recovery.

Affected Samples:
F3A150406 (3): 05-004

The %D between the primary and secondary column result for Aroclor 1254 is greater than 40%. SW method 8000C prescribes reporting the lower of the two column results in the absence of chromatographic anomalies observed on the column yielding the lower result. The higher result is reported, due to DOD QSM requirements.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003

The SW-846 method 8082 requires 3-5 peaks be used for PCB quantitation. Due to the presence of multiple aroclors or matrix interference in the sample, only 3-4 peaks were used for quantitation.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004

Organochlorine Pesticides (SW846 8081A)

Batch 3016021
For the Toxaphene cal, we have not been able to find a second vendor with a suitable compatible standard. Therefore the ICV is from the same vendor but from a different lot. The lab will continue to look for a compatible second vendor.

The closing CCV recovery was outside the lower QC limit (greater than 20% D) for Toxaphene on the A column; Toxaphene, 4,4'-DDT, Endrin aldehyde, and surrogate DCB indicating a potential low bias for those analytes in the samples associated with this CCV. Samples were re-analyzed with similar CCV failure indicating matrix interference present in the samples.

The MSD recovery for 4,4'-DDE, and Heptachlor epoxide is outside the established QC limits. The RPD is within method acceptance criteria indicating possible matrix interference. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004
F3A150406 (4): 05-005

The %D between the primary and secondary column result for -001: Dieldrin; -002 and -003: 4,4'-DDE and 4,4'-DDT is greater than 40%. SW method 8000C prescribes reporting the lower of the two column results in the absence of chromatographic anomalies observed on the column yielding the lower result. The lower result is reported.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004

Sample surrogate recovery for DCB is outside established QC limits. This excursion is attributed to a matrix interference which is physically evident in the sample. The sample extract was golden in color and there is chromatographic evidence of interference.

Affected Samples:
F3A150406 (3): 05-004

The sample was analyzed at a dilution due to high concentrations of target analytes. The reporting limit has been adjusted only for those targets reported from the dilution run.

Affected Samples:
F3A150406 (2): 05-003

Extractable Petroleum Hydrocarbons DRO (SW846 8015 MOD)

Batch 3016019
The sample was analyzed at a dilution due to high concentrations of target analytes. The sample extract was brown which analyzed undiluted has historically caused instrumentation problems. The reporting limit has been adjusted for the dilution since no analysis at a lesser dilution was performed.

Affected Samples:
F3A150406 (1): 05-002A

The samples exhibited hydrocarbons peaks in the Diesel chromatography range. The sample pattern does not match Diesel which may be indicative of the presence of an unknown hydrocarbon.

Affected Samples:
F3A150406 (2): 05-003
F3A150406 (3): 05-004

The samples were analyzed at a dilution due to high concentrations of target analytes. The sample extracts were dark and oily which analyzed undiluted has historically caused instrumentation problems. The surrogate recoveries were diluted out as a result of the dilutions. The reporting limit has been adjusted for the dilutions since no analysis at a lesser dilution was performed.

Affected Samples:
F3A150406 (2): 05-003
F3A150406 (3): 05-004
F3A150406 (4): 05-005

Analysis of the sample designated for MS/MSD required significant dilution as to render the MS/MSD analysis ineffective. No data reported for MS/MSD.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004
F3A150406 (4): 05-005

ICP-MS (SW846 6020)

Batch 3016024
The MS/MSD recovery for antimony is outside the established QC limits. The RPD is within method acceptance criteria indicating possible matrix interference. Method performance is demonstrated by acceptable LCS recovery.

Due to LDR failures, the LDR has been lowered for beryllium (200ppb). The LCS and the MS/MSD were above the LDR. The LCS and MS/MSD were within acceptable QC limits. The MS/MSD are reported as estimated values.

The serial dilution percent difference is not within QC limits for vanadium. The serial dilution failing is evidence of a possible matrix interference and the results are flagged accordingly.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004
F3A150406 (4): 05-005

STLC Inductively Coupled Plasma Metals (SW846 6010B)

Batch 3018030
The samples were analyzed at a dilution due to the presence of matrix interferences which cause instrument QC failures. The reporting limit has been adjusted for the dilution.

Affected Samples:
F3A150406 (5): 05-002A
F3A150406 (6): 05-003
F3A150406 (7): 05-004
F3A150406 (8): 05-005

There were no other nonconformances or observations noted with any analysis on this lot.

METHODS SUMMARY

F3A150406

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Extractable Petroleum Hydrocarbons	SW846 8015 MOD	SW846 3550
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010
ICP-MS (6020)	SW846 6020	SW846 3050
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
Organochlorine Pesticides	SW846 8081A	SW846 3550B
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
PCBs by SW-846 8082	SW846 8082	SW846 3550B/366
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3550B
Volatile Organics by GC/MS	SW846 8260B	SW846 5035
Volatile Petroleum Hydrocarbons	SW846 8015 MOD	SW846 5030

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F3A150406

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MXVWP	001	05-002A	01/14/13	14:00
MXVWQ	002	05-003	01/14/13	14:10
MXVWR	003	05-004	01/14/13	14:20
MXVWV	004	05-005	01/14/13	14:30
MXVWW	005	05-002A	01/14/13	14:00
MXVW7	006	05-003	01/14/13	14:10
MXVXA	007	05-004	01/14/13	14:20
MXVXE	008	05-005	01/14/13	14:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC/MS Volatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AD **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 11:16
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	22.2	ug/kg	7.20
Benzene	ND	5.56	ug/kg	0.281
Bromodichloromethane	ND	5.56	ug/kg	0.282
Bromoform	ND	5.56	ug/kg	0.407
Bromomethane	ND	5.56	ug/kg	1.22
Carbon tetrachloride	ND	5.56	ug/kg	0.571
Chlorobenzene	ND	5.56	ug/kg	0.425
Dibromochloromethane	ND	5.56	ug/kg	0.452
Chloroethane	ND	11.1	ug/kg	0.574
Chloroform	ND	5.56	ug/kg	0.418
Chloromethane	ND	11.1	ug/kg	0.723
1,1-Dichloroethane	ND	5.56	ug/kg	0.436
1,2-Dichloroethane	ND	5.56	ug/kg	0.964
1,1-Dichloroethene	ND	5.56	ug/kg	1.79
cis-1,2-Dichloroethene	ND	5.56	ug/kg	0.664
trans-1,2-Dichloroethene	ND	5.56	ug/kg	1.05
1,2-Dichloropropane	ND	5.56	ug/kg	0.426
cis-1,3-Dichloropropene	ND	5.56	ug/kg	0.662
trans-1,3-Dichloropropene	ND	5.56	ug/kg	0.388
Ethylbenzene	ND	5.56	ug/kg	0.333
2-Hexanone	ND	11.1	ug/kg	1.97
Methylene chloride	ND	5.56	ug/kg	1.76
2-Butanone (MEK)	ND	11.1	ug/kg	2.14
Styrene	ND	5.56	ug/kg	0.386
1,1,2,2-Tetrachloroethane	ND	5.56	ug/kg	0.446
Tetrachloroethene	ND	5.56	ug/kg	0.358
Toluene	ND	5.56	ug/kg	0.778
1,1,1-Trichloroethane	ND	5.56	ug/kg	0.479
1,1,2-Trichloroethane	ND	5.56	ug/kg	0.637
Trichloroethene	ND	5.56	ug/kg	0.428
Vinyl chloride	ND	5.56	ug/kg	0.476
Xylenes (total)	ND	11.1	ug/kg	0.950
Methyl tert-butyl ether (MTBE)	ND	5.56	ug/kg	0.529
4-Methyl-2-pentanone	ND	11.1	ug/kg	0.814

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	115	(65.- 135)
1,2-Dichloroethane-d4	104	(65.- 135)
4-Bromofluorobenzene	119	(65.- 135)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC/MS Volatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AD **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC/MS Volatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AJ **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 11:41
Dilution Factor: 1
% Moisture.....: 8.4 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	21.8	ug/kg	7.07
Benzene	ND	5.46	ug/kg	0.276
Bromodichloromethane	ND	5.46	ug/kg	0.277
Bromoform	ND	5.46	ug/kg	0.400
Bromomethane	ND	5.46	ug/kg	1.20
Carbon tetrachloride	ND	5.46	ug/kg	0.560
Chlorobenzene	ND	5.46	ug/kg	0.417
Dibromochloromethane	ND	5.46	ug/kg	0.443
Chloroethane	ND	10.9	ug/kg	0.564
Chloroform	ND	5.46	ug/kg	0.411
Chloromethane	ND	10.9	ug/kg	0.710
1,1-Dichloroethane	ND	5.46	ug/kg	0.428
1,2-Dichloroethane	ND	5.46	ug/kg	0.947
1,1-Dichloroethene	ND	5.46	ug/kg	1.76
cis-1,2-Dichloroethene	ND	5.46	ug/kg	0.652
trans-1,2-Dichloroethene	ND	5.46	ug/kg	1.03
1,2-Dichloropropane	ND	5.46	ug/kg	0.418
cis-1,3-Dichloropropene	ND	5.46	ug/kg	0.650
trans-1,3-Dichloropropene	ND	5.46	ug/kg	0.381
Ethylbenzene	ND	5.46	ug/kg	0.327
2-Hexanone	ND	10.9	ug/kg	1.93
Methylene chloride	ND	5.46	ug/kg	1.73
2-Butanone (MEK)	ND	10.9	ug/kg	2.10
Styrene	ND	5.46	ug/kg	0.379
1,1,2,2-Tetrachloroethane	ND	5.46	ug/kg	0.438
Tetrachloroethene	**0.393 J**	**5.46**	**ug/kg**	**0.352**
Toluene	ND	5.46	ug/kg	0.765
1,1,1-Trichloroethane	ND	5.46	ug/kg	0.471
1,1,2-Trichloroethane	ND	5.46	ug/kg	0.626
Trichloroethene	ND	5.46	ug/kg	0.421
Vinyl chloride	ND	5.46	ug/kg	0.468
Xylenes (total)	ND	10.9	ug/kg	0.933
Methyl tert-butyl ether (MTBE)	ND	5.46	ug/kg	0.520
4-Methyl-2-pentanone	ND	10.9	ug/kg	0.800

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	124	(65.- 135)
1,2-Dichloroethane-d4	110	(65.- 135)
4-Bromofluorobenzene	143 *	(65.- 135)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-003

GC/MS Volatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AJ **Matrix.....:** SOLID

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC/MS Volatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AJ **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 12:06
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	22.6	ug/kg	7.32
Benzene	ND	5.66	ug/kg	0.286
Bromodichloromethane	ND	5.66	ug/kg	0.288
Bromoform	ND	5.66	ug/kg	0.414
Bromomethane	ND	5.66	ug/kg	1.25
Carbon tetrachloride	ND	5.66	ug/kg	0.581
Chlorobenzene	**0.495 J**	**5.66**	**ug/kg**	**0.432**
Dibromochloromethane	ND	5.66	ug/kg	0.460
Chloroethane	ND	11.3	ug/kg	0.584
Chloroform	ND	5.66	ug/kg	0.426
Chloromethane	ND	11.3	ug/kg	0.736
1,1-Dichloroethane	ND	5.66	ug/kg	0.444
1,2-Dichloroethane	ND	5.66	ug/kg	0.982
1,1-Dichloroethene	ND	5.66	ug/kg	1.82
cis-1,2-Dichloroethene	ND	5.66	ug/kg	0.676
trans-1,2-Dichloroethene	ND	5.66	ug/kg	1.07
1,2-Dichloropropane	ND	5.66	ug/kg	0.434
cis-1,3-Dichloropropene	ND	5.66	ug/kg	0.674
trans-1,3-Dichloropropene	ND	5.66	ug/kg	0.395
Ethylbenzene	ND	5.66	ug/kg	0.339
2-Hexanone	ND	11.3	ug/kg	2.00
Methylene chloride	ND	5.66	ug/kg	1.79
2-Butanone (MEK)	ND	11.3	ug/kg	2.17
Styrene	ND	5.66	ug/kg	0.393
1,1,2,2-Tetrachloroethane	ND	5.66	ug/kg	0.454
Tetrachloroethene	ND	5.66	ug/kg	0.365
Toluene	ND	5.66	ug/kg	0.792
1,1,1-Trichloroethane	ND	5.66	ug/kg	0.488
1,1,2-Trichloroethane	ND	5.66	ug/kg	0.649
Trichloroethene	ND	5.66	ug/kg	0.436
Vinyl chloride	ND	5.66	ug/kg	0.485
Xylenes (total)	ND	11.3	ug/kg	0.967
Methyl tert-butyl ether (MTBE)	ND	5.66	ug/kg	0.539
4-Methyl-2-pentanone	ND	11.3	ug/kg	0.829

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	120	(65.- 135)
1,2-Dichloroethane-d4	111	(65.- 135)
4-Bromofluorobenzene	152 *	(65.- 135)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-004

GC/MS Volatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AJ **Matrix.....:** SOLID

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC/MS Volatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AJ **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 12:30
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	22.2	ug/kg	7.19
Benzene	ND	5.55	ug/kg	0.281
Bromodichloromethane	ND	5.55	ug/kg	0.282
Bromoform	ND	5.55	ug/kg	0.406
Bromomethane	ND	5.55	ug/kg	1.22
Carbon tetrachloride	ND	5.55	ug/kg	0.570
Chlorobenzene	ND	5.55	ug/kg	0.424
Dibromochloromethane	ND	5.55	ug/kg	0.451
Chloroethane	ND	11.1	ug/kg	0.573
Chloroform	ND	5.55	ug/kg	0.418
Chloromethane	ND	11.1	ug/kg	0.722
1,1-Dichloroethane	ND	5.55	ug/kg	0.435
1,2-Dichloroethane	ND	5.55	ug/kg	0.963
1,1-Dichloroethene	ND	5.55	ug/kg	1.79
cis-1,2-Dichloroethene	ND	5.55	ug/kg	0.663
trans-1,2-Dichloroethene	ND	5.55	ug/kg	1.05
1,2-Dichloropropane	ND	5.55	ug/kg	0.425
cis-1,3-Dichloropropene	ND	5.55	ug/kg	0.661
trans-1,3-Dichloropropene	ND	5.55	ug/kg	0.388
Ethylbenzene	ND	5.55	ug/kg	0.332
2-Hexanone	ND	11.1	ug/kg	1.97
Methylene chloride	ND	5.55	ug/kg	1.75
2-Butanone (MEK)	ND	11.1	ug/kg	2.13
Styrene	ND	5.55	ug/kg	0.385
1,1,2,2-Tetrachloroethane	ND	5.55	ug/kg	0.445
Tetrachloroethene	ND	5.55	ug/kg	0.358
Toluene	ND	5.55	ug/kg	0.777
1,1,1-Trichloroethane	ND	5.55	ug/kg	0.479
1,1,2-Trichloroethane	ND	5.55	ug/kg	0.636
Trichloroethene	ND	5.55	ug/kg	0.428
Vinyl chloride	ND	5.55	ug/kg	0.475
Xylenes (total)	ND	11.1	ug/kg	0.948
Methyl tert-butyl ether (MTBE)	ND	5.55	ug/kg	0.529
4-Methyl-2-pentanone	ND	11.1	ug/kg	0.813

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	115	(65.- 135)
1,2-Dichloroethane-d4	104	(65.- 135)
4-Bromofluorobenzene	132	(65.- 135)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-005

GC/MS Volatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AJ **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV891AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-017

Prep Date.....: 01/16/13 **Analysis Time..:** 08:23
Analysis Date..: 01/16/13 **Prep Batch #...:** 3016017
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20.0	ug/kg	SW846 8260B
Benzene	ND	5.00	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.00	ug/kg	SW846 8260B
Bromoform	ND	5.00	ug/kg	SW846 8260B
Bromomethane	ND	5.00	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.00	ug/kg	SW846 8260B
Chlorobenzene	ND	5.00	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.00	ug/kg	SW846 8260B
Chloroethane	ND	10.0	ug/kg	SW846 8260B
Chloroform	ND	5.00	ug/kg	SW846 8260B
Chloromethane	ND	10.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.00	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.00	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.00	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.00	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.00	ug/kg	SW846 8260B
Ethylbenzene	ND	5.00	ug/kg	SW846 8260B
2-Hexanone	ND	10.0	ug/kg	SW846 8260B
Methylene chloride	ND	5.00	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	10.0	ug/kg	SW846 8260B
Styrene	ND	5.00	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.00	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.00	ug/kg	SW846 8260B
Toluene	ND	5.00	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.00	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.00	ug/kg	SW846 8260B
Trichloroethene	ND	5.00	ug/kg	SW846 8260B
Vinyl chloride	ND	5.00	ug/kg	SW846 8260B
Xylenes (total)	ND	10.0	ug/kg	SW846 8260B
2-Butanone (MEK)	ND	10.0	ug/kg	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	5.00	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	111	(65.0- 135)
1,2-Dichloroethane-d4	102	(65.0- 135)
4-Bromofluorobenzene	107	(65.0- 135)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV891AA **Matrix.....:** SOLID

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV891AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A160000-017
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 07:33
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	**93.2**	**(65.0- 135**	**SW846 8260B**
Benzene	**99.4**	**(65.0- 135**	**SW846 8260B**
Trichloroethene	**98.7**	**(65.0- 135**	**SW846 8260B**
Toluene	**98.2**	**(65.0- 135**	**SW846 8260B**
Chlorobenzene	**103**	**(65.0- 135**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	101	(65.0- 135
1,2-Dichloroethane-d4	97.7	(65.0- 135
4-Bromofluorobenzene	98.1	(65.0- 135

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWP1CC-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-001 MXVWP1CD-MSD
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 12:55
Dilution Factor: 1 **% Moisture.....:** 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**103**	**(65.0- 135**			**SW846 8260B**
	102	**(65.0- 135**	**6.57**	**(0-30.0)**	**SW846 8260B**
Benzene	**107**	**(65.0- 135**			**SW846 8260B**
	101	**(65.0- 135**	**11.4**	**(0-30.0)**	**SW846 8260B**
Trichloroethene	**105**	**(65.0- 135**			**SW846 8260B**
	99.3	**(65.0- 135**	**11.2**	**(0-30.0)**	**SW846 8260B**
Toluene	**109**	**(65.0- 135**			**SW846 8260B**
	106	**(65.0- 135**	**8.84**	**(0-30.0)**	**SW846 8260B**
Chlorobenzene	**109**	**(65.0- 135**			**SW846 8260B**
	105	**(65.0- 135**	**9.75**	**(0-30.0)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	113	(65.0- 135
	107	(65.0- 135
1,2-Dichloroethane-d4	107	(65.0- 135
	103	(65.0- 135
4-Bromofluorobenzene	117	(65.0- 135
	116	(65.0- 135

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AE **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/18/13
Prep Batch #...: 3016016 **Analysis Time..:** 12:17
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Pyridine	ND	734	ug/kg	74.1
Phenol	ND	367	ug/kg	37.0
bis(2-Chloroethyl)-ether	ND	367	ug/kg	37.1
2-Chlorophenol	ND	367	ug/kg	37.0
1,3-Dichlorobenzene	ND	367	ug/kg	37.0
1,4-Dichlorobenzene	ND	367	ug/kg	37.0
1,2-Dichlorobenzene	ND	367	ug/kg	37.0
2-Methylphenol	ND	367	ug/kg	37.0
3-Methylphenol & 4-Methylphenol	ND	734	ug/kg	74.1
bis(2-Chloroisopropyl) ether	ND	367	ug/kg	37.0
N-Nitrosodi-n-propyl-amine	ND	367	ug/kg	37.0
Hexachloroethane	ND	367	ug/kg	37.0
2-Nitrophenol	ND	367	ug/kg	37.0
2,4-Dimethylphenol	ND	367	ug/kg	37.0
Nitrobenzene	ND	367	ug/kg	37.0
bis(2-Chloroethoxy) methane	ND	367	ug/kg	37.0
2,4-Dichlorophenol	ND	367	ug/kg	37.0
1,2,4-Trichloro-benzene	ND	367	ug/kg	37.0
Naphthalene	ND	367	ug/kg	37.0
4-Chloroaniline	ND	367	ug/kg	37.0
Hexachlorobutadiene	ND	367	ug/kg	37.0
4-Chloro-3-methylphenol	ND	367	ug/kg	37.0
Hexachlorocyclopenta-diene	ND	1780	ug/kg	367
2,4,6-Trichloro-phenol	ND	367	ug/kg	37.0
2,4,5-Trichloro-phenol	ND	367	ug/kg	37.0
2-Chloronaphthalene	ND	367	ug/kg	37.0
2-Nitroaniline	ND	1780	ug/kg	37.0
Dimethyl phthalate	ND	367	ug/kg	37.0
Acenaphthene	ND	367	ug/kg	37.0

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Tetra Tech EC Inc

Client Sample ID: 05-002A

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AE **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthylene	ND	367	ug/kg	37.0
2,6-Dinitrotoluene	ND	367	ug/kg	37.0
3-Nitroaniline	ND	1780	ug/kg	37.0
2,4-Dinitrophenol	ND	1780	ug/kg	367
4-Nitrophenol	ND	1780	ug/kg	367
Dibenz(a,h)anthracene	ND	367	ug/kg	37.0
Dibenzofuran	ND	367	ug/kg	37.0
2,4-Dinitrotoluene	ND	367	ug/kg	37.0
Diethyl phthalate	ND	367	ug/kg	37.0
Fluorene	ND	367	ug/kg	37.0
4-Chlorophenyl phenyl ether	ND	367	ug/kg	37.0
4-Nitroaniline	ND	1780	ug/kg	367
4,6-Dinitro-2-methylphenol	ND	1780	ug/kg	367
N-Nitrosodiphenylamine	ND	367	ug/kg	37.0
Pyrene	**55.6 J**	**367**	**ug/kg**	**37.0**
4-Bromophenyl phenyl ether	ND	367	ug/kg	37.0
Hexachlorobenzene	ND	367	ug/kg	37.0
Pentachlorophenol	ND	734	ug/kg	367
Phenanthrene	ND	367	ug/kg	37.0
Anthracene	ND	367	ug/kg	37.0
Di-n-butyl phthalate	ND	367	ug/kg	37.0
Fluoranthene	**46.4 J**	**367**	**ug/kg**	**37.0**
Butyl benzyl phthalate	ND	367	ug/kg	37.0
Benzo(a)anthracene	**47.5 J**	**367**	**ug/kg**	**37.0**
3,3'-Dichlorobenzidine	ND	1780	ug/kg	37.0
Chrysene	**63.7 J**	**367**	**ug/kg**	**37.0**
bis(2-Ethylhexyl) phthalate	**175 J**	**367**	**ug/kg**	**50.4**
Di-n-octyl phthalate	ND	367	ug/kg	37.0
Benzo(b)fluoranthene	**106 J**	**367**	**ug/kg**	**37.0**
Benzo(k)fluoranthene	**40.2 J**	**367**	**ug/kg**	**37.0**
Benzo(a)pyrene	**84.3 J**	**367**	**ug/kg**	**37.0**
Indeno(1,2,3-cd)pyrene	**171 J**	**367**	**ug/kg**	**37.0**
Benzo(ghi)perylene	**77.3 J**	**367**	**ug/kg**	**37.0**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	69.9	(35.- 105)
Phenol-d5	79.6	(40.- 100)
Nitrobenzene-d5	72.8	(35.- 100)
2-Fluorobiphenyl	74.3	(45.- 105)
2,4,6-Tribromophenol	80.7	(35.- 125)
Terphenyl-d14	79.8	(30.- 125)

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Tetra Tech EC Inc

Client Sample ID: 05-002A

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AE **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AK **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/18/13
Prep Batch #...: 3016016 **Analysis Time..:** 14:05
Dilution Factor: 1
% Moisture.....: 8.4 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Pyridine	ND	721	ug/kg	72.7
Phenol	ND	360	ug/kg	36.4
bis(2-Chloroethyl)-ether	ND	360	ug/kg	36.5
2-Chlorophenol	ND	360	ug/kg	36.4
1,3-Dichlorobenzene	ND	360	ug/kg	36.4
1,4-Dichlorobenzene	ND	360	ug/kg	36.4
1,2-Dichlorobenzene	ND	360	ug/kg	36.4
2-Methylphenol	ND	360	ug/kg	36.4
3-Methylphenol & 4-Methylphenol	ND	721	ug/kg	72.7
bis(2-Chloroisopropyl) ether	ND	360	ug/kg	36.4
N-Nitrosodi-n-propyl-amine	ND	360	ug/kg	36.4
Hexachloroethane	ND	360	ug/kg	36.4
2-Nitrophenol	ND	360	ug/kg	36.4
2,4-Dimethylphenol	ND	360	ug/kg	36.4
Nitrobenzene	ND	360	ug/kg	36.4
bis(2-Chloroethoxy) methane	ND	360	ug/kg	36.4
2,4-Dichlorophenol	ND	360	ug/kg	36.4
1,2,4-Trichloro-benzene	ND	360	ug/kg	36.4
Naphthalene	ND	360	ug/kg	36.4
4-Chloroaniline	ND	360	ug/kg	36.4
Hexachlorobutadiene	ND	360	ug/kg	36.4
4-Chloro-3-methylphenol	ND	360	ug/kg	36.4
Hexachlorocyclopenta-diene	ND	1750	ug/kg	360
2,4,6-Trichloro-phenol	ND	360	ug/kg	36.4
2,4,5-Trichloro-phenol	ND	360	ug/kg	36.4
2-Chloronaphthalene	ND	360	ug/kg	36.4
2-Nitroaniline	ND	1750	ug/kg	36.4
Dimethyl phthalate	ND	360	ug/kg	36.4
Acenaphthene	ND	360	ug/kg	36.4

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Tetra Tech EC Inc

Client Sample ID: 05-003

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AK **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthylene	ND	360	ug/kg	36.4
2,6-Dinitrotoluene	ND	360	ug/kg	36.4
3-Nitroaniline	ND	1750	ug/kg	36.4
2,4-Dinitrophenol	ND	1750	ug/kg	360
4-Nitrophenol	ND	1750	ug/kg	360
Dibenz(a,h)anthracene	ND	360	ug/kg	36.4
Dibenzofuran	ND	360	ug/kg	36.4
2,4-Dinitrotoluene	ND	360	ug/kg	36.4
Diethyl phthalate	ND	360	ug/kg	36.4
Fluorene	ND	360	ug/kg	36.4
4-Chlorophenyl phenyl ether	ND	360	ug/kg	36.4
4-Nitroaniline	ND	1750	ug/kg	360
4,6-Dinitro-2-methylphenol	ND	1750	ug/kg	360
N-Nitrosodiphenylamine	ND	360	ug/kg	36.4
Pyrene	**267 J**	**360**	**ug/kg**	**36.4**
4-Bromophenyl phenyl ether	ND	360	ug/kg	36.4
Hexachlorobenzene	ND	360	ug/kg	36.4
Pentachlorophenol	ND	721	ug/kg	360
Phenanthrene	**104 J**	**360**	**ug/kg**	**36.4**
Anthracene	ND	360	ug/kg	36.4
Di-n-butyl phthalate	ND	360	ug/kg	36.4
Fluoranthene	**274 J**	**360**	**ug/kg**	**36.4**
Butyl benzyl phthalate	**42.5 J**	**360**	**ug/kg**	**36.4**
Benzo(a)anthracene	**147 J**	**360**	**ug/kg**	**36.4**
3,3'-Dichlorobenzidine	ND	1750	ug/kg	36.4
Chrysene	**161 J**	**360**	**ug/kg**	**36.4**
bis(2-Ethylhexyl) phthalate	**5580**	**360**	**ug/kg**	**49.5**
Di-n-octyl phthalate	ND	360	ug/kg	36.4
Benzo(b)fluoranthene	**230 J**	**360**	**ug/kg**	**36.4**
Benzo(k)fluoranthene	**80.9 J**	**360**	**ug/kg**	**36.4**
Benzo(a)pyrene	**137 J**	**360**	**ug/kg**	**36.4**
Indeno(1,2,3-cd)pyrene	**171 J**	**360**	**ug/kg**	**36.4**
Benzo(ghi)perylene	**88.9 J**	**360**	**ug/kg**	**36.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	80.7	(35.- 105)
Phenol-d5	91.3	(40.- 100)
Nitrobenzene-d5	82.8	(35.- 100)
2-Fluorobiphenyl	83.6	(45.- 105)
2,4,6-Tribromophenol	89.6	(35.- 125)
Terphenyl-d14	75.3	(30.- 125)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-003

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AK **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AK **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/18/13
Prep Batch #...: 3016016 **Analysis Time..:** 14:40
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Pyridine	ND	747	ug/kg	75.4
Phenol	ND	374	ug/kg	37.7
bis(2-Chloroethyl)-ether	ND	374	ug/kg	37.8
2-Chlorophenol	ND	374	ug/kg	37.7
1,3-Dichlorobenzene	ND	374	ug/kg	37.7
1,4-Dichlorobenzene	ND	374	ug/kg	37.7
1,2-Dichlorobenzene	ND	374	ug/kg	37.7
2-Methylphenol	ND	374	ug/kg	37.7
3-Methylphenol & 4-Methylphenol	ND	747	ug/kg	75.4
bis(2-Chloroisopropyl) ether	ND	374	ug/kg	37.7
N-Nitrosodi-n-propyl-amine	ND	374	ug/kg	37.7
Hexachloroethane	ND	374	ug/kg	37.7
2-Nitrophenol	ND	374	ug/kg	37.7
2,4-Dimethylphenol	ND	374	ug/kg	37.7
Nitrobenzene	ND	374	ug/kg	37.7
bis(2-Chloroethoxy) methane	ND	374	ug/kg	37.7
2,4-Dichlorophenol	ND	374	ug/kg	37.7
1,2,4-Trichloro-benzene	ND	374	ug/kg	37.7
Naphthalene	ND	374	ug/kg	37.7
4-Chloroaniline	ND	374	ug/kg	37.7
Hexachlorobutadiene	ND	374	ug/kg	37.7
4-Chloro-3-methylphenol	ND	374	ug/kg	37.7
Hexachlorocyclopenta-diene	ND	1810	ug/kg	374
2,4,6-Trichloro-phenol	ND	374	ug/kg	37.7
2,4,5-Trichloro-phenol	ND	374	ug/kg	37.7
2-Chloronaphthalene	ND	374	ug/kg	37.7
2-Nitroaniline	ND	1810	ug/kg	37.7
Dimethyl phthalate	ND	374	ug/kg	37.7
Acenaphthene	ND	374	ug/kg	37.7

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-004

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AK **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthylene	ND	374	ug/kg	37.7
2,6-Dinitrotoluene	ND	374	ug/kg	37.7
3-Nitroaniline	ND	1810	ug/kg	37.7
2,4-Dinitrophenol	ND	1810	ug/kg	374
4-Nitrophenol	ND	1810	ug/kg	374
Dibenz(a,h)anthracene	ND	374	ug/kg	37.7
Dibenzofuran	ND	374	ug/kg	37.7
2,4-Dinitrotoluene	ND	374	ug/kg	37.7
Diethyl phthalate	ND	374	ug/kg	37.7
Fluorene	ND	374	ug/kg	37.7
4-Chlorophenyl phenyl ether	ND	374	ug/kg	37.7
4-Nitroaniline	ND	1810	ug/kg	374
4,6-Dinitro-2-methylphenol	ND	1810	ug/kg	374
N-Nitrosodiphenylamine	ND	374	ug/kg	37.7
Pyrene	**431**	**374**	**ug/kg**	**37.7**
4-Bromophenyl phenyl ether	ND	374	ug/kg	37.7
Hexachlorobenzene	ND	374	ug/kg	37.7
Pentachlorophenol	ND	747	ug/kg	374
Phenanthrene	**284 J**	**374**	**ug/kg**	**37.7**
Anthracene	**77.0 J**	**374**	**ug/kg**	**37.7**
Di-n-butyl phthalate	ND	374	ug/kg	37.7
Fluoranthene	**478**	**374**	**ug/kg**	**37.7**
Butyl benzyl phthalate	ND	374	ug/kg	37.7
Benzo(a)anthracene	**227 J**	**374**	**ug/kg**	**37.7**
3,3'-Dichlorobenzidine	ND	1810	ug/kg	37.7
Chrysene	**255 J**	**374**	**ug/kg**	**37.7**
bis(2-Ethylhexyl) phthalate	**2930**	**374**	**ug/kg**	**51.3**
Di-n-octyl phthalate	ND	374	ug/kg	37.7
Benzo(b)fluoranthene	**291 J**	**374**	**ug/kg**	**37.7**
Benzo(k)fluoranthene	**122 J**	**374**	**ug/kg**	**37.7**
Benzo(a)pyrene	**208 J**	**374**	**ug/kg**	**37.7**
Indeno(1,2,3-cd)pyrene	**209 J**	**374**	**ug/kg**	**37.7**
Benzo(ghi)perylene	**115 J**	**374**	**ug/kg**	**37.7**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	72.1	(35.- 105)
Phenol-d5	91.1	(40.- 100)
Nitrobenzene-d5	81.7	(35.- 100)
2-Fluorobiphenyl	83.3	(45.- 105)
2,4,6-Tribromophenol	96.9	(35.- 125)
Terphenyl-d14	79.5	(30.- 125)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-004

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AK **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AK **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/18/13
Prep Batch #...: 3016016 **Analysis Time..:** 15:16
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Pyridine	ND	733	ug/kg	74.0
Phenol	ND	367	ug/kg	37.0
bis(2-Chloroethyl)-ether	ND	367	ug/kg	37.1
2-Chlorophenol	ND	367	ug/kg	37.0
1,3-Dichlorobenzene	ND	367	ug/kg	37.0
1,4-Dichlorobenzene	ND	367	ug/kg	37.0
1,2-Dichlorobenzene	ND	367	ug/kg	37.0
2-Methylphenol	ND	367	ug/kg	37.0
3-Methylphenol & 4-Methylphenol	ND	733	ug/kg	74.0
bis(2-Chloroisopropyl) ether	ND	367	ug/kg	37.0
N-Nitrosodi-n-propyl-amine	ND	367	ug/kg	37.0
Hexachloroethane	ND	367	ug/kg	37.0
2-Nitrophenol	ND	367	ug/kg	37.0
2,4-Dimethylphenol	ND	367	ug/kg	37.0
Nitrobenzene	ND	367	ug/kg	37.0
bis(2-Chloroethoxy) methane	ND	367	ug/kg	37.0
2,4-Dichlorophenol	ND	367	ug/kg	37.0
1,2,4-Trichloro-benzene	ND	367	ug/kg	37.0
Naphthalene	ND	367	ug/kg	37.0
4-Chloroaniline	ND	367	ug/kg	37.0
Hexachlorobutadiene	ND	367	ug/kg	37.0
4-Chloro-3-methylphenol	ND	367	ug/kg	37.0
Hexachlorocyclopenta-diene	ND	1780	ug/kg	367
2,4,6-Trichloro-phenol	ND	367	ug/kg	37.0
2,4,5-Trichloro-phenol	ND	367	ug/kg	37.0
2-Chloronaphthalene	ND	367	ug/kg	37.0
2-Nitroaniline	ND	1780	ug/kg	37.0
Dimethyl phthalate	ND	367	ug/kg	37.0
Acenaphthene	ND	367	ug/kg	37.0

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-005

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AK **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthylene	ND	367	ug/kg	37.0
2,6-Dinitrotoluene	ND	367	ug/kg	37.0
3-Nitroaniline	ND	1780	ug/kg	37.0
2,4-Dinitrophenol	ND	1780	ug/kg	367
4-Nitrophenol	ND	1780	ug/kg	367
Dibenz(a,h)anthracene	ND	367	ug/kg	37.0
Dibenzofuran	ND	367	ug/kg	37.0
2,4-Dinitrotoluene	ND	367	ug/kg	37.0
Diethyl phthalate	ND	367	ug/kg	37.0
Fluorene	ND	367	ug/kg	37.0
4-Chlorophenyl phenyl ether	ND	367	ug/kg	37.0
4-Nitroaniline	ND	1780	ug/kg	367
4,6-Dinitro-2-methylphenol	ND	1780	ug/kg	367
N-Nitrosodiphenylamine	ND	367	ug/kg	37.0
Pyrene	**79.9 J**	**367**	**ug/kg**	**37.0**
4-Bromophenyl phenyl ether	ND	367	ug/kg	37.0
Hexachlorobenzene	ND	367	ug/kg	37.0
Pentachlorophenol	ND	733	ug/kg	367
Phenanthrene	**70.1 J**	**367**	**ug/kg**	**37.0**
Anthracene	ND	367	ug/kg	37.0
Di-n-butyl phthalate	ND	367	ug/kg	37.0
Fluoranthene	**57.7 J**	**367**	**ug/kg**	**37.0**
Butyl benzyl phthalate	ND	367	ug/kg	37.0
Benzo(a)anthracene	**38.1 J**	**367**	**ug/kg**	**37.0**
3,3'-Dichlorobenzidine	ND	1780	ug/kg	37.0
Chrysene	ND	367	ug/kg	37.0
bis(2-Ethylhexyl) phthalate	ND	367	ug/kg	50.3
Di-n-octyl phthalate	ND	367	ug/kg	37.0
Benzo(b)fluoranthene	**43.7 J**	**367**	**ug/kg**	**37.0**
Benzo(k)fluoranthene	ND	367	ug/kg	37.0
Benzo(a)pyrene	**42.0 J**	**367**	**ug/kg**	**37.0**
Indeno(1,2,3-cd)pyrene	**129 J**	**367**	**ug/kg**	**37.0**
Benzo(ghi)perylene	ND	367	ug/kg	37.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	77.7	(35.- 105)
Phenol-d5	88.6	(40.- 100)
Nitrobenzene-d5	78.6	(35.- 100)
2-Fluorobiphenyl	82.6	(45.- 105)
2,4,6-Tribromophenol	86.8	(35.- 125)
Terphenyl-d14	74.5	(30.- 125)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-005

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AK **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV881AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-016

Prep Date.....: 01/16/13 **Analysis Time..:** 10:29
Analysis Date..: 01/18/13 **Prep Batch #...:** 3016016
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Pyridine	ND	660	ug/kg	SW846 8270C
Phenol	ND	330	ug/kg	SW846 8270C
bis(2-Chloroethyl)-ether	ND	330	ug/kg	SW846 8270C
2-Chlorophenol	ND	330	ug/kg	SW846 8270C
1,3-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,4-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,2-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
2-Methylphenol	ND	330	ug/kg	SW846 8270C
3-Methylphenol & 4-Methylphenol	ND	660	ug/kg	SW846 8270C
bis(2-Chloroisopropyl) ether	ND	330	ug/kg	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	330	ug/kg	SW846 8270C
Hexachloroethane	ND	330	ug/kg	SW846 8270C
2-Nitrophenol	ND	330	ug/kg	SW846 8270C
2,4-Dimethylphenol	ND	330	ug/kg	SW846 8270C
Nitrobenzene	ND	330	ug/kg	SW846 8270C
bis(2-Chloroethoxy) methane	ND	330	ug/kg	SW846 8270C
2,4-Dichlorophenol	ND	330	ug/kg	SW846 8270C
1,2,4-Trichloro-benzene	ND	330	ug/kg	SW846 8270C
Naphthalene	ND	330	ug/kg	SW846 8270C
4-Chloroaniline	ND	330	ug/kg	SW846 8270C
Hexachlorobutadiene	ND	330	ug/kg	SW846 8270C
4-Chloro-3-methylphenol	ND	330	ug/kg	SW846 8270C
Hexachlorocyclopenta-diene	ND	1600	ug/kg	SW846 8270C
2,4,6-Trichloro-phenol	ND	330	ug/kg	SW846 8270C
2,4,5-Trichloro-phenol	ND	330	ug/kg	SW846 8270C
2-Chloronaphthalene	ND	330	ug/kg	SW846 8270C
2-Nitroaniline	ND	1600	ug/kg	SW846 8270C
Dimethyl phthalate	ND	330	ug/kg	SW846 8270C
Acenaphthene	ND	330	ug/kg	SW846 8270C
Acenaphthylene	ND	330	ug/kg	SW846 8270C
2,6-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
3-Nitroaniline	ND	1600	ug/kg	SW846 8270C

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV881AA **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,4-Dinitrophenol	ND	1600	ug/kg	SW846 8270C
4-Nitrophenol	ND	1600	ug/kg	SW846 8270C
Dibenz(a,h)anthracene	ND	330	ug/kg	SW846 8270C
Dibenzofuran	ND	330	ug/kg	SW846 8270C
2,4-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
Diethyl phthalate	ND	330	ug/kg	SW846 8270C
Fluorene	ND	330	ug/kg	SW846 8270C
4-Chlorophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
4-Nitroaniline	ND	1600	ug/kg	SW846 8270C
4,6-Dinitro-2-methylphenol	ND	1600	ug/kg	SW846 8270C
N-Nitrosodiphenylamine	ND	330	ug/kg	SW846 8270C
Pyrene	ND	330	ug/kg	SW846 8270C
4-Bromophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
Hexachlorobenzene	ND	330	ug/kg	SW846 8270C
Pentachlorophenol	ND	660	ug/kg	SW846 8270C
Phenanthrene	ND	330	ug/kg	SW846 8270C
Anthracene	ND	330	ug/kg	SW846 8270C
Di-n-butyl phthalate	ND	330	ug/kg	SW846 8270C
Fluoranthene	ND	330	ug/kg	SW846 8270C
Butyl benzyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(a)anthracene	ND	330	ug/kg	SW846 8270C
3,3'-Dichlorobenzidine	ND	1600	ug/kg	SW846 8270C
Chrysene	ND	330	ug/kg	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	330	ug/kg	SW846 8270C
Di-n-octyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(b)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(k)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(a)pyrene	ND	330	ug/kg	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	330	ug/kg	SW846 8270C
Benzo(ghi)perylene	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	79.7	(35.0- 105)
Phenol-d5	90.4	(40.0- 100)
Nitrobenzene-d5	80.9	(35.0- 100)
2-Fluorobiphenyl	80.5	(45.0- 105)
2,4,6-Tribromophenol	75.0	(35.0- 125)
Terphenyl-d14	86.3	(30.0- 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 Work Order #...: MXV881AC Matrix.....: SOLID
LCS Lot-Sample#: F3A160000-016
Prep Date.....: 01/16/13 Analysis Date..: 01/18/13
Prep Batch #...: 3016016 Analysis Time..: 11:05
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Phenol	75.4	(40.0- 100	SW846 8270C
bis(2-Chloroethyl)-ether	73.2	(40.0- 105	SW846 8270C
2-Chlorophenol	75.9	(45.0- 105	SW846 8270C
1,3-Dichlorobenzene	72.0	(40.0- 100	SW846 8270C
1,4-Dichlorobenzene	71.3	(35.0- 105	SW846 8270C
1,2-Dichlorobenzene	74.0	(45.0- 95.	SW846 8270C
2-Methylphenol	85.5	(40.0- 105	SW846 8270C
3-Methylphenol & 4-Methylphenol	77.6	(40.0- 105	SW846 8270C
2,2'-oxybis (1-Chloropropane)	81.1	(20.0- 115	SW846 8270C
N-Nitrosodi-n-propyl-amine	84.8	(40.0- 115	SW846 8270C
Hexachloroethane	73.0	(35.0- 110	SW846 8270C
2-Nitrophenol	75.2	(40.0- 110	SW846 8270C
2,4-Dimethylphenol	90.8	(30.0- 105	SW846 8270C
Nitrobenzene	73.5	(40.0- 115	SW846 8270C
bis(2-Chloroethoxy) methane	74.3	(45.0- 110	SW846 8270C
2,4-Dichlorophenol	77.1	(45.0- 110	SW846 8270C
1,2,4-Trichloro-benzene	73.6	(45.0- 110	SW846 8270C
Naphthalene	72.6	(40.0- 105	SW846 8270C
4-Chloroaniline	55.6	(28.0- 80.	SW846 8270C
Hexachlorobutadiene	71.9	(40.0- 115	SW846 8270C
4-Chloro-3-methylphenol	83.9	(45.0- 115	SW846 8270C
Hexachlorocyclopenta-diene	80.4	(38.0- 107	SW846 8270C
2,4,6-Trichloro-phenol	82.1	(45.0- 110	SW846 8270C
2,4,5-Trichloro-phenol	80.5	(50.0- 110	SW846 8270C
2-Chloronaphthalene	77.7	(45.0- 105	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 Work Order #...: MXV881AC Matrix.....: SOLID
LCS Lot-Sample#: F3A160000-016

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2-Nitroaniline	87.1	(45.0- 120	SW846 8270C
Dimethyl phthalate	86.0	(50.0- 110	SW846 8270C
Acenaphthylene	83.1	(45.0- 105	SW846 8270C
Acenaphthene	81.9	(45.0- 110	SW846 8270C
2,6-Dinitrotoluene	87.1	(50.0- 110	SW846 8270C
3-Nitroaniline	73.4	(25.0- 110	SW846 8270C
2,4-Dinitrophenol	63.8	(15.0- 130	SW846 8270C
4-Nitrophenol	80.1	(15.0- 140	SW846 8270C
Dibenzofuran	84.3	(50.0- 105	SW846 8270C
Dibenz(a,h)anthracene	97.7	(40.0- 125	SW846 8270C
2,4-Dinitrotoluene	90.7	(50.0- 115	SW846 8270C
Diethyl phthalate	86.2	(50.0- 115	SW846 8270C
Fluorene	85.1	(50.0- 110	SW846 8270C
4-Chlorophenyl phenyl ether	84.2	(45.0- 110	SW846 8270C
4-Nitroaniline	80.9	(35.0- 115	SW846 8270C
4,6-Dinitro-2-methylphenol	85.4	(30.0- 135	SW846 8270C
N-Nitrosodiphenylamine	109	(50.0- 115	SW846 8270C
Pyrene	88.1	(45.0- 125	SW846 8270C
4-Bromophenyl phenyl ether	89.6	(45.0- 115	SW846 8270C
Hexachlorobenzene	88.7	(52.0- 107	SW846 8270C
Pentachlorophenol	67.3	(25.0- 120	SW846 8270C
Phenanthrene	85.8	(50.0- 110	SW846 8270C
Anthracene	85.9	(55.0- 105	SW846 8270C
Di-n-butyl phthalate	89.1	(55.0- 110	SW846 8270C
Fluoranthene	88.4	(55.0- 115	SW846 8270C
Butyl benzyl phthalate	91.4	(50.0- 125	SW846 8270C
Benzo(a)anthracene	102	(50.0- 110	SW846 8270C
3,3'-Dichlorobenzidine	69.9	(24.0- 101	SW846 8270C
Chrysene	89.2	(55.0- 110	SW846 8270C
bis(2-Ethylhexyl) phthalate	94.4	(45.0- 125	SW846 8270C
Di-n-octyl phthalate	97.5	(40.0- 130	SW846 8270C
Benzo(b)fluoranthene	95.9	(45.0- 115	SW846 8270C
Benzo(k)fluoranthene	91.7	(45.0- 125	SW846 8270C

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV881AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A160000-016

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(a)pyrene	**90.7**	**(50.0- 110**	**SW846 8270C**
Indeno(1,2,3-cd)pyrene	**93.9**	**(40.0- 120**	**SW846 8270C**
Benzo(ghi)perylene	**99.9**	**(40.0- 125**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	71.0	(35.0- 105
Phenol-d5	82.4	(40.0- 100
Nitrobenzene-d5	75.9	(35.0- 100
2-Fluorobiphenyl	79.0	(45.0- 105
2,4,6-Tribromophenol	87.0	(35.0- 125
Terphenyl-d14	85.2	(30.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 Work Order #...: MXVWP1A9-MS Matrix.....: SOLID
MS Lot-Sample #: F3A150406-001 MXVWP1CA-MSD
Date Sampled...: 01/14/13 14:00 Date Received..: 01/15/13
Prep Date.....: 01/16/13 Analysis Date..: 01/18/13
Prep Batch #...: 3016016 Analysis Time..: 12:53
Dilution Factor: 1 % Moisture.....: 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Phenol	73.8	(40.0- 100			SW846 8270C
	73.8	(40.0- 100	0.08	(0-30.0)	SW846 8270C
bis(2-Chloroethyl)-ether	72.2	(40.0- 105			SW846 8270C
	72.1	(40.0- 105	0.16	(0-30.0)	SW846 8270C
2-Chlorophenol	73.8	(45.0- 105			SW846 8270C
	74.7	(45.0- 105	1.09	(0-30.0)	SW846 8270C
1,3-Dichlorobenzene	69.5	(40.0- 100			SW846 8270C
	70.2	(40.0- 100	0.98	(0-30.0)	SW846 8270C
1,4-Dichlorobenzene	69.0	(35.0- 105			SW846 8270C
	69.0	(35.0- 105	0.0	(0-30.0)	SW846 8270C
1,2-Dichlorobenzene	71.8	(45.0- 95.			SW846 8270C
	72.8	(45.0- 95.	1.24	(0-30.0)	SW846 8270C
2-Methylphenol	83.7	(40.0- 105			SW846 8270C
	83.5	(40.0- 105	0.25	(0-30.0)	SW846 8270C
3-Methylphenol & 4-Methylphenol	76.1	(40.0- 105			SW846 8270C
	77.3	(40.0- 105	1.56	(0-30.0)	SW846 8270C
2,2'-oxybis (1-Chloropropane)	78.4	(20.0- 115			SW846 8270C
	78.6	(20.0- 115	0.19	(0-30.0)	SW846 8270C
N-Nitrosodi-n-propyl-amine	82.5	(40.0- 115			SW846 8270C
	82.7	(40.0- 115	0.14	(0-30.0)	SW846 8270C
Hexachloroethane	69.7	(35.0- 110			SW846 8270C
	69.6	(35.0- 110	0.08	(0-30.0)	SW846 8270C
2-Nitrophenol	74.8	(40.0- 110			SW846 8270C
	74.6	(40.0- 110	0.32	(0-30.0)	SW846 8270C
2,4-Dimethylphenol	89.7	(30.0- 105			SW846 8270C
	91.1	(30.0- 105	1.49	(0-30.0)	SW846 8270C
Nitrobenzene	72.3	(40.0- 115			SW846 8270C
	72.6	(40.0- 115	0.41	(0-30.0)	SW846 8270C
bis(2-Chloroethoxy) methane	72.4	(45.0- 110			SW846 8270C
	72.9	(45.0- 110	0.74	(0-30.0)	SW846 8270C

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWP1A9-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-001 MXVWP1CA-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-Dichlorophenol	76.2	(45.0- 110			SW846 8270C
	78.0	(45.0- 110	2.18	(0-30.0)	SW846 8270C
1,2,4-Trichloro-benzene	72.0	(45.0- 110			SW846 8270C
	72.2	(45.0- 110	0.16	(0-30.0)	SW846 8270C
Naphthalene	72.1	(40.0- 105			SW846 8270C
	72.0	(40.0- 105	0.29	(0-30.0)	SW846 8270C
4-Chloroaniline	60.7	(28.0- 80.			SW846 8270C
	61.3	(28.0- 80.	0.83	(0-30.0)	SW846 8270C
Hexachlorobutadiene	69.8	(40.0- 115			SW846 8270C
	70.2	(40.0- 115	0.51	(0-30.0)	SW846 8270C
4-Chloro-3-methylphenol	82.1	(45.0- 115			SW846 8270C
	85.0	(45.0- 115	3.37	(0-30.0)	SW846 8270C
Hexachlorocyclopenta-diene	64.2	(38.0- 107			SW846 8270C
	58.2	(38.0- 107	9.85	(0-30.0)	SW846 8270C
2,4,6-Trichloro-phenol	81.8	(45.0- 110			SW846 8270C
	84.8	(45.0- 110	3.49	(0-30.0)	SW846 8270C
2,4,5-Trichloro-phenol	81.2	(50.0- 110			SW846 8270C
	83.4	(50.0- 110	2.69	(0-30.0)	SW846 8270C
2-Chloronaphthalene	76.3	(45.0- 105			SW846 8270C
	77.4	(45.0- 105	1.36	(0-30.0)	SW846 8270C
2-Nitroaniline	85.4	(45.0- 120			SW846 8270C
	89.0	(45.0- 120	4.06	(0-30.0)	SW846 8270C
Dimethyl phthalate	84.8	(50.0- 110			SW846 8270C
	87.8	(50.0- 110	3.51	(0-30.0)	SW846 8270C
Acenaphthylene	81.2	(45.0- 105			SW846 8270C
	83.7	(45.0- 105	2.91	(0-30.0)	SW846 8270C
Acenaphthene	80.6	(45.0- 110			SW846 8270C
	82.7	(45.0- 110	2.50	(0-30.0)	SW846 8270C
2,6-Dinitrotoluene	85.4	(50.0- 110			SW846 8270C
	89.5	(50.0- 110	4.66	(0-30.0)	SW846 8270C
3-Nitroaniline	76.4	(25.0- 110			SW846 8270C
	79.6	(25.0- 110	4.04	(0-30.0)	SW846 8270C
2,4-Dinitrophenol	72.7	(15.0- 130			SW846 8270C
	66.4	(15.0- 130	9.06	(0-30.0)	SW846 8270C

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWP1A9-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-001 MXVWP1CA-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
4-Nitrophenol	85.6	(15.0- 140			SW846 8270C
	90.1	(15.0- 140	5.09	(0-30.0)	SW846 8270C
Dibenzofuran	81.8	(50.0- 105			SW846 8270C
	84.6	(50.0- 105	3.28	(0-30.0)	SW846 8270C
Dibenz(a,h)anthracene	98.8	(40.0- 125			SW846 8270C
	101	(40.0- 125	1.92	(0-30.0)	SW846 8270C
2,4-Dinitrotoluene	89.9	(50.0- 115			SW846 8270C
	93.1	(50.0- 115	3.41	(0-30.0)	SW846 8270C
Diethyl phthalate	85.1	(50.0- 115			SW846 8270C
	88.6	(50.0- 115	3.97	(0-30.0)	SW846 8270C
Fluorene	83.3	(50.0- 110			SW846 8270C
	86.5	(50.0- 110	3.71	(0-30.0)	SW846 8270C
4-Chlorophenyl phenyl ether	82.0	(45.0- 110			SW846 8270C
	85.6	(45.0- 110	4.29	(0-30.0)	SW846 8270C
4-Nitroaniline	77.5	(35.0- 115			SW846 8270C
	81.5	(35.0- 115	5.02	(0-30.0)	SW846 8270C
4,6-Dinitro-2-methylphenol	84.8	(30.0- 135			SW846 8270C
	80.3	(30.0- 135	5.52	(0-30.0)	SW846 8270C
N-Nitrosodiphenylamine	106	(50.0- 115			SW846 8270C
	109	(50.0- 115	2.81	(0-30.0)	SW846 8270C
Pyrene	84.6	(45.0- 125			SW846 8270C
	86.0	(45.0- 125	1.48	(0-30.0)	SW846 8270C
4-Bromophenyl phenyl ether	86.2	(45.0- 115			SW846 8270C
	89.5	(45.0- 115	3.65	(0-30.0)	SW846 8270C
Hexachlorobenzene	86.0	(52.0- 107			SW846 8270C
	89.2	(52.0- 107	3.63	(0-30.0)	SW846 8270C
Pentachlorophenol	73.1	(25.0- 120			SW846 8270C
	76.0	(25.0- 120	3.78	(0-30.0)	SW846 8270C
Phenanthrene	84.0	(50.0- 110			SW846 8270C
	86.7	(50.0- 110	3.02	(0-30.0)	SW846 8270C
Anthracene	83.0	(55.0- 105			SW846 8270C
	86.3	(55.0- 105	3.79	(0-30.0)	SW846 8270C
Di-n-butyl phthalate	87.3	(55.0- 110			SW846 8270C
	91.1	(55.0- 110	4.20	(0-30.0)	SW846 8270C
Fluoranthene	87.2	(55.0- 115			SW846 8270C
	90.4	(55.0- 115	3.53	(0-30.0)	SW846 8270C

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWP1A9-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-001 MXVWP1CA-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Butyl benzyl phthalate	**89.3**	**(50.0- 125**			**SW846 8270C**
	90.8	**(50.0- 125**	**1.59**	**(0-30.0)**	**SW846 8270C**
Benzo(a)anthracene	**99.3**	**(50.0- 110**			**SW846 8270C**
	102	**(50.0- 110**	**2.21**	**(0-30.0)**	**SW846 8270C**
3,3'-Dichlorobenzidine	**49.4**	**(24.0- 101**			**SW846 8270C**
	56.9	**(24.0- 101**	**14.0**	**(0-30.0)**	**SW846 8270C**
Chrysene	**86.4**	**(55.0- 110**			**SW846 8270C**
	89.0	**(55.0- 110**	**2.88**	**(0-30.0)**	**SW846 8270C**
bis(2-Ethylhexyl) phthalate	**90.0**	**(45.0- 125**			**SW846 8270C**
	91.7	**(45.0- 125**	**1.72**	**(0-30.0)**	**SW846 8270C**
Di-n-octyl phthalate	**95.7**	**(40.0- 130**			**SW846 8270C**
	98.3	**(40.0- 130**	**2.60**	**(0-30.0)**	**SW846 8270C**
Benzo(b)fluoranthene	**93.1**	**(45.0- 115**			**SW846 8270C**
	94.6	**(45.0- 115**	**1.49**	**(0-30.0)**	**SW846 8270C**
Benzo(k)fluoranthene	**85.2**	**(45.0- 125**			**SW846 8270C**
	90.6	**(45.0- 125**	**6.00**	**(0-30.0)**	**SW846 8270C**
Benzo(a)pyrene	**86.1**	**(50.0- 110**			**SW846 8270C**
	89.6	**(50.0- 110**	**3.76**	**(0-30.0)**	**SW846 8270C**
Indeno(1,2,3-cd)pyrene	**91.2**	**(40.0- 120**			**SW846 8270C**
	94.6	**(40.0- 120**	**3.38**	**(0-30.0)**	**SW846 8270C**
Benzo(ghi)perylene	**98.7**	**(40.0- 125**			**SW846 8270C**
	97.0	**(40.0- 125**	**1.71**	**(0-30.0)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	75.8	(35.0- 105
	69.1	(35.0- 105
Phenol-d5	80.8	(40.0- 100
	80.4	(40.0- 100
Nitrobenzene-d5	75.1	(35.0- 100
	74.1	(35.0- 100
2-Fluorobiphenyl	76.9	(45.0- 105
	78.0	(45.0- 105
2,4,6-Tribromophenol	87.8	(35.0- 125
	91.6	(35.0- 125
Terphenyl-d14	81.8	(30.0- 125
	83.2	(30.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC Volatiles

Lot-Sample #...:	F3A150406-001	**Work Order #...:**	MXVWP1AJ	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:00	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/16/13		
Prep Batch #...:	3016025	**Analysis Time..:**	18:06		
Dilution Factor:	1				
% Moisture.....:	10	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Gasoline Range Organics	ND	0.111	mg/kg	0.0111

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	108	(64.- 140)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC Volatiles

Lot-Sample #...:	F3A150406-002	**Work Order #...:**	MXVWQ1AP	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:10	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/16/13		
Prep Batch #...:	3016025	**Analysis Time..:**	18:40		
Dilution Factor:	1				
% Moisture.....:	8.4	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Gasoline Range Organics	ND	0.109	mg/kg	0.0109

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	102	(64.- 140)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC Volatiles

Lot-Sample #...:	F3A150406-003	**Work Order #...:**	MXVWR1AP	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:20	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/16/13		
Prep Batch #...:	3016025	**Analysis Time..:**	20:23		
Dilution Factor:	1				
% Moisture.....:	12	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Gasoline Range Organics	**0.260**	**0.113**	**mg/kg**	**0.0113**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	108	(64.- 140)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

This sample has GC/FID characteristics for which reliable identification of a product could not be achieved.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC Volatiles

Lot-Sample #...:	F3A150406-004	**Work Order #...:**	MXVWV1AP	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:30	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/16/13		
Prep Batch #...:	3016025	**Analysis Time..:**	20:57		
Dilution Factor:	1				
% Moisture.....:	10	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Gasoline Range Organics	ND	0.111	mg/kg	0.0111

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	105	(64.- 140)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9V1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-025

Prep Date.....: 01/16/13 **Analysis Time..:** 16:58
Analysis Date..: 01/16/13 **Prep Batch #...:** 3016025
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Gasoline Range Organics	ND	0.100	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	114	(64.0- 140)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9V1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A160000-025
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016025 **Analysis Time..:** 17:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Gasoline Range Organics	**96.6**	**(83.0- 117**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	97.4	(64.0- 140

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWQ1CA-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-002 MXVWQ1CC-MSD
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016025 **Analysis Time..:** 19:14
Dilution Factor: 1 **% Moisture.....:** 8.4

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Gasoline Range Organics	**65.4**	**(29.0- 123**			**SW846 8015 MOD**
	63.7	**(29.0- 123**	**4.36**	**(0-30.0)**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	104	(64.0- 140
	104	(64.0- 140

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC Semivolatiles

Lot-Sample #...:	F3A150406-001	**Work Order #...:**	MXVWP1AH	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:00	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/17/13		
Prep Batch #...:	3016019	**Analysis Time..:**	13:37		
Dilution Factor:	4				
% Moisture.....:	10	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	ND	111	mg/kg	1.48
Motor Oil Range Organics	**10.2 J,D**	**111**	**mg/kg**	**2.83**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	88.2	(52.- 112)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC Semivolatiles

Lot-Sample #...:	F3A150406-002	**Work Order #...:**	MXVWQ1AN	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:10	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/17/13		
Prep Batch #...:	3016019	**Analysis Time..:**	14:05		
Dilution Factor:	20				
% Moisture.....:	8.4	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	**206 J,D**	**546**	**mg/kg**	**7.27**
Motor Oil Range Organics	**371 J,D**	**546**	**mg/kg**	**13.9**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	0.0 *,DIL	(52.- 112)

NOTE(S):

* Surrogate recovery is outside stated control limits.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

The reported UNKOWN HYDROCARBON was quantified as diesel.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC Semivolatiles

Lot-Sample #...:	F3A150406-003	**Work Order #...:**	MXVWR1AN	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:20	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/17/13		
Prep Batch #...:	3016019	**Analysis Time..:**	14:32		
Dilution Factor:	20				
% Moisture.....:	12	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	**145 J,D**	**566**	**mg/kg**	**7.54**
Motor Oil Range Organics	**263 J,D**	**566**	**mg/kg**	**14.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	0.0 *,DIL	(52.- 112)

NOTE(S):

* Surrogate recovery is outside stated control limits.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

The reported UNKOWN HYDROCARBON was quantified as diesel.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC Semivolatiles

Lot-Sample #...:	F3A150406-004	**Work Order #...:**	MXVWV1AN	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:30	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/17/13		
Prep Batch #...:	3016019	**Analysis Time..:**	14:59		
Dilution Factor:	20				
% Moisture.....:	10	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	ND	555	mg/kg	7.40
Motor Oil Range Organics	**61.5 J,D**	**555**	**mg/kg**	**14.1**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	0.0 *,DIL	(52.- 112)

NOTE(S):

* Surrogate recovery is outside stated control limits.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9D1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-019

Prep Date.....: 01/16/13 **Analysis Time..:** 12:43
Analysis Date..: 01/17/13 **Prep Batch #...:** 3016019
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	ND	25.0	mg/kg	SW846 8015 MOD
Motor Oil Range Organics	ND	25.0	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	77.0	(52.0- 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9D1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A160000-019
Prep Date.....: 01/16/13 **Analysis Date..:** 01/17/13
Prep Batch #...: 3016019 **Analysis Time..:** 13:10
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Diesel Range Organics	**71.5**	**(50.0- 95.**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	79.1	(52.0- 112

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC Semivolatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AF **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/17/13
Prep Batch #...: 3016021 **Analysis Time..:** 12:14
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aldrin	ND	1.89	ug/kg	0.340
alpha-BHC	ND	1.89	ug/kg	0.206
beta-BHC	ND	1.89	ug/kg	0.334
delta-BHC	ND	1.89	ug/kg	0.269
gamma-BHC (Lindane)	ND	1.89	ug/kg	0.377
Chlordane (technical)	ND	18.9	ug/kg	4.15
4,4'-DDD	ND	1.89	ug/kg	0.246
4,4'-DDE	**1.64 J**	**1.89**	**ug/kg**	**0.434**
4,4'-DDT	**4.76**	**1.89**	**ug/kg**	**0.698**
Dieldrin	**0.573 J,PG**	**1.89**	**ug/kg**	**0.239**
Endosulfan I	ND	1.89	ug/kg	0.634
Endosulfan II	ND	1.89	ug/kg	0.261
Endosulfan sulfate	ND	1.89	ug/kg	0.378
Endrin	ND	1.89	ug/kg	0.176
Endrin aldehyde	ND	1.89	ug/kg	0.433
Endrin ketone	ND	1.89	ug/kg	0.464
Heptachlor	ND	1.89	ug/kg	0.227
Heptachlor epoxide	ND	1.89	ug/kg	0.477
Methoxychlor	ND	3.67	ug/kg	0.800
Toxaphene	ND	74.5	ug/kg	16.9

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	78.8	(70.- 125)
Decachlorobiphenyl	121	(55.- 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC Semivolatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AL **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/17/13
Prep Batch #...: 3016021 **Analysis Time..:** 12:55
Dilution Factor: 1
% Moisture.....: 8.4 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aldrin	ND	1.86	ug/kg	0.334
alpha-BHC	ND	1.86	ug/kg	0.202
beta-BHC	ND	1.86	ug/kg	0.328
delta-BHC	ND	1.86	ug/kg	0.264
gamma-BHC (Lindane)	ND	1.86	ug/kg	0.370
Chlordane (technical)	ND	18.6	ug/kg	4.07
4,4'-DDE	**9.19 PG**	**1.86**	**ug/kg**	**0.426**
4,4'-DDT	**2.49 PG**	**1.86**	**ug/kg**	**0.686**
Dieldrin	ND	1.86	ug/kg	0.235
Endosulfan I	ND	1.86	ug/kg	0.623
Endosulfan II	ND	1.86	ug/kg	0.257
Endosulfan sulfate	ND	1.86	ug/kg	0.371
Endrin	ND	1.86	ug/kg	0.173
Endrin aldehyde	ND	1.86	ug/kg	0.425
Endrin ketone	ND	1.86	ug/kg	0.455
Heptachlor	ND	1.86	ug/kg	0.223
Heptachlor epoxide	ND	1.86	ug/kg	0.469
Methoxychlor	ND	3.60	ug/kg	0.785
Toxaphene	ND	73.2	ug/kg	16.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	76.4	(70.- 125)
Decachlorobiphenyl	115	(55.- 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

PG The percent difference between the original and confirmation analyses is greater than 40%.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC Semivolatiles

Lot-Sample #...:	F3A150406-002	**Work Order #...:**	MXVWQ2AL	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:10	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/17/13		
Prep Batch #...:	3016021	**Analysis Time..:**	13:36		
Dilution Factor:	4				
% Moisture.....:	8.4	**Method.....:**	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
4,4'-DDD	**49.2 D**	**7.43**	**ug/kg**	**0.966**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	89.7	(70.- 125)
Decachlorobiphenyl	87.6	(55.- 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

D Result was obtained from the analysis of a dilution.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC Semivolatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AL **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/17/13
Prep Batch #...: 3016021 **Analysis Time..:** 14:17
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aldrin	ND	1.92	ug/kg	0.346
alpha-BHC	ND	1.92	ug/kg	0.209
beta-BHC	ND	1.92	ug/kg	0.340
delta-BHC	ND	1.92	ug/kg	0.274
gamma-BHC (Lindane)	ND	1.92	ug/kg	0.384
Chlordane (technical)	ND	19.2	ug/kg	4.22
4,4'-DDD	**32.1**	**1.92**	**ug/kg**	**0.250**
4,4'-DDE	**6.28 PG**	**1.92**	**ug/kg**	**0.442**
4,4'-DDT	**6.70 PG**	**1.92**	**ug/kg**	**0.711**
Dieldrin	ND	1.92	ug/kg	0.243
Endosulfan I	ND	1.92	ug/kg	0.645
Endosulfan II	ND	1.92	ug/kg	0.266
Endosulfan sulfate	ND	1.92	ug/kg	0.385
Endrin	ND	1.92	ug/kg	0.179
Endrin aldehyde	ND	1.92	ug/kg	0.440
Endrin ketone	ND	1.92	ug/kg	0.472
Heptachlor	ND	1.92	ug/kg	0.231
Heptachlor epoxide	ND	1.92	ug/kg	0.486
Methoxychlor	ND	3.74	ug/kg	0.814
Toxaphene	ND	75.9	ug/kg	17.2

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	70.0	(70.- 125)
Decachlorobiphenyl	531 *	(55.- 130)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

PG The percent difference between the original and confirmation analyses is greater than 40%.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC Semivolatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AL **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/17/13
Prep Batch #...: 3016021 **Analysis Time..:** 14:58
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aldrin	ND	1.89	ug/kg	0.340
alpha-BHC	ND	1.89	ug/kg	0.205
beta-BHC	ND	1.89	ug/kg	0.333
delta-BHC	ND	1.89	ug/kg	0.269
gamma-BHC (Lindane)	ND	1.89	ug/kg	0.376
Chlordane (technical)	ND	18.9	ug/kg	4.14
4,4'-DDD	ND	1.89	ug/kg	0.245
4,4'-DDE	ND	1.89	ug/kg	0.433
4,4'-DDT	ND	1.89	ug/kg	0.697
Dieldrin	ND	1.89	ug/kg	0.239
Endosulfan I	ND	1.89	ug/kg	0.633
Endosulfan II	ND	1.89	ug/kg	0.261
Endosulfan sulfate	ND	1.89	ug/kg	0.378
Endrin	ND	1.89	ug/kg	0.175
Endrin aldehyde	ND	1.89	ug/kg	0.432
Endrin ketone	ND	1.89	ug/kg	0.463
Heptachlor	ND	1.89	ug/kg	0.227
Heptachlor epoxide	ND	1.89	ug/kg	0.476
Methoxychlor	ND	3.67	ug/kg	0.799
Toxaphene	ND	74.4	ug/kg	16.8

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	77.8	(70.- 125)
Decachlorobiphenyl	119	(55.- 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9F1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-021

Prep Date.....: 01/16/13 **Analysis Time..:** 11:33
Analysis Date..: 01/17/13 **Prep Batch #...:** 3016021
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aldrin	ND	1.70	ug/kg	SW846 8081A
alpha-BHC	ND	1.70	ug/kg	SW846 8081A
beta-BHC	ND	1.70	ug/kg	SW846 8081A
delta-BHC	ND	1.70	ug/kg	SW846 8081A
gamma-BHC (Lindane)	ND	1.70	ug/kg	SW846 8081A
Chlordane (technical)	ND	17.0	ug/kg	SW846 8081A
4,4'-DDD	ND	1.70	ug/kg	SW846 8081A
4,4'-DDE	ND	1.70	ug/kg	SW846 8081A
4,4'-DDT	ND	1.70	ug/kg	SW846 8081A
Dieldrin	ND	1.70	ug/kg	SW846 8081A
Endosulfan I	ND	1.70	ug/kg	SW846 8081A
Endosulfan II	ND	1.70	ug/kg	SW846 8081A
Endosulfan sulfate	ND	1.70	ug/kg	SW846 8081A
Endrin	ND	1.70	ug/kg	SW846 8081A
Endrin aldehyde	ND	1.70	ug/kg	SW846 8081A
Endrin ketone	ND	1.70	ug/kg	SW846 8081A
Heptachlor	ND	1.70	ug/kg	SW846 8081A
Heptachlor epoxide	ND	1.70	ug/kg	SW846 8081A
Methoxychlor	ND	3.30	ug/kg	SW846 8081A
Toxaphene	ND	67.0	ug/kg	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	71.5	(70.0- 125)
Decachlorobiphenyl	68.3	(55.0- 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A150406 Work Order #...: MXV9F1AC Matrix.....: SOLID
LCS Lot-Sample#: F3A160000-021
Prep Date.....: 01/16/13 Analysis Date..: 01/17/13
Prep Batch #...: 3016021 Analysis Time..: 11:53
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
alpha-BHC	**70.4**	**(60.0- 125**	**SW846 8081A**
beta-BHC	**74.9**	**(60.0- 125**	**SW846 8081A**
delta-BHC	**77.9**	**(55.0- 130**	**SW846 8081A**
gamma-BHC (Lindane)	**75.7**	**(60.0- 125**	**SW846 8081A**
Heptachlor	**74.2**	**(50.0- 140**	**SW846 8081A**
Aldrin	**80.7**	**(45.0- 140**	**SW846 8081A**
Heptachlor epoxide	**74.8**	**(65.0- 130**	**SW846 8081A**
Endosulfan I	**64.3**	**(15.0- 135**	**SW846 8081A**
Dieldrin	**76.3**	**(65.0- 125**	**SW846 8081A**
4,4'-DDE	**75.7**	**(70.0- 125**	**SW846 8081A**
Endrin	**76.5**	**(60.0- 135**	**SW846 8081A**
Endosulfan II	**67.6**	**(35.0- 140**	**SW846 8081A**
4,4'-DDD	**82.2**	**(30.0- 135**	**SW846 8081A**
Endosulfan sulfate	**78.7**	**(60.0- 135**	**SW846 8081A**
4,4'-DDT	**77.1**	**(45.0- 140**	**SW846 8081A**
Methoxychlor	**83.9**	**(55.0- 145**	**SW846 8081A**
Endrin ketone	**79.0**	**(65.0- 135**	**SW846 8081A**
Endrin aldehyde	**73.5**	**(35.0- 145**	**SW846 8081A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	79.7	(70.0- 125
Decachlorobiphenyl	83.2	(55.0- 130

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A150406 Work Order #...: MXVWV1A8-MS Matrix.....: SOLID
MS Lot-Sample #: F3A150406-004 MXVWV1A9-MSD
Date Sampled...: 01/14/13 14:30 Date Received..: 01/15/13
Prep Date.....: 01/16/13 Analysis Date..: 01/17/13
Prep Batch #...: 3016021 Analysis Time..: 15:39
Dilution Factor: 1 % Moisture.....: 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
alpha-BHC	80.0	(60.0- 125			SW846 8081A
	64.1	(60.0- 125	21.9	(0-30.0)	SW846 8081A
beta-BHC	79.4	(60.0- 125			SW846 8081A
	68.3	(60.0- 125	14.9	(0-30.0)	SW846 8081A
delta-BHC	85.3	(55.0- 130			SW846 8081A
	72.9	(55.0- 130	15.6	(0-30.0)	SW846 8081A
gamma-BHC (Lindane)	82.1	(60.0- 125			SW846 8081A
	66.8	(60.0- 125	20.5	(0-30.0)	SW846 8081A
Heptachlor	80.2	(50.0- 140			SW846 8081A
	62.4	(50.0- 140	24.9	(0-30.0)	SW846 8081A
Aldrin	77.9	(45.0- 140			SW846 8081A
	63.4	(45.0- 140	20.5	(0-30.0)	SW846 8081A
Heptachlor epoxide	81.6	(65.0- 130			SW846 8081A
	64.0 a	(65.0- 130	24.2	(0-30.0)	SW846 8081A
Endosulfan I	67.7	(15.0- 135			SW846 8081A
	51.9	(15.0- 135	26.3	(0-30.0)	SW846 8081A
Dieldrin	81.1	(65.0- 125			SW846 8081A
	66.5	(65.0- 125	19.7	(0-30.0)	SW846 8081A
4,4'-DDE	80.9	(70.0- 125			SW846 8081A
	66.0 a	(70.0- 125	20.2	(0-30.0)	SW846 8081A
Endrin	81.1	(60.0- 135			SW846 8081A
	66.6	(60.0- 135	19.6	(0-30.0)	SW846 8081A
Endosulfan II	66.5	(35.0- 140			SW846 8081A
	53.4	(35.0- 140	21.7	(0-30.0)	SW846 8081A
4,4'-DDD	83.9	(30.0- 135			SW846 8081A
	66.9	(30.0- 135	22.6	(0-30.0)	SW846 8081A
Endosulfan sulfate	80.6	(60.0- 135			SW846 8081A
	69.0	(60.0- 135	15.4	(0-30.0)	SW846 8081A
4,4'-DDT	82.7	(45.0- 140			SW846 8081A
	68.7	(45.0- 140	18.4	(0-30.0)	SW846 8081A
Methoxychlor	84.0	(55.0- 145			SW846 8081A
	70.7	(55.0- 145	17.1	(0-30.0)	SW846 8081A
Endrin ketone	81.5	(65.0- 135			SW846 8081A
	69.2	(65.0- 135	16.3	(0-30.0)	SW846 8081A
Endrin aldehyde	75.4	(35.0- 145			SW846 8081A
	71.6	(35.0- 145	5.09	(0-30.0)	SW846 8081A

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWV1A8-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-004 MXVWV1A9-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	84.6	(70.0- 125
	71.2	(70.0- 125
Decachlorobiphenyl	115	(55.0- 130
	78.3	(55.0- 130

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC Semivolatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AG **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016020 **Analysis Time..:** 15:33
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	36.7	ug/kg	9.70
Aroclor 1221	ND	36.7	ug/kg	9.70
Aroclor 1232	ND	36.7	ug/kg	9.70
Aroclor 1242	ND	36.7	ug/kg	9.70
Aroclor 1248	ND	36.7	ug/kg	9.70
Aroclor 1254	**15.2 J,PG**	**36.7**	**ug/kg**	**6.12**
Aroclor 1260	**10.2 J**	**36.7**	**ug/kg**	**6.12**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	105	(60.- 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC Semivolatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AM **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016020 **Analysis Time..:** 16:10
Dilution Factor: 1
% Moisture.....: 8.4 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	36.0	ug/kg	9.52
Aroclor 1221	ND	36.0	ug/kg	9.52
Aroclor 1232	ND	36.0	ug/kg	9.52
Aroclor 1242	ND	36.0	ug/kg	9.52
Aroclor 1248	ND	36.0	ug/kg	9.52
Aroclor 1254	**903 PG**	**36.0**	**ug/kg**	**6.01**
Aroclor 1260	**409**	**36.0**	**ug/kg**	**6.01**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	95.7	(60.- 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

PG The percent difference between the original and confirmation analyses is greater than 40%.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC Semivolatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AM **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016020 **Analysis Time..:** 16:47
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	37.4	ug/kg	9.87
Aroclor 1221	ND	37.4	ug/kg	9.87
Aroclor 1232	ND	37.4	ug/kg	9.87
Aroclor 1242	ND	37.4	ug/kg	9.87
Aroclor 1248	ND	37.4	ug/kg	9.87
Aroclor 1254	**188**	**37.4**	**ug/kg**	**6.23**
Aroclor 1260	**111**	**37.4**	**ug/kg**	**6.23**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	439 *	(60.- 125)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC Semivolatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AM **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016020 **Analysis Time..:** 18:56
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	36.7	ug/kg	9.68
Aroclor 1221	ND	36.7	ug/kg	9.68
Aroclor 1232	ND	36.7	ug/kg	9.68
Aroclor 1242	ND	36.7	ug/kg	9.68
Aroclor 1248	ND	36.7	ug/kg	9.68
Aroclor 1254	ND	36.7	ug/kg	6.11
Aroclor 1260	ND	36.7	ug/kg	6.11

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	80.8	(60.- 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9E1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-020

Prep Date.....: 01/16/13 **Analysis Time..:** 14:56
Analysis Date..: 01/16/13 **Prep Batch #...:** 3016020
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	33.0	ug/kg	SW846 8082
Aroclor 1221	ND	33.0	ug/kg	SW846 8082
Aroclor 1232	ND	33.0	ug/kg	SW846 8082
Aroclor 1242	ND	33.0	ug/kg	SW846 8082
Aroclor 1248	ND	33.0	ug/kg	SW846 8082
Aroclor 1254	ND	33.0	ug/kg	SW846 8082
Aroclor 1260	ND	33.0	ug/kg	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	88.2	(60.0- 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9E1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A160000-020
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016020 **Analysis Time..:** 15:15
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Aroclor 1016	**89.2**	**(40.0- 140**	**SW846 8082**
Aroclor 1260	**91.4**	**(60.0- 130**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	89.7	(60.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...:	F3A150406	**Work Order #...:**	MXVWR1A8-MS	**Matrix.....:**	SOLID
MS Lot-Sample #:	F3A150406-003		MXVWR1A9-MSD		
Date Sampled...:	01/14/13 14:20	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/16/13		
Prep Batch #...:	3016020	**Analysis Time..:**	17:24		
Dilution Factor:	1	**% Moisture.....:**	12		

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**59.6**	**(40.0- 140**			**SW846 8082**
	63.1	**(40.0- 140**	**5.72**	**(0-30.0)**	**SW846 8082**
Aroclor 1260	**63.5**	**(60.0- 130**			**SW846 8082**
	90.2	**(60.0- 130**	**19.7**	**(0-30.0)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	476 *	(60.0- 125
	538 *	(60.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

* Surrogate recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-002A

TOTAL Metals

Lot-Sample #...: F3A150406-001 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
% Moisture.....: 10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3016024						
Silver	**0.16 B**	**0.22**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWP1AX**
		Dilution Factor: 1		Analysis Time..: 11:30	MDL.....: 0.027	
Arsenic	**2.0**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AL**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.29	
Barium	**44.4**	**2.2**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AM**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.10	
Beryllium	**0.17**	**0.11**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AN**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.029	
Cadmium	**0.39**	**0.067**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AP**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.018	
Cobalt	**5.6**	**0.22**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AQ**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.048	
Chromium	**38.1**	**2.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1A3**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.50	
Copper	**9.9**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AR**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.11	
Molybdenum	**0.20 B**	**0.56**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AU**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.14	
Nickel	**35.8**	**0.56**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AV**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.12	
Lead	**20.4**	**0.33**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AT**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.11	
Antimony	ND N	0.56	mg/kg	SW846 6020	01/16-01/21/13	MXVWP1A4
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.18	
Selenium	**0.41 B**	**0.56**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AW**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.18	

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Tetra Tech EC Inc

Client Sample ID: 05-002A

TOTAL Metals

Lot-Sample #...: F3A150406-001 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium	ND	0.5	mg/kg	SW846 6020	01/16-01/21/13	MXVWP1A0
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.17	
Vanadium	**24.2 E**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1A1**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.82	
Zinc	**31.6**	**2.2**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1A2**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 1.5	

Prep Batch #...: 3017024

Mercury	**0.036 B**	**0.044**	**mg/kg**	**SW846 7471A**	**01/17/13**	**MXVWP1AK**
		Dilution Factor: 1		Analysis Time..: 18:29	MDL.....: 0.012	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

N Spiked analyte recovery is outside stated control limits.

E Matrix interference.

Tetra Tech EC Inc

Client Sample ID: 05-002A

TCLP Metals

Lot-Sample #...: F3A150406-001 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301602

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3017033						
Lead	**14.0 B**	**250**	**ug/L**	**SW846 6010B**	**01/17-01/22/13**	**MXVWP1A7**
		Dilution Factor: 1		Analysis Time..: 15:54	MDL.....: 3.2	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-003

TOTAL Metals

Lot-Sample #...: F3A150406-002 Matrix.....: SOLID
Date Sampled...: 01/14/13 14:10 Date Received..: 01/15/13
% Moisture.....: 8.4

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3016024						
Silver	1.0	0.22	mg/kg	SW846 6020	01/16-01/22/13	MXVWQ1A4
		Dilution Factor: 1		Analysis Time..: 11:56	MDL.....: 0.026	
Arsenic	3.1	1.1	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AR
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.28	
Barium	107	2.2	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AT
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.10	
Beryllium	0.14	0.11	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AU
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.028	
Cadmium	1.4	0.066	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AV
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.017	
Cobalt	5.5	0.22	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AW
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.047	
Chromium	61.1	2.1	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AE
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.49	
Copper	60.9	1.1	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AX
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.11	
Molybdenum	1.5	0.55	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1A1
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.14	
Nickel	32.6	0.55	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1A2
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.12	
Lead	107	0.33	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1A0
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.11	
Antimony	0.59 N	0.55	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AF
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.18	
Selenium	0.49 B	0.55	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1A3
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.17	

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Tetra Tech EC Inc

Client Sample ID: 05-003

TOTAL Metals

Lot-Sample #...: F3A150406-002 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium	ND	0.49	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AA
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.17	
Vanadium	**25.0 E**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWQ1AC**
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.80	
Zinc	**165**	**2.2**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWQ1AD**
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 1.5	

Prep Batch #...: 3017024

Mercury	**0.66**	**0.044**	**mg/kg**	**SW846 7471A**	**01/17/13**	**MXVWQ1AQ**
		Dilution Factor: 1		Analysis Time..: 18:37	MDL.....: 0.012	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

B Estimated result. Result is less than RL.

E Matrix interference.

Tetra Tech EC Inc

Client Sample ID: 05-003

TCLP Metals

Lot-Sample #...: F3A150406-002 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301602

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3017033						
Lead	**124 B**	**250**	**ug/L**	**SW846 6010B**	**01/17-01/22/13**	**MXVWQ1A7**
		Dilution Factor: 1		Analysis Time..: 16:08	MDL.....: 3.2	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-004

TOTAL Metals

Lot-Sample #...: F3A150406-003 Matrix.....: SOLID
Date Sampled...: 01/14/13 14:20 Date Received..: 01/15/13
% Moisture.....: 12

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3016024						
Silver	1.5	0.23	mg/kg	SW846 6020	01/16-01/22/13	MXVWR1A4
		Dilution Factor: 1		Analysis Time..: 12:09	MDL.....: 0.027	
Arsenic	2.8	1.1	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AR
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.29	
Barium	48.7	2.3	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AT
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.11	
Beryllium	0.15	0.11	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AU
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.029	
Cadmium	2.4	0.068	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AV
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.018	
Cobalt	5.7	0.23	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AW
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.049	
Chromium	49.1	2.2	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AE
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.51	
Copper	43.8	1.1	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AX
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.11	
Molybdenum	0.64	0.57	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1A1
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.14	
Nickel	30.2	0.57	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1A2
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.12	
Lead	76.1	0.34	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1A0
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.11	
Antimony	0.35 BN	0.57	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AF
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.19	
Selenium	0.27 B	0.57	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1A3
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.18	

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Tetra Tech EC Inc

Client Sample ID: 05-004

TOTAL Metals

Lot-Sample #...: F3A150406-003 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium	ND	0.51	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AA
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.17	
Vanadium	**26.3 E**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWR1AC**
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.83	
Zinc	**119**	**2.3**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWR1AD**
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 1.5	
Prep Batch #...: 3017024						
Mercury	**0.26**	**0.045**	**mg/kg**	**SW846 7471A**	**01/17/13**	**MXVWR1AQ**
		Dilution Factor: 1		Analysis Time..: 18:39	MDL.....: 0.013	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

E Matrix interference.

Tetra Tech EC Inc

Client Sample ID: 05-004

TCLP Metals

Lot-Sample #...: F3A150406-003 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301602

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3017033						
Lead	**59.8 B**	**250**	**ug/L**	**SW846 6010B**	**01/17-01/22/13**	**MXVWR1A7**
		Dilution Factor: 1		Analysis Time..: 16:12	MDL.....: 3.2	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-005

TOTAL Metals

Lot-Sample #...: F3A150406-004 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
% Moisture.....: 10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3016024						
Silver	**0.069 B**	**0.22**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1A4**
		Dilution Factor: 1		Analysis Time..: 12:16	MDL.....: 0.027	
Arsenic	**1.5**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AR**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.29	
Barium	**40.2**	**2.2**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AT**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.10	
Beryllium	**0.14**	**0.11**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AU**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.029	
Cadmium	**0.051 B**	**0.067**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AV**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.018	
Cobalt	**4.8**	**0.22**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AW**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.048	
Chromium	**33.1**	**2.1**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AE**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.50	
Copper	**6.3**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AX**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.11	
Molybdenum	ND	0.56	mg/kg	SW846 6020	01/16-01/22/13	MXVWV1A1
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.14	
Nickel	**27.4**	**0.56**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1A2**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.12	
Lead	**3.2**	**0.33**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1A0**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.11	
Antimony	ND N	0.56	mg/kg	SW846 6020	01/16-01/22/13	MXVWV1AF
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.18	
Selenium	**0.26 B**	**0.56**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1A3**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.18	

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Tetra Tech EC Inc

Client Sample ID: 05-005

TOTAL Metals

Lot-Sample #...: F3A150406-004 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium	ND	0.5	mg/kg	SW846 6020	01/16-01/22/13	MXVWV1AA
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.17	
Vanadium	**21.2 E**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AC**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.82	
Zinc	**18.4**	**2.2**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AD**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 1.5	
Prep Batch #...: 3017024						
Mercury	**0.020 B**	**0.044**	**mg/kg**	**SW846 7471A**	**01/17/13**	**MXVWV1AQ**
		Dilution Factor: 1		Analysis Time..: 18:46	MDL.....: 0.012	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

N Spiked analyte recovery is outside stated control limits.

E Matrix interference.

Tetra Tech EC Inc

Client Sample ID: 05-005

TCLP Metals

Lot-Sample #...: F3A150406-004 Matrix.....: SOLID
Date Sampled...: 01/14/13 14:30 Date Received..: 01/15/13
Leach Date.....: 01/16/13 Leach Batch #..: P301602

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3017033						
Lead	4.8 B	250	ug/L	SW846 6010B	01/17-01/22/13	MXVWV1A7
		Dilution Factor: 1		Analysis Time..: 16:19	MDL.....: 3.2	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-002A

STLC Metals

Lot-Sample #...: F3A150406-005 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301601

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3018030						
Cadmium	ND	125	ug/L	SW846 6010B	01/18-01/21/13	MXVWW1AC
		Dilution Factor: 5		Analysis Time..: 10:28	MDL.....: 22.8	
Chromium	**158 B**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVWW1AD**
		Dilution Factor: 5		Analysis Time..: 10:28	MDL.....: 78.5	
Copper	**158 B**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVWW1AE**
		Dilution Factor: 5		Analysis Time..: 10:28	MDL.....: 114	
Lead	**930 B**	**2500**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVWW1AF**
		Dilution Factor: 5		Analysis Time..: 10:28	MDL.....: 31.8	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-003

STLC Metals

Lot-Sample #...: F3A150406-006 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301601

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3018030						
Cadmium	77.5 B	125	ug/L	SW846 6010B	01/18-01/21/13	MXVW71AC
		Dilution Factor: 5		Analysis Time..: 10:42	MDL.....: 22.8	
Chromium	800	625	ug/L	SW846 6010B	01/18-01/21/13	MXVW71AD
		Dilution Factor: 5		Analysis Time..: 10:42	MDL.....: 78.5	
Copper	1430	625	ug/L	SW846 6010B	01/18-01/21/13	MXVW71AE
		Dilution Factor: 5		Analysis Time..: 10:42	MDL.....: 114	
Lead	6700	2500	ug/L	SW846 6010B	01/18-01/21/13	MXVW71AF
		Dilution Factor: 5		Analysis Time..: 10:42	MDL.....: 31.8	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-004

STLC Metals

Lot-Sample #...: F3A150406-007 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301601

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3018030						
Cadmium	**205**	**125**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXA1AC**
		Dilution Factor: 5		Analysis Time..: 10:50	MDL.....: 22.8	
Chromium	**785**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXA1AD**
		Dilution Factor: 5		Analysis Time..: 10:50	MDL.....: 78.5	
Copper	**692**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXA1AE**
		Dilution Factor: 5		Analysis Time..: 10:50	MDL.....: 114	
Lead	**2860**	**2500**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXA1AF**
		Dilution Factor: 5		Analysis Time..: 10:50	MDL.....: 31.8	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

Tetra Tech EC Inc

Client Sample ID: 05-005

STLC Metals

Lot-Sample #...: F3A150406-008 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301601

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3018030						
Cadmium	ND	125	ug/L	SW846 6010B	01/18-01/21/13	MXVXE1AC
		Dilution Factor: 5		Analysis Time..: 10:53	MDL.....: 22.8	
Chromium	**152 B**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXE1AD**
		Dilution Factor: 5		Analysis Time..: 10:53	MDL.....: 78.5	
Copper	**120 B**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXE1AE**
		Dilution Factor: 5		Analysis Time..: 10:53	MDL.....: 114	
Lead	**170 B**	**2500**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXE1AF**
		Dilution Factor: 5		Analysis Time..: 10:53	MDL.....: 31.8	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3A160000-024 **Prep Batch #...:** 3016024						
Antimony	ND	0.5	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AT
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Arsenic	ND	1	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AA
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Barium	ND	2	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AC
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Beryllium	ND	0.1	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AD
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Cadmium	ND	0.06	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AE
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Chromium	ND	1.9	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AR
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Cobalt	ND	0.2	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AF
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Copper	ND	1	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AG
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Lead	ND	0.3	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AH
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Molybdenum	ND	0.5	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AJ
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Nickel	ND	0.5	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AK
		Dilution Factor: 1				
		Analysis Time..: 23:06				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.5	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AL
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Silver	**0.053 B**	**0.2**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXV9M1AM**
		Dilution Factor: 1				
		Analysis Time..: 11:16				
Thallium	ND	0.45	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AN
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Vanadium	ND	1	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AP
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Zinc	ND	2	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AQ
		Dilution Factor: 1				
		Analysis Time..: 23:06				

MB Lot-Sample #: F3A170000-024 **Prep Batch #...:** 3017024

Mercury	ND	0.04	mg/kg	SW846 7471A	01/17/13	MXWJM1AA
		Dilution Factor: 1				
		Analysis Time..: 18:26				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3A160000-039		**Prep Batch #...:** 3017033				
Leach Date.....: 01/16/13		**Leach Batch #..:** P301602				
Lead	ND	250	ug/L	SW846 6010B	01/17-01/22/13	MXWEG1AA
		Dilution Factor: 1				
		Analysis Time..: 15:47				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

STLC Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3A160000-031 **Prep Batch #...:** 3018030						
Leach Date.....: 01/16/13 **Leach Batch #..:** P301601						
Cadmium	ND	125	ug/L	SW846 6010B	01/18-01/21/13	MXWAW1AA
		Dilution Factor: 5				
		Analysis Time..: 10:20				
Chromium	ND	625	ug/L	SW846 6010B	01/18-01/21/13	MXWAW1AC
		Dilution Factor: 5				
		Analysis Time..: 10:20				
Copper	ND	625	ug/L	SW846 6010B	01/18-01/21/13	MXWAW1AD
		Dilution Factor: 5				
		Analysis Time..: 10:20				
Lead	ND	2500	ug/L	SW846 6010B	01/18-01/21/13	MXWAW1AE
		Dilution Factor: 5				
		Analysis Time..: 10:20				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3A160000-024 **Prep Batch #...:** 3016024					
Arsenic	98	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1AU
		Dilution Factor: 1	Analysis Time..: 23:12		
Barium	101	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1AV
		Dilution Factor: 1	Analysis Time..: 23:12		
Beryllium	108	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1AW
		Dilution Factor: 1	Analysis Time..: 23:12		
Cadmium	101	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1AX
		Dilution Factor: 1	Analysis Time..: 23:12		
Cobalt	97	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A0
		Dilution Factor: 1	Analysis Time..: 23:12		
Copper	95	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A1
		Dilution Factor: 1	Analysis Time..: 23:12		
Lead	98	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A2
		Dilution Factor: 1	Analysis Time..: 23:12		
Molybdenum	100	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A3
		Dilution Factor: 1	Analysis Time..: 23:12		
Nickel	100	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A4
		Dilution Factor: 1	Analysis Time..: 23:12		
Selenium	93	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A5
		Dilution Factor: 1	Analysis Time..: 23:12		
Silver	106	(80 - 120)	SW846 6020	01/16-01/22/13	MXV9M1A6
		Dilution Factor: 1	Analysis Time..: 11:23		
Thallium	98	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A7
		Dilution Factor: 1	Analysis Time..: 23:12		
Vanadium	100	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A8
		Dilution Factor: 1	Analysis Time..: 23:12		
Zinc	94	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A9
		Dilution Factor: 1	Analysis Time..: 23:12		

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	100	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1CA
		Dilution Factor: 1	Analysis Time..: 23:12		
Antimony	100	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1CC
		Dilution Factor: 1	Analysis Time..: 23:12		

LCS Lot-Sample#: F3A170000-024 **Prep Batch #...:** 3017024

Mercury	96	(80 - 120)	SW846 7471A	01/17/13	MXWJM1AC
		Dilution Factor: 1	Analysis Time..: 18:27		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3A170000-033 **Prep Batch #...:** 3017033					
Lead	97	(80 - 120)	SW846 6010B	01/17-01/22/13	MXWKM1AA
		Dilution Factor: 1	Analysis Time..: 15:50		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

STLC Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3A180000-030 **Prep Batch #...:** 3018030					
Cadmium	100	(80 - 120)	SW846 6010B	01/18-01/21/13	MXW3C1AA
		Dilution Factor: 5	Analysis Time..: 10:24		
Chromium	98	(80 - 120)	SW846 6010B	01/18-01/21/13	MXW3C1AC
		Dilution Factor: 5	Analysis Time..: 10:24		
Copper	99	(80 - 120)	SW846 6010B	01/18-01/21/13	MXW3C1AD
		Dilution Factor: 5	Analysis Time..: 10:24		
Lead	96	(80 - 120)	SW846 6010B	01/18-01/21/13	MXW3C1AE
		Dilution Factor: 5	Analysis Time..: 10:24		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F3A150406-001 **Prep Batch #...:** 3016024							
						% Moisture.....: 10	
Antimony	75 N	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1DE
	75 N	(80 - 120)	0.08	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1DF
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Arsenic	99	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CE
	100	(80 - 120)	0.69	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CF
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Barium	105	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CG
	108	(80 - 120)	1.6	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CH
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Beryllium	107	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CJ
	110	(80 - 120)	3.0	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CK
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Cadmium	102	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CL
	103	(80 - 120)	0.74	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CM
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Chromium	97	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1DC
	98	(80 - 120)	0.57	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1DD
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Cobalt	98	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CN
	99	(80 - 120)	0.88	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CP
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Copper	97	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CQ
	98	(80 - 120)	1.4	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CR
		Dilution Factor: 1					
		Analysis Time..: 23:33					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Lead	101	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CT
	103	(80 - 120)	1.9	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CU
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Molybdenum	101	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CV
	100	(80 - 120)	1.8	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CW
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Nickel	103	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CX
	103	(80 - 120)	0.59	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1C0
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Selenium	98	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1C1
	100	(80 - 120)	1.8	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1C2
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Silver	104	(80 - 120)			SW846 6020	01/16-01/22/13	MXVWP1C3
	103	(80 - 120)	0.47	(0-20)	SW846 6020	01/16-01/22/13	MXVWP1C4
		Dilution Factor: 1					
		Analysis Time..: 11:43					
Thallium	102	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1C5
	103	(80 - 120)	1.5	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1C6
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Vanadium	100	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1C7
	101	(80 - 120)	0.71	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1C8
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Zinc	95	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1C9
	97	(80 - 120)	1.6	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1DA
		Dilution Factor: 1					
		Analysis Time..: 23:33					

MS Lot-Sample #: F3A150406-001 **Prep Batch #...:** 3017024

% Moisture.....: 10

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Mercury	112	(80 - 120)			SW846 7471A	01/17/13	MXVWP1DG
	96	(80 - 120)	13	(0-20)	SW846 7471A	01/17/13	MXVWP1DH

Dilution Factor: 1
Analysis Time..: 18:33

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F3A150406-001 **Prep Batch #...:** 3017033							
Leach Date.....: 01/16/13 **Leach Batch #..:** P301602							
Lead	96	(80 - 120)			SW846 6010B	01/17-01/22/13	MXVWP1DJ
	95	(80 - 120)		(0-20)	SW846 6010B	01/17-01/22/13	MXVWP1DK

Dilution Factor: 1
Analysis Time..: 16:01

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

STLC Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F3A150406-005		**Prep Batch #...:** 3018030					
Leach Date.....: 01/16/13		**Leach Batch #..:** P301601				**% Moisture.....:**	
Cadmium	97	(80 - 120)			SW846 6010B	01/18-01/21/13	MXVWW1AG
	100	(80 - 120)	2.7	(0-20)	SW846 6010B	01/18-01/21/13	MXVWW1AH
		Dilution Factor: 5					
		Analysis Time..: 10:35					
Chromium	97	(80 - 120)			SW846 6010B	01/18-01/21/13	MXVWW1AJ
	94	(80 - 120)	3.0	(0-20)	SW846 6010B	01/18-01/21/13	MXVWW1AK
		Dilution Factor: 5					
		Analysis Time..: 10:35					
Copper	96	(80 - 120)			SW846 6010B	01/18-01/21/13	MXVWW1AL
	100	(80 - 120)	3.7	(0-20)	SW846 6010B	01/18-01/21/13	MXVWW1AM
		Dilution Factor: 5					
		Analysis Time..: 10:35					
Lead	94	(80 - 120)			SW846 6010B	01/18-01/21/13	MXVWW1AN
	97	(80 - 120)	2.7	(0-20)	SW846 6010B	01/18-01/21/13	MXVWW1AP
		Dilution Factor: 5					
		Analysis Time..: 10:35					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Tetra Tech EC Inc

Client Sample ID: 05-002A

General Chemistry

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
% Moisture.....: 10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**10.1**	**0.100**	**%**	**MCAWW 160.3 MOD**	**01/16-01/17/13**	**3016014**

Dilution Factor: 1 Analysis Time..: 00:00 MDL.....:

Tetra Tech EC Inc

Client Sample ID: 05-003

General Chemistry

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
% Moisture.....: 8.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**8.45**	**0.100**	**%**	**MCAWW 160.3 MOD**	**01/16-01/17/13**	**3016014**

Dilution Factor: 1 Analysis Time..: 00:00 MDL.....:

Tetra Tech EC Inc

Client Sample ID: 05-004

General Chemistry

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
% Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**11.7**	**0.100**	**%**	**MCAWW 160.3 MOD**	**01/16-01/17/13**	**3016014**

Dilution Factor: 1 Analysis Time..: 00:00 MDL.....:

Tetra Tech EC Inc

Client Sample ID: 05-005

General Chemistry

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
% Moisture.....: 10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**9.96**	**0.100**	**%**	**MCAWW 160.3 MOD**	**01/16-01/17/13**	**3016014**

Dilution Factor: 1 Analysis Time..: 00:00 MDL.....:

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F3A150406 **Work Order #...:** MXVWP-SMP MXVWP-DUP **Matrix.....:** SOLID

Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

% Moisture.....: 10

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	F3A150406-001	
	10.1	10.5	%	4.08	(0-30.0	MCAWW 160.3 MOD	01/16-01/17/13	3016014

Dilution Factor: 1 Analysis Time..: 00:00

TestAmerica St. Louis

F3A150406

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-244,ENCORE

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440005 Alameda CTO05

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS In LOT: 8

Date Received: 2013-01-15

Analytical Due Date: 2013-01-21

Report Due Date: 2013-01-22

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/soils must be extracted within 7/14 days per client SAP (regardless of EPA method).

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	05-002A			2013-01-14 / 1400	MXVWP	SOLID

SAMPLE COMMENTS:

	XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	XX	QJ	SW846	8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	CD	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	AS	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	ZN	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	BA	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	BE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	AG	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	NI	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	MO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	CU	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	CR	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	CO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	HG	O9	SW846	7471A	SOLID, 7471, Mercury 2 of 2	70	METALS, TOTAL (Method Exclusive) - Solids	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	PB	QO	SW846	6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	XX	QL	SW846	8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N		
	XX	QK	SW846	8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N		
	XX	ZV		RAD SCREEN	SOLID, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT: A	WRK LOC	06			
	XX	ZZ	NONE	NONE	SOLID, TCLP Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06			
	XX	WM	MCAW W	160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06			
D	CR	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	NI	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			

TestAmerica St. Louis

F3A150406

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-244,ENCORE

Project Manager: EKS | Quote #: 90022 | SDG:

Project: 40440005 | Alameda CTO05

PO#: OSP-02-8300-2012 | Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS In LOT: 8

Date Received: 2013-01-15

Analytical Due Date: 2013-01-21

Report Due Date: 2013-01-22

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/solls must be extracted within 7/14 days per client SAP (regardless of EPA method).

D	CU	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	CO	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	CD	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	BE	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	BA	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	AS	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	AG	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	ZN	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	MO	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	XX	QL	SW846 8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N	
D	XX	QK	SW846 8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N	
S	TL	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	ZN	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	VX	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	SE	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	SB	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	PB	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	NI	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	MO	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	AG	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	CR	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	CO	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	CD	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	BE	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	BA	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	AS	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	CU	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	XX	QL	SW846 8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N	
S	XX	QK	SW846 8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N	
X	XX	WM	MCAW W 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
2	05-003			2013-01-14/ 1410	MXVWQ	SOLID

SAMPLE COMMENTS:

XX	HS	SW846 8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	QH	SW846 8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	QJ	SW846 8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	WU	SW846 8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06		

F3A150406

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TestAmerica St. Louis

Storage Loc: 2-244,ENCORE

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440005 Alameda CTO05

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

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	PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	AG	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	ZN	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	NI	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	MO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CU	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CR	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CD	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	BE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	AS	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	BA	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	HG	O9	SW846	7471A	SOLID, 7471, Mercury 2 of 2	70	METALS, TOTAL (Method Exclusive) - Solids	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	PB	QO	SW846	6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	XX	QL	SW846	8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N	
	XX	QK	SW846	8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N	
	XX	ZV		RAD SCREEN	SOLID, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT: A	WRK LOC	06		
	XX	ZZ	NONE	NONE	SOLID, TCLP Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06		
	XX	WM	MCAW W	160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06		
D	XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06		

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3	05-004			2013-01-14 / 1420	MXVWR	SOLID

SAMPLE COMMENTS:

XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
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XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
NI	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	

TestAmerica St. Louis

F3A150406

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-244,ENCORE

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440005 Alameda CTO05

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS In LOT: 8

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Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

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	PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	ZN	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	AS	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CU	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CR	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	AG	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CD	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	BE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	BA	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	MO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	HG	O9	SW846	7471A	SOLID, 7471, Mercury 2 of 2	70	METALS, TOTAL (Method Exclusive) - Solids	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	PB	QO	SW846	6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	QL	SW846	8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N
	XX	QK	SW846	8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N
	XX	ZV		RAD SCREEN	SOLID, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT: A	WRK LOC	06	
	XX	ZZ	NONE	NONE	SOLID, TCLP Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06	
	XX	WM	MCAW W	160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06	
D	XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
S	XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
4	05-005			2013-01-14 / 1430	MXVWV	SOLID

SAMPLE COMMENTS:

	XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	QJ	SW846	8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	ZN	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	AS	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	

TestAmerica St. Louis

F3A150406

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-244,ENCORE

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440005 Alameda CTO05

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS In LOT: 8

Date Received: 2013-01-15

Analytical Due Date: 2013-01-21

Report Due Date: 2013-01-22

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prop RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/solls must be extracted within 7/14 days per client SAP (regardless of EPA method).

	CU	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	AG	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	BA	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	BE	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CD	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CR	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	MO	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	NI	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	HG	O9	SW846 7471A	SOLID, 7471, Mercury 2 of 2	70	METALS, TOTAL (Method Exclusive) - Solids	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	PB	QO	SW846 6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	XX	QL	SW846 8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N.	
	XX	QK	SW846 8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N	
	XX	ZV	RAD SCREEN	SOLID, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT: A	WRK LOC	06		
	XX	ZZ	NONE NONE	SOLID, TCLP Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06		
	XX	WM	MCAW W 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06		
D	XX	QJ	SW846 8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level.	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	XX	QJ	SW846 8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
5	05-002A			2013-01-14 / 1400	MXVWW	SOLID

SAMPLE COMMENTS:

	CD	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	PB	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CR	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CU	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	ZZ	NONE NONE	SOLID, STLC Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
6	05-003			2013-01-14 / 1410	MXVW7	SOLID

SAMPLE COMMENTS:

	CD	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CR	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CU	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	PB	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	ZZ	NONE NONE	SOLID, STLC Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
7	05-004			2013-01-14 / 1420	MXVXA	SOLID

SAMPLE COMMENTS:

	CD	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	

TestAmerica St. Louis

F3A150406

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-244

Project Manager: EKS | Quote #: 90022 | SDG:

Project: 40440005 | Alameda CTO05

PO#: OSP-02-8300-2012 | Report to: Sabina Sudoko

Client: 1442313 . Tetra Tech EC Inc

RUSH

#SMPS In LOT: 8

Date Received: 2013-01-15

Analytical Due Date: 2013-01-21

Report Due Date: 2013-01-22

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/solls must be extracted within 7/14 days per client SAP (regardless of EPA method).

PB	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CR	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CU	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
XX	ZZ	NONE	NONE	SOLID, STLC Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
8	05-005			2013-01-14 / 1430	MXVXE	SOLID

SAMPLE COMMENTS:

CD	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CR	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CU	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
PB	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
XX	ZZ	NONE	NONE	SOLID, STLC Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06

COC 303

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50003

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945 1530 0707
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-002	1/14/13	1400	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom
Company: Tetra tech / FedEx	Time: 1445	Company: TA 1/15/13 0915	Sampling Comments: A-Line Sediment
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

50003

TestAmerica St. Louis

TETRA TECH

Chain-of Custody Record

NUMBER: 50003

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945 1530 0707
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6010B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-002A	1/14/13	1400	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP - P6
Company: Tetra tech / FedEx	Time: 1445	Company	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: A-Line Sediment

50003

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50002

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945 1530 0704
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-003	1/14/13	1410	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-B	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom
Company: Tetra tech/ Pedot	Time: 1445	Company: TA 1/15/13 0915	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: B-Line Sediment

50002

TestAmerica St. Louis

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50004

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945 1630 0707
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-004	1/14/13	1420	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-MH5A	/	/	N

Relinquished by: (signature)	Date:	Received by (signature)
	1/14/13	
Company: Tetra tech/Pedex	Time: 1445	Company: TA 1/15/13 0915
Relinquished by: (signature)	Date:	Received by (signature)
Company:	Time:	Company:
Relinquished by: (signature)	Date:	Received by (signature)
Company:	Time:	Company:

Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom

Composite Discription:

Sample Condition Upon Receipt (for Laboratory)

Temperature: Sample Condition:

Cooler Seal:

Sampling Comments: MH5A Sediment

Bad

50004

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50005

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945153007 07
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-005	1/14/13	1430	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-MH2A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom
Company: TT/FedEx	Time: 1445	Company: TA 1/15/13 0915	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: MH2A Sediment cells

50005

Starman, Erika

From: Sudoko, Sabina [Sabina.Sudoko@tetratech.com]
Sent: Tuesday, January 15, 2013 12:39 PM
To: Starman, Erika
Cc: Richards, Vincent; Bienkowski, Lisa
Subject: RE: COCs – Alameda - Cto5 - Additional Analyses + RUSH
Importance: High

Erika,

Please add additional STLC / TCLP metals compounds for samples that you received today for cto5

STLC – copper and lead

TCLP – Lead.

This is also on a **RUSH – 5 days for ALL the analyses**.

Please let me know the estimated DUE DATE.

There will also be one more RUSH soil sample later this week for the same analyses as what you have in-house .

Any questions, let me know.

Thank you.. Sabina

From: Sudoko, Sabina
Sent: Tuesday, January 15, 2013 7:28 AM
To: Erika Starman (erika.starman@testamericainc.com)
Subject: FW: COCs – Alameda – IR Site 17 – CTO 5 – 1/14/13

Erika,

Cto5 – Alameda samples arriving to the lab today via fed ex.

Attached are the COCs.

Analyses listed below (Previous report – F2J240412)

8260 – VOC - encores – **48 hrs. holding time**

8270 – SVOCs

8081 – pesticides

8082 – PCBs (aroclors)

8015 – TPH purgeable – encores – **48 hrs. holding time**

8015 – TPH extractable – diesel / motor oil

6020 / 7000 – metals / mercury

STLC – Lead, Cadmium and Chromium analyses

Any questions , let me know.

Sabina R. Sudoko | Chemist
Direct: 949.809.5022
sabina.sudoko@tetratech.com

Tetra Tech | Sciences
17885 Von Karman Ave., Suite 500 | Irvine, CA 92614 - 5227 | www.tetratech.com

PLEASE NOTE: This message, including any attachments, may include confidential and/or inside information. Any distribution or use of this communication by anyone other than the intended recipient is strictly prohibited and may be unlawful. If you are not the intended recipient, please notify the sender by replying to this message and then delete it from your system.

Think Green - Not every email needs to be printed.

From: Turner, Phyllis
Sent: Monday, January 14, 2013 3:03 PM
To: Sudoko, Sabina
Cc: Solorzano, Wilmer; Richards, Vincent
Subject: COCs – Alameda – IR Site 17 – CTO 5 – 1/14/13

Hi Sabina,

Please see attached for COCs – Alameda – IR Site 17 – CTO 5 – 1/14/13

Thanks

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Lot #(s): F3A150406

TestAmerica St. Louis

CUR Form #: 3 8 3

CONDITION UPON RECEIPT FORM

Client: Tetra Tech

Quote No: 90022

COC/RFA No: see below

Initiated By: BD Date: 1/15/13 Time: 0915

Shipping Information

Shipper: (FedEx) UPS DHL Courier Client Other: _____ Multiple Packages: Y (N)

Shipping # (s):*

1. 7945 1530 0207
2.
3.
4.
5.
6.
7.
8.
9.
10.

Sample Temperature (s):**

1. 2
2.
3.
4.
5.
6.
7.
8.
9.
10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	(Y) N	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y (N) N/A	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N (N/A)	Was sample received with proper pH[1]? (If not, make note below)
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes: COC 50003

2
4
5

Corrective Action:

☐ Client Contact Name: _____ Informed by: _____

☐ Sample(s) processed "as is"

☐ Sample(s) on hold until: _____ If released, notify: _____

Project Management Review: _____ Date: _____

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

APPENDIX I

LABORATORY REPORTS – NON-HAZARDOUS SEDIMENT CHEMICAL CHARACTERIZATION (on CD only)

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TETRA TECH INC

Chain-of Custody Record

NUMBER: 50006

ENTERED

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945657832 05
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID: F3A2204/3

1-29

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-006	1/21/13	1515	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-IWS29-1	/	/	N

Relinquished by: (signature)	Date: 1/21/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP - Pb
Company: TT/FedEx	Time: 1530	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory) Temperature: Sample Condition:
Company:	Time:	Company:	Cooler Seal:

Sampling Comments:

Industrial Waste

IWS29-1

50006

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 40440005

Alameda CTO05

Lot #: F3A220413

Sabina Sudoko

Tetra Tech EC Inc
17885 Von Karman Ave
Ste 500
Irvine, CA 92614

TESTAMERICA LABORATORIES, INC.

Erika Starman
Project Manager

January 31, 2013

13715 Rider Trail North, Earth City, MO 63045 tel 314.298.8566 fax 314.298.8757 www.testamericainc.com

Case Narrative
LOT NUMBER: F3A220413

This report contains the analytical results for the two samples received under chain of custody by TestAmerica St. Louis on January 22, 2013. These samples are associated with your Alameda CTO05 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

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RPD and RER results that are outside QC limits for non-detected analytes are statistically invalid. Non-detect results were duplicated, and the RPD/RER can be ignored.

Sample receiving issues are noted on the CUR form and written communications pertaining to these issues are included in the CoC section of the report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. Ra-226 analysis by gamma spectroscopy is performed on an as-received basis unless sample containers were received cracked or broken. Analysis parameters for cracked or broken samples will be listed in the narrative.

Ra-226 results analyzed by method EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on samples in this data set. Specific methods employed are documented on the batch extraction logs.

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

Volatile Organic Compounds by GC/MS (SW846 8260B)

Batch 3023075
The surrogate (4-BFB) recovery is outside the upper QC limit, indicating a potential positive bias. There were no target analytes associated with this surrogate observed above the reporting limit in the sample; therefore the sample data was not adversely affected by this excursion.

Volatile Petroleum Hydrocarbons (SW846 8015 MOD)

Batch 3023037
Samples exhibited hydrocarbons peaks in the Gasoline chromatography range. The sample pattern does not match Gasoline which may be attributed to degradation or indicative of the presence an unknown hydrocarbon.

Affected Samples:
F3A220413 (1): 05-006

Semivolatile Organic Compounds by GC/MS (SW846 8270C)

Batch 3023024
The LCS recovery for Hexachlorocyclopentadiene and N-Nitrosodiphenylamine are outside the upper QC limit, indicating a potential positive bias for these analytes. These analytes were not observed above the reporting limit in the associated samples; therefore the sample data was not adversely affected by this excursion.

The MSD recovery for 2,4-Dimethylphenol and MS/MSD recovery for N-Nitrosodiphenylamine are outside the established QC limits. The RPD is within method acceptance criteria indicating possible matrix interference.

Affected Samples:
F3A220413 (1): 05-006

PCBs by SW-846 (SW846 8082)

Batch 3023026
The MS/MSD RPD is not within method acceptance criteria for Aroclor 1016. MS/MSD recoveries are within QC limits demonstrating good extraction performance in the sample matrix.

The MS/MSD surrogate recovery is outside the upper QC limits. The surrogate excursion is attributed to a matrix interference, which is elevating the surrogate recovery.

Affected Samples:
F3A220413 (1): 05-006

Organochlorine Pesticides (SW846 8081A)

Batch 3024021
The MS recovery for beta-BHC and Heptachlor epoxide; the MSD recovery for Heptachlor epoxide and 4,4'-DDE is outside the established QC limits. The RPD is not within method acceptance criteria for several compounds. Matrix interference is physically evident in the sample. The sample extracts were light golden in color and there is chromatographic evidence of interference. Method performance is demonstrated by acceptable LCS recovery.

The closing CCV recovery was outside the lower QC limit (greater than 20% D) for Toxaphene indicating a potential low bias for those analytes in the samples associated with this CCV. This excursion was on the confirmation column only. No data for this analyte was reported from this column.

The LCS recovery for Endosulfan sulfate is outside the lower QC limit, indicating a potential negative bias for the analyte. Samples were reprepared and reanlayzed within holding time. The first analysis is set to not report and the re-extracts are reported.

The %D between the primary and secondary column result for alpha-BHC is greater than 40%. SW method 8000C prescribes reporting the lower of the two column results in the absence of chromatographic anomalies observed on the column yielding the lower result. The lower result is reported.

For the Toxaphene cal, we have not been able to find a second vendor with a suitable compatible standard. Therefore the ICV is from the same vendor but from a different lot. The lab will continue to look for a compatible second vendor.

Affected Samples:
F3A220413 (1): 05-006

Extractable Petroleum Hydrocarbons DRO (SW846 8015 MOD)

Batch 3023025
The samples were analyzed at a dilution due to high concentrations of target analytes. The sample extracts were brown which analyzed undiluted has historically caused instrumentation problems. The reporting limit has been adjusted for the dilutions since no analysis at a lesser dilution was performed.

Samples exhibited hydrocarbons peaks in the Diesel chromatography range. The sample pattern does not match Diesel which may be indicative of the presence of an unknown hydrocarbon.

Affected Samples:
F3A220413 (1): 05-006

ICP-MS (SW846 6020)

Batch 3023022
The MS/MSD recovery for antimony is outside the established QC limits. The RPD is within method acceptance criteria indicating possible matrix interference. Method performance is demonstrated by acceptable LCS recovery.

The serial dilution percent difference is not within QC limits for chromium, vanadium, and zinc. The serial dilution failing is evidence of a possible matrix interference and the results are flagged accordingly.

Affected Samples:
F3A220413 (1): 05-006

STLC Inductively Coupled Plasma Metals (SW846 6010B)

Batch 3025042
The sample was analyzed at a dilution due to the presence of matrix interferences which cause instrument QC failures. The reporting limit has been adjusted for the dilution.

The LLC recovery for lead is outside the upper QC limit, indicating a potential positive bias for that analyte. This analyte was non-detect, indicating that the samples were not affected by this excursion.

Affected Samples:
F3A220413 (2): 05-006

There were no other nonconformances or observations noted with any analysis on this lot.

METHODS SUMMARY

F3A220413

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Extractable Petroleum Hydrocarbons	SW846 8015 MOD	SW846 3550
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010
ICP-MS (6020)	SW846 6020	SW846 3050
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
Organochlorine Pesticides	SW846 8081A	SW846 3550B
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
PCBs by SW-846 8082	SW846 8082	SW846 3550B/366
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3550B
Volatile Organics by GC/MS	SW846 8260B	SW846 5035
Volatile Petroleum Hydrocarbons	SW846 8015 MOD	SW846 5030

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F3A220413

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MXXHC	001	05-006	01/21/13	15:15
MXXHK	002	05-006	01/21/13	15:15

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Tetra Tech EC Inc

Client Sample ID: 05-006

GC/MS Volatiles

Lot-Sample #...: F3A220413-001 **Work Order #...:** MXXHC1AD **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13
Prep Date.....: 01/23/13 **Analysis Date..:** 01/24/13
Prep Batch #...: 3023075 **Analysis Time..:** 00:00
Dilution Factor: 1
% Moisture.....: 7.1 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	21.5	ug/kg	6.97
Benzene	ND	5.38	ug/kg	0.272
Bromodichloromethane	ND	5.38	ug/kg	0.274
Bromoform	ND	5.38	ug/kg	0.394
Bromomethane	ND	5.38	ug/kg	1.18
Carbon tetrachloride	ND	5.38	ug/kg	0.552
Chlorobenzene	ND	5.38	ug/kg	0.411
Dibromochloromethane	ND	5.38	ug/kg	0.437
Chloroethane	ND	10.8	ug/kg	0.556
Chloroform	ND	5.38	ug/kg	0.405
Chloromethane	ND	10.8	ug/kg	0.700
1,1-Dichloroethane	ND	5.38	ug/kg	0.422
1,2-Dichloroethane	ND	5.38	ug/kg	0.934
1,1-Dichloroethene	ND	5.38	ug/kg	1.73
cis-1,2-Dichloroethene	ND	5.38	ug/kg	0.643
trans-1,2-Dichloroethene	ND	5.38	ug/kg	1.02
1,2-Dichloropropane	ND	5.38	ug/kg	0.412
cis-1,3-Dichloropropene	ND	5.38	ug/kg	0.641
trans-1,3-Dichloropropene	ND	5.38	ug/kg	0.376
Ethylbenzene	ND	5.38	ug/kg	0.322
2-Hexanone	ND	10.8	ug/kg	1.91
Methylene chloride	ND	5.38	ug/kg	1.70
2-Butanone (MEK)	ND	10.8	ug/kg	2.07
Styrene	ND	5.38	ug/kg	0.374
1,1,2,2-Tetrachloroethane	ND	5.38	ug/kg	0.432
Tetrachloroethene	ND	5.38	ug/kg	0.347
Toluene	ND	5.38	ug/kg	0.754
1,1,1-Trichloroethane	ND	5.38	ug/kg	0.464
1,1,2-Trichloroethane	ND	5.38	ug/kg	0.617
Trichloroethene	ND	5.38	ug/kg	0.415
Vinyl chloride	ND	5.38	ug/kg	0.461
Xylenes (total)	ND	10.8	ug/kg	0.920
Methyl tert-butyl ether (MTBE)	ND	5.38	ug/kg	0.513
4-Methyl-2-pentanone	ND	10.8	ug/kg	0.788

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	115	(65.- 135)
1,2-Dichloroethane-d4	106	(65.- 135)
4-Bromofluorobenzene	145 *	(65.- 135)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-006

GC/MS Volatiles

Lot-Sample #...: F3A220413-001 **Work Order #...:** MXXHC1AD **Matrix.....:** SOLID

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F3A220413 **Work Order #...:** MXX4G1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A230000-075

Prep Date.....: 01/23/13 **Analysis Time..:** 20:51
Analysis Date..: 01/23/13 **Prep Batch #...:** 3023075
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20.0	ug/kg	SW846 8260B
Benzene	ND	5.00	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.00	ug/kg	SW846 8260B
Bromoform	ND	5.00	ug/kg	SW846 8260B
Bromomethane	ND	5.00	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.00	ug/kg	SW846 8260B
Chlorobenzene	ND	5.00	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.00	ug/kg	SW846 8260B
Chloroethane	ND	10.0	ug/kg	SW846 8260B
Chloroform	ND	5.00	ug/kg	SW846 8260B
Chloromethane	ND	10.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.00	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.00	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.00	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.00	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.00	ug/kg	SW846 8260B
Ethylbenzene	ND	5.00	ug/kg	SW846 8260B
2-Hexanone	ND	10.0	ug/kg	SW846 8260B
Methylene chloride	ND	5.00	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	10.0	ug/kg	SW846 8260B
Styrene	ND	5.00	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.00	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.00	ug/kg	SW846 8260B
Toluene	ND	5.00	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.00	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.00	ug/kg	SW846 8260B
Trichloroethene	ND	5.00	ug/kg	SW846 8260B
Vinyl chloride	ND	5.00	ug/kg	SW846 8260B
Xylenes (total)	ND	10.0	ug/kg	SW846 8260B
2-Butanone (MEK)	ND	10.0	ug/kg	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	5.00	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	104	(65.0- 135)
1,2-Dichloroethane-d4	103	(65.0- 135)
4-Bromofluorobenzene	111	(65.0- 135)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F3A220413 **Work Order #...:** MXX4G1AA **Matrix.....:** SOLID

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3A220413 **Work Order #...:** MXX4G1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A230000-075
Prep Date.....: 01/23/13 **Analysis Date..:** 01/23/13
Prep Batch #...: 3023075 **Analysis Time..:** 20:01
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	**100**	**(65.0- 135**	**SW846 8260B**
Benzene	**96.3**	**(65.0- 135**	**SW846 8260B**
Trichloroethene	**94.6**	**(65.0- 135**	**SW846 8260B**
Toluene	**100**	**(65.0- 135**	**SW846 8260B**
Chlorobenzene	**92.0**	**(65.0- 135**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	110	(65.0- 135
1,2-Dichloroethane-d4	104	(65.0- 135
4-Bromofluorobenzene	106	(65.0- 135

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXG61A7-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A220412-002 MXXG61A8-MSD
Date Sampled...: 01/21/13 14:45 **Date Received..:** 01/22/13
Prep Date.....: 01/23/13 **Analysis Date..:** 01/23/13
Prep Batch #...: 3023075 **Analysis Time..:** 21:47
Dilution Factor: 1 **% Moisture.....:** 9.5

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**89.6**	**(65.0- 135**			**SW846 8260B**
	89.6	**(65.0- 135**	**8.91**	**(0-30.0)**	**SW846 8260B**
Benzene	**93.9**	**(65.0- 135**			**SW846 8260B**
	96.5	**(65.0- 135**	**6.16**	**(0-30.0)**	**SW846 8260B**
Trichloroethene	**92.3**	**(65.0- 135**			**SW846 8260B**
	94.1	**(65.0- 135**	**6.86**	**(0-30.0)**	**SW846 8260B**
Toluene	**103**	**(65.0- 135**			**SW846 8260B**
	102	**(65.0- 135**	**9.91**	**(0-30.0)**	**SW846 8260B**
Chlorobenzene	**91.1**	**(65.0- 135**			**SW846 8260B**
	90.4	**(65.0- 135**	**9.57**	**(0-30.0)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	103	(65.0- 135
	109	(65.0- 135
1,2-Dichloroethane-d4	94.4	(65.0- 135
	100	(65.0- 135
4-Bromofluorobenzene	114	(65.0- 135
	129	(65.0- 135

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-006

GC/MS Semivolatiles

Lot-Sample #...: F3A220413-001 **Work Order #...:** MXXHC1AE **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13
Prep Date.....: 01/23/13 **Analysis Date..:** 01/24/13
Prep Batch #...: 3023024 **Analysis Time..:** 00:57
Dilution Factor: 1
% Moisture.....: 7.1 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Pyridine	ND	711	ug/kg	71.7
Phenol	ND	355	ug/kg	35.9
bis(2-Chloroethyl)-ether	ND	355	ug/kg	36.0
2-Chlorophenol	ND	355	ug/kg	35.9
1,3-Dichlorobenzene	ND	355	ug/kg	35.9
1,4-Dichlorobenzene	ND	355	ug/kg	35.9
1,2-Dichlorobenzene	ND	355	ug/kg	35.9
2-Methylphenol	ND	355	ug/kg	35.9
3-Methylphenol & 4-Methylphenol	ND	711	ug/kg	71.7
bis(2-Chloroisopropyl) ether	ND	355	ug/kg	35.9
N-Nitrosodi-n-propyl-amine	ND	355	ug/kg	35.9
Hexachloroethane	ND	355	ug/kg	35.9
2-Nitrophenol	ND	355	ug/kg	35.9
2,4-Dimethylphenol	ND	355	ug/kg	35.9
Nitrobenzene	ND	355	ug/kg	35.9
bis(2-Chloroethoxy) methane	ND	355	ug/kg	35.9
2,4-Dichlorophenol	ND	355	ug/kg	35.9
1,2,4-Trichloro-benzene	ND	355	ug/kg	35.9
Naphthalene	ND	355	ug/kg	35.9
4-Chloroaniline	ND	355	ug/kg	35.9
Hexachlorobutadiene	ND	355	ug/kg	35.9
4-Chloro-3-methylphenol	ND	355	ug/kg	35.9
Hexachlorocyclopenta-diene	ND	1720	ug/kg	355
2,4,6-Trichloro-phenol	ND	355	ug/kg	35.9
2,4,5-Trichloro-phenol	ND	355	ug/kg	35.9
2-Chloronaphthalene	ND	355	ug/kg	35.9
2-Nitroaniline	ND	1720	ug/kg	35.9
Dimethyl phthalate	ND	355	ug/kg	35.9
Acenaphthene	ND	355	ug/kg	35.9

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-006

GC/MS Semivolatiles

Lot-Sample #...: F3A220413-001 **Work Order #...:** MXXHC1AE **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthylene	ND	355	ug/kg	35.9
2,6-Dinitrotoluene	ND	355	ug/kg	35.9
3-Nitroaniline	ND	1720	ug/kg	35.9
2,4-Dinitrophenol	ND	1720	ug/kg	355
4-Nitrophenol	ND	1720	ug/kg	355
Dibenz(a,h)anthracene	ND	355	ug/kg	35.9
Dibenzofuran	ND	355	ug/kg	35.9
2,4-Dinitrotoluene	ND	355	ug/kg	35.9
Diethyl phthalate	ND	355	ug/kg	35.9
Fluorene	ND	355	ug/kg	35.9
4-Chlorophenyl phenyl ether	ND	355	ug/kg	35.9
4-Nitroaniline	ND	1720	ug/kg	355
4,6-Dinitro-2-methylphenol	ND	1720	ug/kg	355
N-Nitrosodiphenylamine	ND	355	ug/kg	35.9
Pyrene	ND	355	ug/kg	35.9
4-Bromophenyl phenyl ether	ND	355	ug/kg	35.9
Hexachlorobenzene	ND	355	ug/kg	35.9
Pentachlorophenol	ND	711	ug/kg	355
Phenanthrene	ND	355	ug/kg	35.9
Anthracene	ND	355	ug/kg	35.9
Di-n-butyl phthalate	ND	355	ug/kg	35.9
Fluoranthene	**576**	**355**	**ug/kg**	**35.9**
Butyl benzyl phthalate	ND	355	ug/kg	35.9
Benzo(a)anthracene	ND	355	ug/kg	35.9
3,3'-Dichlorobenzidine	ND	1720	ug/kg	35.9
Chrysene	ND	355	ug/kg	35.9
bis(2-Ethylhexyl) phthalate	**195 J**	**355**	**ug/kg**	**48.8**
Di-n-octyl phthalate	ND	355	ug/kg	35.9
Benzo(b)fluoranthene	ND	355	ug/kg	35.9
Benzo(k)fluoranthene	ND	355	ug/kg	35.9
Benzo(a)pyrene	ND	355	ug/kg	35.9
Indeno(1,2,3-cd)pyrene	ND	355	ug/kg	35.9
Benzo(ghi)perylene	ND	355	ug/kg	35.9

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	76.0	(35.- 105)
Phenol-d5	80.1	(40.- 100)
Nitrobenzene-d5	83.3	(35.- 100)
2-Fluorobiphenyl	85.8	(45.- 105)
2,4,6-Tribromophenol	78.6	(35.- 125)
Terphenyl-d14	87.4	(30.- 125)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-006

GC/MS Semivolatiles

Lot-Sample #...: F3A220413-001 **Work Order #...:** MXXHC1AE **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXVM1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A230000-024

Prep Date.....: 01/23/13 **Analysis Time..:** 19:53
Analysis Date..: 01/23/13 **Prep Batch #...:** 3023024
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Pyridine	ND	660	ug/kg	SW846 8270C
Phenol	ND	330	ug/kg	SW846 8270C
bis(2-Chloroethyl)-ether	ND	330	ug/kg	SW846 8270C
2-Chlorophenol	ND	330	ug/kg	SW846 8270C
1,3-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,4-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,2-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
2-Methylphenol	ND	330	ug/kg	SW846 8270C
3-Methylphenol & 4-Methylphenol	ND	660	ug/kg	SW846 8270C
bis(2-Chloroisopropyl) ether	ND	330	ug/kg	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	330	ug/kg	SW846 8270C
Hexachloroethane	ND	330	ug/kg	SW846 8270C
2-Nitrophenol	ND	330	ug/kg	SW846 8270C
2,4-Dimethylphenol	ND	330	ug/kg	SW846 8270C
Nitrobenzene	ND	330	ug/kg	SW846 8270C
bis(2-Chloroethoxy) methane	ND	330	ug/kg	SW846 8270C
2,4-Dichlorophenol	ND	330	ug/kg	SW846 8270C
1,2,4-Trichloro-benzene	ND	330	ug/kg	SW846 8270C
Naphthalene	ND	330	ug/kg	SW846 8270C
4-Chloroaniline	ND	330	ug/kg	SW846 8270C
Hexachlorobutadiene	ND	330	ug/kg	SW846 8270C
4-Chloro-3-methylphenol	ND	330	ug/kg	SW846 8270C
Hexachlorocyclopenta-diene	ND	1600	ug/kg	SW846 8270C
2,4,6-Trichloro-phenol	ND	330	ug/kg	SW846 8270C
2,4,5-Trichloro-phenol	ND	330	ug/kg	SW846 8270C
2-Chloronaphthalene	ND	330	ug/kg	SW846 8270C
2-Nitroaniline	ND	1600	ug/kg	SW846 8270C
Dimethyl phthalate	ND	330	ug/kg	SW846 8270C
Acenaphthene	ND	330	ug/kg	SW846 8270C
Acenaphthylene	ND	330	ug/kg	SW846 8270C
2,6-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
3-Nitroaniline	ND	1600	ug/kg	SW846 8270C

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXVM1AA **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,4-Dinitrophenol	ND	1600	ug/kg	SW846 8270C
4-Nitrophenol	ND	1600	ug/kg	SW846 8270C
Dibenz(a,h)anthracene	ND	330	ug/kg	SW846 8270C
Dibenzofuran	ND	330	ug/kg	SW846 8270C
2,4-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
Diethyl phthalate	ND	330	ug/kg	SW846 8270C
Fluorene	ND	330	ug/kg	SW846 8270C
4-Chlorophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
4-Nitroaniline	ND	1600	ug/kg	SW846 8270C
4,6-Dinitro-2-methylphenol	ND	1600	ug/kg	SW846 8270C
N-Nitrosodiphenylamine	ND	330	ug/kg	SW846 8270C
Pyrene	ND	330	ug/kg	SW846 8270C
4-Bromophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
Hexachlorobenzene	ND	330	ug/kg	SW846 8270C
Pentachlorophenol	ND	660	ug/kg	SW846 8270C
Phenanthrene	ND	330	ug/kg	SW846 8270C
Anthracene	ND	330	ug/kg	SW846 8270C
Di-n-butyl phthalate	ND	330	ug/kg	SW846 8270C
Fluoranthene	ND	330	ug/kg	SW846 8270C
Butyl benzyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(a)anthracene	ND	330	ug/kg	SW846 8270C
3,3'-Dichlorobenzidine	ND	1600	ug/kg	SW846 8270C
Chrysene	ND	330	ug/kg	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	330	ug/kg	SW846 8270C
Di-n-octyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(b)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(k)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(a)pyrene	ND	330	ug/kg	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	330	ug/kg	SW846 8270C
Benzo(ghi)perylene	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	86.0	(35.0- 105)
Phenol-d5	88.2	(40.0- 100)
Nitrobenzene-d5	88.7	(35.0- 100)
2-Fluorobiphenyl	85.5	(45.0- 105)
2,4,6-Tribromophenol	77.2	(35.0- 125)
Terphenyl-d14	91.4	(30.0- 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A220413 Work Order #...: MXXVM1AC Matrix.....: SOLID
LCS Lot-Sample#: F3A230000-024
Prep Date.....: 01/23/13 Analysis Date..: 01/23/13
Prep Batch #...: 3023024 Analysis Time..: 20:27
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Phenol	73.6	(40.0- 100	SW846 8270C
bis(2-Chloroethyl)-ether	72.8	(40.0- 105	SW846 8270C
2-Chlorophenol	80.0	(45.0- 105	SW846 8270C
1,3-Dichlorobenzene	78.7	(40.0- 100	SW846 8270C
1,4-Dichlorobenzene	77.4	(35.0- 105	SW846 8270C
1,2-Dichlorobenzene	80.2	(45.0- 95.	SW846 8270C
2-Methylphenol	84.5	(40.0- 105	SW846 8270C
3-Methylphenol & 4-Methylphenol	74.5	(40.0- 105	SW846 8270C
2,2'-oxybis (1-Chloropropane)	83.7	(20.0- 115	SW846 8270C
N-Nitrosodi-n-propyl-amine	92.0	(40.0- 115	SW846 8270C
Hexachloroethane	83.3	(35.0- 110	SW846 8270C
2-Nitrophenol	85.2	(40.0- 110	SW846 8270C
2,4-Dimethylphenol	96.8	(30.0- 105	SW846 8270C
Nitrobenzene	86.0	(40.0- 115	SW846 8270C
bis(2-Chloroethoxy) methane	83.5	(45.0- 110	SW846 8270C
2,4-Dichlorophenol	79.5	(45.0- 110	SW846 8270C
1,2,4-Trichloro-benzene	81.8	(45.0- 110	SW846 8270C
Naphthalene	82.5	(40.0- 105	SW846 8270C
4-Chloroaniline	65.8	(28.0- 80.	SW846 8270C
Hexachlorobutadiene	84.8	(40.0- 115	SW846 8270C
4-Chloro-3-methylphenol	81.5	(45.0- 115	SW846 8270C
Hexachlorocyclopenta-diene	139 a	(38.0- 107	SW846 8270C
2,4,6-Trichloro-phenol	87.4	(45.0- 110	SW846 8270C
2,4,5-Trichloro-phenol	85.3	(50.0- 110	SW846 8270C
2-Chloronaphthalene	88.4	(45.0- 105	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXVM1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A230000-024

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2-Nitroaniline	90.7	(45.0- 120	SW846 8270C
Dimethyl phthalate	86.9	(50.0- 110	SW846 8270C
Acenaphthylene	89.6	(45.0- 105	SW846 8270C
Acenaphthene	87.8	(45.0- 110	SW846 8270C
2,6-Dinitrotoluene	89.2	(50.0- 110	SW846 8270C
3-Nitroaniline	74.3	(25.0- 110	SW846 8270C
2,4-Dinitrophenol	66.0	(15.0- 130	SW846 8270C
4-Nitrophenol	77.9	(15.0- 140	SW846 8270C
Dibenzofuran	84.3	(50.0- 105	SW846 8270C
Dibenz(a,h)anthracene	98.1	(40.0- 125	SW846 8270C
2,4-Dinitrotoluene	86.8	(50.0- 115	SW846 8270C
Diethyl phthalate	85.4	(50.0- 115	SW846 8270C
Fluorene	86.5	(50.0- 110	SW846 8270C
4-Chlorophenyl phenyl ether	85.0	(45.0- 110	SW846 8270C
4-Nitroaniline	77.6	(35.0- 115	SW846 8270C
4,6-Dinitro-2-methylphenol	85.9	(30.0- 135	SW846 8270C
N-Nitrosodiphenylamine	117 a	(50.0- 115	SW846 8270C
Pyrene	96.2	(45.0- 125	SW846 8270C
4-Bromophenyl phenyl ether	95.0	(45.0- 115	SW846 8270C
Hexachlorobenzene	93.0	(52.0- 107	SW846 8270C
Pentachlorophenol	88.2	(25.0- 120	SW846 8270C
Phenanthrene	87.7	(50.0- 110	SW846 8270C
Anthracene	87.5	(55.0- 105	SW846 8270C
Di-n-butyl phthalate	88.2	(55.0- 110	SW846 8270C
Fluoranthene	85.7	(55.0- 115	SW846 8270C
Butyl benzyl phthalate	96.2	(50.0- 125	SW846 8270C
Benzo(a)anthracene	104	(50.0- 110	SW846 8270C
3,3'-Dichlorobenzidine	73.4	(24.0- 101	SW846 8270C
Chrysene	90.1	(55.0- 110	SW846 8270C
bis(2-Ethylhexyl) phthalate	96.8	(45.0- 125	SW846 8270C
Di-n-octyl phthalate	96.2	(40.0- 130	SW846 8270C
Benzo(b)fluoranthene	99.2	(45.0- 115	SW846 8270C
Benzo(k)fluoranthene	98.6	(45.0- 125	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXVM1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A230000-024

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(a)pyrene	**94.3**	**(50.0- 110**	**SW846 8270C**
Indeno(1,2,3-cd)pyrene	**101**	**(40.0- 120**	**SW846 8270C**
Benzo(ghi)perylene	**97.8**	**(40.0- 125**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	83.0	(35.0- 105
Phenol-d5	84.0	(40.0- 100
Nitrobenzene-d5	88.7	(35.0- 100
2-Fluorobiphenyl	89.7	(45.0- 105
2,4,6-Tribromophenol	87.3	(35.0- 125
Terphenyl-d14	90.7	(30.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXG51A6-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A220412-001 MXXG51A7-MSD
Date Sampled...: 01/21/13 14:30 **Date Received..:** 01/22/13
Prep Date.....: 01/23/13 **Analysis Date..:** 01/23/13
Prep Batch #...: 3023024 **Analysis Time..:** 22:43
Dilution Factor: 1 **% Moisture.....:** 9.4

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Phenol	76.7	(40.0- 100			SW846 8270C
	76.9	(40.0- 100	0.39	(0-30.0)	SW846 8270C
bis(2-Chloroethyl)-ether	73.6	(40.0- 105			SW846 8270C
	73.4	(40.0- 105	0.12	(0-30.0)	SW846 8270C
2-Chlorophenol	81.3	(45.0- 105			SW846 8270C
	81.6	(45.0- 105	0.51	(0-30.0)	SW846 8270C
1,3-Dichlorobenzene	76.1	(40.0- 100			SW846 8270C
	75.6	(40.0- 100	0.51	(0-30.0)	SW846 8270C
1,4-Dichlorobenzene	75.9	(35.0- 105			SW846 8270C
	75.4	(35.0- 105	0.55	(0-30.0)	SW846 8270C
1,2-Dichlorobenzene	78.7	(45.0- 95.			SW846 8270C
	78.1	(45.0- 95.	0.69	(0-30.0)	SW846 8270C
2-Methylphenol	88.2	(40.0- 105			SW846 8270C
	89.7	(40.0- 105	1.76	(0-30.0)	SW846 8270C
3-Methylphenol & 4-Methylphenol	79.3	(40.0- 105			SW846 8270C
	80.6	(40.0- 105	1.81	(0-30.0)	SW846 8270C
2,2'-oxybis (1-Chloropropane)	83.4	(20.0- 115			SW846 8270C
	83.1	(20.0- 115	0.29	(0-30.0)	SW846 8270C
N-Nitrosodi-n-propyl-amine	94.5	(40.0- 115			SW846 8270C
	95.2	(40.0- 115	0.82	(0-30.0)	SW846 8270C
Hexachloroethane	78.2	(35.0- 110			SW846 8270C
	77.9	(35.0- 110	0.27	(0-30.0)	SW846 8270C
2-Nitrophenol	86.2	(40.0- 110			SW846 8270C
	85.8	(40.0- 110	0.38	(0-30.0)	SW846 8270C
2,4-Dimethylphenol	103	(30.0- 105			SW846 8270C
	106 a	(30.0- 105	2.50	(0-30.0)	SW846 8270C
Nitrobenzene	86.3	(40.0- 115			SW846 8270C
	86.5	(40.0- 115	0.31	(0-30.0)	SW846 8270C
bis(2-Chloroethoxy) methane	87.1	(45.0- 110			SW846 8270C
	87.1	(45.0- 110	0.13	(0-30.0)	SW846 8270C

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXG51A6-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A220412-001 MXXG51A7-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-Dichlorophenol	83.1	(45.0- 110			SW846 8270C
	84.5	(45.0- 110	1.76	(0-30.0)	SW846 8270C
1,2,4-Trichloro-benzene	79.4	(45.0- 110			SW846 8270C
	79.7	(45.0- 110	0.53	(0-30.0)	SW846 8270C
Naphthalene	81.8	(40.0- 105			SW846 8270C
	82.0	(40.0- 105	0.33	(0-30.0)	SW846 8270C
4-Chloroaniline	55.6	(28.0- 80.			SW846 8270C
	60.1	(28.0- 80.	7.81	(0-30.0)	SW846 8270C
Hexachlorobutadiene	80.8	(40.0- 115			SW846 8270C
	81.0	(40.0- 115	0.37	(0-30.0)	SW846 8270C
4-Chloro-3-methylphenol	85.9	(45.0- 115			SW846 8270C
	86.5	(45.0- 115	0.80	(0-30.0)	SW846 8270C
Hexachlorocyclopenta-diene	78.1	(38.0- 107			SW846 8270C
	63.6	(38.0- 107	20.3	(0-30.0)	SW846 8270C
2,4,6-Trichloro-phenol	89.1	(45.0- 110			SW846 8270C
	90.1	(45.0- 110	1.21	(0-30.0)	SW846 8270C
2,4,5-Trichloro-phenol	86.9	(50.0- 110			SW846 8270C
	87.7	(50.0- 110	1.03	(0-30.0)	SW846 8270C
2-Chloronaphthalene	88.8	(45.0- 105			SW846 8270C
	88.7	(45.0- 105	0.06	(0-30.0)	SW846 8270C
2-Nitroaniline	94.6	(45.0- 120			SW846 8270C
	94.2	(45.0- 120	0.31	(0-30.0)	SW846 8270C
Dimethyl phthalate	92.9	(50.0- 110			SW846 8270C
	93.4	(50.0- 110	0.67	(0-30.0)	SW846 8270C
Acenaphthylene	89.2	(45.0- 105			SW846 8270C
	88.8	(45.0- 105	0.23	(0-30.0)	SW846 8270C
Acenaphthene	88.0	(45.0- 110			SW846 8270C
	87.8	(45.0- 110	0.10	(0-30.0)	SW846 8270C
2,6-Dinitrotoluene	95.0	(50.0- 110			SW846 8270C
	94.2	(50.0- 110	0.79	(0-30.0)	SW846 8270C
3-Nitroaniline	58.7	(25.0- 110			SW846 8270C
	62.9	(25.0- 110	6.99	(0-30.0)	SW846 8270C
2,4-Dinitrophenol	76.2	(15.0- 130			SW846 8270C
	63.2	(15.0- 130	18.6	(0-30.0)	SW846 8270C

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXG51A6-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A220412-001 MXXG51A7-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
4-Nitrophenol	83.0	(15.0- 140			SW846 8270C
	79.3	(15.0- 140	4.45	(0-30.0)	SW846 8270C
Dibenzofuran	84.1	(50.0- 105			SW846 8270C
	84.2	(50.0- 105	0.32	(0-30.0)	SW846 8270C
Dibenz(a,h)anthracene	111	(40.0- 125			SW846 8270C
	109	(40.0- 125	1.78	(0-30.0)	SW846 8270C
2,4-Dinitrotoluene	90.8	(50.0- 115			SW846 8270C
	90.5	(50.0- 115	0.20	(0-30.0)	SW846 8270C
Diethyl phthalate	89.0	(50.0- 115			SW846 8270C
	89.5	(50.0- 115	0.67	(0-30.0)	SW846 8270C
Fluorene	86.1	(50.0- 110			SW846 8270C
	85.9	(50.0- 110	0.14	(0-30.0)	SW846 8270C
4-Chlorophenyl phenyl ether	84.7	(45.0- 110			SW846 8270C
	85.8	(45.0- 110	1.37	(0-30.0)	SW846 8270C
4-Nitroaniline	67.0	(35.0- 115			SW846 8270C
	68.8	(35.0- 115	2.79	(0-30.0)	SW846 8270C
4,6-Dinitro-2-methylphenol	92.6	(30.0- 135			SW846 8270C
	81.6	(30.0- 135	12.4	(0-30.0)	SW846 8270C
N-Nitrosodiphenylamine	120 a	(50.0- 115			SW846 8270C
	122 a	(50.0- 115	2.06	(0-30.0)	SW846 8270C
Pyrene	94.6	(45.0- 125			SW846 8270C
	94.8	(45.0- 125	0.31	(0-30.0)	SW846 8270C
4-Bromophenyl phenyl ether	94.6	(45.0- 115			SW846 8270C
	98.2	(45.0- 115	3.84	(0-30.0)	SW846 8270C
Hexachlorobenzene	92.0	(52.0- 107			SW846 8270C
	92.8	(52.0- 107	0.97	(0-30.0)	SW846 8270C
Pentachlorophenol	89.9	(25.0- 120			SW846 8270C
	88.8	(25.0- 120	1.14	(0-30.0)	SW846 8270C
Phenanthrene	87.0	(50.0- 110			SW846 8270C
	87.7	(50.0- 110	1.00	(0-30.0)	SW846 8270C
Anthracene	86.6	(55.0- 105			SW846 8270C
	87.3	(55.0- 105	1.00	(0-30.0)	SW846 8270C
Di-n-butyl phthalate	88.2	(55.0- 110			SW846 8270C
	90.6	(55.0- 110	2.79	(0-30.0)	SW846 8270C
Fluoranthene	79.3	(55.0- 115			SW846 8270C
	79.4	(55.0- 115	0.26	(0-30.0)	SW846 8270C

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXG51A6-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A220412-001 MXXG51A7-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Butyl benzyl phthalate	**97.0**	**(50.0- 125**			**SW846 8270C**
	97.0	**(50.0- 125**	**0.15**	**(0-30.0)**	**SW846 8270C**
Benzo(a)anthracene	**103**	**(50.0- 110**			**SW846 8270C**
	104	**(50.0- 110**	**0.81**	**(0-30.0)**	**SW846 8270C**
3,3'-Dichlorobenzidine	**41.6**	**(24.0- 101**			**SW846 8270C**
	46.5	**(24.0- 101**	**11.4**	**(0-30.0)**	**SW846 8270C**
Chrysene	**88.5**	**(55.0- 110**			**SW846 8270C**
	89.7	**(55.0- 110**	**1.52**	**(0-30.0)**	**SW846 8270C**
bis(2-Ethylhexyl) phthalate	**99.2**	**(45.0- 125**			**SW846 8270C**
	93.3	**(45.0- 125**	**4.57**	**(0-30.0)**	**SW846 8270C**
Di-n-octyl phthalate	**98.3**	**(40.0- 130**			**SW846 8270C**
	99.3	**(40.0- 130**	**1.09**	**(0-30.0)**	**SW846 8270C**
Benzo(b)fluoranthene	**91.7**	**(45.0- 115**			**SW846 8270C**
	90.9	**(45.0- 115**	**0.71**	**(0-30.0)**	**SW846 8270C**
Benzo(k)fluoranthene	**92.1**	**(45.0- 125**			**SW846 8270C**
	91.9	**(45.0- 125**	**0.03**	**(0-30.0)**	**SW846 8270C**
Benzo(a)pyrene	**90.8**	**(50.0- 110**			**SW846 8270C**
	90.7	**(50.0- 110**	**0.06**	**(0-30.0)**	**SW846 8270C**
Indeno(1,2,3-cd)pyrene	**117**	**(40.0- 120**			**SW846 8270C**
	114	**(40.0- 120**	**2.79**	**(0-30.0)**	**SW846 8270C**
Benzo(ghi)perylene	**110**	**(40.0- 125**			**SW846 8270C**
	106	**(40.0- 125**	**3.89**	**(0-30.0)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	84.9	(35.0- 105
	83.9	(35.0- 105
Phenol-d5	87.6	(40.0- 100
	88.3	(40.0- 100
Nitrobenzene-d5	90.2	(35.0- 100
	90.0	(35.0- 100
2-Fluorobiphenyl	91.3	(45.0- 105
	91.5	(45.0- 105
2,4,6-Tribromophenol	84.9	(35.0- 125
	84.2	(35.0- 125
Terphenyl-d14	89.8	(30.0- 125
	90.0	(30.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-006

GC Volatiles

Lot-Sample #...: F3A220413-001 **Work Order #...:** MXXHC1AJ **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13
Prep Date.....: 01/22/13 **Analysis Date..:** 01/23/13
Prep Batch #...: 3023037 **Analysis Time..:** 21:03
Dilution Factor: 1
% Moisture.....: 7.1 **Method.....:** SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Gasoline Range Organics	**0.0163 J**	**0.108**	**mg/kg**	**0.0108**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	98.7	(64.- 140)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

This sample has GC/FID characteristics for which reliable identification of a product could not be achieved.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXXD1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A230000-037
Prep Date.....: 01/22/13 **Analysis Time..:** 17:05
Analysis Date..: 01/23/13 **Prep Batch #...:** 3023037
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Gasoline Range Organics	ND	0.100	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	112	(64.0- 140)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXXD1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A230000-037
Prep Date.....: 01/22/13 **Analysis Date..:** 01/23/13
Prep Batch #...: 3023037 **Analysis Time..:** 17:39
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Gasoline Range Organics	**98.9**	**(83.0- 117**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	108	(64.0- 140

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXG51DA-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A220412-001 MXXG51DC-MSD
Date Sampled...: 01/21/13 14:30 **Date Received..:** 01/22/13
Prep Date.....: 01/22/13 **Analysis Date..:** 01/23/13
Prep Batch #...: 3023037 **Analysis Time..:** 18:47
Dilution Factor: 1 **% Moisture.....:** 9.4

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Gasoline Range Organics	**69.0**	**(29.0- 123**			**SW846 8015 MOD**
	68.7	**(29.0- 123**	**10.7**	**(0-30.0)**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	106	(64.0- 140
	100	(64.0- 140

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-006

GC Semivolatiles

Lot-Sample #...:	F3A220413-001	**Work Order #...:**	MXXHC1AH	**Matrix.....:**	SOLID
Date Sampled...:	01/21/13 15:15	**Date Received..:**	01/22/13		
Prep Date.....:	01/23/13	**Analysis Date..:**	01/23/13		
Prep Batch #...:	3023025	**Analysis Time..:**	18:10		
Dilution Factor:	4				
% Moisture.....:	7.1	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	**100 J,D**	**108**	**mg/kg**	**1.43**
Motor Oil Range Organics	**179 D**	**108**	**mg/kg**	**2.74**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	81.9	(52.- 112)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

The reported UNKOWN HYDROCARBON was quantified as diesel.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXVT1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A230000-025
Prep Date.....: 01/23/13 **Analysis Time..:** 15:01
Analysis Date..: 01/23/13 **Prep Batch #...:** 3023025
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	ND	25.0	mg/kg	SW846 8015 MOD
Motor Oil Range Organics	ND	25.0	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	76.2	(52.0- 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXVT1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A230000-025
Prep Date.....: 01/23/13 **Analysis Date..:** 01/23/13
Prep Batch #...: 3023025 **Analysis Time..:** 15:28
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Diesel Range Organics	**77.8**	**(50.0- 95.**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	81.8	(52.0- 112

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXG61A5-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A220412-002 MXXG61A6-MSD
Date Sampled...: 01/21/13 14:45 **Date Received..:** 01/22/13
Prep Date.....: 01/23/13 **Analysis Date..:** 01/23/13
Prep Batch #...: 3023025 **Analysis Time..:** 16:49
Dilution Factor: 4 **% Moisture.....:** 9.5

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Diesel Range Organics	**67.7**	**(20.0- 127**			**SW846 8015 MOD**
	73.6	**(20.0- 127**	**4.15**	**(0-30.0)**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	80.8	(52.0- 112
	85.8	(52.0- 112

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-006

GC Semivolatiles

Lot-Sample #...: F3A220413-001 **Work Order #...:** MXXHC2AF **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13
Prep Date.....: 01/24/13 **Analysis Date..:** 01/24/13
Prep Batch #...: 3024021 **Analysis Time..:** 18:38
Dilution Factor: 1
% Moisture.....: 7.1 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aldrin	ND	1.83	ug/kg	0.329
alpha-BHC	**0.339 J,PG**	**1.83**	**ug/kg**	**0.199**
beta-BHC	ND	1.83	ug/kg	0.323
delta-BHC	ND	1.83	ug/kg	0.261
gamma-BHC (Lindane)	ND	1.83	ug/kg	0.365
Chlordane (technical)	ND	18.3	ug/kg	4.02
4,4'-DDD	ND	1.83	ug/kg	0.238
4,4'-DDE	ND	1.83	ug/kg	0.420
4,4'-DDT	ND	1.83	ug/kg	0.676
Dieldrin	ND	1.83	ug/kg	0.232
Endosulfan I	ND	1.83	ug/kg	0.614
Endosulfan II	ND	1.83	ug/kg	0.253
Endosulfan sulfate	ND	1.83	ug/kg	0.366
Endrin	ND	1.83	ug/kg	0.170
Endrin aldehyde	ND	1.83	ug/kg	0.419
Endrin ketone	ND	1.83	ug/kg	0.449
Heptachlor	ND	1.83	ug/kg	0.220
Heptachlor epoxide	ND	1.83	ug/kg	0.462
Methoxychlor	ND	3.55	ug/kg	0.774
Toxaphene	ND	72.1	ug/kg	16.3

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	76.5	(70.- 125)
Decachlorobiphenyl	84.5	(55.- 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXX441AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A240000-021
Prep Date.....: 01/24/13 **Analysis Time..:** 15:13
Analysis Date..: 01/24/13 **Prep Batch #...:** 3024021
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aldrin	ND	1.70	ug/kg	SW846 8081A
alpha-BHC	ND	1.70	ug/kg	SW846 8081A
beta-BHC	ND	1.70	ug/kg	SW846 8081A
delta-BHC	ND	1.70	ug/kg	SW846 8081A
gamma-BHC (Lindane)	ND	1.70	ug/kg	SW846 8081A
Chlordane (technical)	ND	17.0	ug/kg	SW846 8081A
4,4'-DDD	ND	1.70	ug/kg	SW846 8081A
4,4'-DDE	ND	1.70	ug/kg	SW846 8081A
4,4'-DDT	ND	1.70	ug/kg	SW846 8081A
Dieldrin	ND	1.70	ug/kg	SW846 8081A
Endosulfan I	ND	1.70	ug/kg	SW846 8081A
Endosulfan II	ND	1.70	ug/kg	SW846 8081A
Endosulfan sulfate	ND	1.70	ug/kg	SW846 8081A
Endrin	ND	1.70	ug/kg	SW846 8081A
Endrin aldehyde	ND	1.70	ug/kg	SW846 8081A
Endrin ketone	ND	1.70	ug/kg	SW846 8081A
Heptachlor	ND	1.70	ug/kg	SW846 8081A
Heptachlor epoxide	ND	1.70	ug/kg	SW846 8081A
Methoxychlor	ND	3.30	ug/kg	SW846 8081A
Toxaphene	ND	67.0	ug/kg	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	95.9	(70.0- 125)
Decachlorobiphenyl	92.8	(55.0- 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXX441AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A240000-021
Prep Date.....: 01/24/13 **Analysis Date..:** 01/24/13
Prep Batch #...: 3024021 **Analysis Time..:** 15:34
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
alpha-BHC	**85.6**	**(60.0- 125**	**SW846 8081A**
beta-BHC	**84.2**	**(60.0- 125**	**SW846 8081A**
delta-BHC	**91.0**	**(55.0- 130**	**SW846 8081A**
gamma-BHC (Lindane)	**85.0**	**(60.0- 125**	**SW846 8081A**
Heptachlor	**78.6**	**(50.0- 140**	**SW846 8081A**
Aldrin	**88.3**	**(45.0- 140**	**SW846 8081A**
Heptachlor epoxide	**87.9**	**(65.0- 130**	**SW846 8081A**
Endosulfan I	**74.7**	**(15.0- 135**	**SW846 8081A**
Dieldrin	**89.4**	**(65.0- 125**	**SW846 8081A**
4,4'-DDE	**89.8**	**(70.0- 125**	**SW846 8081A**
Endrin	**90.7**	**(60.0- 135**	**SW846 8081A**
Endosulfan II	**79.8**	**(35.0- 140**	**SW846 8081A**
4,4'-DDD	**92.5**	**(30.0- 135**	**SW846 8081A**
Endosulfan sulfate	**89.2**	**(60.0- 135**	**SW846 8081A**
4,4'-DDT	**95.7**	**(45.0- 140**	**SW846 8081A**
Methoxychlor	**94.1**	**(55.0- 145**	**SW846 8081A**
Endrin ketone	**90.2**	**(65.0- 135**	**SW846 8081A**
Endrin aldehyde	**104**	**(35.0- 145**	**SW846 8081A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	96.6	(70.0- 125
Decachlorobiphenyl	93.3	(55.0- 130

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXHC1CD-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A220413-001 MXXHC1CE-MSD
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13
Prep Date.....: 01/24/13 **Analysis Date..:** 01/24/13
Prep Batch #...: 3024021 **Analysis Time..:** 17:57
Dilution Factor: 1 **% Moisture.....:** 7.1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
alpha-BHC	92.2	(60.0- 125			SW846 8081A
	68.9	(60.0- 125	28.4	(0-30.0)	SW846 8081A
beta-BHC	259 a	(60.0- 125			SW846 8081A
	125 p	(60.0- 125	69.4	(0-30.0)	SW846 8081A
delta-BHC	87.7	(55.0- 130			SW846 8081A
	82.1	(55.0- 130	6.73	(0-30.0)	SW846 8081A
gamma-BHC (Lindane)	92.6	(60.0- 125			SW846 8081A
	67.0 p	(60.0- 125	32.1	(0-30.0)	SW846 8081A
Heptachlor	79.4	(50.0- 140			SW846 8081A
	82.7	(50.0- 140	3.97	(0-30.0)	SW846 8081A
Aldrin	79.2	(45.0- 140			SW846 8081A
	66.1	(45.0- 140	18.1	(0-30.0)	SW846 8081A
Heptachlor epoxide	562 a	(65.0- 130			SW846 8081A
	206 a,p	(65.0- 130	92.7	(0-30.0)	SW846 8081A
Endosulfan I	68.1	(15.0- 135			SW846 8081A
	53.7	(15.0- 135	23.7	(0-30.0)	SW846 8081A
Dieldrin	84.3	(65.0- 125			SW846 8081A
	68.8	(65.0- 125	20.3	(0-30.0)	SW846 8081A
4,4'-DDE	80.9	(70.0- 125			SW846 8081A
	67.9 a	(70.0- 125	17.6	(0-30.0)	SW846 8081A
Endrin	88.6	(60.0- 135			SW846 8081A
	68.5	(60.0- 135	25.7	(0-30.0)	SW846 8081A
Endosulfan II	84.0	(35.0- 140			SW846 8081A
	58.7 p	(35.0- 140	35.5	(0-30.0)	SW846 8081A
4,4'-DDD	95.9	(30.0- 135			SW846 8081A
	70.8	(30.0- 135	30.1	(0-30.0)	SW846 8081A
Endosulfan sulfate	82.8	(60.0- 135			SW846 8081A
	81.3	(60.0- 135	2.00	(0-30.0)	SW846 8081A
4,4'-DDT	83.6	(45.0- 140			SW846 8081A
	80.2	(45.0- 140	4.27	(0-30.0)	SW846 8081A
Methoxychlor	119	(55.0- 145			SW846 8081A
	87.1 p	(55.0- 145	31.3	(0-30.0)	SW846 8081A
Endrin ketone	95.9	(65.0- 135			SW846 8081A
	72.1	(65.0- 135	28.4	(0-30.0)	SW846 8081A
Endrin aldehyde	97.2	(35.0- 145			SW846 8081A
	89.9	(35.0- 145	7.84	(0-30.0)	SW846 8081A

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXHC1CD-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A220413-001 MXXHC1CE-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	80.1	(70.0- 125
	72.3	(70.0- 125
Decachlorobiphenyl	97.7	(55.0- 130
	84.5	(55.0- 130

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

p Relative percent difference (RPD) is outside stated control limits.

a Spiked analyte recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-006

GC Semivolatiles

Lot-Sample #...: F3A220413-001 **Work Order #...:** MXXHC1AG **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13
Prep Date.....: 01/23/13 **Analysis Date..:** 01/24/13
Prep Batch #...: 3023026 **Analysis Time..:** 15:21
Dilution Factor: 1
% Moisture.....: 7.1 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	35.5	ug/kg	9.39
Aroclor 1221	ND	35.5	ug/kg	9.39
Aroclor 1232	ND	35.5	ug/kg	9.39
Aroclor 1242	ND	35.5	ug/kg	9.39
Aroclor 1248	ND	35.5	ug/kg	9.39
Aroclor 1254	ND	35.5	ug/kg	5.92
Aroclor 1260	**8.06 J**	**35.5**	**ug/kg**	**5.92**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	99.2	(60.- 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXV51AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A230000-026
Prep Date.....: 01/23/13 **Analysis Time..:** 13:13
Analysis Date..: 01/24/13 **Prep Batch #...:** 3023026
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	33.0	ug/kg	SW846 8082
Aroclor 1221	ND	33.0	ug/kg	SW846 8082
Aroclor 1232	ND	33.0	ug/kg	SW846 8082
Aroclor 1242	ND	33.0	ug/kg	SW846 8082
Aroclor 1248	ND	33.0	ug/kg	SW846 8082
Aroclor 1254	ND	33.0	ug/kg	SW846 8082
Aroclor 1260	ND	33.0	ug/kg	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	94.7	(60.0- 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXV51AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A230000-026
Prep Date.....: 01/23/13 **Analysis Date..:** 01/24/13
Prep Batch #...: 3023026 **Analysis Time..:** 13:31
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Aroclor 1016	**100**	**(40.0- 140**	**SW846 8082**
Aroclor 1260	**106**	**(60.0- 130**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	98.2	(60.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A220413 **Work Order #...:** MXXG71A5-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A220412-003 MXXG71A6-MSD
Date Sampled...: 01/21/13 15:00 **Date Received..:** 01/22/13
Prep Date.....: 01/23/13 **Analysis Date..:** 01/24/13
Prep Batch #...: 3023026 **Analysis Time..:** 14:45
Dilution Factor: 1 **% Moisture.....:** 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**56.5**	**(40.0- 140**			**SW846 8082**
	107 p	**(40.0- 140**	**61.1**	**(0-30.0)**	**SW846 8082**
Aroclor 1260	**88.6**	**(60.0- 130**			**SW846 8082**
	83.5	**(60.0- 130**	**5.50**	**(0-30.0)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	694 *	(60.0- 125
	423 *	(60.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

* Surrogate recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-006

TOTAL Metals

Lot-Sample #...: F3A220413-001 **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13
% Moisture.....: 7.1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3023022						
Silver	**6.3**	**0.22**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AX**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.026	
Arsenic	**11.0**	**1.1**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AL**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.28	
Barium	**255**	**2.2**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AM**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.10	
Beryllium	**0.061 B**	**0.11**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AN**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.028	
Cadmium	**20.5**	**0.065**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AP**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.017	
Cobalt	**8.8**	**0.22**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AQ**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.046	
Chromium	**163 E**	**2**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1A3**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.48	
Copper	**67.3**	**1.1**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AR**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.11	
Molybdenum	**5.0**	**0.54**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AU**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.13	
Nickel	**38.9**	**0.54**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AV**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.12	
Lead	**14.5**	**0.32**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AT**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.11	
Antimony	**1.7 N**	**0.54**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1A4**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.18	
Selenium	**0.22 B**	**0.54**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1AW**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.17	

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Tetra Tech EC Inc

Client Sample ID: 05-006

TOTAL Metals

Lot-Sample #...: F3A220413-001 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium	ND	0.48	mg/kg	SW846 6020	01/23-01/31/13	MXXHC1A0
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.16	
Vanadium	**30.6 E**	**1.1**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1A1**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 0.79	
Zinc	**37.4 E**	**2.2**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXHC1A2**
		Dilution Factor: 1		Analysis Time..: 02:40	MDL.....: 1.4	

Prep Batch #...: 3025023

Mercury	**0.054**	**0.043**	**mg/kg**	**SW846 7471A**	**01/25/13**	**MXXHC1AK**
		Dilution Factor: 1		Analysis Time..: 12:53	MDL.....: 0.012	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

E Matrix interference.

N Spiked analyte recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-006

TCLP Metals

Lot-Sample #...: F3A220413-001 **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13
Leach Date.....: 01/22/13 **Leach Batch #..:** P302202

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3023052						
Lead	ND	250	ug/L	SW846 6010B	01/23-01/25/13	MXXHC1A7
		Dilution Factor: 1		Analysis Time..: 14:00	MDL.....: 3.2	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

Tetra Tech EC Inc

Client Sample ID: 05-006

STLC Metals

Lot-Sample #...: F3A220413-002 **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13
Leach Date.....: 01/22/13 **Leach Batch #..:** P302201

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3025042						
Cadmium	**448**	**125**	**ug/L**	**SW846 6010B**	**01/25-01/28/13**	**MXXHK1AC**
		Dilution Factor: 5		Analysis Time..: 10:36	MDL.....: 22.8	
Chromium	**2260**	**625**	**ug/L**	**SW846 6010B**	**01/25-01/28/13**	**MXXHK1AD**
		Dilution Factor: 5		Analysis Time..: 10:36	MDL.....: 78.5	
Copper	**508 B**	**625**	**ug/L**	**SW846 6010B**	**01/25-01/28/13**	**MXXHK1AJ**
		Dilution Factor: 5		Analysis Time..: 10:36	MDL.....: 114	
Lead	**210 B**	**2500**	**ug/L**	**SW846 6010B**	**01/25-01/28/13**	**MXXHK1AF**
		Dilution Factor: 5		Analysis Time..: 10:36	MDL.....: 31.8	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3A230000-022 **Prep Batch #...:** 3023022						
Antimony	ND	0.5	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AT
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Arsenic	ND	1	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AA
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Barium	ND	2	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AC
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Beryllium	ND	0.1	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AD
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Cadmium	ND	0.06	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AE
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Chromium	ND	1.9	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AR
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Cobalt	ND	0.2	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AF
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Copper	ND	1	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AG
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Lead	ND	0.3	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AH
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Molybdenum	ND	0.5	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AJ
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Nickel	ND	0.5	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AK
		Dilution Factor: 1				
		Analysis Time..: 01:41				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.5	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AL
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Silver	**0.067 B**	**0.2**	**mg/kg**	**SW846 6020**	**01/23-01/31/13**	**MXXVW1AM**
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Thallium	ND	0.45	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AN
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Vanadium	ND	1	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AP
		Dilution Factor: 1				
		Analysis Time..: 01:41				
Zinc	ND	2	mg/kg	SW846 6020	01/23-01/31/13	MXXVW1AQ
		Dilution Factor: 1				
		Analysis Time..: 01:41				

MB Lot-Sample #: F3A250000-023 **Prep Batch #...:** 3025023

Mercury	ND	0.04	mg/kg	SW846 7471A	01/25/13	MX0D11AA
		Dilution Factor: 1				
		Analysis Time..: 12:34				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3A220000-049		**Prep Batch #...:** 3023052				
Leach Date.....: 01/22/13		**Leach Batch #..:** P302202				
Lead	ND	250	ug/L	SW846 6010B	01/23-01/25/13	MXXLG1AA
		Dilution Factor: 1				
		Analysis Time..: 13:52				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

STLC Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3A220000-044 **Prep Batch #...:** 3025042						
Leach Date.....: 01/22/13 **Leach Batch #..:** P302201						
Cadmium	ND	125	ug/L	SW846 6010B	01/25-01/28/13	MXXKF1AC
		Dilution Factor: 5				
		Analysis Time..: 10:13				
Chromium	ND	625	ug/L	SW846 6010B	01/25-01/28/13	MXXKF1AA
		Dilution Factor: 5				
		Analysis Time..: 10:13				
Copper	ND	625	ug/L	SW846 6010B	01/25-01/28/13	MXXKF1AE
		Dilution Factor: 5				
		Analysis Time..: 10:13				
Lead	ND	2500	ug/L	SW846 6010B	01/25-01/28/13	MXXKF1AD
		Dilution Factor: 5				
		Analysis Time..: 10:13				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3A230000-022 **Prep Batch #...:** 3023022					
Arsenic	101	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1AU
		Dilution Factor: 1	Analysis Time..: 01:47		
Barium	100	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1AV
		Dilution Factor: 1	Analysis Time..: 01:47		
Beryllium	104	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1AW
		Dilution Factor: 1	Analysis Time..: 01:47		
Cadmium	100	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1AX
		Dilution Factor: 1	Analysis Time..: 01:47		
Cobalt	99	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1A0
		Dilution Factor: 1	Analysis Time..: 01:47		
Copper	95	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1A1
		Dilution Factor: 1	Analysis Time..: 01:47		
Lead	95	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1A2
		Dilution Factor: 1	Analysis Time..: 01:47		
Molybdenum	100	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1A3
		Dilution Factor: 1	Analysis Time..: 01:47		
Nickel	99	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1A4
		Dilution Factor: 1	Analysis Time..: 01:47		
Selenium	98	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1A5
		Dilution Factor: 1	Analysis Time..: 01:47		
Silver	95	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1A6
		Dilution Factor: 1	Analysis Time..: 01:47		
Thallium	98	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1A7
		Dilution Factor: 1	Analysis Time..: 01:47		
Vanadium	96	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1A8
		Dilution Factor: 1	Analysis Time..: 01:47		
Zinc	96	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1A9
		Dilution Factor: 1	Analysis Time..: 01:47		

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	95	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1CA
		Dilution Factor: 1	Analysis Time..: 01:47		
Antimony	102	(80 - 120)	SW846 6020	01/23-01/31/13	MXXVW1CC
		Dilution Factor: 1	Analysis Time..: 01:47		

LCS Lot-Sample#: F3A250000-023 **Prep Batch #...:** 3025023

Mercury	100	(80 - 120)	SW846 7471A	01/25/13	MX0D11AC
		Dilution Factor: 1	Analysis Time..: 12:36		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3A230000-052 **Prep Batch #...:** 3023052					
Lead	98	(80 - 120)	SW846 6010B	01/23-01/25/13	MXX1W1AA
		Dilution Factor: 1	Analysis Time..: 13:56		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

STLC Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3A250000-042 **Prep Batch #...:** 3025042					
Cadmium	102	(80 - 120)	SW846 6010B	01/25-01/28/13	MX0FD1AA
		Dilution Factor: 5	Analysis Time..: 10:17		
Chromium	93	(80 - 120)	SW846 6010B	01/25-01/28/13	MX0FD1AC
		Dilution Factor: 5	Analysis Time..: 10:17		
Copper	101	(80 - 120)	SW846 6010B	01/25-01/28/13	MX0FD1AE
		Dilution Factor: 5	Analysis Time..: 10:17		
Lead	99	(80 - 120)	SW846 6010B	01/25-01/28/13	MX0FD1AD
		Dilution Factor: 5	Analysis Time..: 10:17		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID
Date Sampled...: 01/21/13 14:30 **Date Received..:** 01/22/13

MS Lot-Sample #: F3A220412-001 **Prep Batch #...:** 3023022
% Moisture.....: 9.4

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Antimony	54 N	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51C8
	50 N	(80 - 120)	7.1	(0-20)	SW846 6020	01/23-01/31/13	MXXG51C9
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Arsenic	108	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51A8
	102	(80 - 120)	5.7	(0-20)	SW846 6020	01/23-01/31/13	MXXG51A9
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Barium	115	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51CA
	110	(80 - 120)	3.4	(0-20)	SW846 6020	01/23-01/31/13	MXXG51CC
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Beryllium	109	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51CD
	106	(80 - 120)	2.9	(0-20)	SW846 6020	01/23-01/31/13	MXXG51CE
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Cadmium	104	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51CF
	104	(80 - 120)	0.14	(0-20)	SW846 6020	01/23-01/31/13	MXXG51CG
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Chromium	98	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51C6
	91	(80 - 120)	4.8	(0-20)	SW846 6020	01/23-01/31/13	MXXG51C7
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Cobalt	106	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51CH
	101	(80 - 120)	4.6	(0-20)	SW846 6020	01/23-01/31/13	MXXG51CJ
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Copper	102	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51CK
	97	(80 - 120)	4.7	(0-20)	SW846 6020	01/23-01/31/13	MXXG51CL
		Dilution Factor: 1					
		Analysis Time..: 02:07					

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID
Date Sampled...: 01/21/13 14:30 **Date Received..:** 01/22/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Lead	103	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51CM
	101	(80 - 120)	1.7	(0-20)	SW846 6020	01/23-01/31/13	MXXG51CN
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Molybdenum	98	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51CP
	96	(80 - 120)	1.9	(0-20)	SW846 6020	01/23-01/31/13	MXXG51CQ
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Nickel	110	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51CR
	101	(80 - 120)	6.2	(0-20)	SW846 6020	01/23-01/31/13	MXXG51CT
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Selenium	104	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51CU
	100	(80 - 120)	4.8	(0-20)	SW846 6020	01/23-01/31/13	MXXG51CV
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Silver	97	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51CW
	101	(80 - 120)	3.9	(0-20)	SW846 6020	01/23-01/31/13	MXXG51CX
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Thallium	104	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51C0
	102	(80 - 120)	2.2	(0-20)	SW846 6020	01/23-01/31/13	MXXG51C1
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Vanadium	98	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51C2
	93	(80 - 120)	3.5	(0-20)	SW846 6020	01/23-01/31/13	MXXG51C3
		Dilution Factor: 1					
		Analysis Time..: 02:07					
Zinc	106	(80 - 120)			SW846 6020	01/23-01/31/13	MXXG51C4
	100	(80 - 120)	3.5	(0-20)	SW846 6020	01/23-01/31/13	MXXG51C5
		Dilution Factor: 1					
		Analysis Time..: 02:07					

MS Lot-Sample #: F3A220412-001 **Prep Batch #...:** 3025023

% Moisture.....: 9.4

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID
Date Sampled...: 01/21/13 14:30 **Date Received..:** 01/22/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Mercury	93	(80 - 120)			SW846 7471A	01/25/13	MXXG51DD
	102	(80 - 120)	4.9	(0-20)	SW846 7471A	01/25/13	MXXG51DE

Dilution Factor: 1
Analysis Time..: 12:45

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F3A220413-001 **Prep Batch #...:** 3023052							
Leach Date.....: 01/22/13 **Leach Batch #..:** P302202							
Lead	95	(80 - 120)			SW846 6010B	01/23-01/25/13	MXXHC1CA
	94	(80 - 120)	0.76	(0-20)	SW846 6010B	01/23-01/25/13	MXXHC1CC

Dilution Factor: 1
Analysis Time..: 14:07

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

STLC Metals

Client Lot #...: F3A220413 **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F3A220413-002 **Prep Batch #...:** 3025042							
Leach Date.....: 01/22/13 **Leach Batch #..:** P302201						**% Moisture.....:**	
Cadmium	100	(80 - 120)			SW846 6010B	01/25-01/28/13	MXXHK1AK
	104	(80 - 120)	3.6	(0-20)	SW846 6010B	01/25-01/28/13	MXXHK1AL
		Dilution Factor: 5					
		Analysis Time..: 10:43					
Chromium	99	(80 - 120)			SW846 6010B	01/25-01/28/13	MXXHK1AM
	95	(80 - 120)	2.8	(0-20)	SW846 6010B	01/25-01/28/13	MXXHK1AN
		Dilution Factor: 5					
		Analysis Time..: 10:43					
Copper	98	(80 - 120)			SW846 6010B	01/25-01/28/13	MXXHK1AR
	102	(80 - 120)	3.9	(0-20)	SW846 6010B	01/25-01/28/13	MXXHK1AT
		Dilution Factor: 5					
		Analysis Time..: 10:43					
Lead	97	(80 - 120)			SW846 6010B	01/25-01/28/13	MXXHK1AP
	100	(80 - 120)	3.5	(0-20)	SW846 6010B	01/25-01/28/13	MXXHK1AQ
		Dilution Factor: 5					
		Analysis Time..: 10:43					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Tetra Tech EC Inc

Client Sample ID: 05-006

General Chemistry

Lot-Sample #...: F3A220413-001 **Work Order #...:** MXXHC **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 01/22/13
% Moisture.....: 7.1

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**7.13**	**0.100**	**%**	**MCAWW 160.3 MOD**	**01/23-01/24/13**	**3023012**

Dilution Factor: 1 Analysis Time..: 00:00 MDL.....:

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F3A220413 **Work Order #...:** MXXG5-SMP MXXG5-DUP **Matrix.....:** SOLID

Date Sampled...: 01/21/13 14:30 **Date Received..:** 01/22/13

% Moisture.....: 9.4

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	F3A220412-001	
	9.40	9.56	%	1.69	(0-30.0	MCAWW 160.3 MOD	01/23-01/24/13	3023012

Dilution Factor: 1 Analysis Time..: 00:00

F3A220413 CLIENT ANALYSIS SUMMARY

Storage Loc: 2-253,ENC

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440005 Alameda CTO05

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS In LOT: 2

Date Received: 2013-01-22

Analytical Due Date: 2013-01-28

Report Due Date: 2013-01-29

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

*****Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)**

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/soils must be extracted within 7/14 days per client SAP (regardless of EPA method).

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	05-006			2013-01-21 / 1515	MXXHC	SOLID

SAMPLE COMMENTS:

XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	QJ	SW846	8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
NI	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
AG	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
CU	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
CR	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
CO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
CD	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
BE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
BA	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
AS	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
MO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
ZN	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
HG	O9	SW846	7471A	SOLID, 7471, Mercury 2 of 2	70	METALS, TOTAL (Method Exclusive) - Solids	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
PB	QO	SW846	6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	QL	SW846	8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N	
XX	QK	SW846	8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N	
XX	ZV		RAD SCREEN	SOLID, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT: A	WRK LOC	06		
XX	ZZ	NONE	NONE	SOLID, TCLP Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06		
XX	WM	MCAW W	160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
2	05-006			2013-01-21 / 1515	MXXHK	SOLID

SAMPLE COMMENTS:

CD	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CR	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CU	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
PB	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06

F3A220413

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-253

Date Received: 2013-01-22

Analytical Due Date: 2013-01-28

Report Due Date: 2013-01-29

Report Type: X

EDD Code: 00

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440005 Alameda CTO05

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS in LOT: 2

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

*****Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)**

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/soils must be extracted within 7/14 days per client SAP (regardless of EPA method).

XX	**ZZ**	NONE	NONE	SOLID, STLC Non-Volatile Extraction	**88**	NO SAMPLE PREPARATION PERFORMED / DIRECT	**01**	STANDARD TEST SET	PROT: B	WRK LOC	06

TETRA TECH

Chain-of Custody Record

NUMBER: 50006

Project Name	Alameda Site 17, CTO 05
PO Number	1036773-14
Project Location	Alameda, CA
Project Number	106-4044-0005
Sampler Name	V. Richards / W. Solorzano
Airbill Number	794567833205
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6010 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-006	1/21/13	1515	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-IWS29-1	/	/	N

Relinquished by: (signature)	Date: 1/21/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP- Pb
Company: TT/FedEx	Time: 1530	Company	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Industrial Waste

IWS29-1

50006

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50006

Project Name	Alameda Site 17, CTO 05
PO Number	1036773-14
Project Location	Alameda, CA
Project Number	106-4044-0005
Sampler Name	V. Richards / W. Solorzano
Airbill Number	7945 1578 3205
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-006	1/21/13	1515	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-IWS29-1	/	/	N

Relinquished by: (signature)	Date: 1/21/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom
Company: TT/FedEx	Time: 1530	Company:	
Relinquished by: (signature)	Date: 1-22-13	Received by (signature)	Composite Discription:
Company:	Time: 0900	Company: TA STL	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Industrial Waste

IWS29-1

50006

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

CUR Form #: 3 0 5

Lot #(s): F3A220412 ↓ 413

CONDITION UPON RECEIPT FORM

Client: Tetra Tech Alameda

Quote No: 90022

COC/RFA No: 30081; 30082; 30084; 50006

Initiated By: [illegible] Date: 1-22-13 Time: 0900

Shipping Information

Shipper: FedEx UPS DHL Courier Client Other: _____ Multiple Packages: Y N

Shipping # (s):*

1. 7945 6578 3205
2.
3.
4.
5.
6.
7.
8.
9.
10.

Sample Temperature (s):**

1. 2
2.
3.
4.
5.
6.
7.
8.
9.
10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	Y N	Are there custody seals present on the cooler?	8.	Y N	Are there custody seals present on bottles?
2.	Y N N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N N/A	Do custody seals on bottles appear to be tampered with?
3.	Y N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N N/A	Was sample received with proper pH[1]? (If not, make note below)
4.	Y N	Sample received with Chain of Custody?	11.	Y N N/A	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	Y N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	Y N	Sample received in proper containers?
6.	Y N	Was sample received broken?	13.	Y N N/A	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	Y N	Is sample volume sufficient for analysis?	14.	Y N N/A	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes:

Corrective Action:

☐ Client Contact Name: _____ Informed by: _____

☐ Sample(s) processed "as is"

☐ Sample(s) on hold until: _____ If released, notify: _____

Project Management Review: [illegible] Date: 1/22/13

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004 rev13, REVISED 05/27/11 \\Slsvr01\QA\FORMS\ST-LOUIS\ADMIN\Admin-0004 CUR.doc

ENTERED

TETRA TECH

Chain-of Custody Record

NUMBER: 50003

Project Name	Alameda Site 17, CTO 05
PO Number	1036773-14
Project Location	Alameda, CA
Project Number	106-4044-0005
Sampler Name	V. Richards / W. Solorzano
Airbill Number	7945 1530 0707
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	F3A150406 1-22

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-002A	1/14/13	1400	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP - Pb
Company: Tetra tech / FedEX	Time: 1445	Company	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

A-Line Sediment

50003

TETRA TECH INC

Chain-of Custody Record

NUMBER: 50002

ENTERED

Project Name	Alameda Site 17, CTO 05
PO Number	1036773-14
Project Location	Alameda, CA
Project Number	106-4044-0005
Sampler Name	V. Richards / W. Solorzano
Airbill Number	7945 1530 0707
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	F3A150406

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-003	1/14/13	1410	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-B	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP-Pb
Company: Tetra tech/ Fedex	Time: 1445	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

B-Line Sediment

50002

TETRA TECH

Chain-of Custody Record

NUMBER: 50004

ENTERED

Project Name	Alameda Site 17, CTO 05
PO Number	1036773-14
Project Location	Alameda, CA
Project Number	106-4044-0005
Sampler Name	V. Richards / W. Solorzano
Airbill Number	7945 1630 0707
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	F3A150406

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-004	1/14/13	1420	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-MH5A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP - Pb.
Company: Tetra tech/Pedex	Time: 1445	Company	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

MH5A Sediment

Pad

50004

TETRA TECH

Chain-of Custody Record

NUMBER: 50005

ENTERED

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945153007 07
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022
Laboratory Name: Test America St. Louis	Laboratory ID: F3A150406

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-005	1/14/13	1430	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-MH2A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP - Pb
Company: TT/Fedex	Time: 1445	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: MH2A Sediment cells

50005

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 40440005

Alameda CTO05

Lot #: F3A150406

Sabina Sudoko

Tetra Tech EC Inc
17885 Von Karman Ave
Ste 500
Irvine, CA 92614

TESTAMERICA LABORATORIES, INC.

Erika Starman
Project Manager

January 23, 2013

13715 Rider Trail North Earth City, MO 63045 **tel** 314.298.8566 **fax** 314.298.8757 **www.testamericainc.com**

Case Narrative
LOT NUMBER: F3A150406

This report contains the analytical results for the eight samples received under chain of custody by TestAmerica St. Louis on January 15, 2013. These samples are associated with your Alameda CTO05 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted on the following page.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

This report shall not be reproduced, except in full, without the written approval of the laboratory.

RPD and RER results that are outside QC limits for non-detected analytes are statistically invalid. Non-detect results were duplicated, and the RPD/RER can be ignored.

Sample receiving issues are noted on the CUR form and written communications pertaining to these issues are included in the CoC section of the report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. Ra-226 analysis by gamma spectroscopy is performed on an as-received basis unless sample containers were received cracked or broken. Analysis parameters for cracked or broken samples will be listed in the narrative.

Ra-226 results analyzed by method EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on samples in this data set. Specific methods employed are documented on the batch extraction logs.

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

Volatile Organic Compounds by GC/MS (SW846 8260B)

Batch 3016017
The surrogate recovery for 4-BFB is outside the upper QC limit, indicating a potential positive bias. There were no target analytes associated with this surrogate observed above the reporting limit in the sample; therefore the sample data was not adversely affected by this excursion.

The internal standard(s) recovery is outside the lower QC limit, indicating a potential positive bias. There were no target analytes associated with this internal standard observed above the reporting limit in the sample; therefore the sample data was not adversely affected by this excursion.

Affected Samples:
F3A150406 (2): 05-003
F3A150406 (3): 05-004

Volatile Petroleum Hydrocarbons (SW846 8015 MOD)

Batch 3016025
Sample exhibited hydrocarbons peaks in the Gasoline chromatography range. The sample pattern does not match Gasoline which may be attributed to degradation or indicative of the presence an unknown hydrocarbon.

Semivolatile Organic Compounds by GC/MS (SW846 8270C)

Batch 3016016
N-Nitrosodiphenylamine and Hexachlorocyclopentadiene recovered high (outside DoD criteria) in the ICV giving these compounds a potential high bias in the samples associated with this ICV.

3 & 4-Methylphenol recovered low (outside DoD criteria) in the ICV giving this compound a potential low bias in the samples associated with this ICV.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004
F3A150406 (4): 05-005

PCBs by SW-846 (SW846 8082)

Batch 3016020
The sample surrogate recovery for DCB is outside the upper QC limits. The surrogate excursion is confirmed by the MS/MSD, which also have an elevated surrogate recovery.

Affected Samples:
F3A150406 (3): 05-004

The %D between the primary and secondary column result for Aroclor 1254 is greater than 40%. SW method 8000C prescribes reporting the lower of the two column results in the absence of chromatographic anomalies observed on the column yielding the lower result. The higher result is reported, due to DOD QSM requirements.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003

The SW-846 method 8082 requires 3-5 peaks be used for PCB quantitation. Due to the presence of multiple aroclors or matrix interference in the sample, only 3-4 peaks were used for quantitation.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004

Organochlorine Pesticides (SW846 8081A)

Batch 3016021
For the Toxaphene cal, we have not been able to find a second vendor with a suitable compatible standard. Therefore the ICV is from the same vendor but from a different lot. The lab will continue to look for a compatible second vendor.

The closing CCV recovery was outside the lower QC limit (greater than 20% D) for Toxaphene on the A column; Toxaphene, 4,4'-DDT, Endrin aldehyde, and surrogate DCB indicating a potential low bias for those analytes in the samples associated with this CCV. Samples were re-analyzed with similar CCV failure indicating matrix interference present in the samples.

The MSD recovery for 4,4'-DDE, and Heptachlor epoxide is outside the established QC limits. The RPD is within method acceptance criteria indicating possible matrix interference. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004
F3A150406 (4): 05-005

The %D between the primary and secondary column result for -001: Dieldrin; -002 and -003: 4,4'-DDE and 4,4'-DDT is greater than 40%. SW method 8000C prescribes reporting the lower of the two column results in the absence of chromatographic anomalies observed on the column yielding the lower result. The lower result is reported.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004

Sample surrogate recovery for DCB is outside established QC limits. This excursion is attributed to a matrix interference which is physically evident in the sample. The sample extract was golden in color and there is chromatographic evidence of interference.

Affected Samples:
F3A150406 (3): 05-004

The sample was analyzed at a dilution due to high concentrations of target analytes. The reporting limit has been adjusted only for those targets reported from the dilution run.

Affected Samples:
F3A150406 (2): 05-003

Extractable Petroleum Hydrocarbons DRO (SW846 8015 MOD)

Batch 3016019
The sample was analyzed at a dilution due to high concentrations of target analytes. The sample extract was brown which analyzed undiluted has historically caused instrumentation problems. The reporting limit has been adjusted for the dilution since no analysis at a lesser dilution was performed.

Affected Samples:
F3A150406 (1): 05-002A

The samples exhibited hydrocarbons peaks in the Diesel chromatography range. The sample pattern does not match Diesel which may be indicative of the presence of an unknown hydrocarbon.

Affected Samples:
F3A150406 (2): 05-003
F3A150406 (3): 05-004

The samples were analyzed at a dilution due to high concentrations of target analytes. The sample extracts were dark and oily which analyzed undiluted has historically caused instrumentation problems. The surrogate recoveries were diluted out as a result of the dilutions. The reporting limit has been adjusted for the dilutions since no analysis at a lesser dilution was performed.

Affected Samples:
F3A150406 (2): 05-003
F3A150406 (3): 05-004
F3A150406 (4): 05-005

Analysis of the sample designated for MS/MSD required significant dilution as to render the MS/MSD analysis ineffective. No data reported for MS/MSD.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004
F3A150406 (4): 05-005

ICP-MS (SW846 6020)

Batch 3016024
The MS/MSD recovery for antimony is outside the established QC limits. The RPD is within method acceptance criteria indicating possible matrix interference. Method performance is demonstrated by acceptable LCS recovery.

Due to LDR failures, the LDR has been lowered for beryllium (200ppb). The LCS and the MS/MSD were above the LDR. The LCS and MS/MSD were within acceptable QC limits. The MS/MSD are reported as estimated values.

The serial dilution percent difference is not within QC limits for vanadium. The serial dilution failing is evidence of a possible matrix interference and the results are flagged accordingly.

Affected Samples:
F3A150406 (1): 05-002A
F3A150406 (2): 05-003
F3A150406 (3): 05-004
F3A150406 (4): 05-005

STLC Inductively Coupled Plasma Metals (SW846 6010B)

Batch 3018030
The samples were analyzed at a dilution due to the presence of matrix interferences which cause instrument QC failures. The reporting limit has been adjusted for the dilution.

Affected Samples:
F3A150406 (5): 05-002A
F3A150406 (6): 05-003
F3A150406 (7): 05-004
F3A150406 (8): 05-005

There were no other nonconformances or observations noted with any analysis on this lot.

METHODS SUMMARY

F3A150406

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Extractable Petroleum Hydrocarbons	SW846 8015 MOD	SW846 3550
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010
ICP-MS (6020)	SW846 6020	SW846 3050
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
Organochlorine Pesticides	SW846 8081A	SW846 3550B
Percent Moisture	MCAWW 160.3 MOD	MCAWW 160.3 MOD
PCBs by SW-846 8082	SW846 8082	SW846 3550B/366
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3550B
Volatile Organics by GC/MS	SW846 8260B	SW846 5035
Volatile Petroleum Hydrocarbons	SW846 8015 MOD	SW846 5030

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F3A150406

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MXVWP	001	05-002A	01/14/13	14:00
MXVWQ	002	05-003	01/14/13	14:10
MXVWR	003	05-004	01/14/13	14:20
MXVWV	004	05-005	01/14/13	14:30
MXVWW	005	05-002A	01/14/13	14:00
MXVW7	006	05-003	01/14/13	14:10
MXVXA	007	05-004	01/14/13	14:20
MXVXE	008	05-005	01/14/13	14:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC/MS Volatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AD **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 11:16
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	22.2	ug/kg	7.20
Benzene	ND	5.56	ug/kg	0.281
Bromodichloromethane	ND	5.56	ug/kg	0.282
Bromoform	ND	5.56	ug/kg	0.407
Bromomethane	ND	5.56	ug/kg	1.22
Carbon tetrachloride	ND	5.56	ug/kg	0.571
Chlorobenzene	ND	5.56	ug/kg	0.425
Dibromochloromethane	ND	5.56	ug/kg	0.452
Chloroethane	ND	11.1	ug/kg	0.574
Chloroform	ND	5.56	ug/kg	0.418
Chloromethane	ND	11.1	ug/kg	0.723
1,1-Dichloroethane	ND	5.56	ug/kg	0.436
1,2-Dichloroethane	ND	5.56	ug/kg	0.964
1,1-Dichloroethene	ND	5.56	ug/kg	1.79
cis-1,2-Dichloroethene	ND	5.56	ug/kg	0.664
trans-1,2-Dichloroethene	ND	5.56	ug/kg	1.05
1,2-Dichloropropane	ND	5.56	ug/kg	0.426
cis-1,3-Dichloropropene	ND	5.56	ug/kg	0.662
trans-1,3-Dichloropropene	ND	5.56	ug/kg	0.388
Ethylbenzene	ND	5.56	ug/kg	0.333
2-Hexanone	ND	11.1	ug/kg	1.97
Methylene chloride	ND	5.56	ug/kg	1.76
2-Butanone (MEK)	ND	11.1	ug/kg	2.14
Styrene	ND	5.56	ug/kg	0.386
1,1,2,2-Tetrachloroethane	ND	5.56	ug/kg	0.446
Tetrachloroethene	ND	5.56	ug/kg	0.358
Toluene	ND	5.56	ug/kg	0.778
1,1,1-Trichloroethane	ND	5.56	ug/kg	0.479
1,1,2-Trichloroethane	ND	5.56	ug/kg	0.637
Trichloroethene	ND	5.56	ug/kg	0.428
Vinyl chloride	ND	5.56	ug/kg	0.476
Xylenes (total)	ND	11.1	ug/kg	0.950
Methyl tert-butyl ether (MTBE)	ND	5.56	ug/kg	0.529
4-Methyl-2-pentanone	ND	11.1	ug/kg	0.814

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	115	(65.- 135)
1,2-Dichloroethane-d4	104	(65.- 135)
4-Bromofluorobenzene	119	(65.- 135)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC/MS Volatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AD **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC/MS Volatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AJ **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 11:41
Dilution Factor: 1
% Moisture.....: 8.4 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	21.8	ug/kg	7.07
Benzene	ND	5.46	ug/kg	0.276
Bromodichloromethane	ND	5.46	ug/kg	0.277
Bromoform	ND	5.46	ug/kg	0.400
Bromomethane	ND	5.46	ug/kg	1.20
Carbon tetrachloride	ND	5.46	ug/kg	0.560
Chlorobenzene	ND	5.46	ug/kg	0.417
Dibromochloromethane	ND	5.46	ug/kg	0.443
Chloroethane	ND	10.9	ug/kg	0.564
Chloroform	ND	5.46	ug/kg	0.411
Chloromethane	ND	10.9	ug/kg	0.710
1,1-Dichloroethane	ND	5.46	ug/kg	0.428
1,2-Dichloroethane	ND	5.46	ug/kg	0.947
1,1-Dichloroethene	ND	5.46	ug/kg	1.76
cis-1,2-Dichloroethene	ND	5.46	ug/kg	0.652
trans-1,2-Dichloroethene	ND	5.46	ug/kg	1.03
1,2-Dichloropropane	ND	5.46	ug/kg	0.418
cis-1,3-Dichloropropene	ND	5.46	ug/kg	0.650
trans-1,3-Dichloropropene	ND	5.46	ug/kg	0.381
Ethylbenzene	ND	5.46	ug/kg	0.327
2-Hexanone	ND	10.9	ug/kg	1.93
Methylene chloride	ND	5.46	ug/kg	1.73
2-Butanone (MEK)	ND	10.9	ug/kg	2.10
Styrene	ND	5.46	ug/kg	0.379
1,1,2,2-Tetrachloroethane	ND	5.46	ug/kg	0.438
Tetrachloroethene	**0.393 J**	**5.46**	**ug/kg**	**0.352**
Toluene	ND	5.46	ug/kg	0.765
1,1,1-Trichloroethane	ND	5.46	ug/kg	0.471
1,1,2-Trichloroethane	ND	5.46	ug/kg	0.626
Trichloroethene	ND	5.46	ug/kg	0.421
Vinyl chloride	ND	5.46	ug/kg	0.468
Xylenes (total)	ND	10.9	ug/kg	0.933
Methyl tert-butyl ether (MTBE)	ND	5.46	ug/kg	0.520
4-Methyl-2-pentanone	ND	10.9	ug/kg	0.800

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	124	(65.- 135)
1,2-Dichloroethane-d4	110	(65.- 135)
4-Bromofluorobenzene	143 *	(65.- 135)

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Tetra Tech EC Inc

Client Sample ID: 05-003

GC/MS Volatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AJ **Matrix.....:** SOLID

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC/MS Volatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AJ **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 12:06
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	22.6	ug/kg	7.32
Benzene	ND	5.66	ug/kg	0.286
Bromodichloromethane	ND	5.66	ug/kg	0.288
Bromoform	ND	5.66	ug/kg	0.414
Bromomethane	ND	5.66	ug/kg	1.25
Carbon tetrachloride	ND	5.66	ug/kg	0.581
Chlorobenzene	**0.495 J**	**5.66**	**ug/kg**	**0.432**
Dibromochloromethane	ND	5.66	ug/kg	0.460
Chloroethane	ND	11.3	ug/kg	0.584
Chloroform	ND	5.66	ug/kg	0.426
Chloromethane	ND	11.3	ug/kg	0.736
1,1-Dichloroethane	ND	5.66	ug/kg	0.444
1,2-Dichloroethane	ND	5.66	ug/kg	0.982
1,1-Dichloroethene	ND	5.66	ug/kg	1.82
cis-1,2-Dichloroethene	ND	5.66	ug/kg	0.676
trans-1,2-Dichloroethene	ND	5.66	ug/kg	1.07
1,2-Dichloropropane	ND	5.66	ug/kg	0.434
cis-1,3-Dichloropropene	ND	5.66	ug/kg	0.674
trans-1,3-Dichloropropene	ND	5.66	ug/kg	0.395
Ethylbenzene	ND	5.66	ug/kg	0.339
2-Hexanone	ND	11.3	ug/kg	2.00
Methylene chloride	ND	5.66	ug/kg	1.79
2-Butanone (MEK)	ND	11.3	ug/kg	2.17
Styrene	ND	5.66	ug/kg	0.393
1,1,2,2-Tetrachloroethane	ND	5.66	ug/kg	0.454
Tetrachloroethene	ND	5.66	ug/kg	0.365
Toluene	ND	5.66	ug/kg	0.792
1,1,1-Trichloroethane	ND	5.66	ug/kg	0.488
1,1,2-Trichloroethane	ND	5.66	ug/kg	0.649
Trichloroethene	ND	5.66	ug/kg	0.436
Vinyl chloride	ND	5.66	ug/kg	0.485
Xylenes (total)	ND	11.3	ug/kg	0.967
Methyl tert-butyl ether (MTBE)	ND	5.66	ug/kg	0.539
4-Methyl-2-pentanone	ND	11.3	ug/kg	0.829

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	120	(65.- 135)
1,2-Dichloroethane-d4	111	(65.- 135)
4-Bromofluorobenzene	152 *	(65.- 135)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-004

GC/MS Volatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AJ **Matrix.....:** SOLID

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC/MS Volatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AJ **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 12:30
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	22.2	ug/kg	7.19
Benzene	ND	5.55	ug/kg	0.281
Bromodichloromethane	ND	5.55	ug/kg	0.282
Bromoform	ND	5.55	ug/kg	0.406
Bromomethane	ND	5.55	ug/kg	1.22
Carbon tetrachloride	ND	5.55	ug/kg	0.570
Chlorobenzene	ND	5.55	ug/kg	0.424
Dibromochloromethane	ND	5.55	ug/kg	0.451
Chloroethane	ND	11.1	ug/kg	0.573
Chloroform	ND	5.55	ug/kg	0.418
Chloromethane	ND	11.1	ug/kg	0.722
1,1-Dichloroethane	ND	5.55	ug/kg	0.435
1,2-Dichloroethane	ND	5.55	ug/kg	0.963
1,1-Dichloroethene	ND	5.55	ug/kg	1.79
cis-1,2-Dichloroethene	ND	5.55	ug/kg	0.663
trans-1,2-Dichloroethene	ND	5.55	ug/kg	1.05
1,2-Dichloropropane	ND	5.55	ug/kg	0.425
cis-1,3-Dichloropropene	ND	5.55	ug/kg	0.661
trans-1,3-Dichloropropene	ND	5.55	ug/kg	0.388
Ethylbenzene	ND	5.55	ug/kg	0.332
2-Hexanone	ND	11.1	ug/kg	1.97
Methylene chloride	ND	5.55	ug/kg	1.75
2-Butanone (MEK)	ND	11.1	ug/kg	2.13
Styrene	ND	5.55	ug/kg	0.385
1,1,2,2-Tetrachloroethane	ND	5.55	ug/kg	0.445
Tetrachloroethene	ND	5.55	ug/kg	0.358
Toluene	ND	5.55	ug/kg	0.777
1,1,1-Trichloroethane	ND	5.55	ug/kg	0.479
1,1,2-Trichloroethane	ND	5.55	ug/kg	0.636
Trichloroethene	ND	5.55	ug/kg	0.428
Vinyl chloride	ND	5.55	ug/kg	0.475
Xylenes (total)	ND	11.1	ug/kg	0.948
Methyl tert-butyl ether (MTBE)	ND	5.55	ug/kg	0.529
4-Methyl-2-pentanone	ND	11.1	ug/kg	0.813

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	115	(65.- 135)
1,2-Dichloroethane-d4	104	(65.- 135)
4-Bromofluorobenzene	132	(65.- 135)

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Tetra Tech EC Inc

Client Sample ID: 05-005

GC/MS Volatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AJ **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV891AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-017

Prep Date.....: 01/16/13 **Analysis Time..:** 08:23
Analysis Date..: 01/16/13 **Prep Batch #...:** 3016017
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	20.0	ug/kg	SW846 8260B
Benzene	ND	5.00	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.00	ug/kg	SW846 8260B
Bromoform	ND	5.00	ug/kg	SW846 8260B
Bromomethane	ND	5.00	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.00	ug/kg	SW846 8260B
Chlorobenzene	ND	5.00	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.00	ug/kg	SW846 8260B
Chloroethane	ND	10.0	ug/kg	SW846 8260B
Chloroform	ND	5.00	ug/kg	SW846 8260B
Chloromethane	ND	10.0	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.00	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.00	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.00	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.00	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.00	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.00	ug/kg	SW846 8260B
Ethylbenzene	ND	5.00	ug/kg	SW846 8260B
2-Hexanone	ND	10.0	ug/kg	SW846 8260B
Methylene chloride	ND	5.00	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	10.0	ug/kg	SW846 8260B
Styrene	ND	5.00	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.00	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.00	ug/kg	SW846 8260B
Toluene	ND	5.00	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.00	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.00	ug/kg	SW846 8260B
Trichloroethene	ND	5.00	ug/kg	SW846 8260B
Vinyl chloride	ND	5.00	ug/kg	SW846 8260B
Xylenes (total)	ND	10.0	ug/kg	SW846 8260B
2-Butanone (MEK)	ND	10.0	ug/kg	SW846 8260B
Methyl tert-butyl ether (MTBE)	ND	5.00	ug/kg	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	111	(65.0- 135)
1,2-Dichloroethane-d4	102	(65.0- 135)
4-Bromofluorobenzene	107	(65.0- 135)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV891AA **Matrix.....:** SOLID

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV891AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A160000-017
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 07:33
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
1,1-Dichloroethene	**93.2**	**(65.0- 135**	**SW846 8260B**
Benzene	**99.4**	**(65.0- 135**	**SW846 8260B**
Trichloroethene	**98.7**	**(65.0- 135**	**SW846 8260B**
Toluene	**98.2**	**(65.0- 135**	**SW846 8260B**
Chlorobenzene	**103**	**(65.0- 135**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	101	(65.0- 135
1,2-Dichloroethane-d4	97.7	(65.0- 135
4-Bromofluorobenzene	98.1	(65.0- 135

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWP1CC-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-001 MXVWP1CD-MSD
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016017 **Analysis Time..:** 12:55
Dilution Factor: 1 **% Moisture.....:** 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**103**	**(65.0- 135**			**SW846 8260B**
	102	**(65.0- 135**	**6.57**	**(0-30.0)**	**SW846 8260B**
Benzene	**107**	**(65.0- 135**			**SW846 8260B**
	101	**(65.0- 135**	**11.4**	**(0-30.0)**	**SW846 8260B**
Trichloroethene	**105**	**(65.0- 135**			**SW846 8260B**
	99.3	**(65.0- 135**	**11.2**	**(0-30.0)**	**SW846 8260B**
Toluene	**109**	**(65.0- 135**			**SW846 8260B**
	106	**(65.0- 135**	**8.84**	**(0-30.0)**	**SW846 8260B**
Chlorobenzene	**109**	**(65.0- 135**			**SW846 8260B**
	105	**(65.0- 135**	**9.75**	**(0-30.0)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	113	(65.0- 135
	107	(65.0- 135
1,2-Dichloroethane-d4	107	(65.0- 135
	103	(65.0- 135
4-Bromofluorobenzene	117	(65.0- 135
	116	(65.0- 135

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AE **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/18/13
Prep Batch #...: 3016016 **Analysis Time..:** 12:17
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Pyridine	ND	734	ug/kg	74.1
Phenol	ND	367	ug/kg	37.0
bis(2-Chloroethyl)-ether	ND	367	ug/kg	37.1
2-Chlorophenol	ND	367	ug/kg	37.0
1,3-Dichlorobenzene	ND	367	ug/kg	37.0
1,4-Dichlorobenzene	ND	367	ug/kg	37.0
1,2-Dichlorobenzene	ND	367	ug/kg	37.0
2-Methylphenol	ND	367	ug/kg	37.0
3-Methylphenol & 4-Methylphenol	ND	734	ug/kg	74.1
bis(2-Chloroisopropyl) ether	ND	367	ug/kg	37.0
N-Nitrosodi-n-propyl-amine	ND	367	ug/kg	37.0
Hexachloroethane	ND	367	ug/kg	37.0
2-Nitrophenol	ND	367	ug/kg	37.0
2,4-Dimethylphenol	ND	367	ug/kg	37.0
Nitrobenzene	ND	367	ug/kg	37.0
bis(2-Chloroethoxy) methane	ND	367	ug/kg	37.0
2,4-Dichlorophenol	ND	367	ug/kg	37.0
1,2,4-Trichloro-benzene	ND	367	ug/kg	37.0
Naphthalene	ND	367	ug/kg	37.0
4-Chloroaniline	ND	367	ug/kg	37.0
Hexachlorobutadiene	ND	367	ug/kg	37.0
4-Chloro-3-methylphenol	ND	367	ug/kg	37.0
Hexachlorocyclopenta-diene	ND	1780	ug/kg	367
2,4,6-Trichloro-phenol	ND	367	ug/kg	37.0
2,4,5-Trichloro-phenol	ND	367	ug/kg	37.0
2-Chloronaphthalene	ND	367	ug/kg	37.0
2-Nitroaniline	ND	1780	ug/kg	37.0
Dimethyl phthalate	ND	367	ug/kg	37.0
Acenaphthene	ND	367	ug/kg	37.0

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Tetra Tech EC Inc

Client Sample ID: 05-002A

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AE **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthylene	ND	367	ug/kg	37.0
2,6-Dinitrotoluene	ND	367	ug/kg	37.0
3-Nitroaniline	ND	1780	ug/kg	37.0
2,4-Dinitrophenol	ND	1780	ug/kg	367
4-Nitrophenol	ND	1780	ug/kg	367
Dibenz(a,h)anthracene	ND	367	ug/kg	37.0
Dibenzofuran	ND	367	ug/kg	37.0
2,4-Dinitrotoluene	ND	367	ug/kg	37.0
Diethyl phthalate	ND	367	ug/kg	37.0
Fluorene	ND	367	ug/kg	37.0
4-Chlorophenyl phenyl ether	ND	367	ug/kg	37.0
4-Nitroaniline	ND	1780	ug/kg	367
4,6-Dinitro-2-methylphenol	ND	1780	ug/kg	367
N-Nitrosodiphenylamine	ND	367	ug/kg	37.0
Pyrene	**55.6 J**	**367**	**ug/kg**	**37.0**
4-Bromophenyl phenyl ether	ND	367	ug/kg	37.0
Hexachlorobenzene	ND	367	ug/kg	37.0
Pentachlorophenol	ND	734	ug/kg	367
Phenanthrene	ND	367	ug/kg	37.0
Anthracene	ND	367	ug/kg	37.0
Di-n-butyl phthalate	ND	367	ug/kg	37.0
Fluoranthene	**46.4 J**	**367**	**ug/kg**	**37.0**
Butyl benzyl phthalate	ND	367	ug/kg	37.0
Benzo(a)anthracene	**47.5 J**	**367**	**ug/kg**	**37.0**
3,3'-Dichlorobenzidine	ND	1780	ug/kg	37.0
Chrysene	**63.7 J**	**367**	**ug/kg**	**37.0**
bis(2-Ethylhexyl) phthalate	**175 J**	**367**	**ug/kg**	**50.4**
Di-n-octyl phthalate	ND	367	ug/kg	37.0
Benzo(b)fluoranthene	**106 J**	**367**	**ug/kg**	**37.0**
Benzo(k)fluoranthene	**40.2 J**	**367**	**ug/kg**	**37.0**
Benzo(a)pyrene	**84.3 J**	**367**	**ug/kg**	**37.0**
Indeno(1,2,3-cd)pyrene	**171 J**	**367**	**ug/kg**	**37.0**
Benzo(ghi)perylene	**77.3 J**	**367**	**ug/kg**	**37.0**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	69.9	(35.- 105)
Phenol-d5	79.6	(40.- 100)
Nitrobenzene-d5	72.8	(35.- 100)
2-Fluorobiphenyl	74.3	(45.- 105)
2,4,6-Tribromophenol	80.7	(35.- 125)
Terphenyl-d14	79.8	(30.- 125)

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Tetra Tech EC Inc

Client Sample ID: 05-002A

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AE **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AK **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/18/13
Prep Batch #...: 3016016 **Analysis Time..:** 14:05
Dilution Factor: 1
% Moisture.....: 8.4 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Pyridine	ND	721	ug/kg	72.7
Phenol	ND	360	ug/kg	36.4
bis(2-Chloroethyl)-ether	ND	360	ug/kg	36.5
2-Chlorophenol	ND	360	ug/kg	36.4
1,3-Dichlorobenzene	ND	360	ug/kg	36.4
1,4-Dichlorobenzene	ND	360	ug/kg	36.4
1,2-Dichlorobenzene	ND	360	ug/kg	36.4
2-Methylphenol	ND	360	ug/kg	36.4
3-Methylphenol & 4-Methylphenol	ND	721	ug/kg	72.7
bis(2-Chloroisopropyl) ether	ND	360	ug/kg	36.4
N-Nitrosodi-n-propyl-amine	ND	360	ug/kg	36.4
Hexachloroethane	ND	360	ug/kg	36.4
2-Nitrophenol	ND	360	ug/kg	36.4
2,4-Dimethylphenol	ND	360	ug/kg	36.4
Nitrobenzene	ND	360	ug/kg	36.4
bis(2-Chloroethoxy) methane	ND	360	ug/kg	36.4
2,4-Dichlorophenol	ND	360	ug/kg	36.4
1,2,4-Trichloro-benzene	ND	360	ug/kg	36.4
Naphthalene	ND	360	ug/kg	36.4
4-Chloroaniline	ND	360	ug/kg	36.4
Hexachlorobutadiene	ND	360	ug/kg	36.4
4-Chloro-3-methylphenol	ND	360	ug/kg	36.4
Hexachlorocyclopenta-diene	ND	1750	ug/kg	360
2,4,6-Trichloro-phenol	ND	360	ug/kg	36.4
2,4,5-Trichloro-phenol	ND	360	ug/kg	36.4
2-Chloronaphthalene	ND	360	ug/kg	36.4
2-Nitroaniline	ND	1750	ug/kg	36.4
Dimethyl phthalate	ND	360	ug/kg	36.4
Acenaphthene	ND	360	ug/kg	36.4

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Tetra Tech EC Inc

Client Sample ID: 05-003

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AK **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthylene	ND	360	ug/kg	36.4
2,6-Dinitrotoluene	ND	360	ug/kg	36.4
3-Nitroaniline	ND	1750	ug/kg	36.4
2,4-Dinitrophenol	ND	1750	ug/kg	360
4-Nitrophenol	ND	1750	ug/kg	360
Dibenz(a,h)anthracene	ND	360	ug/kg	36.4
Dibenzofuran	ND	360	ug/kg	36.4
2,4-Dinitrotoluene	ND	360	ug/kg	36.4
Diethyl phthalate	ND	360	ug/kg	36.4
Fluorene	ND	360	ug/kg	36.4
4-Chlorophenyl phenyl ether	ND	360	ug/kg	36.4
4-Nitroaniline	ND	1750	ug/kg	360
4,6-Dinitro-2-methylphenol	ND	1750	ug/kg	360
N-Nitrosodiphenylamine	ND	360	ug/kg	36.4
Pyrene	**267 J**	**360**	**ug/kg**	**36.4**
4-Bromophenyl phenyl ether	ND	360	ug/kg	36.4
Hexachlorobenzene	ND	360	ug/kg	36.4
Pentachlorophenol	ND	721	ug/kg	360
Phenanthrene	**104 J**	**360**	**ug/kg**	**36.4**
Anthracene	ND	360	ug/kg	36.4
Di-n-butyl phthalate	ND	360	ug/kg	36.4
Fluoranthene	**274 J**	**360**	**ug/kg**	**36.4**
Butyl benzyl phthalate	**42.5 J**	**360**	**ug/kg**	**36.4**
Benzo(a)anthracene	**147 J**	**360**	**ug/kg**	**36.4**
3,3'-Dichlorobenzidine	ND	1750	ug/kg	36.4
Chrysene	**161 J**	**360**	**ug/kg**	**36.4**
bis(2-Ethylhexyl) phthalate	**5580**	**360**	**ug/kg**	**49.5**
Di-n-octyl phthalate	ND	360	ug/kg	36.4
Benzo(b)fluoranthene	**230 J**	**360**	**ug/kg**	**36.4**
Benzo(k)fluoranthene	**80.9 J**	**360**	**ug/kg**	**36.4**
Benzo(a)pyrene	**137 J**	**360**	**ug/kg**	**36.4**
Indeno(1,2,3-cd)pyrene	**171 J**	**360**	**ug/kg**	**36.4**
Benzo(ghi)perylene	**88.9 J**	**360**	**ug/kg**	**36.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	80.7	(35.- 105)
Phenol-d5	91.3	(40.- 100)
Nitrobenzene-d5	82.8	(35.- 100)
2-Fluorobiphenyl	83.6	(45.- 105)
2,4,6-Tribromophenol	89.6	(35.- 125)
Terphenyl-d14	75.3	(30.- 125)

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Tetra Tech EC Inc

Client Sample ID: 05-003

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AK **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AK **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/18/13
Prep Batch #...: 3016016 **Analysis Time..:** 14:40
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Pyridine	ND	747	ug/kg	75.4
Phenol	ND	374	ug/kg	37.7
bis(2-Chloroethyl)-ether	ND	374	ug/kg	37.8
2-Chlorophenol	ND	374	ug/kg	37.7
1,3-Dichlorobenzene	ND	374	ug/kg	37.7
1,4-Dichlorobenzene	ND	374	ug/kg	37.7
1,2-Dichlorobenzene	ND	374	ug/kg	37.7
2-Methylphenol	ND	374	ug/kg	37.7
3-Methylphenol & 4-Methylphenol	ND	747	ug/kg	75.4
bis(2-Chloroisopropyl) ether	ND	374	ug/kg	37.7
N-Nitrosodi-n-propyl-amine	ND	374	ug/kg	37.7
Hexachloroethane	ND	374	ug/kg	37.7
2-Nitrophenol	ND	374	ug/kg	37.7
2,4-Dimethylphenol	ND	374	ug/kg	37.7
Nitrobenzene	ND	374	ug/kg	37.7
bis(2-Chloroethoxy) methane	ND	374	ug/kg	37.7
2,4-Dichlorophenol	ND	374	ug/kg	37.7
1,2,4-Trichloro-benzene	ND	374	ug/kg	37.7
Naphthalene	ND	374	ug/kg	37.7
4-Chloroaniline	ND	374	ug/kg	37.7
Hexachlorobutadiene	ND	374	ug/kg	37.7
4-Chloro-3-methylphenol	ND	374	ug/kg	37.7
Hexachlorocyclopenta-diene	ND	1810	ug/kg	374
2,4,6-Trichloro-phenol	ND	374	ug/kg	37.7
2,4,5-Trichloro-phenol	ND	374	ug/kg	37.7
2-Chloronaphthalene	ND	374	ug/kg	37.7
2-Nitroaniline	ND	1810	ug/kg	37.7
Dimethyl phthalate	ND	374	ug/kg	37.7
Acenaphthene	ND	374	ug/kg	37.7

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-004

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AK **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthylene	ND	374	ug/kg	37.7
2,6-Dinitrotoluene	ND	374	ug/kg	37.7
3-Nitroaniline	ND	1810	ug/kg	37.7
2,4-Dinitrophenol	ND	1810	ug/kg	374
4-Nitrophenol	ND	1810	ug/kg	374
Dibenz(a,h)anthracene	ND	374	ug/kg	37.7
Dibenzofuran	ND	374	ug/kg	37.7
2,4-Dinitrotoluene	ND	374	ug/kg	37.7
Diethyl phthalate	ND	374	ug/kg	37.7
Fluorene	ND	374	ug/kg	37.7
4-Chlorophenyl phenyl ether	ND	374	ug/kg	37.7
4-Nitroaniline	ND	1810	ug/kg	374
4,6-Dinitro-2-methylphenol	ND	1810	ug/kg	374
N-Nitrosodiphenylamine	ND	374	ug/kg	37.7
Pyrene	**431**	**374**	**ug/kg**	**37.7**
4-Bromophenyl phenyl ether	ND	374	ug/kg	37.7
Hexachlorobenzene	ND	374	ug/kg	37.7
Pentachlorophenol	ND	747	ug/kg	374
Phenanthrene	**284 J**	**374**	**ug/kg**	**37.7**
Anthracene	**77.0 J**	**374**	**ug/kg**	**37.7**
Di-n-butyl phthalate	ND	374	ug/kg	37.7
Fluoranthene	**478**	**374**	**ug/kg**	**37.7**
Butyl benzyl phthalate	ND	374	ug/kg	37.7
Benzo(a)anthracene	**227 J**	**374**	**ug/kg**	**37.7**
3,3'-Dichlorobenzidine	ND	1810	ug/kg	37.7
Chrysene	**255 J**	**374**	**ug/kg**	**37.7**
bis(2-Ethylhexyl) phthalate	**2930**	**374**	**ug/kg**	**51.3**
Di-n-octyl phthalate	ND	374	ug/kg	37.7
Benzo(b)fluoranthene	**291 J**	**374**	**ug/kg**	**37.7**
Benzo(k)fluoranthene	**122 J**	**374**	**ug/kg**	**37.7**
Benzo(a)pyrene	**208 J**	**374**	**ug/kg**	**37.7**
Indeno(1,2,3-cd)pyrene	**209 J**	**374**	**ug/kg**	**37.7**
Benzo(ghi)perylene	**115 J**	**374**	**ug/kg**	**37.7**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	72.1	(35.- 105)
Phenol-d5	91.1	(40.- 100)
Nitrobenzene-d5	81.7	(35.- 100)
2-Fluorobiphenyl	83.3	(45.- 105)
2,4,6-Tribromophenol	96.9	(35.- 125)
Terphenyl-d14	79.5	(30.- 125)

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Tetra Tech EC Inc

Client Sample ID: 05-004

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AK **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AK **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/18/13
Prep Batch #...: 3016016 **Analysis Time..:** 15:16
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Pyridine	ND	733	ug/kg	74.0
Phenol	ND	367	ug/kg	37.0
bis(2-Chloroethyl)-ether	ND	367	ug/kg	37.1
2-Chlorophenol	ND	367	ug/kg	37.0
1,3-Dichlorobenzene	ND	367	ug/kg	37.0
1,4-Dichlorobenzene	ND	367	ug/kg	37.0
1,2-Dichlorobenzene	ND	367	ug/kg	37.0
2-Methylphenol	ND	367	ug/kg	37.0
3-Methylphenol & 4-Methylphenol	ND	733	ug/kg	74.0
bis(2-Chloroisopropyl) ether	ND	367	ug/kg	37.0
N-Nitrosodi-n-propyl-amine	ND	367	ug/kg	37.0
Hexachloroethane	ND	367	ug/kg	37.0
2-Nitrophenol	ND	367	ug/kg	37.0
2,4-Dimethylphenol	ND	367	ug/kg	37.0
Nitrobenzene	ND	367	ug/kg	37.0
bis(2-Chloroethoxy) methane	ND	367	ug/kg	37.0
2,4-Dichlorophenol	ND	367	ug/kg	37.0
1,2,4-Trichloro-benzene	ND	367	ug/kg	37.0
Naphthalene	ND	367	ug/kg	37.0
4-Chloroaniline	ND	367	ug/kg	37.0
Hexachlorobutadiene	ND	367	ug/kg	37.0
4-Chloro-3-methylphenol	ND	367	ug/kg	37.0
Hexachlorocyclopenta-diene	ND	1780	ug/kg	367
2,4,6-Trichloro-phenol	ND	367	ug/kg	37.0
2,4,5-Trichloro-phenol	ND	367	ug/kg	37.0
2-Chloronaphthalene	ND	367	ug/kg	37.0
2-Nitroaniline	ND	1780	ug/kg	37.0
Dimethyl phthalate	ND	367	ug/kg	37.0
Acenaphthene	ND	367	ug/kg	37.0

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Tetra Tech EC Inc

Client Sample ID: 05-005

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AK **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthylene	ND	367	ug/kg	37.0
2,6-Dinitrotoluene	ND	367	ug/kg	37.0
3-Nitroaniline	ND	1780	ug/kg	37.0
2,4-Dinitrophenol	ND	1780	ug/kg	367
4-Nitrophenol	ND	1780	ug/kg	367
Dibenz(a,h)anthracene	ND	367	ug/kg	37.0
Dibenzofuran	ND	367	ug/kg	37.0
2,4-Dinitrotoluene	ND	367	ug/kg	37.0
Diethyl phthalate	ND	367	ug/kg	37.0
Fluorene	ND	367	ug/kg	37.0
4-Chlorophenyl phenyl ether	ND	367	ug/kg	37.0
4-Nitroaniline	ND	1780	ug/kg	367
4,6-Dinitro-2-methylphenol	ND	1780	ug/kg	367
N-Nitrosodiphenylamine	ND	367	ug/kg	37.0
Pyrene	**79.9 J**	**367**	**ug/kg**	**37.0**
4-Bromophenyl phenyl ether	ND	367	ug/kg	37.0
Hexachlorobenzene	ND	367	ug/kg	37.0
Pentachlorophenol	ND	733	ug/kg	367
Phenanthrene	**70.1 J**	**367**	**ug/kg**	**37.0**
Anthracene	ND	367	ug/kg	37.0
Di-n-butyl phthalate	ND	367	ug/kg	37.0
Fluoranthene	**57.7 J**	**367**	**ug/kg**	**37.0**
Butyl benzyl phthalate	ND	367	ug/kg	37.0
Benzo(a)anthracene	**38.1 J**	**367**	**ug/kg**	**37.0**
3,3'-Dichlorobenzidine	ND	1780	ug/kg	37.0
Chrysene	ND	367	ug/kg	37.0
bis(2-Ethylhexyl) phthalate	ND	367	ug/kg	50.3
Di-n-octyl phthalate	ND	367	ug/kg	37.0
Benzo(b)fluoranthene	**43.7 J**	**367**	**ug/kg**	**37.0**
Benzo(k)fluoranthene	ND	367	ug/kg	37.0
Benzo(a)pyrene	**42.0 J**	**367**	**ug/kg**	**37.0**
Indeno(1,2,3-cd)pyrene	**129 J**	**367**	**ug/kg**	**37.0**
Benzo(ghi)perylene	ND	367	ug/kg	37.0

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	77.7	(35.- 105)
Phenol-d5	88.6	(40.- 100)
Nitrobenzene-d5	78.6	(35.- 100)
2-Fluorobiphenyl	82.6	(45.- 105)
2,4,6-Tribromophenol	86.8	(35.- 125)
Terphenyl-d14	74.5	(30.- 125)

(Continued on next page)

Tetra Tech EC Inc

Client Sample ID: 05-005

GC/MS Semivolatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AK **Matrix.....:** SOLID

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV881AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-016

Prep Date.....: 01/16/13 **Analysis Time..:** 10:29
Analysis Date..: 01/18/13 **Prep Batch #...:** 3016016
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Pyridine	ND	660	ug/kg	SW846 8270C
Phenol	ND	330	ug/kg	SW846 8270C
bis(2-Chloroethyl)-ether	ND	330	ug/kg	SW846 8270C
2-Chlorophenol	ND	330	ug/kg	SW846 8270C
1,3-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,4-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
1,2-Dichlorobenzene	ND	330	ug/kg	SW846 8270C
2-Methylphenol	ND	330	ug/kg	SW846 8270C
3-Methylphenol & 4-Methylphenol	ND	660	ug/kg	SW846 8270C
bis(2-Chloroisopropyl) ether	ND	330	ug/kg	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	330	ug/kg	SW846 8270C
Hexachloroethane	ND	330	ug/kg	SW846 8270C
2-Nitrophenol	ND	330	ug/kg	SW846 8270C
2,4-Dimethylphenol	ND	330	ug/kg	SW846 8270C
Nitrobenzene	ND	330	ug/kg	SW846 8270C
bis(2-Chloroethoxy) methane	ND	330	ug/kg	SW846 8270C
2,4-Dichlorophenol	ND	330	ug/kg	SW846 8270C
1,2,4-Trichloro-benzene	ND	330	ug/kg	SW846 8270C
Naphthalene	ND	330	ug/kg	SW846 8270C
4-Chloroaniline	ND	330	ug/kg	SW846 8270C
Hexachlorobutadiene	ND	330	ug/kg	SW846 8270C
4-Chloro-3-methylphenol	ND	330	ug/kg	SW846 8270C
Hexachlorocyclopenta-diene	ND	1600	ug/kg	SW846 8270C
2,4,6-Trichloro-phenol	ND	330	ug/kg	SW846 8270C
2,4,5-Trichloro-phenol	ND	330	ug/kg	SW846 8270C
2-Chloronaphthalene	ND	330	ug/kg	SW846 8270C
2-Nitroaniline	ND	1600	ug/kg	SW846 8270C
Dimethyl phthalate	ND	330	ug/kg	SW846 8270C
Acenaphthene	ND	330	ug/kg	SW846 8270C
Acenaphthylene	ND	330	ug/kg	SW846 8270C
2,6-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
3-Nitroaniline	ND	1600	ug/kg	SW846 8270C

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METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV881AA **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,4-Dinitrophenol	ND	1600	ug/kg	SW846 8270C
4-Nitrophenol	ND	1600	ug/kg	SW846 8270C
Dibenz(a,h)anthracene	ND	330	ug/kg	SW846 8270C
Dibenzofuran	ND	330	ug/kg	SW846 8270C
2,4-Dinitrotoluene	ND	330	ug/kg	SW846 8270C
Diethyl phthalate	ND	330	ug/kg	SW846 8270C
Fluorene	ND	330	ug/kg	SW846 8270C
4-Chlorophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
4-Nitroaniline	ND	1600	ug/kg	SW846 8270C
4,6-Dinitro-2-methylphenol	ND	1600	ug/kg	SW846 8270C
N-Nitrosodiphenylamine	ND	330	ug/kg	SW846 8270C
Pyrene	ND	330	ug/kg	SW846 8270C
4-Bromophenyl phenyl ether	ND	330	ug/kg	SW846 8270C
Hexachlorobenzene	ND	330	ug/kg	SW846 8270C
Pentachlorophenol	ND	660	ug/kg	SW846 8270C
Phenanthrene	ND	330	ug/kg	SW846 8270C
Anthracene	ND	330	ug/kg	SW846 8270C
Di-n-butyl phthalate	ND	330	ug/kg	SW846 8270C
Fluoranthene	ND	330	ug/kg	SW846 8270C
Butyl benzyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(a)anthracene	ND	330	ug/kg	SW846 8270C
3,3'-Dichlorobenzidine	ND	1600	ug/kg	SW846 8270C
Chrysene	ND	330	ug/kg	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	330	ug/kg	SW846 8270C
Di-n-octyl phthalate	ND	330	ug/kg	SW846 8270C
Benzo(b)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(k)fluoranthene	ND	330	ug/kg	SW846 8270C
Benzo(a)pyrene	ND	330	ug/kg	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	330	ug/kg	SW846 8270C
Benzo(ghi)perylene	ND	330	ug/kg	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	79.7	(35.0- 105)
Phenol-d5	90.4	(40.0- 100)
Nitrobenzene-d5	80.9	(35.0- 100)
2-Fluorobiphenyl	80.5	(45.0- 105)
2,4,6-Tribromophenol	75.0	(35.0- 125)
Terphenyl-d14	86.3	(30.0- 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 Work Order #...: MXV881AC Matrix.....: SOLID
LCS Lot-Sample#: F3A160000-016
Prep Date.....: 01/16/13 Analysis Date..: 01/18/13
Prep Batch #...: 3016016 Analysis Time..: 11:05
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Phenol	75.4	(40.0- 100	SW846 8270C
bis(2-Chloroethyl)-ether	73.2	(40.0- 105	SW846 8270C
2-Chlorophenol	75.9	(45.0- 105	SW846 8270C
1,3-Dichlorobenzene	72.0	(40.0- 100	SW846 8270C
1,4-Dichlorobenzene	71.3	(35.0- 105	SW846 8270C
1,2-Dichlorobenzene	74.0	(45.0- 95.	SW846 8270C
2-Methylphenol	85.5	(40.0- 105	SW846 8270C
3-Methylphenol & 4-Methylphenol	77.6	(40.0- 105	SW846 8270C
2,2'-oxybis (1-Chloropropane)	81.1	(20.0- 115	SW846 8270C
N-Nitrosodi-n-propyl-amine	84.8	(40.0- 115	SW846 8270C
Hexachloroethane	73.0	(35.0- 110	SW846 8270C
2-Nitrophenol	75.2	(40.0- 110	SW846 8270C
2,4-Dimethylphenol	90.8	(30.0- 105	SW846 8270C
Nitrobenzene	73.5	(40.0- 115	SW846 8270C
bis(2-Chloroethoxy) methane	74.3	(45.0- 110	SW846 8270C
2,4-Dichlorophenol	77.1	(45.0- 110	SW846 8270C
1,2,4-Trichloro-benzene	73.6	(45.0- 110	SW846 8270C
Naphthalene	72.6	(40.0- 105	SW846 8270C
4-Chloroaniline	55.6	(28.0- 80.	SW846 8270C
Hexachlorobutadiene	71.9	(40.0- 115	SW846 8270C
4-Chloro-3-methylphenol	83.9	(45.0- 115	SW846 8270C
Hexachlorocyclopenta-diene	80.4	(38.0- 107	SW846 8270C
2,4,6-Trichloro-phenol	82.1	(45.0- 110	SW846 8270C
2,4,5-Trichloro-phenol	80.5	(50.0- 110	SW846 8270C
2-Chloronaphthalene	77.7	(45.0- 105	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 Work Order #...: MXV881AC Matrix.....: SOLID
LCS Lot-Sample#: F3A160000-016

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
2-Nitroaniline	87.1	(45.0- 120	SW846 8270C
Dimethyl phthalate	86.0	(50.0- 110	SW846 8270C
Acenaphthylene	83.1	(45.0- 105	SW846 8270C
Acenaphthene	81.9	(45.0- 110	SW846 8270C
2,6-Dinitrotoluene	87.1	(50.0- 110	SW846 8270C
3-Nitroaniline	73.4	(25.0- 110	SW846 8270C
2,4-Dinitrophenol	63.8	(15.0- 130	SW846 8270C
4-Nitrophenol	80.1	(15.0- 140	SW846 8270C
Dibenzofuran	84.3	(50.0- 105	SW846 8270C
Dibenz(a,h)anthracene	97.7	(40.0- 125	SW846 8270C
2,4-Dinitrotoluene	90.7	(50.0- 115	SW846 8270C
Diethyl phthalate	86.2	(50.0- 115	SW846 8270C
Fluorene	85.1	(50.0- 110	SW846 8270C
4-Chlorophenyl phenyl ether	84.2	(45.0- 110	SW846 8270C
4-Nitroaniline	80.9	(35.0- 115	SW846 8270C
4,6-Dinitro-2-methylphenol	85.4	(30.0- 135	SW846 8270C
N-Nitrosodiphenylamine	109	(50.0- 115	SW846 8270C
Pyrene	88.1	(45.0- 125	SW846 8270C
4-Bromophenyl phenyl ether	89.6	(45.0- 115	SW846 8270C
Hexachlorobenzene	88.7	(52.0- 107	SW846 8270C
Pentachlorophenol	67.3	(25.0- 120	SW846 8270C
Phenanthrene	85.8	(50.0- 110	SW846 8270C
Anthracene	85.9	(55.0- 105	SW846 8270C
Di-n-butyl phthalate	89.1	(55.0- 110	SW846 8270C
Fluoranthene	88.4	(55.0- 115	SW846 8270C
Butyl benzyl phthalate	91.4	(50.0- 125	SW846 8270C
Benzo(a)anthracene	102	(50.0- 110	SW846 8270C
3,3'-Dichlorobenzidine	69.9	(24.0- 101	SW846 8270C
Chrysene	89.2	(55.0- 110	SW846 8270C
bis(2-Ethylhexyl) phthalate	94.4	(45.0- 125	SW846 8270C
Di-n-octyl phthalate	97.5	(40.0- 130	SW846 8270C
Benzo(b)fluoranthene	95.9	(45.0- 115	SW846 8270C
Benzo(k)fluoranthene	91.7	(45.0- 125	SW846 8270C

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV881AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A160000-016

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Benzo(a)pyrene	**90.7**	**(50.0- 110**	**SW846 8270C**
Indeno(1,2,3-cd)pyrene	**93.9**	**(40.0- 120**	**SW846 8270C**
Benzo(ghi)perylene	**99.9**	**(40.0- 125**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	71.0	(35.0- 105
Phenol-d5	82.4	(40.0- 100
Nitrobenzene-d5	75.9	(35.0- 100
2-Fluorobiphenyl	79.0	(45.0- 105
2,4,6-Tribromophenol	87.0	(35.0- 125
Terphenyl-d14	85.2	(30.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 Work Order #...: MXVWP1A9-MS Matrix.....: SOLID
MS Lot-Sample #: F3A150406-001 MXVWP1CA-MSD
Date Sampled...: 01/14/13 14:00 Date Received..: 01/15/13
Prep Date.....: 01/16/13 Analysis Date..: 01/18/13
Prep Batch #...: 3016016 Analysis Time..: 12:53
Dilution Factor: 1 % Moisture.....: 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Phenol	73.8	(40.0- 100			SW846 8270C
	73.8	(40.0- 100	0.08	(0-30.0)	SW846 8270C
bis(2-Chloroethyl)-ether	72.2	(40.0- 105			SW846 8270C
	72.1	(40.0- 105	0.16	(0-30.0)	SW846 8270C
2-Chlorophenol	73.8	(45.0- 105			SW846 8270C
	74.7	(45.0- 105	1.09	(0-30.0)	SW846 8270C
1,3-Dichlorobenzene	69.5	(40.0- 100			SW846 8270C
	70.2	(40.0- 100	0.98	(0-30.0)	SW846 8270C
1,4-Dichlorobenzene	69.0	(35.0- 105			SW846 8270C
	69.0	(35.0- 105	0.0	(0-30.0)	SW846 8270C
1,2-Dichlorobenzene	71.8	(45.0- 95.			SW846 8270C
	72.8	(45.0- 95.	1.24	(0-30.0)	SW846 8270C
2-Methylphenol	83.7	(40.0- 105			SW846 8270C
	83.5	(40.0- 105	0.25	(0-30.0)	SW846 8270C
3-Methylphenol & 4-Methylphenol	76.1	(40.0- 105			SW846 8270C
	77.3	(40.0- 105	1.56	(0-30.0)	SW846 8270C
2,2'-oxybis (1-Chloropropane)	78.4	(20.0- 115			SW846 8270C
	78.6	(20.0- 115	0.19	(0-30.0)	SW846 8270C
N-Nitrosodi-n-propyl-amine	82.5	(40.0- 115			SW846 8270C
	82.7	(40.0- 115	0.14	(0-30.0)	SW846 8270C
Hexachloroethane	69.7	(35.0- 110			SW846 8270C
	69.6	(35.0- 110	0.08	(0-30.0)	SW846 8270C
2-Nitrophenol	74.8	(40.0- 110			SW846 8270C
	74.6	(40.0- 110	0.32	(0-30.0)	SW846 8270C
2,4-Dimethylphenol	89.7	(30.0- 105			SW846 8270C
	91.1	(30.0- 105	1.49	(0-30.0)	SW846 8270C
Nitrobenzene	72.3	(40.0- 115			SW846 8270C
	72.6	(40.0- 115	0.41	(0-30.0)	SW846 8270C
bis(2-Chloroethoxy) methane	72.4	(45.0- 110			SW846 8270C
	72.9	(45.0- 110	0.74	(0-30.0)	SW846 8270C

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWP1A9-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-001 MXVWP1CA-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-Dichlorophenol	76.2	(45.0- 110			SW846 8270C
	78.0	(45.0- 110	2.18	(0-30.0)	SW846 8270C
1,2,4-Trichloro-benzene	72.0	(45.0- 110			SW846 8270C
	72.2	(45.0- 110	0.16	(0-30.0)	SW846 8270C
Naphthalene	72.1	(40.0- 105			SW846 8270C
	72.0	(40.0- 105	0.29	(0-30.0)	SW846 8270C
4-Chloroaniline	60.7	(28.0- 80.			SW846 8270C
	61.3	(28.0- 80.	0.83	(0-30.0)	SW846 8270C
Hexachlorobutadiene	69.8	(40.0- 115			SW846 8270C
	70.2	(40.0- 115	0.51	(0-30.0)	SW846 8270C
4-Chloro-3-methylphenol	82.1	(45.0- 115			SW846 8270C
	85.0	(45.0- 115	3.37	(0-30.0)	SW846 8270C
Hexachlorocyclopenta-diene	64.2	(38.0- 107			SW846 8270C
	58.2	(38.0- 107	9.85	(0-30.0)	SW846 8270C
2,4,6-Trichloro-phenol	81.8	(45.0- 110			SW846 8270C
	84.8	(45.0- 110	3.49	(0-30.0)	SW846 8270C
2,4,5-Trichloro-phenol	81.2	(50.0- 110			SW846 8270C
	83.4	(50.0- 110	2.69	(0-30.0)	SW846 8270C
2-Chloronaphthalene	76.3	(45.0- 105			SW846 8270C
	77.4	(45.0- 105	1.36	(0-30.0)	SW846 8270C
2-Nitroaniline	85.4	(45.0- 120			SW846 8270C
	89.0	(45.0- 120	4.06	(0-30.0)	SW846 8270C
Dimethyl phthalate	84.8	(50.0- 110			SW846 8270C
	87.8	(50.0- 110	3.51	(0-30.0)	SW846 8270C
Acenaphthylene	81.2	(45.0- 105			SW846 8270C
	83.7	(45.0- 105	2.91	(0-30.0)	SW846 8270C
Acenaphthene	80.6	(45.0- 110			SW846 8270C
	82.7	(45.0- 110	2.50	(0-30.0)	SW846 8270C
2,6-Dinitrotoluene	85.4	(50.0- 110			SW846 8270C
	89.5	(50.0- 110	4.66	(0-30.0)	SW846 8270C
3-Nitroaniline	76.4	(25.0- 110			SW846 8270C
	79.6	(25.0- 110	4.04	(0-30.0)	SW846 8270C
2,4-Dinitrophenol	72.7	(15.0- 130			SW846 8270C
	66.4	(15.0- 130	9.06	(0-30.0)	SW846 8270C

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWP1A9-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-001 MXVWP1CA-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
4-Nitrophenol	85.6	(15.0- 140			SW846 8270C
	90.1	(15.0- 140	5.09	(0-30.0)	SW846 8270C
Dibenzofuran	81.8	(50.0- 105			SW846 8270C
	84.6	(50.0- 105	3.28	(0-30.0)	SW846 8270C
Dibenz(a,h)anthracene	98.8	(40.0- 125			SW846 8270C
	101	(40.0- 125	1.92	(0-30.0)	SW846 8270C
2,4-Dinitrotoluene	89.9	(50.0- 115			SW846 8270C
	93.1	(50.0- 115	3.41	(0-30.0)	SW846 8270C
Diethyl phthalate	85.1	(50.0- 115			SW846 8270C
	88.6	(50.0- 115	3.97	(0-30.0)	SW846 8270C
Fluorene	83.3	(50.0- 110			SW846 8270C
	86.5	(50.0- 110	3.71	(0-30.0)	SW846 8270C
4-Chlorophenyl phenyl ether	82.0	(45.0- 110			SW846 8270C
	85.6	(45.0- 110	4.29	(0-30.0)	SW846 8270C
4-Nitroaniline	77.5	(35.0- 115			SW846 8270C
	81.5	(35.0- 115	5.02	(0-30.0)	SW846 8270C
4,6-Dinitro-2-methylphenol	84.8	(30.0- 135			SW846 8270C
	80.3	(30.0- 135	5.52	(0-30.0)	SW846 8270C
N-Nitrosodiphenylamine	106	(50.0- 115			SW846 8270C
	109	(50.0- 115	2.81	(0-30.0)	SW846 8270C
Pyrene	84.6	(45.0- 125			SW846 8270C
	86.0	(45.0- 125	1.48	(0-30.0)	SW846 8270C
4-Bromophenyl phenyl ether	86.2	(45.0- 115			SW846 8270C
	89.5	(45.0- 115	3.65	(0-30.0)	SW846 8270C
Hexachlorobenzene	86.0	(52.0- 107			SW846 8270C
	89.2	(52.0- 107	3.63	(0-30.0)	SW846 8270C
Pentachlorophenol	73.1	(25.0- 120			SW846 8270C
	76.0	(25.0- 120	3.78	(0-30.0)	SW846 8270C
Phenanthrene	84.0	(50.0- 110			SW846 8270C
	86.7	(50.0- 110	3.02	(0-30.0)	SW846 8270C
Anthracene	83.0	(55.0- 105			SW846 8270C
	86.3	(55.0- 105	3.79	(0-30.0)	SW846 8270C
Di-n-butyl phthalate	87.3	(55.0- 110			SW846 8270C
	91.1	(55.0- 110	4.20	(0-30.0)	SW846 8270C
Fluoranthene	87.2	(55.0- 115			SW846 8270C
	90.4	(55.0- 115	3.53	(0-30.0)	SW846 8270C

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWP1A9-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-001 MXVWP1CA-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Butyl benzyl phthalate	**89.3**	**(50.0- 125**			**SW846 8270C**
	90.8	**(50.0- 125**	**1.59**	**(0-30.0)**	**SW846 8270C**
Benzo(a)anthracene	**99.3**	**(50.0- 110**			**SW846 8270C**
	102	**(50.0- 110**	**2.21**	**(0-30.0)**	**SW846 8270C**
3,3'-Dichlorobenzidine	**49.4**	**(24.0- 101**			**SW846 8270C**
	56.9	**(24.0- 101**	**14.0**	**(0-30.0)**	**SW846 8270C**
Chrysene	**86.4**	**(55.0- 110**			**SW846 8270C**
	89.0	**(55.0- 110**	**2.88**	**(0-30.0)**	**SW846 8270C**
bis(2-Ethylhexyl) phthalate	**90.0**	**(45.0- 125**			**SW846 8270C**
	91.7	**(45.0- 125**	**1.72**	**(0-30.0)**	**SW846 8270C**
Di-n-octyl phthalate	**95.7**	**(40.0- 130**			**SW846 8270C**
	98.3	**(40.0- 130**	**2.60**	**(0-30.0)**	**SW846 8270C**
Benzo(b)fluoranthene	**93.1**	**(45.0- 115**			**SW846 8270C**
	94.6	**(45.0- 115**	**1.49**	**(0-30.0)**	**SW846 8270C**
Benzo(k)fluoranthene	**85.2**	**(45.0- 125**			**SW846 8270C**
	90.6	**(45.0- 125**	**6.00**	**(0-30.0)**	**SW846 8270C**
Benzo(a)pyrene	**86.1**	**(50.0- 110**			**SW846 8270C**
	89.6	**(50.0- 110**	**3.76**	**(0-30.0)**	**SW846 8270C**
Indeno(1,2,3-cd)pyrene	**91.2**	**(40.0- 120**			**SW846 8270C**
	94.6	**(40.0- 120**	**3.38**	**(0-30.0)**	**SW846 8270C**
Benzo(ghi)perylene	**98.7**	**(40.0- 125**			**SW846 8270C**
	97.0	**(40.0- 125**	**1.71**	**(0-30.0)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	75.8	(35.0- 105
	69.1	(35.0- 105
Phenol-d5	80.8	(40.0- 100
	80.4	(40.0- 100
Nitrobenzene-d5	75.1	(35.0- 100
	74.1	(35.0- 100
2-Fluorobiphenyl	76.9	(45.0- 105
	78.0	(45.0- 105
2,4,6-Tribromophenol	87.8	(35.0- 125
	91.6	(35.0- 125
Terphenyl-d14	81.8	(30.0- 125
	83.2	(30.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC Volatiles

Lot-Sample #...:	F3A150406-001	**Work Order #...:**	MXVWP1AJ	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:00	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/16/13		
Prep Batch #...:	3016025	**Analysis Time..:**	18:06		
Dilution Factor:	1				
% Moisture.....:	10	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Gasoline Range Organics	ND	0.111	mg/kg	0.0111

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	108	(64.- 140)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC Volatiles

Lot-Sample #...:	F3A150406-002	**Work Order #...:**	MXVWQ1AP	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:10	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/16/13		
Prep Batch #...:	3016025	**Analysis Time..:**	18:40		
Dilution Factor:	1				
% Moisture.....:	8.4	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Gasoline Range Organics	ND	0.109	mg/kg	0.0109

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	102	(64.- 140)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC Volatiles

Lot-Sample #...:	F3A150406-003	**Work Order #...:**	MXVWR1AP	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:20	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/16/13		
Prep Batch #...:	3016025	**Analysis Time..:**	20:23		
Dilution Factor:	1				
% Moisture.....:	12	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Gasoline Range Organics	**0.260**	**0.113**	**mg/kg**	**0.0113**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	108	(64.- 140)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

This sample has GC/FID characteristics for which reliable identification of a product could not be achieved.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC Volatiles

Lot-Sample #...:	F3A150406-004	**Work Order #...:**	MXVWV1AP	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:30	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/16/13		
Prep Batch #...:	3016025	**Analysis Time..:**	20:57		
Dilution Factor:	1				
% Moisture.....:	10	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Gasoline Range Organics	ND	0.111	mg/kg	0.0111

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	105	(64.- 140)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9V1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-025

Prep Date.....: 01/16/13 **Analysis Time..:** 16:58
Analysis Date..: 01/16/13 **Prep Batch #...:** 3016025
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Gasoline Range Organics	ND	0.100	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	114	(64.0- 140)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9V1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A160000-025
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016025 **Analysis Time..:** 17:32
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Gasoline Range Organics	**96.6**	**(83.0- 117**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	97.4	(64.0- 140

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Volatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWQ1CA-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-002 MXVWQ1CC-MSD
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016025 **Analysis Time..:** 19:14
Dilution Factor: 1 **% Moisture.....:** 8.4

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Gasoline Range Organics	**65.4**	**(29.0- 123**			**SW846 8015 MOD**
	63.7	**(29.0- 123**	**4.36**	**(0-30.0)**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	104	(64.0- 140
	104	(64.0- 140

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC Semivolatiles

Lot-Sample #...:	F3A150406-001	**Work Order #...:**	MXVWP1AH	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:00	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/17/13		
Prep Batch #...:	3016019	**Analysis Time..:**	13:37		
Dilution Factor:	4				
% Moisture.....:	10	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	ND	111	mg/kg	1.48
Motor Oil Range Organics	**10.2 J,D**	**111**	**mg/kg**	**2.83**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	88.2	(52.- 112)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC Semivolatiles

Lot-Sample #...:	F3A150406-002	**Work Order #...:**	MXVWQ1AN	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:10	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/17/13		
Prep Batch #...:	3016019	**Analysis Time..:**	14:05		
Dilution Factor:	20				
% Moisture.....:	8.4	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	**206 J,D**	**546**	**mg/kg**	**7.27**
Motor Oil Range Organics	**371 J,D**	**546**	**mg/kg**	**13.9**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	0.0 *,DIL	(52.- 112)

NOTE(S):

* Surrogate recovery is outside stated control limits.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

The reported UNKOWN HYDROCARBON was quantified as diesel.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC Semivolatiles

Lot-Sample #...:	F3A150406-003	**Work Order #...:**	MXVWR1AN	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:20	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/17/13		
Prep Batch #...:	3016019	**Analysis Time..:**	14:32		
Dilution Factor:	20				
% Moisture.....:	12	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	**145 J,D**	**566**	**mg/kg**	**7.54**
Motor Oil Range Organics	**263 J,D**	**566**	**mg/kg**	**14.4**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	0.0 *,DIL	(52.- 112)

NOTE(S):

* Surrogate recovery is outside stated control limits.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

The reported UNKOWN HYDROCARBON was quantified as diesel.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC Semivolatiles

Lot-Sample #...:	F3A150406-004	**Work Order #...:**	MXVWV1AN	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:30	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/17/13		
Prep Batch #...:	3016019	**Analysis Time..:**	14:59		
Dilution Factor:	20				
% Moisture.....:	10	**Method.....:**	SW846 8015 MOD		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	ND	555	mg/kg	7.40
Motor Oil Range Organics	**61.5 J,D**	**555**	**mg/kg**	**14.1**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	0.0 *,DIL	(52.- 112)

NOTE(S):

* Surrogate recovery is outside stated control limits.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9D1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-019

Prep Date.....: 01/16/13 **Analysis Time..:** 12:43
Analysis Date..: 01/17/13 **Prep Batch #...:** 3016019
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	ND	25.0	mg/kg	SW846 8015 MOD
Motor Oil Range Organics	ND	25.0	mg/kg	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	77.0	(52.0- 112)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9D1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A160000-019
Prep Date.....: 01/16/13 **Analysis Date..:** 01/17/13
Prep Batch #...: 3016019 **Analysis Time..:** 13:10
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Diesel Range Organics	**71.5**	**(50.0- 95.**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	79.1	(52.0- 112

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC Semivolatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AF **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/17/13
Prep Batch #...: 3016021 **Analysis Time..:** 12:14
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aldrin	ND	1.89	ug/kg	0.340
alpha-BHC	ND	1.89	ug/kg	0.206
beta-BHC	ND	1.89	ug/kg	0.334
delta-BHC	ND	1.89	ug/kg	0.269
gamma-BHC (Lindane)	ND	1.89	ug/kg	0.377
Chlordane (technical)	ND	18.9	ug/kg	4.15
4,4'-DDD	ND	1.89	ug/kg	0.246
4,4'-DDE	**1.64 J**	**1.89**	**ug/kg**	**0.434**
4,4'-DDT	**4.76**	**1.89**	**ug/kg**	**0.698**
Dieldrin	**0.573 J,PG**	**1.89**	**ug/kg**	**0.239**
Endosulfan I	ND	1.89	ug/kg	0.634
Endosulfan II	ND	1.89	ug/kg	0.261
Endosulfan sulfate	ND	1.89	ug/kg	0.378
Endrin	ND	1.89	ug/kg	0.176
Endrin aldehyde	ND	1.89	ug/kg	0.433
Endrin ketone	ND	1.89	ug/kg	0.464
Heptachlor	ND	1.89	ug/kg	0.227
Heptachlor epoxide	ND	1.89	ug/kg	0.477
Methoxychlor	ND	3.67	ug/kg	0.800
Toxaphene	ND	74.5	ug/kg	16.9

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	78.8	(70.- 125)
Decachlorobiphenyl	121	(55.- 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC Semivolatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AL **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/17/13
Prep Batch #...: 3016021 **Analysis Time..:** 12:55
Dilution Factor: 1
% Moisture.....: 8.4 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aldrin	ND	1.86	ug/kg	0.334
alpha-BHC	ND	1.86	ug/kg	0.202
beta-BHC	ND	1.86	ug/kg	0.328
delta-BHC	ND	1.86	ug/kg	0.264
gamma-BHC (Lindane)	ND	1.86	ug/kg	0.370
Chlordane (technical)	ND	18.6	ug/kg	4.07
4,4'-DDE	**9.19 PG**	**1.86**	**ug/kg**	**0.426**
4,4'-DDT	**2.49 PG**	**1.86**	**ug/kg**	**0.686**
Dieldrin	ND	1.86	ug/kg	0.235
Endosulfan I	ND	1.86	ug/kg	0.623
Endosulfan II	ND	1.86	ug/kg	0.257
Endosulfan sulfate	ND	1.86	ug/kg	0.371
Endrin	ND	1.86	ug/kg	0.173
Endrin aldehyde	ND	1.86	ug/kg	0.425
Endrin ketone	ND	1.86	ug/kg	0.455
Heptachlor	ND	1.86	ug/kg	0.223
Heptachlor epoxide	ND	1.86	ug/kg	0.469
Methoxychlor	ND	3.60	ug/kg	0.785
Toxaphene	ND	73.2	ug/kg	16.6

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	76.4	(70.- 125)
Decachlorobiphenyl	115	(55.- 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

PG The percent difference between the original and confirmation analyses is greater than 40%.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC Semivolatiles

Lot-Sample #...:	F3A150406-002	**Work Order #...:**	MXVWQ2AL	**Matrix.....:**	SOLID
Date Sampled...:	01/14/13 14:10	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/17/13		
Prep Batch #...:	3016021	**Analysis Time..:**	13:36		
Dilution Factor:	4				
% Moisture.....:	8.4	**Method.....:**	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
4,4'-DDD	**49.2 D**	**7.43**	**ug/kg**	**0.966**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	89.7	(70.- 125)
Decachlorobiphenyl	87.6	(55.- 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

D Result was obtained from the analysis of a dilution.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC Semivolatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AL **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/17/13
Prep Batch #...: 3016021 **Analysis Time..:** 14:17
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aldrin	ND	1.92	ug/kg	0.346
alpha-BHC	ND	1.92	ug/kg	0.209
beta-BHC	ND	1.92	ug/kg	0.340
delta-BHC	ND	1.92	ug/kg	0.274
gamma-BHC (Lindane)	ND	1.92	ug/kg	0.384
Chlordane (technical)	ND	19.2	ug/kg	4.22
4,4'-DDD	**32.1**	**1.92**	**ug/kg**	**0.250**
4,4'-DDE	**6.28 PG**	**1.92**	**ug/kg**	**0.442**
4,4'-DDT	**6.70 PG**	**1.92**	**ug/kg**	**0.711**
Dieldrin	ND	1.92	ug/kg	0.243
Endosulfan I	ND	1.92	ug/kg	0.645
Endosulfan II	ND	1.92	ug/kg	0.266
Endosulfan sulfate	ND	1.92	ug/kg	0.385
Endrin	ND	1.92	ug/kg	0.179
Endrin aldehyde	ND	1.92	ug/kg	0.440
Endrin ketone	ND	1.92	ug/kg	0.472
Heptachlor	ND	1.92	ug/kg	0.231
Heptachlor epoxide	ND	1.92	ug/kg	0.486
Methoxychlor	ND	3.74	ug/kg	0.814
Toxaphene	ND	75.9	ug/kg	17.2

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	70.0	(70.- 125)
Decachlorobiphenyl	531 *	(55.- 130)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

PG The percent difference between the original and confirmation analyses is greater than 40%.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC Semivolatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AL **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/17/13
Prep Batch #...: 3016021 **Analysis Time..:** 14:58
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aldrin	ND	1.89	ug/kg	0.340
alpha-BHC	ND	1.89	ug/kg	0.205
beta-BHC	ND	1.89	ug/kg	0.333
delta-BHC	ND	1.89	ug/kg	0.269
gamma-BHC (Lindane)	ND	1.89	ug/kg	0.376
Chlordane (technical)	ND	18.9	ug/kg	4.14
4,4'-DDD	ND	1.89	ug/kg	0.245
4,4'-DDE	ND	1.89	ug/kg	0.433
4,4'-DDT	ND	1.89	ug/kg	0.697
Dieldrin	ND	1.89	ug/kg	0.239
Endosulfan I	ND	1.89	ug/kg	0.633
Endosulfan II	ND	1.89	ug/kg	0.261
Endosulfan sulfate	ND	1.89	ug/kg	0.378
Endrin	ND	1.89	ug/kg	0.175
Endrin aldehyde	ND	1.89	ug/kg	0.432
Endrin ketone	ND	1.89	ug/kg	0.463
Heptachlor	ND	1.89	ug/kg	0.227
Heptachlor epoxide	ND	1.89	ug/kg	0.476
Methoxychlor	ND	3.67	ug/kg	0.799
Toxaphene	ND	74.4	ug/kg	16.8

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	77.8	(70.- 125)
Decachlorobiphenyl	119	(55.- 130)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9F1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-021

Prep Date.....: 01/16/13 **Analysis Time..:** 11:33
Analysis Date..: 01/17/13 **Prep Batch #...:** 3016021
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aldrin	ND	1.70	ug/kg	SW846 8081A
alpha-BHC	ND	1.70	ug/kg	SW846 8081A
beta-BHC	ND	1.70	ug/kg	SW846 8081A
delta-BHC	ND	1.70	ug/kg	SW846 8081A
gamma-BHC (Lindane)	ND	1.70	ug/kg	SW846 8081A
Chlordane (technical)	ND	17.0	ug/kg	SW846 8081A
4,4'-DDD	ND	1.70	ug/kg	SW846 8081A
4,4'-DDE	ND	1.70	ug/kg	SW846 8081A
4,4'-DDT	ND	1.70	ug/kg	SW846 8081A
Dieldrin	ND	1.70	ug/kg	SW846 8081A
Endosulfan I	ND	1.70	ug/kg	SW846 8081A
Endosulfan II	ND	1.70	ug/kg	SW846 8081A
Endosulfan sulfate	ND	1.70	ug/kg	SW846 8081A
Endrin	ND	1.70	ug/kg	SW846 8081A
Endrin aldehyde	ND	1.70	ug/kg	SW846 8081A
Endrin ketone	ND	1.70	ug/kg	SW846 8081A
Heptachlor	ND	1.70	ug/kg	SW846 8081A
Heptachlor epoxide	ND	1.70	ug/kg	SW846 8081A
Methoxychlor	ND	3.30	ug/kg	SW846 8081A
Toxaphene	ND	67.0	ug/kg	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	71.5	(70.0- 125)
Decachlorobiphenyl	68.3	(55.0- 130)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A150406 Work Order #...: MXV9F1AC Matrix.....: SOLID
LCS Lot-Sample#: F3A160000-021
Prep Date.....: 01/16/13 Analysis Date..: 01/17/13
Prep Batch #...: 3016021 Analysis Time..: 11:53
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
alpha-BHC	**70.4**	**(60.0- 125**	**SW846 8081A**
beta-BHC	**74.9**	**(60.0- 125**	**SW846 8081A**
delta-BHC	**77.9**	**(55.0- 130**	**SW846 8081A**
gamma-BHC (Lindane)	**75.7**	**(60.0- 125**	**SW846 8081A**
Heptachlor	**74.2**	**(50.0- 140**	**SW846 8081A**
Aldrin	**80.7**	**(45.0- 140**	**SW846 8081A**
Heptachlor epoxide	**74.8**	**(65.0- 130**	**SW846 8081A**
Endosulfan I	**64.3**	**(15.0- 135**	**SW846 8081A**
Dieldrin	**76.3**	**(65.0- 125**	**SW846 8081A**
4,4'-DDE	**75.7**	**(70.0- 125**	**SW846 8081A**
Endrin	**76.5**	**(60.0- 135**	**SW846 8081A**
Endosulfan II	**67.6**	**(35.0- 140**	**SW846 8081A**
4,4'-DDD	**82.2**	**(30.0- 135**	**SW846 8081A**
Endosulfan sulfate	**78.7**	**(60.0- 135**	**SW846 8081A**
4,4'-DDT	**77.1**	**(45.0- 140**	**SW846 8081A**
Methoxychlor	**83.9**	**(55.0- 145**	**SW846 8081A**
Endrin ketone	**79.0**	**(65.0- 135**	**SW846 8081A**
Endrin aldehyde	**73.5**	**(35.0- 145**	**SW846 8081A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	79.7	(70.0- 125
Decachlorobiphenyl	83.2	(55.0- 130

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A150406 Work Order #...: MXVWV1A8-MS Matrix.....: SOLID
MS Lot-Sample #: F3A150406-004 MXVWV1A9-MSD
Date Sampled...: 01/14/13 14:30 Date Received..: 01/15/13
Prep Date.....: 01/16/13 Analysis Date..: 01/17/13
Prep Batch #...: 3016021 Analysis Time..: 15:39
Dilution Factor: 1 % Moisture.....: 10

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
alpha-BHC	80.0	(60.0- 125			SW846 8081A
	64.1	(60.0- 125	21.9	(0-30.0)	SW846 8081A
beta-BHC	79.4	(60.0- 125			SW846 8081A
	68.3	(60.0- 125	14.9	(0-30.0)	SW846 8081A
delta-BHC	85.3	(55.0- 130			SW846 8081A
	72.9	(55.0- 130	15.6	(0-30.0)	SW846 8081A
gamma-BHC (Lindane)	82.1	(60.0- 125			SW846 8081A
	66.8	(60.0- 125	20.5	(0-30.0)	SW846 8081A
Heptachlor	80.2	(50.0- 140			SW846 8081A
	62.4	(50.0- 140	24.9	(0-30.0)	SW846 8081A
Aldrin	77.9	(45.0- 140			SW846 8081A
	63.4	(45.0- 140	20.5	(0-30.0)	SW846 8081A
Heptachlor epoxide	81.6	(65.0- 130			SW846 8081A
	64.0 a	(65.0- 130	24.2	(0-30.0)	SW846 8081A
Endosulfan I	67.7	(15.0- 135			SW846 8081A
	51.9	(15.0- 135	26.3	(0-30.0)	SW846 8081A
Dieldrin	81.1	(65.0- 125			SW846 8081A
	66.5	(65.0- 125	19.7	(0-30.0)	SW846 8081A
4,4'-DDE	80.9	(70.0- 125			SW846 8081A
	66.0 a	(70.0- 125	20.2	(0-30.0)	SW846 8081A
Endrin	81.1	(60.0- 135			SW846 8081A
	66.6	(60.0- 135	19.6	(0-30.0)	SW846 8081A
Endosulfan II	66.5	(35.0- 140			SW846 8081A
	53.4	(35.0- 140	21.7	(0-30.0)	SW846 8081A
4,4'-DDD	83.9	(30.0- 135			SW846 8081A
	66.9	(30.0- 135	22.6	(0-30.0)	SW846 8081A
Endosulfan sulfate	80.6	(60.0- 135			SW846 8081A
	69.0	(60.0- 135	15.4	(0-30.0)	SW846 8081A
4,4'-DDT	82.7	(45.0- 140			SW846 8081A
	68.7	(45.0- 140	18.4	(0-30.0)	SW846 8081A
Methoxychlor	84.0	(55.0- 145			SW846 8081A
	70.7	(55.0- 145	17.1	(0-30.0)	SW846 8081A
Endrin ketone	81.5	(65.0- 135			SW846 8081A
	69.2	(65.0- 135	16.3	(0-30.0)	SW846 8081A
Endrin aldehyde	75.4	(35.0- 145			SW846 8081A
	71.6	(35.0- 145	5.09	(0-30.0)	SW846 8081A

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXVWV1A8-MS **Matrix.....:** SOLID
MS Lot-Sample #: F3A150406-004 MXVWV1A9-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	84.6	(70.0- 125
	71.2	(70.0- 125
Decachlorobiphenyl	115	(55.0- 130
	78.3	(55.0- 130

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

a Spiked analyte recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-002A

GC Semivolatiles

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP1AG **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016020 **Analysis Time..:** 15:33
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	36.7	ug/kg	9.70
Aroclor 1221	ND	36.7	ug/kg	9.70
Aroclor 1232	ND	36.7	ug/kg	9.70
Aroclor 1242	ND	36.7	ug/kg	9.70
Aroclor 1248	ND	36.7	ug/kg	9.70
Aroclor 1254	**15.2 J,PG**	**36.7**	**ug/kg**	**6.12**
Aroclor 1260	**10.2 J**	**36.7**	**ug/kg**	**6.12**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	105	(60.- 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

J Estimated result. Result is less than RL.

PG The percent difference between the original and confirmation analyses is greater than 40%.

Tetra Tech EC Inc

Client Sample ID: 05-003

GC Semivolatiles

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ1AM **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016020 **Analysis Time..:** 16:10
Dilution Factor: 1
% Moisture.....: 8.4 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	36.0	ug/kg	9.52
Aroclor 1221	ND	36.0	ug/kg	9.52
Aroclor 1232	ND	36.0	ug/kg	9.52
Aroclor 1242	ND	36.0	ug/kg	9.52
Aroclor 1248	ND	36.0	ug/kg	9.52
Aroclor 1254	**903 PG**	**36.0**	**ug/kg**	**6.01**
Aroclor 1260	**409**	**36.0**	**ug/kg**	**6.01**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	95.7	(60.- 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

PG The percent difference between the original and confirmation analyses is greater than 40%.

Tetra Tech EC Inc

Client Sample ID: 05-004

GC Semivolatiles

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR1AM **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016020 **Analysis Time..:** 16:47
Dilution Factor: 1
% Moisture.....: 12 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	37.4	ug/kg	9.87
Aroclor 1221	ND	37.4	ug/kg	9.87
Aroclor 1232	ND	37.4	ug/kg	9.87
Aroclor 1242	ND	37.4	ug/kg	9.87
Aroclor 1248	ND	37.4	ug/kg	9.87
Aroclor 1254	**188**	**37.4**	**ug/kg**	**6.23**
Aroclor 1260	**111**	**37.4**	**ug/kg**	**6.23**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	439 *	(60.- 125)

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

Tetra Tech EC Inc

Client Sample ID: 05-005

GC Semivolatiles

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV1AM **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016020 **Analysis Time..:** 18:56
Dilution Factor: 1
% Moisture.....: 10 **Method.....:** SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Aroclor 1016	ND	36.7	ug/kg	9.68
Aroclor 1221	ND	36.7	ug/kg	9.68
Aroclor 1232	ND	36.7	ug/kg	9.68
Aroclor 1242	ND	36.7	ug/kg	9.68
Aroclor 1248	ND	36.7	ug/kg	9.68
Aroclor 1254	ND	36.7	ug/kg	6.11
Aroclor 1260	ND	36.7	ug/kg	6.11

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	80.8	(60.- 125)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9E1AA **Matrix.....:** SOLID
MB Lot-Sample #: F3A160000-020

Prep Date.....: 01/16/13 **Analysis Time..:** 14:56
Analysis Date..: 01/16/13 **Prep Batch #...:** 3016020
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	33.0	ug/kg	SW846 8082
Aroclor 1221	ND	33.0	ug/kg	SW846 8082
Aroclor 1232	ND	33.0	ug/kg	SW846 8082
Aroclor 1242	ND	33.0	ug/kg	SW846 8082
Aroclor 1248	ND	33.0	ug/kg	SW846 8082
Aroclor 1254	ND	33.0	ug/kg	SW846 8082
Aroclor 1260	ND	33.0	ug/kg	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	88.2	(60.0- 125)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: F3A150406 **Work Order #...:** MXV9E1AC **Matrix.....:** SOLID
LCS Lot-Sample#: F3A160000-020
Prep Date.....: 01/16/13 **Analysis Date..:** 01/16/13
Prep Batch #...: 3016020 **Analysis Time..:** 15:15
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD
Aroclor 1016	**89.2**	**(40.0- 140**	**SW846 8082**
Aroclor 1260	**91.4**	**(60.0- 130**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	89.7	(60.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...:	F3A150406	**Work Order #...:**	MXVWR1A8-MS	**Matrix.....:**	SOLID
MS Lot-Sample #:	F3A150406-003		MXVWR1A9-MSD		
Date Sampled...:	01/14/13 14:20	**Date Received..:**	01/15/13		
Prep Date.....:	01/16/13	**Analysis Date..:**	01/16/13		
Prep Batch #...:	3016020	**Analysis Time..:**	17:24		
Dilution Factor:	1	**% Moisture.....:**	12		

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**59.6**	**(40.0- 140**			**SW846 8082**
	63.1	**(40.0- 140**	**5.72**	**(0-30.0)**	**SW846 8082**
Aroclor 1260	**63.5**	**(60.0- 130**			**SW846 8082**
	90.2	**(60.0- 130**	**19.7**	**(0-30.0)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	476 *	(60.0- 125
	538 *	(60.0- 125

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

* Surrogate recovery is outside stated control limits.

Tetra Tech EC Inc

Client Sample ID: 05-002A

TOTAL Metals

Lot-Sample #...: F3A150406-001 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
% Moisture.....: 10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3016024						
Silver	**0.16 B**	**0.22**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWP1AX**
		Dilution Factor: 1		Analysis Time..: 11:30	MDL.....: 0.027	
Arsenic	**2.0**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AL**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.29	
Barium	**44.4**	**2.2**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AM**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.10	
Beryllium	**0.17**	**0.11**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AN**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.029	
Cadmium	**0.39**	**0.067**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AP**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.018	
Cobalt	**5.6**	**0.22**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AQ**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.048	
Chromium	**38.1**	**2.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1A3**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.50	
Copper	**9.9**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AR**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.11	
Molybdenum	**0.20 B**	**0.56**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AU**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.14	
Nickel	**35.8**	**0.56**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AV**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.12	
Lead	**20.4**	**0.33**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AT**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.11	
Antimony	ND N	0.56	mg/kg	SW846 6020	01/16-01/21/13	MXVWP1A4
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.18	
Selenium	**0.41 B**	**0.56**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1AW**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.18	

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Tetra Tech EC Inc

Client Sample ID: 05-002A

TOTAL Metals

Lot-Sample #...: F3A150406-001 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium	ND	0.5	mg/kg	SW846 6020	01/16-01/21/13	MXVWP1A0
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.17	
Vanadium	**24.2 E**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1A1**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 0.82	
Zinc	**31.6**	**2.2**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWP1A2**
		Dilution Factor: 1		Analysis Time..: 23:19	MDL.....: 1.5	

Prep Batch #...: 3017024

Mercury	**0.036 B**	**0.044**	**mg/kg**	**SW846 7471A**	**01/17/13**	**MXVWP1AK**
		Dilution Factor: 1		Analysis Time..: 18:29	MDL.....: 0.012	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

N Spiked analyte recovery is outside stated control limits.

E Matrix interference.

Tetra Tech EC Inc

Client Sample ID: 05-002A

TCLP Metals

Lot-Sample #...: F3A150406-001 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301602

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3017033						
Lead	**14.0 B**	**250**	**ug/L**	**SW846 6010B**	**01/17-01/22/13**	**MXVWP1A7**
		Dilution Factor: 1		Analysis Time..: 15:54	MDL.....: 3.2	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-003

TOTAL Metals

Lot-Sample #...: F3A150406-002 Matrix.....: SOLID
Date Sampled...: 01/14/13 14:10 Date Received..: 01/15/13
% Moisture.....: 8.4

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3016024						
Silver	1.0	0.22	mg/kg	SW846 6020	01/16-01/22/13	MXVWQ1A4
		Dilution Factor: 1		Analysis Time..: 11:56	MDL.....: 0.026	
Arsenic	3.1	1.1	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AR
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.28	
Barium	107	2.2	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AT
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.10	
Beryllium	0.14	0.11	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AU
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.028	
Cadmium	1.4	0.066	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AV
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.017	
Cobalt	5.5	0.22	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AW
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.047	
Chromium	61.1	2.1	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AE
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.49	
Copper	60.9	1.1	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AX
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.11	
Molybdenum	1.5	0.55	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1A1
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.14	
Nickel	32.6	0.55	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1A2
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.12	
Lead	107	0.33	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1A0
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.11	
Antimony	0.59 N	0.55	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AF
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.18	
Selenium	0.49 B	0.55	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1A3
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.17	

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Tetra Tech EC Inc

Client Sample ID: 05-003

TOTAL Metals

Lot-Sample #...: F3A150406-002 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium	ND	0.49	mg/kg	SW846 6020	01/16-01/21/13	MXVWQ1AA
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.17	
Vanadium	**25.0 E**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWQ1AC**
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 0.80	
Zinc	**165**	**2.2**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWQ1AD**
		Dilution Factor: 1		Analysis Time..: 23:46	MDL.....: 1.5	

Prep Batch #...: 3017024

Mercury	**0.66**	**0.044**	**mg/kg**	**SW846 7471A**	**01/17/13**	**MXVWQ1AQ**
		Dilution Factor: 1		Analysis Time..: 18:37	MDL.....: 0.012	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

B Estimated result. Result is less than RL.

E Matrix interference.

Tetra Tech EC Inc

Client Sample ID: 05-003

TCLP Metals

Lot-Sample #...: F3A150406-002 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301602

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3017033						
Lead	**124 B**	**250**	**ug/L**	**SW846 6010B**	**01/17-01/22/13**	**MXVWQ1A7**
		Dilution Factor: 1		Analysis Time..: 16:08	MDL.....: 3.2	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-004

TOTAL Metals

Lot-Sample #...: F3A150406-003 Matrix.....: SOLID
Date Sampled...: 01/14/13 14:20 Date Received..: 01/15/13
% Moisture.....: 12

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3016024						
Silver	1.5	0.23	mg/kg	SW846 6020	01/16-01/22/13	MXVWR1A4
		Dilution Factor: 1		Analysis Time..: 12:09	MDL.....: 0.027	
Arsenic	2.8	1.1	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AR
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.29	
Barium	48.7	2.3	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AT
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.11	
Beryllium	0.15	0.11	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AU
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.029	
Cadmium	2.4	0.068	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AV
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.018	
Cobalt	5.7	0.23	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AW
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.049	
Chromium	49.1	2.2	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AE
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.51	
Copper	43.8	1.1	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AX
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.11	
Molybdenum	0.64	0.57	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1A1
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.14	
Nickel	30.2	0.57	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1A2
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.12	
Lead	76.1	0.34	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1A0
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.11	
Antimony	0.35 BN	0.57	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AF
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.19	
Selenium	0.27 B	0.57	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1A3
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.18	

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Tetra Tech EC Inc

Client Sample ID: 05-004

TOTAL Metals

Lot-Sample #...: F3A150406-003 Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium	ND	0.51	mg/kg	SW846 6020	01/16-01/21/13	MXVWR1AA
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.17	
Vanadium	**26.3 E**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWR1AC**
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 0.83	
Zinc	**119**	**2.3**	**mg/kg**	**SW846 6020**	**01/16-01/21/13**	**MXVWR1AD**
		Dilution Factor: 1		Analysis Time..: 23:59	MDL.....: 1.5	
Prep Batch #...: 3017024						
Mercury	**0.26**	**0.045**	**mg/kg**	**SW846 7471A**	**01/17/13**	**MXVWR1AQ**
		Dilution Factor: 1		Analysis Time..: 18:39	MDL.....: 0.013	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

E Matrix interference.

Tetra Tech EC Inc

Client Sample ID: 05-004

TCLP Metals

Lot-Sample #...: F3A150406-003 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301602

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3017033						
Lead	**59.8 B**	**250**	**ug/L**	**SW846 6010B**	**01/17-01/22/13**	**MXVWR1A7**
		Dilution Factor: 1		Analysis Time..: 16:12	MDL.....: 3.2	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-005

TOTAL Metals

Lot-Sample #...: F3A150406-004 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
% Moisture.....: 10

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3016024						
Silver	**0.069 B**	**0.22**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1A4**
		Dilution Factor: 1		Analysis Time..: 12:16	MDL.....: 0.027	
Arsenic	**1.5**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AR**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.29	
Barium	**40.2**	**2.2**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AT**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.10	
Beryllium	**0.14**	**0.11**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AU**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.029	
Cadmium	**0.051 B**	**0.067**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AV**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.018	
Cobalt	**4.8**	**0.22**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AW**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.048	
Chromium	**33.1**	**2.1**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AE**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.50	
Copper	**6.3**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AX**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.11	
Molybdenum	ND	0.56	mg/kg	SW846 6020	01/16-01/22/13	MXVWV1A1
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.14	
Nickel	**27.4**	**0.56**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1A2**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.12	
Lead	**3.2**	**0.33**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1A0**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.11	
Antimony	ND N	0.56	mg/kg	SW846 6020	01/16-01/22/13	MXVWV1AF
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.18	
Selenium	**0.26 B**	**0.56**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1A3**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.18	

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Tetra Tech EC Inc

Client Sample ID: 05-005

TOTAL Metals

Lot-Sample #...: F3A150406-004 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium	ND	0.5	mg/kg	SW846 6020	01/16-01/22/13	MXVWV1AA
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.17	
Vanadium	**21.2 E**	**1.1**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AC**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 0.82	
Zinc	**18.4**	**2.2**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXVWV1AD**
		Dilution Factor: 1		Analysis Time..: 00:06	MDL.....: 1.5	
Prep Batch #...: 3017024						
Mercury	**0.020 B**	**0.044**	**mg/kg**	**SW846 7471A**	**01/17/13**	**MXVWV1AQ**
		Dilution Factor: 1		Analysis Time..: 18:46	MDL.....: 0.012	

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

N Spiked analyte recovery is outside stated control limits.

E Matrix interference.

Tetra Tech EC Inc

Client Sample ID: 05-005

TCLP Metals

Lot-Sample #...: F3A150406-004 Matrix.....: SOLID
Date Sampled...: 01/14/13 14:30 Date Received..: 01/15/13
Leach Date.....: 01/16/13 Leach Batch #..: P301602

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3017033						
Lead	4.8 B	250	ug/L	SW846 6010B	01/17-01/22/13	MXVWV1A7
		Dilution Factor: 1		Analysis Time..: 16:19	MDL.....: 3.2	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-002A

STLC Metals

Lot-Sample #...: F3A150406-005 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301601

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3018030						
Cadmium	ND	125	ug/L	SW846 6010B	01/18-01/21/13	MXVWW1AC
		Dilution Factor: 5		Analysis Time..: 10:28	MDL.....: 22.8	
Chromium	**158 B**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVWW1AD**
		Dilution Factor: 5		Analysis Time..: 10:28	MDL.....: 78.5	
Copper	**158 B**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVWW1AE**
		Dilution Factor: 5		Analysis Time..: 10:28	MDL.....: 114	
Lead	**930 B**	**2500**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVWW1AF**
		Dilution Factor: 5		Analysis Time..: 10:28	MDL.....: 31.8	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-003

STLC Metals

Lot-Sample #...: F3A150406-006 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301601

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3018030						
Cadmium	77.5 B	125	ug/L	SW846 6010B	01/18-01/21/13	MXVW71AC
		Dilution Factor: 5		Analysis Time..: 10:42	MDL.....: 22.8	
Chromium	800	625	ug/L	SW846 6010B	01/18-01/21/13	MXVW71AD
		Dilution Factor: 5		Analysis Time..: 10:42	MDL.....: 78.5	
Copper	1430	625	ug/L	SW846 6010B	01/18-01/21/13	MXVW71AE
		Dilution Factor: 5		Analysis Time..: 10:42	MDL.....: 114	
Lead	6700	2500	ug/L	SW846 6010B	01/18-01/21/13	MXVW71AF
		Dilution Factor: 5		Analysis Time..: 10:42	MDL.....: 31.8	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

B Estimated result. Result is less than RL.

Tetra Tech EC Inc

Client Sample ID: 05-004

STLC Metals

Lot-Sample #...: F3A150406-007 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301601

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3018030						
Cadmium	**205**	**125**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXA1AC**
		Dilution Factor: 5		Analysis Time..: 10:50	MDL.....: 22.8	
Chromium	**785**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXA1AD**
		Dilution Factor: 5		Analysis Time..: 10:50	MDL.....: 78.5	
Copper	**692**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXA1AE**
		Dilution Factor: 5		Analysis Time..: 10:50	MDL.....: 114	
Lead	**2860**	**2500**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXA1AF**
		Dilution Factor: 5		Analysis Time..: 10:50	MDL.....: 31.8	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

Tetra Tech EC Inc

Client Sample ID: 05-005

STLC Metals

Lot-Sample #...: F3A150406-008 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
Leach Date.....: 01/16/13 **Leach Batch #..:** P301601

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3018030						
Cadmium	ND	125	ug/L	SW846 6010B	01/18-01/21/13	MXVXE1AC
		Dilution Factor: 5		Analysis Time..: 10:53	MDL.....: 22.8	
Chromium	**152 B**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXE1AD**
		Dilution Factor: 5		Analysis Time..: 10:53	MDL.....: 78.5	
Copper	**120 B**	**625**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXE1AE**
		Dilution Factor: 5		Analysis Time..: 10:53	MDL.....: 114	
Lead	**170 B**	**2500**	**ug/L**	**SW846 6010B**	**01/18-01/21/13**	**MXVXE1AF**
		Dilution Factor: 5		Analysis Time..: 10:53	MDL.....: 31.8	

NOTE(S):

Soluable Threshold Limit Concentration (STLC) done in accordance with App II: Waste Extraction procedures. CCR Title 22.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3A160000-024 **Prep Batch #...:** 3016024						
Antimony	ND	0.5	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AT
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Arsenic	ND	1	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AA
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Barium	ND	2	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AC
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Beryllium	ND	0.1	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AD
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Cadmium	ND	0.06	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AE
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Chromium	ND	1.9	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AR
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Cobalt	ND	0.2	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AF
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Copper	ND	1	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AG
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Lead	ND	0.3	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AH
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Molybdenum	ND	0.5	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AJ
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Nickel	ND	0.5	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AK
		Dilution Factor: 1				
		Analysis Time..: 23:06				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Selenium	ND	0.5	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AL
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Silver	**0.053 B**	**0.2**	**mg/kg**	**SW846 6020**	**01/16-01/22/13**	**MXV9M1AM**
		Dilution Factor: 1				
		Analysis Time..: 11:16				
Thallium	ND	0.45	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AN
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Vanadium	ND	1	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AP
		Dilution Factor: 1				
		Analysis Time..: 23:06				
Zinc	ND	2	mg/kg	SW846 6020	01/16-01/21/13	MXV9M1AQ
		Dilution Factor: 1				
		Analysis Time..: 23:06				

MB Lot-Sample #: F3A170000-024 **Prep Batch #...:** 3017024

Mercury	ND	0.04	mg/kg	SW846 7471A	01/17/13	MXWJM1AA
		Dilution Factor: 1				
		Analysis Time..: 18:26				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3A160000-039		**Prep Batch #...:** 3017033				
Leach Date.....: 01/16/13		**Leach Batch #..:** P301602				
Lead	ND	250	ug/L	SW846 6010B	01/17-01/22/13	MXWEG1AA
		Dilution Factor: 1				
		Analysis Time..: 15:47				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

STLC Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3A160000-031 **Prep Batch #...:** 3018030						
Leach Date.....: 01/16/13 **Leach Batch #..:** P301601						
Cadmium	ND	125	ug/L	SW846 6010B	01/18-01/21/13	MXWAW1AA
		Dilution Factor: 5				
		Analysis Time..: 10:20				
Chromium	ND	625	ug/L	SW846 6010B	01/18-01/21/13	MXWAW1AC
		Dilution Factor: 5				
		Analysis Time..: 10:20				
Copper	ND	625	ug/L	SW846 6010B	01/18-01/21/13	MXWAW1AD
		Dilution Factor: 5				
		Analysis Time..: 10:20				
Lead	ND	2500	ug/L	SW846 6010B	01/18-01/21/13	MXWAW1AE
		Dilution Factor: 5				
		Analysis Time..: 10:20				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3A160000-024 **Prep Batch #...:** 3016024					
Arsenic	98	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1AU
		Dilution Factor: 1	Analysis Time..: 23:12		
Barium	101	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1AV
		Dilution Factor: 1	Analysis Time..: 23:12		
Beryllium	108	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1AW
		Dilution Factor: 1	Analysis Time..: 23:12		
Cadmium	101	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1AX
		Dilution Factor: 1	Analysis Time..: 23:12		
Cobalt	97	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A0
		Dilution Factor: 1	Analysis Time..: 23:12		
Copper	95	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A1
		Dilution Factor: 1	Analysis Time..: 23:12		
Lead	98	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A2
		Dilution Factor: 1	Analysis Time..: 23:12		
Molybdenum	100	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A3
		Dilution Factor: 1	Analysis Time..: 23:12		
Nickel	100	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A4
		Dilution Factor: 1	Analysis Time..: 23:12		
Selenium	93	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A5
		Dilution Factor: 1	Analysis Time..: 23:12		
Silver	106	(80 - 120)	SW846 6020	01/16-01/22/13	MXV9M1A6
		Dilution Factor: 1	Analysis Time..: 11:23		
Thallium	98	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A7
		Dilution Factor: 1	Analysis Time..: 23:12		
Vanadium	100	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A8
		Dilution Factor: 1	Analysis Time..: 23:12		
Zinc	94	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1A9
		Dilution Factor: 1	Analysis Time..: 23:12		

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	100	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1CA
		Dilution Factor: 1	Analysis Time..: 23:12		
Antimony	100	(80 - 120)	SW846 6020	01/16-01/21/13	MXV9M1CC
		Dilution Factor: 1	Analysis Time..: 23:12		

LCS Lot-Sample#: F3A170000-024 **Prep Batch #...:** 3017024

Mercury	96	(80 - 120)	SW846 7471A	01/17/13	MXWJM1AC
		Dilution Factor: 1	Analysis Time..: 18:27		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3A170000-033 **Prep Batch #...:** 3017033					
Lead	97	(80 - 120)	SW846 6010B	01/17-01/22/13	MXWKM1AA
		Dilution Factor: 1	Analysis Time..: 15:50		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

STLC Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3A180000-030 **Prep Batch #...:** 3018030					
Cadmium	100	(80 - 120)	SW846 6010B	01/18-01/21/13	MXW3C1AA
		Dilution Factor: 5	Analysis Time..: 10:24		
Chromium	98	(80 - 120)	SW846 6010B	01/18-01/21/13	MXW3C1AC
		Dilution Factor: 5	Analysis Time..: 10:24		
Copper	99	(80 - 120)	SW846 6010B	01/18-01/21/13	MXW3C1AD
		Dilution Factor: 5	Analysis Time..: 10:24		
Lead	96	(80 - 120)	SW846 6010B	01/18-01/21/13	MXW3C1AE
		Dilution Factor: 5	Analysis Time..: 10:24		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F3A150406-001 **Prep Batch #...:** 3016024							
						% Moisture.....: 10	
Antimony	75 N	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1DE
	75 N	(80 - 120)	0.08	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1DF
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Arsenic	99	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CE
	100	(80 - 120)	0.69	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CF
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Barium	105	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CG
	108	(80 - 120)	1.6	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CH
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Beryllium	107	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CJ
	110	(80 - 120)	3.0	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CK
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Cadmium	102	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CL
	103	(80 - 120)	0.74	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CM
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Chromium	97	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1DC
	98	(80 - 120)	0.57	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1DD
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Cobalt	98	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CN
	99	(80 - 120)	0.88	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CP
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Copper	97	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CQ
	98	(80 - 120)	1.4	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CR
		Dilution Factor: 1					
		Analysis Time..: 23:33					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Lead	101	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CT
	103	(80 - 120)	1.9	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CU
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Molybdenum	101	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CV
	100	(80 - 120)	1.8	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1CW
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Nickel	103	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1CX
	103	(80 - 120)	0.59	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1C0
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Selenium	98	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1C1
	100	(80 - 120)	1.8	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1C2
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Silver	104	(80 - 120)			SW846 6020	01/16-01/22/13	MXVWP1C3
	103	(80 - 120)	0.47	(0-20)	SW846 6020	01/16-01/22/13	MXVWP1C4
		Dilution Factor: 1					
		Analysis Time..: 11:43					
Thallium	102	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1C5
	103	(80 - 120)	1.5	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1C6
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Vanadium	100	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1C7
	101	(80 - 120)	0.71	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1C8
		Dilution Factor: 1					
		Analysis Time..: 23:33					
Zinc	95	(80 - 120)			SW846 6020	01/16-01/21/13	MXVWP1C9
	97	(80 - 120)	1.6	(0-20)	SW846 6020	01/16-01/21/13	MXVWP1DA
		Dilution Factor: 1					
		Analysis Time..: 23:33					

MS Lot-Sample #: F3A150406-001 **Prep Batch #...:** 3017024

% Moisture.....: 10

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Mercury	112	(80 - 120)			SW846 7471A	01/17/13	MXVWP1DG
	96	(80 - 120)	13	(0-20)	SW846 7471A	01/17/13	MXVWP1DH

Dilution Factor: 1
Analysis Time..: 18:33

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F3A150406-001 **Prep Batch #...:** 3017033							
Leach Date.....: 01/16/13 **Leach Batch #..:** P301602							
Lead	96	(80 - 120)			SW846 6010B	01/17-01/22/13	MXVWP1DJ
	95	(80 - 120)		(0-20)	SW846 6010B	01/17-01/22/13	MXVWP1DK

Dilution Factor: 1
Analysis Time..: 16:01

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

STLC Metals

Client Lot #...: F3A150406 **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F3A150406-005		**Prep Batch #...:** 3018030					
Leach Date.....: 01/16/13		**Leach Batch #..:** P301601				**% Moisture.....:**	
Cadmium	97	(80 - 120)			SW846 6010B	01/18-01/21/13	MXVWW1AG
	100	(80 - 120)	2.7	(0-20)	SW846 6010B	01/18-01/21/13	MXVWW1AH
		Dilution Factor: 5					
		Analysis Time..: 10:35					
Chromium	97	(80 - 120)			SW846 6010B	01/18-01/21/13	MXVWW1AJ
	94	(80 - 120)	3.0	(0-20)	SW846 6010B	01/18-01/21/13	MXVWW1AK
		Dilution Factor: 5					
		Analysis Time..: 10:35					
Copper	96	(80 - 120)			SW846 6010B	01/18-01/21/13	MXVWW1AL
	100	(80 - 120)	3.7	(0-20)	SW846 6010B	01/18-01/21/13	MXVWW1AM
		Dilution Factor: 5					
		Analysis Time..: 10:35					
Lead	94	(80 - 120)			SW846 6010B	01/18-01/21/13	MXVWW1AN
	97	(80 - 120)	2.7	(0-20)	SW846 6010B	01/18-01/21/13	MXVWW1AP
		Dilution Factor: 5					
		Analysis Time..: 10:35					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Tetra Tech EC Inc

Client Sample ID: 05-002A

General Chemistry

Lot-Sample #...: F3A150406-001 **Work Order #...:** MXVWP **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13
% Moisture.....: 10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**10.1**	**0.100**	**%**	**MCAWW 160.3 MOD**	**01/16-01/17/13**	**3016014**

Dilution Factor: 1 Analysis Time..: 00:00 MDL.....:

Tetra Tech EC Inc

Client Sample ID: 05-003

General Chemistry

Lot-Sample #...: F3A150406-002 **Work Order #...:** MXVWQ **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:10 **Date Received..:** 01/15/13
% Moisture.....: 8.4

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**8.45**	**0.100**	**%**	**MCAWW 160.3 MOD**	**01/16-01/17/13**	**3016014**

Dilution Factor: 1 Analysis Time..: 00:00 MDL.....:

Tetra Tech EC Inc

Client Sample ID: 05-004

General Chemistry

Lot-Sample #...: F3A150406-003 **Work Order #...:** MXVWR **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:20 **Date Received..:** 01/15/13
% Moisture.....: 12

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**11.7**	**0.100**	**%**	**MCAWW 160.3 MOD**	**01/16-01/17/13**	**3016014**

Dilution Factor: 1 Analysis Time..: 00:00 MDL.....:

Tetra Tech EC Inc

Client Sample ID: 05-005

General Chemistry

Lot-Sample #...: F3A150406-004 **Work Order #...:** MXVWV **Matrix.....:** SOLID
Date Sampled...: 01/14/13 14:30 **Date Received..:** 01/15/13
% Moisture.....: 10

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture	**9.96**	**0.100**	**%**	**MCAWW 160.3 MOD**	**01/16-01/17/13**	**3016014**

Dilution Factor: 1 Analysis Time..: 00:00 MDL.....:

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F3A150406 **Work Order #...:** MXVWP-SMP MXVWP-DUP **Matrix.....:** SOLID

Date Sampled...: 01/14/13 14:00 **Date Received..:** 01/15/13

% Moisture.....: 10

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Percent Moisture						SD Lot-Sample #:	F3A150406-001	
	10.1	10.5	%	4.08	(0-30.0	MCAWW 160.3 MOD	01/16-01/17/13	3016014

Dilution Factor: 1 Analysis Time..: 00:00

TestAmerica St. Louis

F3A150406

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-244,ENCORE

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440005 Alameda CTO05

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS In LOT: 8

Date Received: 2013-01-15

Analytical Due Date: 2013-01-21

Report Due Date: 2013-01-22

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/soils must be extracted within 7/14 days per client SAP (regardless of EPA method).

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	05-002A			2013-01-14 / 1400	MXVWP	SOLID

SAMPLE COMMENTS:

	XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	XX	QJ	SW846	8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	CD	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	AS	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	ZN	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	BA	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	BE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	AG	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	NI	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	MO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	CU	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	CR	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	CO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	HG	O9	SW846	7471A	SOLID, 7471, Mercury 2 of 2	70	METALS, TOTAL (Method Exclusive) - Solids	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	PB	QO	SW846	6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
	XX	QL	SW846	8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N		
	XX	QK	SW846	8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N		
	XX	ZV		RAD SCREEN	SOLID, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT: A	WRK LOC	06			
	XX	ZZ	NONE	NONE	SOLID, TCLP Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06			
	XX	WM	MCAW W	160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06			
D	CR	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			
D	NI	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06			

TestAmerica St. Louis

F3A150406

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-244,ENCORE

Project Manager: EKS | Quote #: 90022 | SDG:

Project: 40440005 | Alameda CTO05

PO#: OSP-02-8300-2012 | Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS In LOT: 8

Date Received: 2013-01-15

Analytical Due Date: 2013-01-21

Report Due Date: 2013-01-22

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/solls must be extracted within 7/14 days per client SAP (regardless of EPA method).

D	CU	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	CO	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	CD	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	BE	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	BA	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	AS	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	AG	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	ZN	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	MO	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	XX	QL	SW846 8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N	
D	XX	QK	SW846 8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N	
S	TL	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	ZN	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	VX	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	SE	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	SB	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	PB	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	NI	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	MO	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	AG	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	CR	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	CO	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	CD	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	BE	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	BA	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	AS	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	CU	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	XX	QL	SW846 8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N	
S	XX	QK	SW846 8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N	
X	XX	WM	MCAW W 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
2	05-003			2013-01-14/ 1410	MXVWQ	SOLID

SAMPLE COMMENTS:

XX	HS	SW846 8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	QH	SW846 8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	QJ	SW846 8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
XX	WU	SW846 8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06		

F3A150406

CLIENT ANALYSIS SUMMARY

TestAmerica St. Louis

Storage Loc: 2-244,ENCORE

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440005 Alameda CTO05

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS in LOT: 8

Date Received: 2013-01-15

Analytical Due Date: 2013-01-21

Report Due Date: 2013-01-22

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS; 5 calendar day TAT (requirements below)

***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/solls must be extracted within 7/14 days per client SAP (regardless of EPA method).

	PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	AG	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	ZN	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	NI	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	MO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CU	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CR	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CD	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	BE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	AS	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	BA	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	HG	O9	SW846	7471A	SOLID, 7471, Mercury 2 of 2	70	METALS, TOTAL (Method Exclusive) - Solids	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	PB	QO	SW846	6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	XX	QL	SW846	8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N	
	XX	QK	SW846	8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N	
	XX	ZV		RAD SCREEN	SOLID, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT: A	WRK LOC	06		
	XX	ZZ	NONE	NONE	SOLID, TCLP Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06		
	XX	WM	MCAW W	160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06		
D	XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
D	XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
3	05-004			2013-01-14 / 1420	MXVWR	SOLID

SAMPLE COMMENTS:

XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
XX	QJ	SW846	8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
NI	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	

TestAmerica St. Louis

F3A150406

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-244,ENCORE

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440005 Alameda CTO05

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS In LOT: 8

Date Received: 2013-01-15

Analytical Due Date: 2013-01-21

Report Due Date: 2013-01-22

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/soils must be extracted within 7/14 days per client SAP (regardless of EPA method).

	SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	ZN	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	AS	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CU	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CR	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	AG	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CD	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	BE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	BA	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	MO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	HG	O9	SW846	7471A	SOLID, 7471, Mercury 2 of 2	70	METALS, TOTAL (Method Exclusive) - Solids	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	PB	QO	SW846	6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	QL	SW846	8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N
	XX	QK	SW846	8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N
	XX	ZV		RAD SCREEN	SOLID, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT: A	WRK LOC	06	
	XX	ZZ	NONE	NONE	SOLID, TCLP Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06	
	XX	WM	MCAW W	160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06	
D	XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
S	XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
4	05-005			2013-01-14 / 1430	MXVWV	SOLID

SAMPLE COMMENTS:

	XX	HS	SW846	8015 MOD	SOLID, 8015 MOD, DRO	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	QH	SW846	8082	SOLID, 8082 MOD, PCBs	71	SONICATION w/ACID STRIP (PCB)	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	QJ	SW846	8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	WU	SW846	8015 MOD	SOLID, 8015 MOD, GRO	15	PURGE AND TRAP - 5 mL purge	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	PB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	VX	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CO	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	TL	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	ZN	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	SE	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	SB	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	AS	MH	SW846	6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06	

TestAmerica St. Louis

F3A150406

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-244,ENCORE

Project Manager: EKS Quote #: 90022 SDG:

Project: 40440005 Alameda CTO05

PO#: OSP-02-8300-2012 Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS In LOT: 8

Date Received: 2013-01-15

Analytical Due Date: 2013-01-21

Report Due Date: 2013-01-22

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prop RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/solls must be extracted within 7/14 days per client SAP (regardless of EPA method).

	CU	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	AG	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	BA	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	BE	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CD	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	CR	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	MO	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	NI	MH	SW846 6020	SOLID, 6020, Metals 1 of 2	GK	METALS, TOTAL - 2% HCL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	HG	O9	SW846 7471A	SOLID, 7471, Mercury 2 of 2	70	METALS, TOTAL (Method Exclusive) - Solids	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	PB	QO	SW846 6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
	XX	QL	SW846 8270C	SOLID, 8270C, SVOC w/ PAH	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06	TIC: N.	
	XX	QK	SW846 8260B	SOLID, 8260B, VOCs	4P	ENCORE (COLD PRESERVATION)	AP	CLIENT: HUNTERS POINT	PROT: B	WRK LOC	06	TIC: N	
	XX	ZV	RAD SCREEN	SOLID, RAD SCREEN	RA	IN-HOUSE RAD SCREEN	01	STANDARD TEST SET	PROT: A	WRK LOC	06		
	XX	ZZ	NONE NONE	SOLID, TCLP Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06		
	XX	WM	MCAW W 160.3 MOD	SOLID, 160.3 MOD, Percent Moisture	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: A	WRK LOC	06		
D	XX	QJ	SW846 8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level.	DQ	DOD QSM V3	PROT: B	WRK LOC	06		
S	XX	QJ	SW846 8081A	SOLID, 8081A, Pesticides	13	SONICATION - Low Level	DQ	DOD QSM V3	PROT: B	WRK LOC	06		

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
5	05-002A			2013-01-14 / 1400	MXVWW	SOLID

SAMPLE COMMENTS:

	CD	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	PB	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CR	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CU	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	ZZ	NONE NONE	SOLID, STLC Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
6	05-003			2013-01-14 / 1410	MXVW7	SOLID

SAMPLE COMMENTS:

	CD	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CR	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	CU	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	PB	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	
	XX	ZZ	NONE NONE	SOLID, STLC Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06	

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
7	05-004			2013-01-14 / 1420	MXVXA	SOLID

SAMPLE COMMENTS:

	CD	QO	SW846 6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06	

TestAmerica St. Louis

F3A150406

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-244

Project Manager: EKS | Quote #: 90022 | SDG:

Project: 40440005 | Alameda CTO05

PO#: OSP-02-8300-2012 | Report to: Sabina Sudoko

Client: 1442313 . Tetra Tech EC Inc

RUSH

#SMPS In LOT: 8

Date Received: 2013-01-15

Analytical Due Date: 2013-01-21

Report Due Date: 2013-01-22

Report Type: X

EDD Code: 00

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 119 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/solls must be extracted within 7/14 days per client SAP (regardless of EPA method).

PB	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CR	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CU	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
XX	ZZ	NONE	NONE	SOLID, STLC Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
8	05-005			2013-01-14 / 1430	MXVXE	SOLID

SAMPLE COMMENTS:

CD	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CR	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CU	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
PB	QO	SW846	6010B	SOLID, STLC ICP Metals	5E	LEACHATE,Citrate Buffer,CA Title 22 WET -> DIGESTION	DQ	DOD QSM V3	PROT: B	WRK LOC	06
XX	ZZ	NONE	NONE	SOLID, STLC Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06

COC 303

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50003

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945 1530 0707
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-002	1/14/13	1400	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom
Company: Tetra tech / FedEx	Time: 1445	Company: TA 1/15/13 0915	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: A-Line Sediment

50003

F3A150406

TestAmerica St. Louis

TETRA TECH

Chain-of Custody Record

NUMBER: 50003

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945 1530 0707
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6010B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-002A	1/14/13	1400	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP - P6
Company: Tetra tech / FedEx	Time: 1445	Company	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: A-Line Sediment

50003

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50002

Project Name	Alameda Site 17, CTO 05
PO Number	1036773-14
Project Location	Alameda, CA
Project Number	106-4044-0005
Sampler Name	V. Richards / W. Solorzano
Airbill Number	7945 1530 0707
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-003	1/14/13	1410	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-B	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom
Company: Tetra tech/ Pedot	Time: 1445	Company: TA 1/15/13 0915	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: B-Line Sediment

50002

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50004

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945 1630 0707
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-004	1/14/13	1420	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-MH5A	/	/	N

Relinquished by: (signature)	Date:	Received by (signature)
	1/14/13	
Company: Tetra tech/Pedex	Time: 1445	Company: TA 1/15/13 0915
Relinquished by: (signature)	Date:	Received by (signature)
Company:	Time:	Company:
Relinquished by: (signature)	Date:	Received by (signature)
Company:	Time:	Company:

Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom

Composite Discription:

Sample Condition Upon Receipt (for Laboratory)

Temperature: Sample Condition:

Cooler Seal:

Sampling Comments: MH5A Sediment

Bad

50004

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50005

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945153007 07
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-005	1/14/13	1430	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-MH2A	/	/	N

Relinquished by: (signature)	Date: 1/14/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom
Company: TT/FedEx	Time: 1445	Company: TA 1/15/13 0915	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: MH2A Sediment cells

50005

Starman, Erika

From: Sudoko, Sabina [Sabina.Sudoko@tetratech.com]
Sent: Tuesday, January 15, 2013 12:39 PM
To: Starman, Erika
Cc: Richards, Vincent; Bienkowski, Lisa
Subject: RE: COCs – Alameda - Cto5 - Additional Analyses + RUSH
Importance: High

Erika,

Please add additional STLC / TCLP metals compounds for samples that you received today for cto5

STLC – copper and lead

TCLP – Lead.

This is also on a **RUSH – 5 days for ALL the analyses**.

Please let me know the estimated DUE DATE.

There will also be one more RUSH soil sample later this week for the same analyses as what you have in-house .

Any questions, let me know.

Thank you.. Sabina

From: Sudoko, Sabina
Sent: Tuesday, January 15, 2013 7:28 AM
To: Erika Starman (erika.starman@testamericainc.com)
Subject: FW: COCs – Alameda – IR Site 17 – CTO 5 – 1/14/13

Erika,

Cto5 – Alameda samples arriving to the lab today via fed ex.

Attached are the COCs.

Analyses listed below (Previous report – F2J240412)

8260 – VOC - encores – **48 hrs. holding time**

8270 – SVOCs

8081 – pesticides

8082 – PCBs (aroclors)

8015 – TPH purgeable – encores – **48 hrs. holding time**

8015 – TPH extractable – diesel / motor oil

6020 / 7000 – metals / mercury

STLC – Lead, Cadmium and Chromium analyses

Any questions , let me know.

Sabina R. Sudoko | Chemist
Direct: 949.809.5022
sabina.sudoko@tetratech.com

Tetra Tech | Sciences
17885 Von Karman Ave., Suite 500 | Irvine, CA 92614 - 5227 | www.tetratech.com

PLEASE NOTE: This message, including any attachments, may include confidential and/or inside information. Any distribution or use of this communication by anyone other than the intended recipient is strictly prohibited and may be unlawful. If you are not the intended recipient, please notify the sender by replying to this message and then delete it from your system.

Think Green - Not every email needs to be printed.

From: Turner, Phyllis
Sent: Monday, January 14, 2013 3:03 PM
To: Sudoko, Sabina
Cc: Solorzano, Wilmer; Richards, Vincent
Subject: COCs – Alameda – IR Site 17 – CTO 5 – 1/14/13

Hi Sabina,

Please see attached for COCs – Alameda – IR Site 17 – CTO 5 – 1/14/13

Thanks

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Lot #(s): F3A150406

TestAmerica St. Louis

CUR Form #: 3 8 3

CONDITION UPON RECEIPT FORM

Client: Tetra Tech

Quote No: 90022

COC/RFA No: see below

Initiated By: BD Date: 1/15/13 Time: 0915

Shipping Information

Shipper: (FedEx) UPS DHL Courier Client Other: _____ Multiple Packages: Y (N)

Shipping # (s):*

1. 7945 1530 0207
2.
3.
4.
5.
6.
7.
8.
9.
10.

Sample Temperature (s):**

1. 2
2.
3.
4.
5.
6.
7.
8.
9.
10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	(Y) N	Are there custody seals present on the cooler?	8.	(Y) N	Are there custody seals present on bottles?
2.	Y (N) N/A	Do custody seals on cooler appear to be tampered with?	9.	Y (N) N/A	Do custody seals on bottles appear to be tampered with?
3.	(Y) N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N (N/A)	Was sample received with proper pH[1]? (If not, make note below)
4.	(Y) N	Sample received with Chain of Custody?	11.	Y N (N/A)	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	(Y) N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	(Y) N	Sample received in proper containers?
6.	Y (N)	Was sample received broken?	13.	Y N (N/A)	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	(Y) N	Is sample volume sufficient for analysis?	14.	Y N (N/A)	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes: COC 50003

2
4
5

Corrective Action:

☐ Client Contact Name: _____ Informed by: _____

☐ Sample(s) processed "as is"

☐ Sample(s) on hold until: _____ If released, notify: _____

Project Management Review: _____ Date: _____

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

TETRA TECH INC

Chain-of Custody Record

NUMBER: 50006

ENTERED

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-14
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: V. Richards / W. Solorzano	Airbill Number: 7945 6578 3205
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID: F3B010438 F3A220413

1-29

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOCs)	EPA 8081 A (PEST)	EPA 5035/8015B (TPH PURGE)	EPA 8015 (TPH DIESEL/MOTOR OIL)	EPA 8082 (PCBs)	EPA 6020 B/7000 METALS/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
05-006	1/21/13	1515	8	3	S	5 dy	X	X	X	X	X	X	X		05-SWC-IWS29-1	/	/	N

Relinquished by: (signature)	Date: 1/21/13	Received by (signature)	Laboratory Instructions/Comments: Run STLC - Lead, Cad, Chrom, Cu TCLP- Pb, Added TCLP - Cd, Cr
Company: TT/FedEx	Time: 1530	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Description:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Industrial Waste

IWS29-1

50006

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

ANALYTICAL REPORT

PROJECT NO. 40440005

Alameda CTO5

Lot #: F3B010438

Sabina Sudoko

Tetra Tech EC Inc
17885 Von Karman Ave
Ste 500
Irvine, CA 92614

TESTAMERICA LABORATORIES, INC.

Erika Starman
Project Manager

February 12, 2013

13715 Rider Trail North Earth City, MO 63045 **tel** 314.298.8566 **fax** 314.298.8757 **www.testamericainc.com**

Case Narrative
LOT NUMBER: F3B010438

This report contains the analytical results for the sample received under chain of custody by TestAmerica St. Louis on February 1, 2013. This sample is associated with your Alameda CTO05 project.

The analytical results included in this report meet all applicable quality control procedure requirements.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by TestAmerica St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. **TestAmerica St. Louis' Florida certification number is E87689.** The case narrative is an integral part of this report.

This report shall not be reproduced, except in full, without the written approval of the laboratory.

RPD and RER results that are outside QC limits for non-detected analytes are statistically invalid. Non-detect results were duplicated, and the RPD/RER can be ignored.

Sample receiving issues are noted on the CUR form and written communications pertaining to these issues are included in the CoC section of the report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. Ra-226 analysis by gamma spectroscopy is performed on an as-received basis unless sample containers were received cracked or broken. Analysis parameters for cracked or broken samples will be listed in the narrative.

Ra-226 results analyzed by method EPA 901.1 MOD were calculated and reported from the 46.09 percent abundant 609.31 KeV line of Bi-214.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

There were no nonconformances or observations noted with any analysis on this lot.

METHODS SUMMARY

F3B010438

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 1311/3010

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

F3B010438

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
MX2MQ	001	05-006	01/21/13	15:15

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Tetra Tech EC Inc

Client Sample ID: 05-006

TCLP Metals

Lot-Sample #...: F3B010438-001 **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 02/01/13
Leach Date.....: 02/04/13 **Leach Batch #..:** P303501

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 3036040						
Chromium	**8.8 B**	**25**	**ug/L**	**SW846 6010B**	**02/05-02/11/13**	**MX2MQ1AC**
		Dilution Factor: 1		Analysis Time..: 17:30	MDL.....: 7.8	
Cadmium	**107**	**30**	**ug/L**	**SW846 6010B**	**02/05-02/11/13**	**MX2MQ1AE**
		Dilution Factor: 1		Analysis Time..: 17:30	MDL.....: 2.3	

NOTE(S):

Analysis performed in accordance with USEPA Toxicity Characteristic Leaching Procedure Method 1311

B Estimated result. Result is less than RL.

METHOD BLANK REPORT

TCLP Metals

Client Lot #...: F3B010438 **Matrix.....:** SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F3B040000-029 **Prep Batch #...:** 3036040						
Leach Date.....: 02/04/13 **Leach Batch #..:** P303501						
Chromium	ND	25	ug/L	SW846 6010B	02/05-02/11/13	MX2TK1AA
		Dilution Factor: 1				
		Analysis Time..: 17:15				
Cadmium	ND	30	ug/L	SW846 6010B	02/05-02/11/13	MX2TK1AC
		Dilution Factor: 1				
		Analysis Time..: 17:15				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F3B010438 **Matrix.....:** SOLID

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F3B050000-040 **Prep Batch #...:** 3036040					
Chromium	100	(80 - 120)	SW846 6010B	02/05-02/11/13	MX2191AA
		Dilution Factor: 1	Analysis Time..: 17:19		
Cadmium	102	(80 - 120)	SW846 6010B	02/05-02/11/13	MX2191AC
		Dilution Factor: 1	Analysis Time..: 17:19		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TCLP Metals

Client Lot #...: F3B010438 **Matrix.....:** SOLID
Date Sampled...: 01/21/13 15:15 **Date Received..:** 02/01/13

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F3B010438-001 **Prep Batch #...:** 3036040							
Leach Date.....: 02/04/13 **Leach Batch #..:** P303501							
Chromium	93	(80 - 120)			SW846 6010B	02/05-02/11/13	MX2MQ1AF
	96	(80 - 120)	2.6	(0-20)	SW846 6010B	02/05-02/11/13	MX2MQ1AG
		Dilution Factor: 1					
		Analysis Time..: 17:37					
Cadmium	96	(80 - 120)			SW846 6010B	02/05-02/11/13	MX2MQ1AH
	99	(80 - 120)	2.6	(0-20)	SW846 6010B	02/05-02/11/13	MX2MQ1AJ
		Dilution Factor: 1					
		Analysis Time..: 17:37					

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

F3B010438

CLIENT ANALYSIS SUMMARY

Storage Loc: 2-253

Date Received: 2013-02-01

Analytical Due Date: 2013-02-08

Report Due Date: 2013-02-08

Report Type: X

EDD Code: 00

Project Manager: EKS

Quote #: 90022

SDG:

Project: 40440010

Alameda CTO10

PO#: OSP-02-8300-2012

Report to: Sabina Sudoko

Client: 1442313 Tetra Tech EC Inc

RUSH

#SMPS in LOT: 0

Change CTO# to match COC Follow DOD QSM 4 WASTE WATERS: 5 calendar day TAT (requirements below)

***Log for Sr90 Prep RAD- Notify PM if Cs137 is above 110 for ALL waters if TAR above 2.5 (log for Ra226)

If TSr above 8 (log for Sr90) INORGANICS- CN RL is 5 ug/L Zn RL is 10 ug/L, Cu RL is 1 ug/L

PCBs: waters/soils must be extracted within 7/14 days per client SAP (regardless of EPA method).

SAMPLE #	CLIENT SAMPLE ID	Site ID	Client Matrix	DATE/TIME SAMPLED	WORKORDER	A
1	05-006			2013-01-21/ 1515	MX2MQ	SOLID

SAMPLE COMMENTS:

CR	QO	SW846	6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06
CD	QO	SW846	6010B	SOLID, TCLP ICP Metals	34	TCLP(1311) -> METALS, TOTAL	DQ	DOD QSM V3	PROT: B	WRK LOC	06
XX	ZZ	NONE	NONE	SOLID, TCLP Non-Volatile Extraction	88	NO SAMPLE PREPARATION PERFORMED / DIRECT	01	STANDARD TEST SET	PROT: B	WRK LOC	06

TestAmerica
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TestAmerica St. Louis

REANALYSIS / SUB-CONTRACT / CLIENT RETURN FORM

Request Initiated by: Starman
Request Date: 2/1/13
Quote Number: 90022
Client Number: 494696
SDG Number:

Request is for (check one):

- [ ] Return to Client – *(Client FedEx #)*
- [ ] Reanalysis
- [ ] Sub-Contract Sample
- [X] Additional Analysis

New Lot (check one):

- [X] Yes
- [ ] No

Old Lot Number: F3A220413
*Comment TCLP already extracted – F3A220413

Client ID	Sampled date/time*	Shelf Location	Line item from quote (include Rad Screen if required)
05-006	1/21/13 1515	2-253	SOLID, TCLP Non-Volatile Extraction SOLID, TCLP ICP Metals – Cd, Cr

* or attach original Chain of Custody

Due Date for New Login:

Analytical	Report
2/8/13	2/8/13

For Sub-Contract or Return to Client ONLY

Shipping Address:

Contact Person:
Phone Number:

Project Manager Signature:

DO NOT HAVE LAB PULL ORIGINAL SAMPLE

Completed by: B. C Date: 2/1/13

New Login Lot Number: F3B010438 (place copy of this form in old file)

Initial that Containers were Re-labeled: M (place below lot number of old label)

SL-ADMIN-0016, revised 02/27/08

Starman, Erika

From: Sudoko, Sabina [Sabina.Sudoko@tetratech.com]
Sent: Friday, February 01, 2013 12:30 PM
To: Starman, Erika
Cc: Richards, Vincent; Blenkowski, Lisa
Subject: Cto5 -Alameda - F3A220413- Additional Metals - TCLP
Importance: High

Erika,

Please add the following TCLP metals to sample 05-006 (F3A220413-001)

TCLP – Cd, Cr

The lab already did the TCLP metals extraction , so please analyze the leachate for the above TCLP metals.

TAT is 5 days

Thank you..

Sabina R. Sudoko | Chemist
Direct: 949.809.5022
sabina.sudoko@tetratech.com

Tetra Tech | Sciences
17885 Von Karman Ave., Suite 500 | Irvine, CA 92614 - 5227 | www.tetratech.com

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Think Green - Not every email needs to be printed.

APPENDIX J

AIR SAMPLE DATA
(on CD only)

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Procect/Location: **Alameda Point CTO 5**

Air Sample Identification Record

DAC α=3.00E-10 µCi/ml DAC β=8.00E-09 µCi/ml
10% DAC α=3.00E-11 µCi/ml 10% DAC β=8.00E-10 µCi/ml

Sample ID	Date	Location	Description	Start Time	Stop Time	Air Sample ID	Sample Volume (ft^3)	Alpha Results (µCi/ml)	Alpha % DAC	Beta Results (µCi/ml)	Beta % DAC	Counter ID	RCT Initials
1615	8/6/2012	Guzzler	TANK CLEANING	9:05	12:00	3824	370.80	-2.43E-14	<10%	-1.59E-11	<10%	143865	KO
1616	8/6/2012	Grab	GUZZLER	9:05	9:25	3124	120.00	-1.00E-13	<10%	-4.94E-11	<10%	143865	KO
1629	8/9/2012	Upwind	MH -14G	8:01	15:45	3511	983.16	-2.14E-14	<10%	-5.99E-12	<10%	143865	DL
1630	8/9/2012	Downwind	MH -14G	8:03	15:50	3867	989.52	-1.52E-14	<10%	-5.94E-12	<10%	143865	DL
1631	8/9/2012	Guzzler	MH -14G	8:50	15:51	3824	1040.72	-2.02E-14	<10%	-5.75E-12	<10%	143865	DL
1632	8/9/2012	Grab	MH -14G	11:32	11:54	3471	110.00	-1.64E-13	<10%	-5.44E-11	<10%	143865	CB
1633	8/9/2012	Grab	GUZZLER	13:58	14:22	3471	120.00	-1.25E-13	<10%	-4.90E-11	<10%	143865	DL
1634	8/13/2012	Upwind	MH -13G	8:08	16:38	3511	1080.63	-1.39E-14	<10%	-5.51E-12	<10%	143865	CB
1635	8/13/2012	Downwind	MH -13G	8:02	16:45	3867	1108.17	-1.63E-14	<10%	-5.31E-12	<10%	143865	DL
1636	8/13/2012	Guzzler	MH -13G	8:04	16:45	3824	1103.94	-1.09E-14	<10%	-5.36E-12	<10%	143865	DL
1637	8/13/2012	Grab	GUZZLER	11:15	11:46	3471	186.00	-9.70E-14	<10%	-3.19E-11	<10%	143865	CC
1638	8/13/2012	Grab	MH-12G	14:29	14:53	3471	120.00	-1.25E-13	<10%	-5.00E-11	<10%	143865	DL
1639	8/13/2012	Grab	MH-13G	16:20	16:45	3471	100.00	-1.20E-13	<10%	-5.94E-11	<10%	143865	CB
1649	8/14/2012	Upwind	MH -13G	8:31	16:27	3511	1008.59	-1.49E-14	<10%	-6.04E-12	<10%	143865	DL
1650	8/14/2012	Downwind	MH -11G	8:35	16:24	3867	993.75	-1.82E-14	<10%	-6.10E-12	<10%	143865	DL
1651	8/14/2012	Guzzler	MH -11G	8:34	16:45	3824	1040.37	-1.45E-14	<10%	-5.82E-12	<10%	143865	DL
1652	8/14/2012	Grab	MH -11G	11:07	11:30	3471	115.00	-1.31E-13	<10%	-5.19E-11	<10%	143865	DL
1653	8/14/2012	Grab	GUZZLER	15:31	15:53	3471	110.00	-1.37E-13	<10%	-5.57E-11	<10%	143865	DL
1659	8/15/2012	Upwind	CB- 11G	7:44	13:57	3511	790.34	-7.61E-15	<10%	-7.03E-12	<10%	143865	CB
1660	8/15/2012	Downwind	MH -10G	7:35	13:54	3867	803.06	-3.75E-15	<10%	-6.88E-12	<10%	143865	DL
1661	8/15/2012	Guzzler	MH -10G	7:30	11:41	3824	531.84	-5.66E-15	<10%	-1.07E-11	<10%	143865	DL
1662	8/15/2012	Grab	GUZZLER	13:40	14:10	3471	180.00	-5.01E-14	<10%	-3.08E-11	<10%	143865	DL
1663	8/15/2012	Grab	MH -10G	11:01	11:32	3471	155.00	-1.94E-14	<10%	-3.63E-11	<10%	143865	DL
1668	8/16/2012	Upwind	MH- 10G	8:35	14:50	3511	794.58	0.00E+00	<10%	-7.15E-12	<10%	143865	CB
1669	8/16/2012	Downwind	MH- 9G	8:25	14:50	3867	815.77	-7.38E-15	<10%	-6.96E-12	<10%	143865	DL
1670	8/16/2012	Guzzler	MH- 9G	8:37	14:50	3824	790.34	-3.81E-15	<10%	-7.18E-12	<10%	143865	DL
1671	8/16/2012	Grab	GUZZLER	14:20	14:40	3471	100.00	-6.02E-14	<10%	-5.53E-11	<10%	143865	DL
1672	8/16/2012	Grab	MH- 9G	9:11	9:32	3471	105.00	-5.73E-14	<10%	-5.45E-11	<10%	143865	DL
1679	8/20/2012	Upwind	MH- 9G	7:40	13:50	3511	783.99	-2.69E-14	<10%	-7.30E-12	<10%	143865	CB
1680	8/20/2012	Downwind	MH- 7G	7:42	13:55	3867	790.34	-2.28E-14	<10%	-7.24E-12	<10%	143865	CB
1681	8/20/2012	Guzzler	MH-8G	8:34	13:41	3824	650.50	-2.31E-14	<10%	-8.73E-12	<10%	143865	DL
1682	8/20/2012	Grab	GUZZLER	8:41	9:08	3471	135.00	-1.56E-13	<10%	-4.25E-11	<10%	143865	DL
1683	8/20/2012	Grab	MH-8G	12:55	13:20	3471	125.00	-1.68E-13	<10%	-4.56E-11	<10%	143865	DL
1688	8/21/2012	Upwind	MH8G	11:10	16:30	3511	678.04	-1.33E-14	<10%	-8.15E-12	<10%	143865	CB
1689	8/21/2012	Downwind	MH7G	11:24	16:30	3824	648.38	-1.86E-14	<10%	-8.44E-12	<10%	143865	DL
1690	8/21/2012	Grab	MH7G	12:44	13:05	3471	105.00	-1.43E-13	<10%	-5.21E-11	<10%	143865	DL

Air Sample Identification Record

DAC α=3.00E-10 µCi/ml DAC β=8.00E-09 µCi/ml
10% DAC α=3.00E-11 µCi/ml 10% DAC β=8.00E-10 µCi/ml

Sample ID	Date	Location	Description	Start Time	Stop Time	Air Sample ID	Sample Volume (ft^3)	Alpha Results (µCi/ml)	Alpha % DAC	Beta Results (µCi/ml)	Beta % DAC	Counter ID	RCT Initials
1691	8/21/2012	Guzzler	MH7G	11:15	16:30	3867	667.45	-2.25E-14	<10%	-8.31E-12	<10%	143865	DL
1692	8/21/2012	Grab	GUZZLER	14:43	15:05	3471	110.00	-1.64E-13	<10%	-5.02E-11	<10%	143865	DL
1697	8/22/2012	Upwind	MH7G	7:40	17:00	3511	1186.57	-1.52E-14	<10%	-5.10E-12	<10%	143865	CB
1698	8/22/2012	Downwind	MH6G	7:30	10:45	3867	413.18	-4.37E-14	<10%	-1.48E-11	<10%	143865	DL
1699	8/22/2012	Guzzler	MH6G	7:31	16:45	3824	1173.86	-1.54E-14	<10%	-5.18E-12	<10%	143865	DL
1700	8/22/2012	Grab	GUZZLER	12:41	13:03	3471	110.00	-1.91E-13	<10%	-5.55E-11	<10%	143865	DL
1701	8/22/2012	Grab	MH6G	14:32	14:58	3471	130.00	-1.62E-13	<10%	-4.62E-11	<10%	143865	DL
1706	8/23/2012	Upwind	MH6G-16	7:45	15:05	3511	932.31	-9.68E-15	<10%	-5.95E-12	<10%	143865	CB
1707	8/23/2012	Downwind	MH6G	7:31	15:50	3867	1057.32	-5.69E-15	<10%	-5.29E-12	<10%	143865	DL
1708	8/23/2012	Guzzler	MH6G	7:29	15:50	3824	1061.56	-5.67E-15	<10%	-5.30E-12	<10%	143865	DL
1709	8/23/2012	Grab	MH6G	9:15	9:37	3471	110.00	-8.21E-14	<10%	-5.10E-11	<10%	143865	DL
1710	8/23/2012	Grab	MH6G	12:47	13:20	3471	165.00	-3.65E-14	<10%	-3.37E-11	<10%	143865	DL
1717	8/27/2012	Upwind	CB-6G-1	7:30	17:03	3511	1214.12	-1.49E-14	<10%	-4.35E-12	<10%	143865	DL
1718	8/27/2012	Downwind	MH-5G	7:40	17:10	3867	1207.76	-9.96E-15	<10%	-4.37E-12	<10%	143865	DL
1719	8/27/2012	Grab	MH-6G-1	13:30	16:54	3824	432.25	-4.18E-14	<10%	-1.21E-11	<10%	143865	DL
1720	8/27/2012	Guzzler	MH-6G-1	16:11	16:32	3471	105.00	-1.15E-13	<10%	-5.01E-11	<10%	143865	DL
1721	8/27/2012	Grab	GUZZLER	15:48	16:10	3471	110.00	-1.64E-13	<10%	-4.80E-11	<10%	143865	DL
1728	8/28/2012	Upwind	CB-6G-1	7:17	16:20	3511	1150.55	-1.57E-14	<10%	-5.20E-12	<10%	143865	DL
1729	8/28/2012	Downwind	MH-5G	7:20	16:23	3867	1150.55	-1.83E-14	<10%	-5.22E-12	<10%	143865	DL
1730	8/28/2012	Guzzler	MH-5G	7:40	16:38	3824	1139.96	-1.32E-14	<10%	-5.14E-12	<10%	143865	DL
1731	8/28/2012	Grab	GUZZLER	9:03	9:24	3471	105.00	-1.43E-13	<10%	-5.68E-11	<10%	143865	DL
1732	8/28/2012	Grab	MH-5G	8:40	9:00	3471	100.00	-1.20E-13	<10%	-5.99E-11	<10%	143865	DL
1737	8/29/2012	Upwind	CB-6G-1	8:05	16:40	3511	1091.22	-2.76E-15	<10%	-5.25E-12	<10%	143865	CB
1738	8/29/2012	Downwind	MH-3G	8:05	16:50	3867	1112.41	-2.70E-15	<10%	-5.10E-12	<10%	143865	DL
1739	8/29/2012	Guzzler	CB-5G-6	8:55	16:50	3824	1006.47	-2.99E-15	<10%	-5.57E-12	<10%	143865	DL
1740	8/29/2012	Grab	GUZZLER	13:41	14:02	3471	105.00	-2.87E-14	<10%	-5.39E-11	<10%	143865	DL
1741	8/29/2012	Grab	MH-3G	14:15	14:40	3471	125.00	-2.41E-14	<10%	-4.49E-11	<10%	143865	DL
1746	8/30/2012	Upwind	CB-5G-4	7:30	16:15	3511	1112.41	-1.62E-14	<10%	-5.24E-12	<10%	143865	CB
1747	8/30/2012	Downwind	MH-3G	7:19	16:15	3867	1135.72	-1.59E-14	<10%	-5.07E-12	<10%	143865	DL
1748	8/30/2012	Grab	MH-3G	13:30	13:55	3471	125.00	-1.44E-13	<10%	-4.70E-11	<10%	143865	DL
1749	8/30/2012	Guzzler	CB-5G-3	7:35	16:15	3824	1101.82	-1.37E-14	<10%	-5.31E-12	<10%	143865	DL
1750	8/30/2012	Grab	GUZZLER	9:50	10:11	3471	105.00	-1.72E-13	<10%	-5.55E-11	<10%	143865	DL
1757	9/4/2012	Upwind	MH-4G	8:03	16:30	3511	1074.27	-2.80E-15	<10%	-5.19E-12	<10%	143865	DL
1758	9/4/2012	Downwind	MH-3G	7:55	16:15	3867	1059.44	-5.68E-15	<10%	-5.28E-12	<10%	143865	DL
1759	9/4/2012	Grab	MH-4G	8:45	9:07	3471	110.00	-8.21E-14	<10%	-5.05E-11	<10%	143865	DL
1760	9/4/2012	Guzzler	MH-4G	8:01	16:13	3824	1042.49	-5.77E-15	<10%	-5.33E-12	<10%	143865	DL

Air Sample Identification Record

DAC α=3.00E-10 µCi/ml
10% DAC α=3.00E-11 µCi/ml

DAC β=8.00E-09 µCi/ml
10% DAC β=8.00E-10 µCi/ml

Sample ID	Date	Location	Description	Start Time	Stop Time	Air Sample ID	Sample Volume (ft^3)	Alpha Results (µCi/ml)	Alpha % DAC	Beta Results (µCi/ml)	Beta % DAC	Counter ID	RCT Initials
1761	9/4/2012	Grab	GUZZLER	13:13	13:35	3471	110.00	-8.21E-14	<10%	-5.11E-11	<10%	143865	DL
1766	9/5/2012	Upwind	MH-5G	10:40	16:40	3511	762.80	-1.58E-14	<10%	-7.68E-12	<10%	143865	CB
1767	9/5/2012	Downwind	MH-2G	10:35	16:35	3867	762.80	-1.58E-14	<10%	-7.71E-12	<10%	143865	CB
1768	9/5/2012	Guzzler	MH-5G	10:37	16:07	3824	699.23	-1.72E-14	<10%	-8.39E-12	<10%	143865	CB
1769	9/5/2012	Grab	GUZZLER	14:30	14:50	3471	100.00	-9.03E-14	<10%	-5.87E-11	<10%	143865	DL
1774	9/6/2012	Upwind	MH-4G	7:34	16:30	3511	1135.72	2.65E-15	<10%	-5.09E-12	<10%	143865	CB
1775	9/6/2012	Downwind	MH-2G	7:40	16:32	3867	1127.24	0.00E+00	<10%	-5.11E-12	<10%	143865	CB
1776	9/6/2012	Grab	MH-2G	10:53	11:15	3471	110.00	-2.74E-14	<10%	-5.29E-11	<10%	143865	DL
1777	9/6/2012	Guzzler	MH-2G	7:37	16:36	3824	1142.08	-2.63E-15	<10%	-5.03E-12	<10%	143865	DL
1778	9/6/2012	Grab	GUZZLER	7:50	8:13	3471	115.00	5.23E-14	<10%	-4.98E-11	<10%	143865	DL
1783	9/7/2012	Upwind	MH-3G	7:25	14:40	3511	921.71	-1.31E-14	<10%	-6.67E-12	<10%	143865	CC
1784	9/7/2012	Downwind	MH-1G	7:30	14:45	3867	921.71	-9.79E-15	<10%	-6.69E-12	<10%	143865	CC
1785	9/7/2012	Grab	MH-1G	9:10	9:32	3471	110.00	-1.09E-13	<10%	-5.61E-11	<10%	143865	DL
1786	9/7/2012	Guzzler	MH-2G	7:25	16:30	3824	1154.79	-1.04E-14	<10%	-5.27E-12	<10%	143865	CC
1787	9/7/2012	Grab	GUZZLER	8:20	8:41	3471	105.00	-1.15E-13	<10%	-5.88E-11	<10%	143865	DL
1794	9/10/2012	Grab	GUZZLER	13:24	13:57	3124	165.00	-5.47E-14	<10%	-3.51E-11	<10%	143865	TW
1800	9/11/2012	Upwind	MH-7B	9:00	16:25	3511	942.90	-3.19E-15	<10%	-6.22E-12	<10%	143865	CB
1801	9/11/2012	Downwind	MH-5B	9:07	16:50	3867	981.04	-9.20E-15	<10%	-5.92E-12	<10%	143865	DL
1802	9/11/2012	Grab	MH-6B	13:44	14:06	3471	110.00	-5.47E-14	<10%	-5.41E-11	<10%	143865	DL
1803	9/11/2012	Guzzler	MH-6B	9:43	16:45	3824	894.17	0.00E+00	<10%	-6.59E-12	<10%	143865	DL
1804	9/11/2012	Grab	GUZZLER	10:19	10:40	3471	105.00	-2.87E-14	<10%	-5.53E-11	<10%	143865	DL
1809	9/12/2012	Upwind	CB-6G-1	7:35	16:40	3511	1154.79	-7.82E-15	<10%	-4.93E-12	<10%	143865	CB
1810	9/12/2012	Downwind	MH-5B	7:32	16:42	3867	1165.38	-7.74E-15	<10%	-4.96E-12	<10%	143865	DL
1811	9/12/2012	Guzzler	MH-6B	7:31	16:40	3824	1163.27	-5.17E-15	<10%	-4.99E-12	<10%	143865	DL
1812	9/12/2012	Grab	GUZZLER	9:05	9:28	3471	115.00	-7.85E-14	<10%	-4.99E-11	<10%	143865	DL
1813	9/12/2012	Grab	MH-5B	14:37	15:04	3471	135.00	-6.69E-14	<10%	-4.28E-11	<10%	143865	DL
1818	9/13/2012	Upwind	MH-6B	7:40	16:30	3511	1123.01	-1.07E-14	<10%	-4.98E-12	<10%	143865	CB
1819	9/13/2012	Downwind	MH-5B	7:43	16:05	3867	1063.68	-1.13E-14	<10%	-5.32E-12	<10%	143865	DL
1820	9/13/2012	Grab	MH-5B	9:11	9:32	3471	105.00	-8.60E-14	<10%	-5.44E-11	<10%	143865	DL
1821	9/13/2012	Guzzler	MH-5B	8:04	16:21	3824	1053.08	-1.14E-14	<10%	-5.38E-12	<10%	143865	DL
1822	9/13/2012	Grab	GUZZLER	12:54	13:15	3471	105.00	-1.15E-13	<10%	-5.46E-11	<10%	143865	DL
1829	9/17/2012	Upwind	MH-6B	7:35	16:15	3511	1101.82	-1.91E-14	<10%	-5.26E-12	<10%	143865	CB
1830	9/17/2012	Downwind	MH-4B	7:41	16:15	3867	1089.10	-1.93E-14	<10%	-5.28E-12	<10%	143865	DL
1831	9/17/2012	Grab	MH-5B	14:44	15:05	3471	105.00	-2.01E-13	<10%	-5.60E-11	<10%	143865	DL
1832	9/17/2012	Guzzler	MH-5B	7:33	16:40	3824	1159.03	-1.56E-14	<10%	-4.94E-12	<10%	143865	DL
1833	9/17/2012	Grab	GUZZLER	14:05	14:31	3471	130.00	-1.39E-13	<10%	-4.44E-11	<10%	143865	DL

Air Sample Identification Record

DAC α=3.00E-10 µCi/ml DAC β=8.00E-09 µCi/ml
10% DAC α=3.00E-11 µCi/ml 10% DAC β=8.00E-10 µCi/ml

Sample ID	Date	Location	Description	Start Time	Stop Time	Air Sample ID	Sample Volume (ft^3)	Alpha Results (µCi/ml)	Alpha % DAC	Beta Results (µCi/ml)	Beta % DAC	Counter ID	RCT Initials
1838	9/18/2012	Upwind	CB-5B-1	7:35	16:30	3511	1133.60	-1.86E-14	<10%	-4.93E-12	<10%	143865	CB
1839	9/18/2012	Downwind	MH-4B	7:34	16:44	3867	1165.38	-1.55E-14	<10%	-4.71E-12	<10%	143865	DL
1840	9/18/2012	Grab	MH-4B	15:19	15:46	3471	135.00	-1.56E-13	<10%	-4.16E-11	<10%	143865	DL
1841	9/18/2012	Guzzler	MH-4B	8:03	16:40	3824	1095.46	-1.65E-14	<10%	-5.14E-12	<10%	143865	DL
1842	9/18/2012	Grab	GUZZLER	14:45	15:06	3471	105.00	-2.29E-13	<10%	-5.26E-11	<10%	143865	DL
1847	9/19/2012	Upwind	MH-5B	7:30	16:20	3511	1123.01	-1.34E-14	<10%	-4.99E-12	<10%	143865	JR
1848	9/19/2012	Downwind	CB-4B-2	7:29	16:25	3867	1135.72	-1.32E-14	<10%	-4.92E-12	<10%	143865	CC
1849	9/19/2012	Grab	MH-4B	14:08	14:31	3471	115.00	-1.57E-13	<10%	-4.83E-11	<10%	143865	DL
1850	9/19/2012	Grab	MH-4B	7:31	16:24	3824	1129.36	-1.07E-14	<10%	-5.03E-12	<10%	143865	DL
1851	9/19/2012	Guzzler	MH-4B	9:48	10:14	3471	130.00	-1.16E-13	<10%	-4.27E-11	<10%	143865	DL
1852	9/20/2012	Upwind	MH-4B	7:30	16:30	3511	1144.20	-1.31E-14	<10%	-4.84E-12	<10%	143865	CB
1853	9/20/2012	Downwind	MH-3B	7:41	16:15	3824	1089.10	-8.29E-15	<10%	-5.08E-12	<10%	143865	DL
1854	9/20/2012	Grab	MH-3B	10:11	10:32	3471	105.00	-1.43E-13	<10%	-5.26E-11	<10%	143865	DL
1855	9/20/2012	Guzzler	MH-4B	7:41	16:15	3824	1089.10	-1.38E-14	<10%	-5.06E-12	<10%	143865	DL
1856	9/20/2012	Grab	GUZZLER	14:15	14:38	3471	115.00	-1.05E-13	<10%	-4.75E-11	<10%	143865	DL
1864	9/24/2012	Upwind	MH-3B	7:30	16:40	3511	1165.38	-7.74E-15	<10%	-5.13E-12	<10%	143865	JR
1865	9/24/2012	Downwind	MH-2B	7:34	16:31	3867	1137.84	-5.29E-15	<10%	-5.24E-12	<10%	143865	DL
1866	9/24/2012	Grab	MH-2B	14:04	14:25	3471	105.00	-8.60E-14	<10%	-5.78E-11	<10%	143865	GW
1867	9/24/2012	Guzzler	MH-3B-1	7:35	16:35	3824	1144.20	-7.89E-15	<10%	-5.21E-12	<10%	143865	DL
1868	9/24/2012	Grab	GUZZLER	14:43	15:05	3471	110.00	-8.21E-14	<10%	-5.53E-11	<10%	143865	DL
1873	9/25/2012	Upwind	MH-3B	8:00	16:38	3511	1097.58	-8.22E-15	<10%	-5.37E-12	<10%	143865	CB
1874	9/25/2012	Downwind	MH-2B	7:35	16:45	3867	1165.38	-1.29E-14	<10%	-5.04E-12	<10%	143865	DL
1875	9/25/2012	Grab	MH-2B	10:47	11:08	3471	105.00	-1.43E-13	<10%	-5.64E-11	<10%	143865	DL
1876	9/25/2012	Guzzler	MH-2B	9:47	16:47	3824	889.93	-1.69E-14	<10%	-6.64E-12	<10%	143865	DL
1877	9/25/2012	Grab	GUZZLER	13:21	13:45	3471	120.00	-1.00E-13	<10%	-4.89E-11	<10%	143865	DL
1882	9/26/2012	Upwind	CB-2B-2	7:20	16:40	3867	1186.57	-1.01E-14	<10%	-5.00E-12	<10%	143865	DL
1883	9/26/2012	Downwind	MH-2B	7:21	13:28	3867	777.63	-1.55E-14	<10%	-7.62E-12	<10%	143865	DL
1884	9/26/2012	Grab	MH-1B	15:13	15:34	3471	105.00	-2.87E-14	<10%	-5.64E-11	<10%	143865	DL
1885	9/26/2012	Guzzler	MH-2B	7:25	16:20	3824	1133.60	-7.96E-15	<10%	-5.19E-12	<10%	143865	DL
1886	9/26/2012	Grab	GUZZLER	8:32	8:53	3471	105.00	-8.60E-14	<10%	-5.52E-11	<10%	143865	DL
1891	9/27/2012	Upwind	MH-2B	9:00	14:25	3511	688.64	-2.18E-14	<10%	-8.74E-12	<10%	143865	CB
1892	9/27/2012	Downwind	MH-1B	8:03	16:15	3867	1042.49	-1.15E-14	<10%	-5.75E-12	<10%	143865	DL
1893	9/27/2012	Grab	MH-1B	13:33	13:56	3471	115.00	-1.05E-13	<10%	-5.23E-11	<10%	143865	DL
1894	9/27/2012	Guzzler	MH-1B	10:57	14:15	3824	419.54	-2.87E-14	<10%	-1.42E-11	<10%	143865	DL
1895	9/27/2012	Grab	GUZZLER	11:24	11:45	3471	105.00	-1.43E-13	<10%	-5.68E-11	<10%	143865	DL
1902	10/1/2012	Upwind	MH-2B	9:00	16:45	3511	985.28	-2.14E-14	<10%	-5.80E-12	<10%	143865	CB

Air Sample Identification Record

DAC α=3.00E-10 µCi/ml DAC β=8.00E-09 µCi/ml
10% DAC α=3.00E-11 µCi/ml 10% DAC β=8.00E-10 µCi/ml

Sample ID	Date	Location	Description	Start Time	Stop Time	Air Sample ID	Sample Volume (ft^3)	Alpha Results (µCi/ml)	Alpha % DAC	Beta Results (µCi/ml)	Beta % DAC	Counter ID	RCT Initials
1903	10/1/2012	Downwind	MH-1B	7:31	16:45	3867	1173.86	-1.03E-14	<10%	-4.83E-12	<10%	143865	DL
1904	10/1/2012	Grab	MH-1B	15:07	15:29	3471	110.00	-2.19E-13	<10%	-5.15E-11	<10%	143865	DL
1905	10/1/2012	Guzzler	MH-1B	7:38	16:45	3824	1159.03	-2.08E-14	<10%	-4.94E-12	<10%	143865	DL
1906	10/1/2012	Grab	GUZZLER	13:01	13:24	3471	115.00	-1.83E-13	<10%	-4.87E-11	<10%	143865	DL
1912	10/2/2012	Upwind	MH-1B	8:35	16:20	3511	985.28	-1.53E-14	<10%	-5.92E-12	<10%	143865	CB
1913	10/2/2012	Downwind	OUTFALL B	8:04	16:47	3867	1108.17	-1.63E-14	<10%	-5.26E-12	<10%	143865	DL
1914	10/2/2012	Guzzler	OUTFALL B	9:30	16:43	3824	917.48	-1.97E-14	<10%	-6.30E-12	<10%	143865	DL
1915	10/2/2012	Grab	GUZZLER	12:53	13:15	3471	110.00	-1.91E-13	<10%	-5.28E-11	<10%	143865	DL
1916	10/2/2012	Grab	OUTFALL B	16:03	16:24	3471	105.00	-1.72E-13	<10%	-5.51E-11	<10%	143865	DL
1922	10/3/2012	Upwind	MH-1B	7:55	16:25	3511	1080.63	-2.23E-14	<10%	-5.71E-12	<10%	143865	CB
1923	10/3/2012	Downwind	OUTFALL B	7:28	16:41	3867	1171.74	-2.05E-14	<10%	-5.34E-12	<10%	143865	DL
1924	10/3/2012	Grab	OUTFALL B	12:47	13:07	3471	100.00	-2.41E-13	<10%	-6.19E-11	<10%	143865	DL
1925	10/3/2012	Guzzler	OUTFALL B	7:31	16:34	3824	1150.55	-2.09E-14	<10%	-5.27E-12	<10%	143865	DL
1926	10/3/2012	Grab	GUZZLER	14:53	15:16	3471	115.00	-2.09E-13	<10%	-5.36E-11	<10%	143865	DL
1931	10/4/2012	Upwind	MH-1B	7:35	13:05	3511	699.23	-4.30E-15	<10%	-8.10E-12	<10%	143865	CB
1932	10/4/2012	Downwind	OUTFALL B	7:28	13:04	3867	711.94	-1.27E-14	<10%	-7.98E-12	<10%	143865	DL
1933	10/4/2012	Grab	OUTFALL B	9:41	10:05	3471	120.00	-2.51E-14	<10%	-4.73E-11	<10%	143865	DL
1934	10/4/2012	Guzzler	OUTFALL B	7:31	11:48	3824	544.55	-5.52E-15	<10%	-1.04E-11	<10%	143865	DL
1935	10/4/2012	Grab	GUZZLER	10:15	10:38	3471	115.00	-2.62E-14	<10%	-4.98E-11	<10%	143865	DL
1940	10/8/2012	Upwind	MH-1B	7:30	16:30	3511	1144.20	-1.58E-14	<10%	-5.02E-12	<10%	143865	CB
1941	10/8/2012	Downwind	OUTFALL B	7:32	16:41	3867	1163.27	-1.81E-14	<10%	-4.98E-12	<10%	143865	DL
1942	10/8/2012	Grab	OUTFALL B	14:05	14:28	3471	115.00	-1.83E-13	<10%	-5.01E-11	<10%	143865	DL
1943	10/8/2012	Guzzler	OUTFALL B	7:34	16:39	3824	1154.79	-1.82E-14	<10%	-5.03E-12	<10%	143865	DL
1944	10/8/2012	Grab	GUZZLER	15:25	15:47	3471	110.00	-1.91E-13	<10%	-5.20E-11	<10%	143865	DL
1949	10/9/2012	Upwind	MH-1B	7:35	16:25	3511	1123.01	-1.34E-14	<10%	-5.46E-12	<10%	143865	CB
1950	10/9/2012	Downwind	OUTFALL B	7:28	16:32	3867	1152.67	-1.31E-14	<10%	-5.22E-12	<10%	143865	DL
1951	10/9/2012	Grab	OUTFALL B	13:50	14:12	3471	110.00	-1.37E-13	<10%	-5.57E-11	<10%	143865	DL
1952	10/9/2012	Guzzler	OUTFALL B	7:24	16:41	3824	1180.22	-1.53E-14	<10%	-5.09E-12	<10%	143865	DL
1953	10/9/2012	Grab	GUZZLER	13:26	13:48	3471	110.00	-1.64E-13	<10%	-5.41E-11	<10%	143865	DL
1958	10/10/2012	Upwind	MH-1B	7:35	16:30	3511	1133.60	0.00E+00	<10%	-5.23E-12	<10%	143865	CB
1959	10/10/2012	Downwind	OUTFALL B	7:19	16:38	3867	1184.45	-7.62E-15	<10%	-4.99E-12	<10%	143865	DL
1960	10/10/2012	Grab	OUTFALL B	15:38	16:01	3471	115.00	-7.85E-14	<10%	-5.16E-11	<10%	143865	DL
1961	10/10/2012	Guzzler	OUTFALL B	7:22	16:41	3824	1184.45	-5.08E-15	<10%	-4.99E-12	<10%	143865	DL
1962	10/10/2012	Grab	OUTFALL B	10:01	10:24	3471	115.00	-2.62E-14	<10%	-5.11E-11	<10%	143865	DL
1969	10/11/2012	Upwind	MH-1B	7:30	15:35	3511	1027.66	-1.17E-14	<10%	-5.96E-12	<10%	143865	CB
1970	10/11/2012	Downwind	OUTFALL B	7:31	15:00	3867	951.38	-1.58E-14	<10%	-6.43E-12	<10%	143865	DL

Air Sample Identification Record

DAC α=3.00E-10 µCi/ml DAC β=8.00E-09 µCi/ml
10% DAC α=3.00E-11 µCi/ml 10% DAC β=8.00E-10 µCi/ml

Sample ID	Date	Location	Description	Start Time	Stop Time	Air Sample ID	Sample Volume (ft^3)	Alpha Results (µCi/ml)	Alpha % DAC	Beta Results (µCi/ml)	Beta % DAC	Counter ID	RCT Initials
1971	10/11/2012	Grab	OUTFALL B	10:16	10:38	3471	110.00	-1.37E-13	<10%	-5.56E-11	<10%	143865	DL
1972	10/11/2012	Guzzler	OUTFALL B	7:35	15:02	3824	947.14	-1.59E-14	<10%	-6.53E-12	<10%	143865	DL
1973	10/11/2012	Grab	GUZZLER	12:40	13:02	3471	110.00	-1.37E-13	<10%	-5.63E-11	<10%	143865	DL
1982	10/16/2012	Upwind	MH-8A	12:45	16:41	3511	500.06	-4.81E-14	<10%	-1.14E-11	<10%	143865	DL
1983	10/16/2012	Downwind	MH-10A	13:05	16:25	3867	423.78	-4.97E-14	<10%	-1.32E-11	<10%	143865	CB
1984	10/16/2012	Grab	MH-10A	12:45	13:08	3471	115.00	-1.83E-13	<10%	-4.89E-11	<10%	143865	DL
1985	10/16/2012	Guzzler	MH-9A	7:37	16:42	3824	1154.79	-2.08E-14	<10%	-4.80E-12	<10%	143865	DL
1986	10/16/2012	Guzzler	MH-9A	14:57	15:19	3471	110.00	-1.91E-13	<10%	-5.08E-11	<10%	143865	DL
1992	10/17/2012	Upwind	MH-8A	7:29	16:30	3511	1146.31	-1.84E-14	<10%	-5.15E-12	<10%	143865	DL
1993	10/17/2012	Downwind	MH-7A	7:20	16:35	3867	1175.98	-1.28E-14	<10%	-5.10E-12	<10%	143865	JR
1994	10/17/2012	Grab	MH-8A	8:56	9:21	3471	125.00	-1.44E-13	<10%	-4.79E-11	<10%	143865	DL
1995	10/17/2012	Guzzler	MH-8A	7:34	15:45	3824	1040.37	-2.02E-14	<10%	-5.76E-12	<10%	143865	DL
1996	10/17/2012	Grab	GUZZLER	13:29	13:51	3471	110.00	-1.91E-13	<10%	-5.42E-11	<10%	143865	DL
2003	10/18/2012	Upwind	MH-7A	9:01	16:04	3511	896.29	-2.01E-14	<10%	-6.10E-12	<10%	143865	DL
2004	10/18/2012	Downwind	CB-8A-1	7:35	16:00	3867	1070.03	-1.97E-14	<10%	-5.18E-12	<10%	143865	CB
2005	10/18/2012	Grab	MH-8A	12:52	13:15	3471	115.00	-1.83E-13	<10%	-4.71E-11	<10%	143865	DL
2006	10/18/2012	Guzzler	MH-8A	9:03	15:53	3824	868.74	-2.08E-14	<10%	-6.27E-12	<10%	143865	DL
2007	10/18/2012	Grab	GUZZLER	10:07	10:31	3471	120.00	-1.75E-13	<10%	-4.59E-11	<10%	143865	DL
2012	10/22/2012	Upwind	MH-7A	9:40	16:25	3511	858.15	-2.45E-14	<10%	-6.74E-12	<10%	143865	DL
2013	10/22/2012	Downwind	MH-8A	9:45	16:25	3867	847.55	-2.48E-14	<10%	-6.88E-12	<10%	143865	CB
2014	10/22/2012	Grab	MH-7A	14:24	14:46	3471	110.00	-1.64E-13	<10%	-5.16E-11	<10%	143865	DL
2015	10/22/2012	Guzzler	CB-7A-1	11:01	16:25	3824	686.52	-2.63E-14	<10%	-8.51E-12	<10%	143865	DL
2016	10/22/2012	Grab	MH-7A	13:21	13:42	3471	105.00	-2.01E-13	<10%	-5.42E-11	<10%	143865	DL
2021	10/23/2012	Upwind	MH-7A	7:28	16:05	3511	1095.46	-1.37E-14	<10%	-5.41E-12	<10%	143865	DL
2022	10/23/2012	Downwind	MH-5A-6	7:20	16:05	3867	1112.41	-1.35E-14	<10%	-5.34E-12	<10%	143865	CB
2023	10/23/2012	Grab	MH-5A-5	11:19	11:42	3471	115.00	-1.31E-13	<10%	-5.20E-11	<10%	143865	DL
2024	10/23/2012	Guzzler	MH-7A	7:36	16:05	3824	1078.51	-1.12E-14	<10%	-5.54E-12	<10%	143865	DL
2025	10/23/2012	Grab	MH-5A-5	14:43	15:07	3471	120.00	-1.25E-13	<10%	-4.93E-11	<10%	143865	DL
2030	10/24/2012	Upwind	MH-6A	9:30	16:30	3511	889.93	-3.38E-15	<10%	-7.08E-12	<10%	143865	DL
2031	10/24/2012	Downwind	MH-5A-5	8:40	16:20	3867	974.68	-3.09E-15	<10%	-6.50E-12	<10%	143865	CB
2032	10/24/2012	Grab	MH-6A	14:10	14:38	3471	140.00	-4.30E-14	<10%	-4.49E-11	<10%	143865	DL
2033	10/24/2012	Guzzler	MH-6A	9:31	16:09	3824	843.31	-3.57E-15	<10%	-7.50E-12	<10%	143865	DL
2034	10/24/2012	Grab	MH-6A	10:07	10:32	3471	125.00	-2.41E-14	<10%	-5.04E-11	<10%	143865	DL
2039	10/25/2012	Upwind	MH-6A	8:02	16:00	3511	1012.82	-5.94E-15	<10%	-5.51E-12	<10%	143865	DL
2040	10/25/2012	Downwind	CB-6A-1	8:15	15:20	3867	900.52	-6.68E-15	<10%	-6.20E-12	<10%	143865	CB
2041	10/25/2012	Grab	MH-6A	13:17	13:37	3471	100.00	-6.02E-14	<10%	-5.68E-11	<10%	143865	DL

Air Sample Identification Record

DAC α=3.00E-10 µCi/ml DAC β=8.00E-09 µCi/ml
10% DAC α=3.00E-11 µCi/ml 10% DAC β=8.00E-10 µCi/ml

Sample ID	Date	Location	Description	Start Time	Stop Time	Air Sample ID	Sample Volume (ft^3)	Alpha Results (µCi/ml)	Alpha % DAC	Beta Results (µCi/ml)	Beta % DAC	Counter ID	RCT Initials
2042	10/25/2012	Guzzler	MH-6A	7:58	16:30	3824	1084.87	-2.77E-15	<10%	-5.10E-12	<10%	143865	DL
2043	10/25/2012	Grab	GUZZLER	9:12	9:33	3471	105.00	0.00E+00	<10%	-5.33E-11	<10%	143865	DL
2049	10/29/2012	Upwind	MH-5A-4	11:40	16:35	3511	625.07	-1.93E-14	<10%	-9.18E-12	<10%	143865	CB
2050	10/29/2012	Downwind	MH-6A	8:33	16:35	3867	1021.30	-5.89E-15	<10%	-5.49E-12	<10%	143865	CB
2051	10/29/2012	Grab	MH-5A-4	15:20	15:40	3471	120.00	-1.00E-13	<10%	-4.74E-11	<10%	143865	CB
2052	10/29/2012	Guzzler	MH-5A-4	11:30	16:35	3824	646.26	-4.66E-15	<10%	-8.71E-12	<10%	143865	CB
2053	10/29/2012	Grab	GUZZLER	13:40	14:00	3471	120.00	-5.01E-14	<10%	-4.78E-11	<10%	143865	CB
2059	10/30/2012	Upwind	MH-5A	7:25	16:00	3511	1091.22	-1.93E-14	<10%	-5.47E-12	<10%	143865	DL
2060	10/30/2012	Downwind	MH-6A	7:40	16:20	3867	1101.82	-1.91E-14	<10%	-5.42E-12	<10%	143865	CB
2061	10/30/2012	Grab	MH-5A	13:40	14:01	3471	105.00	-1.43E-13	<10%	-5.59E-11	<10%	143865	DL
2062	10/30/2012	Guzzler	MH-5A-4	7:31	16:00	3824	1078.51	-1.67E-14	<10%	-5.49E-12	<10%	143865	DL
2063	10/30/2012	Grab	GUZZLER	10:40	11:03	3471	115.00	-1.83E-13	<10%	-5.17E-11	<10%	143865	DL
2068	10/31/2012	Upwind	MH-5A	8:08	16:40	3511	1084.87	-2.22E-14	<10%	-5.43E-12	<10%	143865	DL
2069	10/31/2012	Downwind	MH-5A-1	7:10	16:49	4041	1226.83	-1.72E-14	<10%	-4.75E-12	<10%	143865	MS
2070	10/31/2012	Grab	MH-5A	14:13	14:35	3471	110.00	-1.91E-13	<10%	-5.34E-11	<10%	143865	DL
2071	10/31/2012	Guzzler	MH-5A	11:21	16:40	3824	675.92	-3.12E-14	<10%	-8.69E-12	<10%	143865	DL
2072	10/31/2012	Grab	GUZZLER	14:20	14:43	3471	115.00	-1.83E-13	<10%	-4.70E-11	<10%	143865	DL
2077	11/1/2012	Upwind	MH-5A	8:03	15:45	3511	978.92	-1.54E-14	<10%	-5.95E-12	<10%	143865	DL
2078	11/1/2012	Downwind	MH-5A-1	7:50	16:15	3867	1070.03	-1.69E-14	<10%	-5.46E-12	<10%	143865	CB
2079	11/1/2012	Grab	MH-5A	14:57	15:20	3471	115.00	-1.31E-13	<10%	-5.02E-11	<10%	143865	DL
2080	11/1/2012	Guzzler	MH-5A	8:05	15:45	3824	974.68	-1.54E-14	<10%	-5.97E-12	<10%	143865	DL
2081	11/1/2012	Grab	GUZZLER	14:16	14:40	3471	120.00	-1.25E-13	<10%	-4.89E-11	<10%	143865	DL
2086	11/5/2012	Upwind	MH-4A	8:00	16:20	3511	1059.44	-1.91E-14	<10%	-4.74E-12	<10%	99043	DL
2087	11/5/2012	Downwind	MH-5A	7:35	16:25	3867	1123.01	-2.32E-14	<10%	-4.41E-12	<10%	99043	CB
2088	11/5/2012	Grab	MH-4A	15:38	16:00	3471	110.00	-2.36E-13	<10%	-4.51E-11	<10%	99043	DL
2089	11/5/2012	Guzzler	GUZZLER	8:03	16:24	3824	1061.56	-1.91E-14	<10%	-4.68E-12	<10%	99043	DL
2090	11/5/2012	Grab	GUZZLER	15:09	15:31	3471	110.00	-2.36E-13	<10%	-4.50E-11	<10%	99043	DL
2095	11/6/2012	Upwind	MH-4A	8:00	15:52	3511	1000.11	-2.02E-14	<10%	-5.18E-12	<10%	99043	DL
2096	11/6/2012	Downwind	MH-5A	7:30	15:25	3867	1006.47	-2.30E-14	<10%	-5.07E-12	<10%	99043	CB
2097	11/6/2012	Grab	MH-4A	9:41	10:03	3471	110.00	-1.31E-13	<10%	-4.65E-11	<10%	99043	DL
2098	11/6/2012	Guzzler	GUZZLER	7:57	15:45	3824	991.64	-1.46E-14	<10%	-5.26E-12	<10%	99043	DL
2099	11/6/2012	Grab	GUZZLER	14:14	14:36	3471	110.00	-1.84E-13	<10%	-4.67E-11	<10%	99043	DL
2104	11/7/2012	Upwind	MH-4A	7:42	16:00	3511	1055.20	-5.48E-15	<10%	-5.14E-12	<10%	99043	DL
2105	11/7/2012	Downwind	MH-5A	7:25	16:35	3867	1165.38	-2.48E-15	<10%	-4.64E-12	<10%	99043	CB
2106	11/7/2012	Grab	MH-4A	15:32	15:58	3471	130.00	2.22E-14	<10%	-4.17E-11	<10%	99043	DL
2107	11/7/2012	Guzzler	MH-4A	7:27	16:21	3824	1131.48	0.00E+00	<10%	-4.81E-12	<10%	99043	DL

Air Sample Identification Record

DAC α=3.00E-10 µCi/ml DAC β=8.00E-09 µCi/ml
10% DAC α=3.00E-11 µCi/ml 10% DAC β=8.00E-10 µCi/ml

Sample ID	Date	Location	Description	Start Time	Stop Time	Air Sample ID	Sample Volume (ft^3)	Alpha Results (µCi/ml)	Alpha % DAC	Beta Results (µCi/ml)	Beta % DAC	Counter ID	RCT Initials
2108	11/7/2012	Grab	GUZZLER	8:54	9:15	3471	105.00	-2.75E-14	<10%	-5.15E-11	<10%	99043	DL
2115	11/8/2012	Upwind	MH-4A	7:31	14:36	3511	900.52	-9.63E-15	<10%	-5.29E-12	<10%	99043	DL
2116	11/8/2012	Downwind	MH-4A-1	7:30	15:10	3867	974.68	-8.89E-15	<10%	-4.83E-12	<10%	99043	CB
2117	11/8/2012	Grab	MH-4A	11:00	11:23	3471	115.00	-2.51E-14	<10%	-4.14E-11	<10%	99043	DL
2118	11/8/2012	Guzzler	GUZZLER	7:28	14:21	3824	875.10	-9.91E-15	<10%	-5.35E-12	<10%	99043	DL
2119	11/8/2012	Grab	GUZZLER	8:20	8:41	3471	105.00	-1.10E-13	<10%	-4.56E-11	<10%	99043	DL
2124	11/12/2012	Upwind	MH-4A	8:00	16:57	3511	1137.84	-1.52E-14	<10%	-4.57E-12	<10%	99043	JR
2125	11/12/2012	Downwind	MH-3A	7:37	16:14	3867	1095.46	-2.11E-14	<10%	-4.78E-12	<10%	99043	JL
2126	11/12/2012	Grab	MH-3A	9:40	10:00	3471	100.00	-1.73E-13	<10%	-5.27E-11	<10%	99043	JL
2127	11/12/2012	Grab	MH-3A	13:13	13:33	3471	100.00	-2.31E-13	<10%	-5.24E-11	<10%	99043	JL
2128	11/12/2012	Guzzler	MH-3A	7:35	16:19	3824	1110.29	-1.30E-14	<10%	-4.73E-12	<10%	99043	JL
2134	11/13/2012	Upwind	MH-3A	7:30	16:46	3824	1178.10	-7.36E-15	<10%	-3.36E-12	<10%	99043	JL
2135	11/13/2012	Downwind	MH-2A	7:28	16:42	3867	1173.86	-9.85E-15	<10%	-3.44E-12	<10%	99043	JL
2136	11/13/2012	Grab	MH-3A	14:05	14:25	3433	100.00	-1.16E-13	<10%	-4.06E-11	<10%	99043	JL
2137	11/13/2012	Guzzler	MH-3A	8:15	16:31	3824	1050.96	-1.10E-14	<10%	-3.86E-12	<10%	99043	JL
2138	11/13/2012	Grab	GUZZLER	8:42	9:02	3433	100.00	-8.67E-14	<10%	-4.01E-11	<10%	99043	JL
2144	11/14/2012	Upwind	MH-2A	9:05	13:40	3511	582.69	-2.48E-14	<10%	-9.29E-12	<10%	99043	JL
2145	11/14/2012	Downwind	MH-2A	7:32	13:25	3867	747.96	-1.93E-14	<10%	-7.26E-12	<10%	99043	JL
2146	11/14/2012	Guzzler	MH-2A	8:12	13:30	3824	673.80	-1.72E-14	<10%	-7.96E-12	<10%	99043	JL
2147	11/14/2012	Grab	GUZZLER	9:22	9:42	3471	100.00	-8.67E-14	<10%	-5.41E-11	<10%	99043	JL
2157	11/19/2012	Upwind	MH-3A	7:45	16:45	3511	1144.20	-2.27E-14	<10%	-4.59E-12	<10%	99043	JR
2158	11/19/2012	Downwind	MH-2A	7:32	16:35	3867	1150.55	-2.26E-14	<10%	-4.60E-12	<10%	99043	JL
2159	11/19/2012	Grab	MH-2A	9:20	9:40	3471	100.00	-2.60E-13	<10%	-5.30E-11	<10%	99043	JL
2160	11/19/2012	Guzzler	MH-2A	8:30	16:28	3824	1012.82	-2.28E-14	<10%	-5.25E-12	<10%	99043	JL
2161	11/19/2012	Grab	MH-2A	13:49	14:09	3471	100.00	-2.60E-13	<10%	-5.29E-11	<10%	99043	JL
2166	11/20/2012	Upwind	MH-1A	8:19	16:35	3511	1050.96	-1.65E-14	<10%	-4.78E-12	<10%	99043	JL
2167	11/20/2012	Downwind	MH-2A	7:15	16:45	3867	1207.76	-1.44E-14	<10%	-4.18E-12	<10%	99043	JR
2168	11/20/2012	Grab	MH-1A	8:53	9:13	3471	100.00	-1.73E-13	<10%	-5.05E-11	<10%	99043	JL
2169	11/20/2012	Guzzler	MH-1A	8:15	16:30	3824	1048.85	-1.10E-14	<10%	-4.77E-12	<10%	99043	JL
2170	11/20/2012	Grab	GUZZLER	13:35	13:55	3471	100.00	-1.44E-13	<10%	-5.00E-11	<10%	99043	JL
2179	11/26/2012	Upwind	MH-5A	8:15	18:45	3511	1334.89	-1.30E-14	<10%	-4.03E-12	<10%	99043	JL
2180	11/26/2012	Downwind	MH-5A-4	9:00	18:45	3867	1239.54	-1.63E-14	<10%	-4.29E-12	<10%	99043	JR
2181	11/26/2012	Grab	MH-5A	9:27	9:47	3471	100.00	-2.02E-13	<10%	-5.26E-11	<10%	99043	JL
2182	11/26/2012	Guzzler	MH-5A	8:49	12:00	3824	404.71	-5.00E-14	<10%	-1.31E-11	<10%	99043	JL
2183	11/26/2012	Grab	GUZZLER	17:52	18:12	3471	100.00	-1.44E-13	<10%	-5.30E-11	<10%	99043	JL
2188	11/27/2012	Upwind	MH-5A	8:14	18:46	3511	1339.13	-1.51E-14	<10%	-3.94E-12	<10%	99043	JL

Air Sample Identification Record

DAC α=3.00E-10 µCi/ml DAC β=8.00E-09 µCi/ml
10% DAC α=3.00E-11 µCi/ml 10% DAC β=8.00E-10 µCi/ml

Sample ID	Date	Location	Description	Start Time	Stop Time	Air Sample ID	Sample Volume (ft^3)	Alpha Results (µCi/ml)	Alpha % DAC	Beta Results (µCi/ml)	Beta % DAC	Counter ID	RCT Initials
2189	11/27/2012	Downwind	MH-5A-1	8:36	20:15	3867	1481.10	-1.37E-14	<10%	-3.54E-12	<10%	99043	JR
2190	11/27/2012	Grab	MH-5A	13:07	13:27	3471	100.00	-1.73E-13	<10%	-5.27E-11	<10%	99043	JL
2191	11/27/2012	Guzzler	MH-5A	13:38	18:43	3824	646.26	-3.13E-14	<10%	-8.15E-12	<10%	99043	JL
2192	11/27/2012	Grab	GUZZLER	14:15	14:35	3471	120.00	-1.69E-13	<10%	-4.37E-11	<10%	99043	JL
2201	11/29/2012	Upwind	MH-1A	8:23	14:52	3511	824.24	-2.45E-14	<10%	-6.03E-12	<10%	99043	JL
2202	11/29/2012	Downwind	MH-2A	7:30	16:40	3867	1165.38	-1.74E-14	<10%	-4.27E-12	<10%	99043	JR
2203	11/29/2012	Grab	MH-1A	9:53	10:13	3471	100.00	-2.02E-13	<10%	-4.94E-11	<10%	99043	JL
2204	11/29/2012	Guzzler	MH-1A	8:20	14:50	3824	826.36	-2.45E-14	<10%	-5.92E-12	<10%	99043	JL
2205	11/29/2012	Grab	GUZZLER	13:21	13:52	3433	186.00	-1.09E-13	<10%	-2.66E-11	<10%	99043	JL
2210	12/3/2012	Upwind	MH-1A	7:52	16:42	3511	1123.01	-2.06E-14	<10%	-4.34E-12	<10%	99043	JL
2211	12/3/2012	Downwind	MH-1A	7:30	16:30	3867	1144.20	-2.02E-14	<10%	-4.23E-12	<10%	99043	JR
2212	12/3/2012	Grab	MH-1A	9:24	9:44	3471	100.00	-2.02E-13	<10%	-4.85E-11	<10%	99043	JL
2213	12/3/2012	Guzzler	MH-1A	7:54	15:50	3824	1008.59	-2.01E-14	<10%	-4.84E-12	<10%	99043	JL
2214	12/3/2012	Grab	GUZZLER	12:57	13:17	3471	100.00	-2.31E-13	<10%	-4.88E-11	<10%	99043	JL
2219	12/4/2012	Upwind	MH-1A	7:33	16:40	3511	1159.03	-9.97E-15	<10%	-4.48E-12	<10%	99043	JL
2220	12/4/2012	Downwind	MH-1A	7:30	16:40	3867	1165.38	-9.92E-15	<10%	-4.46E-12	<10%	99043	JR
2221	12/4/2012	Grab	MH-1A	13:33	13:53	3471	100.00	-1.16E-13	<10%	-5.28E-11	<10%	99043	JL
2222	12/4/2012	Guzzler	GUZZLER	7:30	16:42	3824	1169.62	-2.47E-15	<10%	-4.49E-12	<10%	99043	JL
2223	12/4/2012	Grab	GUZZLER	8:55	9:15	3471	100.00	-1.16E-13	<10%	-5.23E-11	<10%	99043	JL
2232	12/6/2012	Upwind	MH-1A	9:07	16:24	3511	925.95	-1.87E-14	<10%	-5.48E-12	<10%	99043	JL
2233	12/6/2012	Downwind	MH-1A	8:55	16:10	3867	921.71	-1.25E-14	<10%	-5.50E-12	<10%	99043	JR
2234	12/6/2012	Grab	MH-1A	13:44	14:04	3471	100.00	-2.02E-13	<10%	-5.08E-11	<10%	99043	JL
2235	12/6/2012	Guzzler	MH-1A	9:04	16:20	3824	923.83	-1.56E-14	<10%	-5.50E-12	<10%	99043	JL
2236	12/6/2012	Grab	GUZZLER	10:24	10:44	3471	100.00	-1.44E-13	<10%	-5.02E-11	<10%	99043	JL
2241	12/10/2012	Upwind	MH-1A	9:54	16:36	3511	851.79	-2.37E-14	<10%	-5.69E-12	<10%	99043	JL
2242	12/10/2012	Downwind	MH-1A	9:57	16:40	3867	853.91	-2.37E-14	<10%	-5.69E-12	<10%	99043	JR
2243	12/10/2012	Grab	MH-1A	11:06	11:26	3471	100.00	-2.31E-13	<10%	-4.94E-11	<10%	99043	JL
2244	12/10/2012	Guzzler	MH-1A	9:57	16:39	2782	851.79	-2.71E-14	<10%	-5.74E-12	<10%	99043	JL
2245	12/10/2012	Grab	GUZZLER	14:32	14:52	3471	100.00	-2.02E-13	<10%	-4.81E-11	<10%	99043	JL
2250	12/11/2012	Upwind	MH-1A	7:37	16:05	3511	1076.39	-1.61E-14	<10%	-4.45E-12	<10%	99043	JL
2251	12/11/2012	Downwind	MH-1A	7:20	16:31	3867	1167.50	-1.73E-14	<10%	-4.18E-12	<10%	99043	JR
2252	12/11/2012	Grab	MH-1A	8:22	18:42	3471	3100.00	-5.59E-15	<10%	-1.59E-12	<10%	99043	JL
2253	12/11/2012	Guzzler	MH-1A	7:34	16:10	2782	1093.34	-1.32E-14	<10%	-4.37E-12	<10%	99043	JL
2254	12/11/2012	Grab	GUZZLER	15:06	15:26	3471	100.00	-1.44E-13	<10%	-4.82E-11	<10%	99043	JL

APPENDIX B

SURVEYS OF EXCAVATED PIPE
(on CD)

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RADIATION/CONTAMINATION SURVEY FORM

Date: Time:	INSTRUMENTATION USED						
12/10/2013 11:08	Model Inst/Det.	Serial Number	Calibration Due Date	Instrument % Efficiency	Total % Efficiency	MDC/MDA + (dpm/100cm²)	Background + (dpm/100cm²)
Survey Number: A-PS-05-0002	2360	287663	3/12/2014	α 39.79%	α 9.95%	α 68.20	α 43.23
	43-93	PR312880		βγ 27.01%	βγ 6.75%	βγ 617.27	βγ 3681.60
Location: Alameda Point	2929	185267	5/20/2014	α 69.29%	α 17.32%	α 14.32	α 0.96
				βγ 60.53%	βγ 15.13%	βγ 109.36	βγ 259.27
Surveyor: T. Wells							
	2350-1	228691	8/23/2014				6803 cpm
	44-10	PR228691					
Isotopes of Concern: ^{226}Ra, ^{137}Cs, ^{90}Sr	Static Count Time: 2 Minutes						
Survey Reason: Pipe Survey	Description of drawing: Reach 7 Pipes						

Comments:

Scan range of area for 2350# 228691 is 5500 cpm to 7900 cpm

Picture maybe a representation of actual item surveyed

3 sigma for 2350# 228691 is 7289 cpm for PIPE

Routine [ ] Non-routine [X]

(#)	denotes swipe location or fixed α/β readings
#	denotes G/A radiation readings
# / #	denotes contact / 1 meter radiation readings.
*	denotes highest radiation reading on contact
LAW	denotes large area masslinn wipe
Δ	denotes static location.
+	Unless Otherwise Noted
	All readings in µRem/hr unless otherwise noted
	K = 1000

RADIATION/CONTAMINATION SURVEY SUPPLEMENT

SURVEY NUMBER: A-PS-05-0002

SURVEYOR: T. Wells | LOCATION: Alameda Point

Location	Exposure Rate (µRem/hr)			Fixed + Removable (NET)		Removable (NET)		Comments
	Contact	1 Meter	Gamma (cpm)	Alpha dpm/100cm^2	Beta/Gamma dpm/100cm^2	Alpha dpm/100cm^2	Beta/Gamma dpm/100cm^2	
1			7788	-8.04	368.75	-0.96	34.80	OUTSIDE 1 *HOT SPOT SEGMENT
2			6193	-33.17	450.20	-0.96	31.50	INSIDE 1 *HOT SPOT SEGMENT
3			6411	-18.09	-31.10	-0.96	11.67	OUTSIDE 2 (BROKEN)
4			6149	-33.17	-31.10	4.81	18.28	INSIDE 2 (BROKEN)

Reviewer	Date:	RSO/RTM	Date:
	Time:		Time:

RADIATION/CONTAMINATION SURVEY FORM

Date: Time:	INSTRUMENTATION USED						
1/15/2013 09:12	Model Inst/Det.	Serial Number	Calibration Due Date	Instrument % Efficiency	Total % Efficiency	MDC/MDA + (dpm/100cm²)	Background + (dpm/100cm²)
Survey Number: A-PS-05-0004	2360	287663	3/12/2014	α 39.79%	α 9.95%	α 68.20	α 43.23
	43-93	PR312880		βγ 27.01%	βγ 6.75%	βγ 617.27	βγ 3681.60
Location: Alameda Point	2929	185267	5/20/2014	α 69.29%	α 17.32%	α 14.86	α 1.15
				βγ 60.53%	βγ 15.13%	βγ 113.91	βγ 283.50
Surveyor: T. Wells							
	2350-1	228691	8/23/2014				6803 cpm
	44-10	PR228691					
Isotopes of Concern: ^{226}Ra, ^{137}Cs, ^{90}Sr	Static Count Time: 2 Minutes				CONTAMINATED		
Survey Reason: Pipe Survey	Description of drawing: Reach 12 Pipes						

Comments:

Scan range of area for 2350# 228691 is 4500 cpm to 9700 cpm

Picture maybe a representation of actual item surveyed

3 sigma for 2350# 228691 is 7289 cpm for PIPE

Routine [ ] Non-routine [X]

#	denotes swipe location or fixed α/β readings
#	denotes G/A radiation readings
# / #	denotes contact / 1 meter radiation readings.
*	denotes highest radiation reading on contact
LAW	denotes large area masslinn wipe
Δ	denotes static location.
+	Unless Otherwise Noted
	All readings in µRem/hr unless otherwise noted
	K = 1000

RADIATION/CONTAMINATION SURVEY SUPPLEMENT

SURVEY NUMBER: A-PS-05-0004

SURVEYOR: T. Wells | LOCATION: Alameda Point

Location	Exposure Rate (µRem/hr)			Fixed + Removable (NET)		Removable (NET)		Comments
	Contact	1 Meter	Gamma (cpm)	Alpha dpm/100cm^2	Beta/Gamma dpm/100cm^2	Alpha dpm/100cm^2	Beta/Gamma dpm/100cm^2	
1			4573	-13.07	1035.17	1.73	17.18	OUTSIDE 1
2			4977	-23.12	87.38	-1.15	-15.86	INSIDE 1
3			9556	-28.15	316.92	1.73	43.61	OUTSIDE 2 *HOT SPOT SEGMENT
4			7342	-13.07	-97.74	1.73	-32.38	INSIDE 2 *HOT SPOT SEGMENT
5			8869	-38.20	894.48	-1.15	33.70	OUTSIDE 3
6			8323	-23.12	-149.57	-1.15	-22.47	INSIDE 3
7			8338	-33.17	-216.22	-1.15	20.49	OUTSIDE 4
8			7451	-13.07	205.85	-1.15	-15.86	INSIDE 4
9			6431	-38.20	161.42	-1.15	33.70	OUTSIDE 5
10			6415	-28.15	339.13	-1.15	-5.95	INSIDE 5
11			7421	-33.17	-38.50	-1.15	20.49	OUTSIDE 6
12			5878	-13.07	-75.53	4.62	-29.08	INSIDE 6

Reviewer	Date:	RSO/RTM	Date:
	Time:		Time:

RADIATION/CONTAMINATION SURVEY FORM

Date: Time:	INSTRUMENTATION USED						
12/18/2013 11:02	Model Inst/Det.	Serial Number	Calibration Due Date	Instrument % Efficiency	Total % Efficiency	MDC/MDA + (dpm/100cm^2)	Background + (dpm/100cm^2)
Survey Number: A-PS-05-0003	2360	287663	3/12/2014	α 39.79%	α 9.95%	α 68.20	α 43.23
	43-93	PR312880		βγ 27.01%	βγ 6.75%	βγ 617.27	βγ 3681.60
Location: Alameda Point	2929	152281	4/25/2014	α 65.75%	α 16.44%	α 16.19	α 1.42
				βγ 40.11%	βγ 10.03%	βγ 175.22	βγ 446.11
Surveyor: T. Wells							
	2350-1	228691	8/23/2014				6803 cpm
	44-10	PR228691					
Isotopes of Concern: ^{226}Ra, ^{137}Cs, ^{90}Sr	Static Count Time: 2 Minutes					***CONTAMINATED***	
Survey Reason: Pipe Survey	Description of drawing: Reach 27 Pipes						

Comments:

Scan range of area for 2350# 228691 is 6500 cpm to 11000 cpm

Picture maybe a representation of actual item surveyed

3 sigma for 2350# 228691 is 7289 cpm for PIPE

Routine ☐ **Non-routine** ☒

(#)	denotes swipe location or fixed α/β readings
#	denotes G/A radiation readings
# / #	denotes contact / 1 meter radiation readings.
*	denotes highest radiation reading on contact
LAW	denotes large area masslinn wipe
Δ	denotes static location.
+	Unless Otherwise Noted
	All readings in µRem/hr unless otherwise noted
	K = 1000

RADIATION/CONTAMINATION SURVEY SUPPLEMENT

SURVEY NUMBER: A-PS-05-0003

SURVEYOR: T. Wells | LOCATION: Alameda Point

Location	Exposure Rate (µRem/hr)			Fixed + Removable (NET)		Removable (NET)		Comments
	Contact	1 Meter	Gamma (cpm)	Alpha dpm/100cm^2	Beta/Gamma dpm/100cm^2	Alpha dpm/100cm^2	Beta/Gamma dpm/100cm^2	
1			7730	22.12	1346.17	-1.42	7.65	OUTSIDE 1 (BROKEN)
2			7586	12.06	1486.86	-1.42	-62.16	INSIDE 1 (BROKEN)
3			8100	-3.02	1834.88	1.62	-27.26	OUTSIDE 2 (BROKEN) *HOT SPOT SEGMENT
4			8067	12.06	1146.24	4.66	-17.29	INSIDE 2 (BROKEN) *HOT SPOT SEGMENT
5			10299	17.09	2649.39	-1.42	92.41	OUTSIDE 3
6			7489	2.01	1205.48	4.66	-37.23	INSIDE 3
7			8724	32.17	2116.25	-1.42	52.52	OUTSIDE 4 (BROKEN)
8			8219	-23.12	1220.29	1.62	-77.12	INSIDE 4 (BROKEN)
9			7125	-3.02	761.20	-1.42	57.51	OUTSIDE 5 (BROKEN) SEEPAGE
10			7043	22.12	1057.39	-1.42	27.59	INSIDE 5 (BROKEN) SEEPAGE
11			7183	-3.02	531.65	-1.42	32.58	OUTSIDE 6 (BROKEN)
12			6792	22.12	250.28	-1.42	-52.19	INSIDE 6 (BROKEN)

Reviewer	Date:	RSO/RTM	Date:
	Time:		Time:

RADIATION/CONTAMINATION SURVEY FORM

Date: 12/5/2013 Time: 10:13	INSTRUMENTATION USED						
	Model Inst/Det.	Serial Number	Calibration Due Date	Instrument % Efficiency	Total % Efficiency	MDC/MDA + (dpm/100cm²)	Background + (dpm/100cm²)
Survey Number: A-PS-05-0001	2360	287663	3/12/2014	α 39.79%	α 9.95%	α 68.20	α 43.23
	43-93	PR312880		βγ 27.01%	βγ 6.75%	βγ 617.27	βγ 3681.60
Location: Alameda Point	2929	152281	4/25/2014	α 65.75%	α 16.44%	α 15.66	α 1.22
				βγ 40.11%	βγ 10.03%	βγ 167.76	βγ 405.55
Surveyor: T. Wells							
	2350-1 44-10	228691 PR228691	8/23/2014				6803 cpm
Isotopes of Concern: ^{226}Ra, ^{137}Cs, ^{90}Sr	Static Count Time: 2 Minutes				***CONTAMINATED***		
Survey Reason: Pipe Survey	Description of drawing: REACH 63 Pipes						

Comments:

Scan range of area for 2350# 228691 is 5000 cpm to 7000 cpm

Picture maybe a representation of actual item surveyed

3 sigma for 2350# 228691 is 7289 cpm for PIPE

Routine [ ] Non-routine [X]

(#)	denotes swipe location or fixed α/β readings
#	denotes G/A radiation readings
# / #	denotes contact / 1 meter radiation readings.
*	denotes highest radiation reading on contact
LAW	denotes large area masslinn wipe
Δ	denotes static location.
+	Unless Otherwise Noted
	All readings in µRem/hr unless otherwise noted
	K = 1000

RADIATION/CONTAMINATION SURVEY SUPPLEMENT

SURVEY NUMBER: A-PS-05-0001

SURVEYOR: T. Wells | LOCATION: Alameda Point

Location	Exposure Rate (µRem/hr)			Fixed + Removable (NET)		Removable (NET)		Comments
	Contact	1 Meter	Gamma (cpm)	Alpha dpm/100cm^2	Beta/Gamma dpm/100cm^2	Alpha dpm/100cm^2	Beta/Gamma dpm/100cm^2	
1			6070	-23.12	-438.36	-1.22	-16.62	OUTSIDE 1 *HOT SPOT SEGMENT
2			6231	-18.09	-741.95	-1.22	-16.62	INSIDE 1 *HOT SPOT SEGMENT
3			6239	7.04	-475.38	-1.22	8.31	OUTSIDE 2
4			6595	2.01	975.93	1.83	-31.58	INSIDE 2
5			6607	12.06	183.64	4.87	38.23	OUTSIDE 3
6			8580	7.04	1220.29	-1.22	28.26	INSIDE 3
7			5625	-28.15	-319.88	1.83	8.31	OUTSIDE 4
8			6304	12.06	-260.64	1.83	-26.59	INSIDE 4
9			5835	-23.12	346.54	-1.22	33.24	OUTSIDE 5 (BROKEN)
10			5897	-8.04	924.10	-1.22	18.28	INSIDE 5 (BROKEN)

Reviewer	Date:	RSO/RTM	Date:
	Time:		Time:

APPENDIX C

FOCUSED STORM DRAIN LINE INVESTIGATIONS SAMPLE DATA (on CD)

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Subappendix C1

Focused Storm Drain Line Investigations: Sediment and Core Sample Analyses

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Table C-1
Stormwater Line Radiological Validated Results

Sample ID *	Location ID	Method	EPA 901.1	EPA 901.1
		Analyte	Cesium-137	Radium-226
		Units	pCi/g	pCi/g
		Collection Date		
FZ02-TU07-01	TU07 SYSTEMATIC	12/10/2013	0.000 U	0.542
FZ02-TU07-02	TU07 SYSTEMATIC	12/10/2013	-0.000248 U	0.410
FZ02-TU07-03	TU07 SYSTEMATIC	12/10/2013	0.0145 U	0.596
FZ02-TU07-04	TU07 SYSTEMATIC	12/10/2013	-0.00907 U	0.499
FZ02-TU07-05	TU07 SYSTEMATIC	12/10/2013	0.00341 U	0.307
FZ02-TU07-06	TU07 SYSTEMATIC	12/10/2013	0.00514 U	0.527
FZ02-TU07-07	TU07 SYSTEMATIC	12/10/2013	0.0203 U	0.479
FZ02-TU07-08	TU07 SYSTEMATIC	12/10/2013	0.00723 U	0.592
FZ02-TU07-09	TU07 SYSTEMATIC	12/10/2013	0.00937 U	0.487
FZ02-TU07-10	TU07 SYSTEMATIC	12/10/2013	0.0153 U	0.561
FZ02-TU07-11	TU07 SYSTEMATIC	12/10/2013	-0.0000390 U	0.446
FZ02-TU07-12	TU07 SYSTEMATIC	12/10/2013	0.000943 U	0.244
FZ02-TU07-13	TU07 SYSTEMATIC	12/10/2013	-0.0231 U	0.387
FZ02-TU07-14	TU07 SYSTEMATIC	12/10/2013	0.00390 U	0.504
FZ02-TU07-15	TU07 SYSTEMATIC	12/10/2013	0.0263 U	0.434
FZ02-TU07-16	TU07 SYSTEMATIC	12/10/2013	0.00212 U	0.363
FZ02-TU07-17	TU07 SYSTEMATIC	12/10/2013	0.0191 U	0.582
FZ02-TU07-18	TU07 SYSTEMATIC	12/10/2013	0.000 U	0.417
FZ02-TU07-19	TU07 SYSTEMATIC	12/9/2013	0.0235 U	0.469
FZ02-TU07-20	TU07 HS BIASED NORTH 5"	12/9/2013	0.000 U	0.334
FZ02-TU07-21	TU07 HS BIASED NORTH 12"	12/9/2013	-0.0141 U	0.539
FZ02-TU07-22	TU07 HS BIASED SOUTH 5"	12/9/2013	0.000 U	0.683
FZ02-TU07-23	TU07 HS BIASED SOUTH 12"	12/9/2013	-0.0145 U	0.487
FZ02-TU12-001	TU12 SYSTEMATIC	1/22/2014	0.00826 U	0.452
FZ02-TU12-002	TU12 SYSTEMATIC	1/22/2014	0.000 U	0.359
FZ02-TU12-003	TU12 SYSTEMATIC	1/21/2014	0.0307	0.458
FZ02-TU12-004	TU12 SYSTEMATIC	1/14/2014	0.0119 U	0.437
FZ02-TU12-005	TU12 SYSTEMATIC	1/14/2014	-0.00125 U	0.276
FZ02-TU12-006	TU12 SYSTEMATIC	1/21/2014	-0.00403 U	0.389
FZ02-TU12-007	TU12 SYSTEMATIC	1/21/2014	-0.0294 U	0.309
FZ02-TU12-008	TU12 SYSTEMATIC	1/14/2014	-0.00421 U	0.320
FZ02-TU12-009	TU12 SYSTEMATIC	1/14/2014	-0.0168 U	0.580
FZ02-TU12-010	TU12 SYSTEMATIC	1/21/2014	-0.0153 U	0.409
FZ02-TU12-011	TU12 SYSTEMATIC	1/21/2014	-0.00921 U	0.339
FZ02-TU12-012	TU12 SYSTEMATIC	1/14/2014	-0.000265 U	0.368
FZ02-TU12-013	TU12 SYSTEMATIC	1/21/2014	0.00174 U	0.458
FZ02-TU12-014	TU12 SYSTEMATIC	1/21/2014	0.00750 U	0.265
FZ02-TU12-015	TU12 SYSTEMATIC	1/21/2014	0.00361 U	0.392
FZ02-TU12-016	TU12 SYSTEMATIC	1/21/2014	0.00972 U	0.470
FZ02-TU12-017	TU12 SYSTEMATIC	1/14/2014	0.00803 U	0.406
FZ02-TU12-018	TU12 SYSTEMATIC	1/21/2014	0.0240 U	0.342

Table C-1
Stormwater Line Radiological Validated Results

		Method	EPA 901.1	EPA 901.1
		Analyte	Cesium-137	Radium-226
		Units	pCi/g	pCi/g
Sample ID *	Location ID	Collection Date		
FZ02-TU12-019	TU12 HS BIASED EAST 15"	1/14/2014	-0.0143 U	0.469
FZ02-TU12-020	TU12 HS BIASED EAST 30"	1/14/2014	-0.000747 U	0.395
FZ02-TU12-021	TU12 HS BIASED WEST 15"	1/14/2014	0.000 U	0.564
FZ02-TU12-022	TU12 HS BIASED WEST 30"	1/14/2014	-0.0105 U	0.307
FZ02-TU12-023	TU12 PIPE	1/15/2014	0.0167 U	0.352
FZ02-TU27-001	TU27 SYSTEMATIC	12/17/2013	0.000957 U	0.430
FZ02-TU27-002	TU27 SYSTEMATIC	12/17/2013	-0.000238 U	0.396
FZ02-TU27-003	TU27 SYSTEMATIC	12/17/2013	-0.00203 U	0.491
FZ02-TU27-004	TU27 SYSTEMATIC	12/17/2013	-0.00293 U	0.453
FZ02-TU27-005	TU27 SYSTEMATIC	12/17/2013	-0.00861 U	0.436
FZ02-TU27-006	TU27 SYSTEMATIC	12/17/2013	0.00587 U	0.468
FZ02-TU27-007	TU27 SYSTEMATIC	12/17/2013	-0.0346 U	0.588
FZ02-TU27-008	TU27 SYSTEMATIC	12/16/2013	-0.0156 U	0.455
FZ02-TU27-009	TU27 SYSTEMATIC	12/16/2013	0.0108 U	0.432
FZ02-TU27-010	TU27 SYSTEMATIC	12/16/2013	0.00354 U	0.427
FZ02-TU27-011	TU27 SYSTEMATIC	12/16/2013	0.0113 U	0.431
FZ02-TU27-012	TU27 SYSTEMATIC	12/17/2013	0.000 U	0.575
FZ02-TU27-013	TU27 SYSTEMATIC	12/17/2013	0.00254 U	0.541
FZ02-TU27-014	TU27 SYSTEMATIC	12/17/2013	-0.00705 U	0.401
FZ02-TU27-015	TU27 SYSTEMATIC	12/17/2013	-0.0113 U	0.412
FZ02-TU27-016	TU27 SYSTEMATIC	12/17/2013	-0.0118 U	0.449
FZ02-TU27-017	TU27 SYSTEMATIC	12/17/2013	-0.00602 U	0.477
FZ02-TU27-018	TU27 SYSTEMATIC	12/16/2013	-0.00396 U	0.372
FZ02-TU27-019	TU27 HS BIASED #2 NORTH 10"	12/16/2013	-0.00674 U	0.431
FZ02-TU27-020	TU27 HS BIASED #2 NORTH 24"	12/16/2013	0.0242 U	0.633
FZ02-TU27-021	TU27 HS BIASED #2 SOUTH 10"	12/16/2013	0.00882 U	0.289
FZ02-TU27-022	TU27 HS BIASED #2 SOUTH 24"	12/16/2013	-0.00161 U	0.501
FZ02-TU27-023	TU27 HS BIASED #1 NORTH 10"	12/17/2013	-0.00114 U	0.365
FZ02-TU27-024	TU27 HS BIASED #1 NORTH 24"	12/17/2013	0.00187 U	0.340
FZ02-TU27-025	TU27 HS BIASED #1 SOUTH 10"	12/17/2013	-0.00290 U	0.224
FZ02-TU27-026	TU27 HS BIASED #1 SOUTH 24"	12/17/2013	-0.0130 U	0.347
FZ02-TU27-027	TU 27 PIPE	12/17/2013	0.000225 U	0.256
FZ02-TU27-028	TU 27 PIPE	12/17/2013	0.0141 U	0.371
FZ02-TU63-001	TU63 SYSTEMATIC	12/4/2013	0.00193 U	0.494
FZ02-TU63-002	TU63 SYSTEMATIC	12/4/2013	-0.0143 U	0.425
FZ02-TU63-003	TU63 SYSTEMATIC	12/4/2013	-0.0123 U	0.476
FZ02-TU63-004	TU63 SYSTEMATIC	12/4/2013	-0.00647 U	0.363
FZ02-TU63-005	TU63 SYSTEMATIC	12/4/2013	0.000373 U	0.396
FZ02-TU63-006	TU63 SYSTEMATIC	12/4/2013	0.00833 U	0.513
FZ02-TU63-007	TU63 SYSTEMATIC	12/4/2013	0.00771 U	0.389
FZ02-TU63-008	TU63 SYSTEMATIC	12/4/2013	-0.00978 U	0.503

Table C-1
Stormwater Line Radiological Validated Results

Sample ID *	Location ID	Method	EPA 901.1	EPA 901.1
		Analyte	Cesium-137	Radium-226
		Units	pCi/g	pCi/g
		Collection Date		
FZ02-TU63-009	TU63 SYSTEMATIC	12/4/2013	0.00178 U	0.445
FZ02-TU63-010	TU63 SYSTEMATIC	12/4/2013	-0.00383 U	0.452
FZ02-TU63-011	TU63 SYSTEMATIC	12/4/2013	0.00834 U	0.306
FZ02-TU63-012	TU63 SYSTEMATIC	12/4/2013	0.00324 U	0.422
FZ02-TU63-013	TU63 SYSTEMATIC	12/4/2013	0.0174 U	0.361
FZ02-TU63-014	TU63 SYSTEMATIC	12/4/2013	-0.0287 U	0.291
FZ02-TU63-015	TU63 SYSTEMATIC	12/4/2013	0.000758 U	0.391
FZ02-TU63-016	TU63 SYSTEMATIC	12/4/2013	-0.00897 U	0.435
FZ02-TU63-017	TU63 SYSTEMATIC	12/4/2013	-0.0157 U	0.478
FZ02-TU63-018	TU63 SYSTEMATIC	12/4/2013	-0.0210 U	0.330
FZ02-TU63-019	TU63 HS BIASED NORTH 10"	12/3/2013	0.000159 U	0.331
FZ02-TU63-020	TU63 HS BIASED NORTH 24"	12/3/2013	-0.00692 U	0.403
FZ02-TU63-021	TU63 HS BIASED SOUTH 10"	12/3/2013	0.00711 U	0.396
FZ02-TU63-022	TU63 HS BIASED SOUTH 24"	12/3/2013	0.0219 U	0.413
FZ02-TU63-023	TU63 PIPE	12/5/2013	0.00665 U	0.284

Notes:
All samples results above based on 21-day ingrowth.
Criteria is 1 pCi/g above background for radium -226. Radium-226 background for samples is 0.56 pCi/g.
* Sample IDs are correlated with the figure locations as follows: TU (for trench unit) and the adjacent number correspond to the reach number on the figure; and the last two digits correspond to the circled numbers on that reach figure. For example, to locate Sample ID FZ02-TU07-01, go to Reach 7 Pipe Removal figure and the location that is circled 1 on that figure.

Abbreviations and Acronyms:
EPA – U.S. Environmental Protection Agency
ID – identification
pCi/g – picocuries per gram
TU – trench unit
U – not detected above the stated limit

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5119-1
TestAmerica Sample Delivery Group: 160-5119
Client Project/Site: Alameda OU2C Storm Drain

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
1/27/2014 4:33:11 PM
Ivan Vania, Project Manager II
(314)298-8566
ivan.vania@testamericainc.com

Designee for

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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QC Sample Results 16
QC Association Summary 18

Job ID: 160-5119-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda OU2C Storm Drain

Report Number: 160-5119-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 01/10/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 19.0 C.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples FZ02-TU07-01 (160-5119-1), FZ02-TU07-02 (160-5119-2), FZ02-TU07-03 (160-5119-3), FZ02-TU07-04 (160-5119-4), FZ02-TU07-05 (160-5119-5), FZ02-TU07-06 (160-5119-6), FZ02-TU07-07 (160-5119-7), FZ02-TU07-08 (160-5119-8), FZ02-TU07-09 (160-5119-9), FZ02-TU07-10 (160-5119-10), FZ02-TU07-11 (160-5119-11), FZ02-TU07-12 (160-5119-12), FZ02-TU07-13 (160-5119-13), FZ02-TU07-13 DUP (160-5119-14), FZ02-TU07-14 (160-5119-15), FZ02-TU07-15 (160-5119-16), FZ02-TU07-16 (160-5119-17), FZ02-TU07-17 (160-5119-18), FZ02-TU07-18 (160-5119-19), FZ02-TU07-19 (160-5119-20), FZ02-TU07-20 (160-5119-21), FZ02-TU07-21 (160-5119-22), FZ02-TU07-22 (160-5119-23) and FZ02-TU07-23 (160-5119-24) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA Method 901.1. The samples were prepared on 01/14/2014 and analyzed on 01/16/2014 and 01/18/2014. All samples and QC were counted for 30 minutes.

The client has provided the date that samples were placed into the geometry. This date has been used as the preparation date,

Job ID: 160-5119-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

and the 21 day in-growth completion has been calculated from that date.

No other difficulties were encountered during the Radium 226 by gamma analysis. All other quality control parameters were within the acceptance limits.

TETRA TECH EC, INC.

Chain-of Custody Record

251529

NUMBER: FZ02-003

10P2

160-5119

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: M. Star	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T Berkeley Lab

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
1 FZ02-TU07-01	12/10/2013	0819	1	3	S	3	X							Systematic sample	TU07			N
2 FZ02-TU07-02	12/10/2013	0826	1	3	S	3	X							Systematic sample	TU07			N
3 FZ02-TU07-03	12/10/2013	0829	1	3	S	3	X							Systematic sample	TU07			N
4 FZ02-TU07-04	12/10/2013	0833	1	3	S	3	X							Systematic sample	TU07			N
5 FZ02-TU07-05	12/10/2013	0837	1	3	S	3	X							Systematic sample	TU07			N
6 FZ02-TU07-06	12/10/2013	0842	1	3	S	3	X							Systematic sample	TU07			N
7 FZ02-TU07-07	12/10/2013	0849	1	3	S	3	X							Systematic sample	TU07			N
8 FZ02-TU07-08	12/10/2013	0854	1	3	S	3	X							Systematic sample	TU07			N
9 FZ02-TU07-09	12/10/2013	0859	1	3	S	3	X							Systematic sample	TU07			N
10 FZ02-TU07-10	12/10/2013	0903	1	3	S	3	X							Systematic sample	TU07			N
11 FZ02-TU07-11	12/10/2013	0907	1	3	S	3	X							Systematic sample	TU07			N
12 FZ02-TU07-12	12/10/2013	0911	1	3	S	3	X							Systematic sample	TU07			N
SDUP → 13 FZ02-TU07-13	12/10/2013	0916	1	3	S	3	X							Systematic sample	TU07			N
14 FZ02-TU07-14	12/10/2013	0922	1	3	S	3	X							Systematic sample	TU07			N

Relinquished by: (signature)	Date:	Received by (signature)	Laboratory Instructions/Comments:
Mark Star	12/11/13	[illegible]	Screening (via 185 pk) full isotopes only
Company: RSRS	Time: 0900	Company: C+T	
Relinquished by: (signature) Miguel C[illegible]	Date: 01/07/14	Received by (signature) B[illegible] 1/10/14	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis
Company: C+T	Time: 1700	Company: TA 1110	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: Trench samples

FZ02-003

TETRA TECH EC, INC.

Chain-of Custody Record

~~251530~~ 251529

NUMBER: FZ02-004

2 of 2

140-5119

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: M. Star	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T Berkeley Lab

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
15 FZ02-TU07-15	12/10/2013	0928	1	3	S	3	X							Systematic sample	TU07			N
16 FZ02-TU07-16	12/10/2013	0933	1	3	S	3	X							Systematic sample	TU07			N
17 FZ02-TU07-17	12/10/2013	0939	1	3	S	3	X							Systematic sample	TU07			N
18 FZ02-TU07-18	12/10/2013	0942	1	3	S	3	X							Systematic sample	TU07			N
19 FZ02-TU07-19	12/9/2013	0951	1	3	S	3	X							Pipe sediment sample	TU07			N
20 FZ02-TU07-20	12/9/2013	1321	1	3	S	3	X							Hot spot biased sample	TU07 North 5"			N
21 FZ02-TU07-21	12/9/2013	1325	1	3	S	3	X							Hot spot biased sample	TU07 North 12"			N
22 FZ02-TU07-22	12/9/2013	1334	1	3	S	3	X							Hot spot biased sample	TU07 South 5"			N
23 FZ02-TU07-23	12/9/2013	1339	1	3	S	3	X							Hot spot biased sample	TU07 South 12"			N

Relinquished by: (signature) [signature]	Date: 12/11/13	Received by: (signature) [signature]	Laboratory Instructions/Comments: Screening (via 186 pk) full isotopes only
Company: RSRS	Time: 0900	Company: C&T	
Relinquished by: (signature) [signature]	Date: 01/07/14	Received by: (signature) [signature] 1/6/14	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis
Company: C+T	Time: 1700	Company: TA 1110	
Relinquished by: (signature)	Date:	Received by: (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: Trench samples

FZ02-004

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5119-1
SDG Number: 160-5119

Login Number: 5119
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5119-1	FZ02-TU07-01	Solid	12/10/13 08:19	01/10/14 11:10
160-5119-2	FZ02-TU07-02	Solid	12/10/13 08:26	01/10/14 11:10
160-5119-3	FZ02-TU07-03	Solid	12/10/13 08:29	01/10/14 11:10
160-5119-4	FZ02-TU07-04	Solid	12/10/13 08:33	01/10/14 11:10
160-5119-5	FZ02-TU07-05	Solid	12/10/13 08:37	01/10/14 11:10
160-5119-6	FZ02-TU07-06	Solid	12/10/13 08:42	01/10/14 11:10
160-5119-7	FZ02-TU07-07	Solid	12/10/13 08:49	01/10/14 11:10
160-5119-8	FZ02-TU07-08	Solid	12/10/13 08:54	01/10/14 11:10
160-5119-9	FZ02-TU07-09	Solid	12/10/13 08:59	01/10/14 11:10
160-5119-10	FZ02-TU07-10	Solid	12/10/13 09:03	01/10/14 11:10
160-5119-11	FZ02-TU07-11	Solid	12/10/13 09:07	01/10/14 11:10
160-5119-12	FZ02-TU07-12	Solid	12/10/13 09:11	01/10/14 11:10
160-5119-13	FZ02-TU07-13	Solid	12/10/13 09:16	01/10/14 11:10
160-5119-14	FZ02-TU07-13 DUP	Solid	12/10/13 09:16	01/10/14 11:10
160-5119-15	FZ02-TU07-14	Solid	12/10/13 09:22	01/10/14 11:10
160-5119-16	FZ02-TU07-15	Solid	12/10/13 09:28	01/10/14 11:10
160-5119-17	FZ02-TU07-16	Solid	12/10/13 09:33	01/10/14 11:10
160-5119-18	FZ02-TU07-17	Solid	12/10/13 09:39	01/10/14 11:10
160-5119-19	FZ02-TU07-18	Solid	12/10/13 09:42	01/10/14 11:10
160-5119-20	FZ02-TU07-19	Solid	12/09/13 09:51	01/10/14 11:10
160-5119-21	FZ02-TU07-20	Solid	12/09/13 13:21	01/10/14 11:10
160-5119-22	FZ02-TU07-21	Solid	12/09/13 13:25	01/10/14 11:10
160-5119-23	FZ02-TU07-22	Solid	12/09/13 13:34	01/10/14 11:10
160-5119-24	FZ02-TU07-23	Solid	12/09/13 13:39	01/10/14 11:10

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Client Sample ID: FZ02-TU07-01 — Lab Sample ID: 160-5119-1

Date Collected: 12/10/13 08:19 — **Matrix: Solid**
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.542		0.140	0.151	0.700	0.0505	pCi/g	01/14/14 11:00	01/18/14 13:51	1
Cesium-137	0.000	U	0.0140	0.0140	0.0700	0.0304	pCi/g	01/14/14 11:00	01/18/14 13:51	1

Client Sample ID: FZ02-TU07-02 — Lab Sample ID: 160-5119-2

Date Collected: 12/10/13 08:26 — **Matrix: Solid**
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.410		0.117	0.125	0.700	0.0563	pCi/g	01/14/14 11:00	01/16/14 18:33	1
Cesium-137	-0.000248	U	0.0325	0.0325	0.0700	0.0267	pCi/g	01/14/14 11:00	01/16/14 18:33	1

Client Sample ID: FZ02-TU07-03 — Lab Sample ID: 160-5119-3

Date Collected: 12/10/13 08:29 — **Matrix: Solid**
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.596		0.153	0.165	0.700	0.0632	pCi/g	01/14/14 11:00	01/16/14 18:34	1
Cesium-137	0.0145	U	0.0499	0.0499	0.0700	0.0393	pCi/g	01/14/14 11:00	01/16/14 18:34	1

Client Sample ID: FZ02-TU07-04 — Lab Sample ID: 160-5119-4

Date Collected: 12/10/13 08:33 — **Matrix: Solid**
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.499		0.116	0.127	0.700	0.0491	pCi/g	01/14/14 11:00	01/18/14 13:44	1
Cesium-137	-0.00907	U	0.0406	0.0406	0.0700	0.0323	pCi/g	01/14/14 11:00	01/18/14 13:44	1

Client Sample ID: FZ02-TU07-05 — Lab Sample ID: 160-5119-5

Date Collected: 12/10/13 08:37 — **Matrix: Solid**
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.307		0.115	0.119	0.700	0.0708	pCi/g	01/14/14 11:00	01/16/14 19:23	1
Cesium-137	0.00341	U	0.0471	0.0471	0.0700	0.0384	pCi/g	01/14/14 11:00	01/16/14 19:23	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Client Sample ID: FZ02-TU07-06

Lab Sample ID: 160-5119-6
Matrix: Solid
Date Collected: 12/10/13 08:42
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.527		0.147	0.157	0.700	0.0645	pCi/g	01/14/14 11:00	01/16/14 19:22	1
Cesium-137	0.00514	U	0.0435	0.0435	0.0700	0.0351	pCi/g	01/14/14 11:00	01/16/14 19:22	1

Client Sample ID: FZ02-TU07-07

Lab Sample ID: 160-5119-7
Matrix: Solid
Date Collected: 12/10/13 08:49
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.479		0.148	0.157	0.700	0.0708	pCi/g	01/14/14 11:00	01/16/14 19:24	1
Cesium-137	0.0203	U	0.0456	0.0456	0.0700	0.0348	pCi/g	01/14/14 11:00	01/16/14 19:24	1

Client Sample ID: FZ02-TU07-08

Lab Sample ID: 160-5119-8
Matrix: Solid
Date Collected: 12/10/13 08:54
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.592		0.126	0.140	0.700	0.0487	pCi/g	01/14/14 11:00	01/16/14 19:25	1
Cesium-137	0.00723	U	0.0392	0.0393	0.0700	0.0313	pCi/g	01/14/14 11:00	01/16/14 19:25	1

Client Sample ID: FZ02-TU07-09

Lab Sample ID: 160-5119-9
Matrix: Solid
Date Collected: 12/10/13 08:59
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.487		0.127	0.137	0.700	0.0552	pCi/g	01/14/14 11:00	01/16/14 19:24	1
Cesium-137	0.00937	U	0.0353	0.0353	0.0700	0.0273	pCi/g	01/14/14 11:00	01/16/14 19:24	1

Client Sample ID: FZ02-TU07-10

Lab Sample ID: 160-5119-10
Matrix: Solid
Date Collected: 12/10/13 09:03
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.561		0.136	0.148	0.700	0.0485	pCi/g	01/14/14 11:00	01/16/14 19:23	1
Cesium-137	0.0153	U	0.0428	0.0429	0.0700	0.0324	pCi/g	01/14/14 11:00	01/16/14 19:23	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Client Sample ID: FZ02-TU07-11

Lab Sample ID: 160-5119-11
Date Collected: 12/10/13 09:07
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.446		0.129	0.137	0.700	0.0677	pCi/g	01/14/14 11:00	01/16/14 20:22	1
Cesium-137	-0.0000390	U	0.0462	0.0462	0.0700	0.0381	pCi/g	01/14/14 11:00	01/16/14 20:22	1

Client Sample ID: FZ02-TU07-12

Lab Sample ID: 160-5119-12
Date Collected: 12/10/13 09:11
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.244		0.208	0.209	0.700	0.114	pCi/g	01/14/14 11:00	01/16/14 20:21	1
Cesium-137	0.000943	U	0.0673	0.0673	0.0700	0.0552	pCi/g	01/14/14 11:00	01/16/14 20:21	1

Client Sample ID: FZ02-TU07-13

Lab Sample ID: 160-5119-13
Date Collected: 12/10/13 09:16
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.387		0.128	0.135	0.700	0.0658	pCi/g	01/14/14 11:00	01/16/14 20:22	1
Cesium-137	-0.0231	U	0.640	0.640	0.0700	0.0579	pCi/g	01/14/14 11:00	01/16/14 20:22	1

Client Sample ID: FZ02-TU07-13 DUP

Lab Sample ID: 160-5119-14
Date Collected: 12/10/13 09:16
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.432		0.140	0.147	0.700	0.0618	pCi/g	01/14/14 11:00	01/16/14 20:21	1
Cesium-137	-0.00283	U	0.0347	0.0347	0.0700	0.0281	pCi/g	01/14/14 11:00	01/16/14 20:21	1

Client Sample ID: FZ02-TU07-14

Lab Sample ID: 160-5119-15
Date Collected: 12/10/13 09:22
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.504		0.113	0.125	0.700	0.0474	pCi/g	01/14/14 11:00	01/16/14 20:26	1
Cesium-137	0.00390	U	0.0382	0.0382	0.0700	0.0310	pCi/g	01/14/14 11:00	01/16/14 20:26	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Client Sample ID: FZ02-TU07-15

Lab Sample ID: 160-5119-16
Date Collected: 12/10/13 09:28
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.434		0.156	0.162	0.700	0.0734	pCi/g	01/14/14 11:00	01/16/14 20:27	1
Cesium-137	0.0263	U	0.0481	0.0481	0.0700	0.0360	pCi/g	01/14/14 11:00	01/16/14 20:27	1

Client Sample ID: FZ02-TU07-16

Lab Sample ID: 160-5119-17
Date Collected: 12/10/13 09:33
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.363		0.133	0.138	0.700	0.0741	pCi/g	01/14/14 11:00	01/16/14 20:28	1
Cesium-137	0.00212	U	0.0355	0.0355	0.0700	0.0289	pCi/g	01/14/14 11:00	01/16/14 20:28	1

Client Sample ID: FZ02-TU07-17

Lab Sample ID: 160-5119-18
Date Collected: 12/10/13 09:39
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.582		0.136	0.149	0.700	0.0557	pCi/g	01/14/14 11:00	01/16/14 20:26	1
Cesium-137	0.0191	U	0.0476	0.0476	0.0700	0.0369	pCi/g	01/14/14 11:00	01/16/14 20:26	1

Client Sample ID: FZ02-TU07-18

Lab Sample ID: 160-5119-19
Date Collected: 12/10/13 09:42
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.417		0.147	0.153	0.700	0.0723	pCi/g	01/14/14 11:00	01/16/14 20:26	1
Cesium-137	0.000	U	0.0586	0.0586	0.0700	0.0547	pCi/g	01/14/14 11:00	01/16/14 20:26	1

Client Sample ID: FZ02-TU07-19

Lab Sample ID: 160-5119-20
Date Collected: 12/09/13 09:51
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.469		0.141	0.149	0.700	0.0565	pCi/g	01/14/14 11:00	01/16/14 20:27	1
Cesium-137	0.0235	U	0.0442	0.0443	0.0700	0.0325	pCi/g	01/14/14 11:00	01/16/14 20:27	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Client Sample ID: FZ02-TU07-20

Lab Sample ID: 160-5119-21
Date Collected: 12/09/13 13:21
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.334		0.106	0.112	0.700	0.0436	pCi/g	01/14/14 11:15	01/16/14 21:11	1
Cesium-137	0.000	U	0.0246	0.0246	0.0700	0.0219	pCi/g	01/14/14 11:15	01/16/14 21:11	1

Client Sample ID: FZ02-TU07-21

Lab Sample ID: 160-5119-22
Date Collected: 12/09/13 13:25
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.539		0.123	0.135	0.700	0.0493	pCi/g	01/14/14 11:15	01/16/14 21:15	1
Cesium-137	-0.0141	U	0.0427	0.0427	0.0700	0.0336	pCi/g	01/14/14 11:15	01/16/14 21:15	1

Client Sample ID: FZ02-TU07-22

Lab Sample ID: 160-5119-23
Date Collected: 12/09/13 13:34
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.683		0.152	0.168	0.700	0.0539	pCi/g	01/14/14 11:15	01/16/14 21:16	1
Cesium-137	0.000	U	0.0316	0.0316	0.0700	0.0443	pCi/g	01/14/14 11:15	01/16/14 21:16	1

Client Sample ID: FZ02-TU07-23

Lab Sample ID: 160-5119-24
Date Collected: 12/09/13 13:39
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.487		0.146	0.154	0.700	0.0662	pCi/g	01/14/14 11:15	01/16/14 21:14	1
Cesium-137	-0.0145	U	0.0486	0.0486	0.0700	0.0382	pCi/g	01/14/14 11:15	01/16/14 21:14	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-98065/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99408 — **Prep Batch: 98065**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.1195	U	4.78	4.78	0.700	0.0919	pCi/g	01/14/14 11:00	01/16/14 16:30	1
Cesium-137	0.0000	U	0.0114	0.0114	0.0700	0.0440	pCi/g	01/14/14 11:00	01/16/14 16:30	1

Lab Sample ID: LCS 160-98065/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99409 — **Prep Batch: 98065**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	96.23		10.2		0.806	pCi/g	99	87 - 116
Cesium-137	31.3	29.88		3.27	0.0700	0.172	pCi/g	95	94 - 118
Cobalt-60	23.5	22.65		2.39		0.0275	pCi/g	96	87 - 115

Lab Sample ID: 160-5119-14 DU — **Client Sample ID: FZ02-TU07-13 DUP**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99408 — **Prep Batch: 98065**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.432		0.4419		0.149	0.700	0.0695	pCi/g	0.03	1
Cesium-137	-0.00283	U	-0.0002070	U	0.0366	0.0700	0.0301	pCi/g	0.04	1

Lab Sample ID: MB 160-98070/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99409 — **Prep Batch: 98070**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04085	U	0.109	0.110	0.700	0.0801	pCi/g	01/14/14 11:15	01/16/14 21:12	1
Cesium-137	-0.001445	U	0.0669	0.0669	0.0700	0.0548	pCi/g	01/14/14 11:15	01/16/14 21:12	1

Lab Sample ID: LCS 160-98070/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99404 — **Prep Batch: 98070**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	98.06		10.3		0.670	pCi/g	101	87 - 116
Cesium-137	31.3	30.98		3.33	0.0700	0.144	pCi/g	99	94 - 118
Cobalt-60	23.5	22.47		2.34		0.0634	pCi/g	96	87 - 115

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-5119-21 DU
Matrix: Solid
Analysis Batch: 99408

Client Sample ID: FZ02-TU07-20
Prep Type: Total/NA
Prep Batch: 98070

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit			RER	RER Limit
Radium-226	0.334			0.4371		0.119	0.700	0.0547	pCi/g			0.45	1
Cesium-137	0.000	U		-0.001636	U	0.0371	0.0700	0.0304	pCi/g			0.03	1

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5119-1
SDG: 160-5119

Rad

Prep Batch: 98065

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5119-1	FZ02-TU07-01	Total/NA	Solid	Fill_Geo-21	
160-5119-2	FZ02-TU07-02	Total/NA	Solid	Fill_Geo-21	
160-5119-3	FZ02-TU07-03	Total/NA	Solid	Fill_Geo-21	
160-5119-4	FZ02-TU07-04	Total/NA	Solid	Fill_Geo-21	
160-5119-5	FZ02-TU07-05	Total/NA	Solid	Fill_Geo-21	
160-5119-6	FZ02-TU07-06	Total/NA	Solid	Fill_Geo-21	
160-5119-7	FZ02-TU07-07	Total/NA	Solid	Fill_Geo-21	
160-5119-8	FZ02-TU07-08	Total/NA	Solid	Fill_Geo-21	
160-5119-9	FZ02-TU07-09	Total/NA	Solid	Fill_Geo-21	
160-5119-10	FZ02-TU07-10	Total/NA	Solid	Fill_Geo-21	
160-5119-11	FZ02-TU07-11	Total/NA	Solid	Fill_Geo-21	
160-5119-12	FZ02-TU07-12	Total/NA	Solid	Fill_Geo-21	
160-5119-13	FZ02-TU07-13	Total/NA	Solid	Fill_Geo-21	
160-5119-14	FZ02-TU07-13 DUP	Total/NA	Solid	Fill_Geo-21	
160-5119-14 DU	FZ02-TU07-13 DUP	Total/NA	Solid	Fill_Geo-21	
160-5119-15	FZ02-TU07-14	Total/NA	Solid	Fill_Geo-21	
160-5119-16	FZ02-TU07-15	Total/NA	Solid	Fill_Geo-21	
160-5119-17	FZ02-TU07-16	Total/NA	Solid	Fill_Geo-21	
160-5119-18	FZ02-TU07-17	Total/NA	Solid	Fill_Geo-21	
160-5119-19	FZ02-TU07-18	Total/NA	Solid	Fill_Geo-21	
160-5119-20	FZ02-TU07-19	Total/NA	Solid	Fill_Geo-21	
LCS 160-98065/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-98065/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 98070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5119-21	FZ02-TU07-20	Total/NA	Solid	Fill_Geo-21	
160-5119-21 DU	FZ02-TU07-20	Total/NA	Solid	Fill_Geo-21	
160-5119-22	FZ02-TU07-21	Total/NA	Solid	Fill_Geo-21	
160-5119-23	FZ02-TU07-22	Total/NA	Solid	Fill_Geo-21	
160-5119-24	FZ02-TU07-23	Total/NA	Solid	Fill_Geo-21	
LCS 160-98070/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-98070/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5121-1
TestAmerica Sample Delivery Group: 160-5121
Client Project/Site: Alameda OU2C Storm Drain

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
1/27/2014 4:57:05 PM
Ivan Vania, Project Manager II
(314)298-8566
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Designee for

Erika Gish, Project Manager II
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LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5121-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda OU2C Storm Drain

Report Number: 160-5121-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 01/10/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 19.0 C.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples FZ02-TU27-001 (160-5121-1), FZ02-TU27-002 (160-5121-2), FZ02-TU27-003 (160-5121-3), FZ02-TU27-004 (160-5121-4), FZ02-TU27-005 (160-5121-5), FZ02-TU27-006 (160-5121-6), FZ02-TU27-007 (160-5121-7), FZ02-TU27-008 (160-5121-8), FZ02-TU27-009 (160-5121-9), FZ02-TU27-010 (160-5121-10), FZ02-TU27-011 (160-5121-11), FZ02-TU27-012 (160-5121-12), FZ02-TU27-013 (160-5121-13), FZ02-TU27-014 (160-5121-14), FZ02-TU27-015 (160-5121-15), FZ02-TU27-016 (160-5121-16), FZ02-TU27-017 (160-5121-17), FZ02-TU27-018 (160-5121-18), FZ02-TU27-019 (160-5121-19), FZ02-TU27-020 (160-5121-20), FZ02-TU27-020 DUP (160-5121-21), FZ02-TU27-021 (160-5121-22), FZ02-TU27-022 (160-5121-23), FZ02-TU27-023 (160-5121-24), FZ02-TU27-024 (160-5121-25), FZ02-TU27-025 (160-5121-26), FZ02-TU27-026 (160-5121-27), FZ02-TU27-027 (160-5121-28) and FZ02-TU27-028 (160-5121-29) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA Method 901.1. The samples were prepared on 01/14/2014 and analyzed on 01/17/2014 and 01/18/2014. All samples and QC were counted for 30 minutes.

Job ID: 160-5121-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

The client has provided the date that samples were placed into the geometry. This date has been used as the preparation date, and the 21 day in-growth completion has been calculated from that date

No other difficulties were encountered during the Radium 226 by gamma analysis. All other quality control parameters were within the acceptance limits.

TETRA TECH EC, INC.

Chain-of Custody Record

25 1818

NUMBER: FZ02-0005

1 of 1

160-5121

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: T. Wells	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T Berkeley Lab

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
1 FZ02-TU27-001	12/17/2013	1550	1	3	S	3	X							Systematic sample	TU27			N
2 FZ02-TU27-002	12/17/2013	1544	1	3	S	3	X							Systematic sample	TU27			N
3 FZ02-TU27-003	12/17/2013	1539	1	3	S	3	X							Systematic sample	TU27			N
4 FZ02-TU27-004	12/17/2013	1534	1	3	S	3	X							Systematic sample	TU27			N
5 FZ02-TU27-005	12/17/2013	1301	1	3	S	3	X							Systematic sample	TU27			N
6 FZ02-TU27-006	12/17/2013	1306	1	3	S	3	X							Systematic sample	TU27			N
7 FZ02-TU27-007	12/17/2013	1309	1	3	S	3	X							Systematic sample	TU27			N
8 FZ02-TU27-008	12/16/2013	1307	1	3	S	3	X							Systematic sample	TU27			N
9 FZ02-TU27-009	12/16/2013	1456	1	3	S	3	X							Systematic sample	TU27			N
10 FZ02-TU27-010	12/16/2013	1450	1	3	S	3	X							Systematic sample	TU27			N
11 FZ02-TU27-011	12/16/2013	1446	1	3	S	3	X							Systematic sample	TU27			N
12 FZ02-TU27-012	12/17/2013	1520	1	3	S	3	X							Systematic sample	TU27			N
13 FZ02-TU27-013	12/17/2013	1524	1	3	S	3	X							Systematic sample	TU27			N
14 FZ02-TU27-014	12/17/2013	1530	1	3	S	3	X							Systematic sample	TU27			N

Relinquished by: (signature)	Date:	Received by (signature)	Laboratory Instructions/Comments:
Tobi Wells	12-19-13		Screening (via 186 pk) full isotopes only
Company: RSRS	Time: 09:37	Company: TTEC	
Relinquished by: (signature)	Date: 12/19/13	Received by (signature) Pat Murphy	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis
Company: TTEC	Time: 10:56	Company: C&T	
Relinquished by: (signature) Vigil C	Date: 01/07/14	Received by (signature) 1/10/14	Sample Condition Upon Receipt (for Laboratory)
Company: C&T	Time: 1700	Company: TA 1110	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: Trench samples

FZ02-0005

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02-0006 1 of 1

231517

160-5121

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: T. Wells	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T Berkeley Lab

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
1 FZ02-TU27-015	12/17/2013	1302	1	3	S	3	X							Systematic sample	TU27			N
2 FZ02-TU27-016	12/17/2013	1255	1	3	S	3	X							Systematic sample	TU27			N
3 FZ02-TU27-017	12/17/2013	1247	1	3	S	3	X							Systematic sample	TU27			N
4 FZ02-TU27-018	12/16/2013	1515	1	3	S	3	X							Systematic sample	TU27			N
5 FZ02-TU27-019	12/16/2013	1410	1	3	S	3	X							Hot spot biased sample	HS #2 North 10"			N
RS DUP → 6 FZ02-TU27-020	12/16/2013	1414	1	3	S	3	X							Hot spot biased sample	HS #2 North 24"			N
7 FZ02-TU27-021	12/16/2013	1418	1	3	S	3	X							Hot spot biased sample	HS #2 South 10"			N
8 FZ02-TU27-022	12/16/2013	1500	1	3	S	3	X							Hot spot biased sample	HS #2 South 24"			N
9 FZ02-TU27-023	12/17/2013	1145	1	3	S	3	X							Hot spot biased sample	HS #1 North 10"			N
10 FZ02-TU27-024	12/17/2013	1151	1	3	S	3	X							Hot spot biased sample	HS #1 North 24"			N
11 FZ02-TU27-025	12/17/2013	1156	1	3	S	3	X							Hot spot biased sample	HS #1 South 10"			N
12 FZ02-TU27-026	12/17/2013	1203	1	3	S	3	X							Hot spot biased sample	HS #1 South 24"			N
13 FZ02-TU27-027	12/17/2013	1402	1	3	S	3	X							Hot spot biased sample HS1	Pipe sediment sample			N
14 FZ02-TU27-028	12/17/2013	1407	1	3	S	3	X							Hot spot biased sample HS2	Pipe sediment sample			N

Relinquished by: (signature) Tobin Wells	Date: 12-19-13	Received by (signature) Pat Lang	Laboratory Instructions/Comments: Screening (via 186 pk) full isotopes only
Company: RSRS	Time: 09:27	Company: C&T	
Relinquished by: (signature) [signature]	Date: 01/07/14	Received by (signature) [signature] 1/10/14	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis
Company: C+T	Time: 1700	Company: TA 1110	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:
Trench samples
Systematic and biased samples

FZ02-0006

Page 6 of 19

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5121-1
SDG Number: 160-5121

Login Number: 5121
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5121-1	FZ02-TU27-001	Solid	12/17/13 15:50	01/10/14 11:10
160-5121-2	FZ02-TU27-002	Solid	12/17/13 15:44	01/10/14 11:10
160-5121-3	FZ02-TU27-003	Solid	12/17/13 15:39	01/10/14 11:10
160-5121-4	FZ02-TU27-004	Solid	12/17/13 15:34	01/10/14 11:10
160-5121-5	FZ02-TU27-005	Solid	12/17/13 13:01	01/10/14 11:10
160-5121-6	FZ02-TU27-006	Solid	12/17/13 13:06	01/10/14 11:10
160-5121-7	FZ02-TU27-007	Solid	12/17/13 13:09	01/10/14 11:10
160-5121-8	FZ02-TU27-008	Solid	12/16/13 13:07	01/10/14 11:10
160-5121-9	FZ02-TU27-009	Solid	12/16/13 14:56	01/10/14 11:10
160-5121-10	FZ02-TU27-010	Solid	12/16/13 14:50	01/10/14 11:10
160-5121-11	FZ02-TU27-011	Solid	12/16/13 14:46	01/10/14 11:10
160-5121-12	FZ02-TU27-012	Solid	12/17/13 15:20	01/10/14 11:10
160-5121-13	FZ02-TU27-013	Solid	12/17/13 15:24	01/10/14 11:10
160-5121-14	FZ02-TU27-014	Solid	12/17/13 15:30	01/10/14 11:10
160-5121-15	FZ02-TU27-015	Solid	12/17/13 13:02	01/10/14 11:10
160-5121-16	FZ02-TU27-016	Solid	12/17/13 12:55	01/10/14 11:10
160-5121-17	FZ02-TU27-017	Solid	12/17/13 12:47	01/10/14 11:10
160-5121-18	FZ02-TU27-018	Solid	12/16/13 15:15	01/10/14 11:10
160-5121-19	FZ02-TU27-019	Solid	12/16/13 14:10	01/10/14 11:10
160-5121-20	FZ02-TU27-020	Solid	12/16/13 14:14	01/10/14 11:10
160-5121-21	FZ02-TU27-020 DUP	Solid	12/16/13 14:14	01/10/14 11:10
160-5121-22	FZ02-TU27-021	Solid	12/16/13 14:18	01/10/14 11:10
160-5121-23	FZ02-TU27-022	Solid	12/16/13 15:00	01/10/14 11:10
160-5121-24	FZ02-TU27-023	Solid	12/17/13 11:45	01/10/14 11:10
160-5121-25	FZ02-TU27-024	Solid	12/17/13 11:51	01/10/14 11:10
160-5121-26	FZ02-TU27-025	Solid	12/17/13 11:56	01/10/14 11:10
160-5121-27	FZ02-TU27-026	Solid	12/17/13 12:03	01/10/14 11:10
160-5121-28	FZ02-TU27-027	Solid	12/17/13 14:02	01/10/14 11:10
160-5121-29	FZ02-TU27-028	Solid	12/17/13 14:07	01/10/14 11:10

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Client Sample ID: FZ02-TU27-001 — Lab Sample ID: 160-5121-1

Date Collected: 12/17/13 15:50 — **Matrix: Solid**
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.430		0.125	0.132	0.700	0.0586	pCi/g	01/14/14 11:20	01/17/14 08:19	1
Cesium-137	0.000957	U	0.0353	0.0353	0.0700	0.0290	pCi/g	01/14/14 11:20	01/17/14 08:19	1

Client Sample ID: FZ02-TU27-002 — Lab Sample ID: 160-5121-2

Date Collected: 12/17/13 15:44 — **Matrix: Solid**
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.396		0.120	0.126	0.700	0.0583	pCi/g	01/14/14 11:20	01/17/14 08:20	1
Cesium-137	-0.000238	U	0.0364	0.0364	0.0700	0.0300	pCi/g	01/14/14 11:20	01/17/14 08:20	1

Client Sample ID: FZ02-TU27-003 — Lab Sample ID: 160-5121-3

Date Collected: 12/17/13 15:39 — **Matrix: Solid**
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.491		0.124	0.134	0.700	0.0491	pCi/g	01/14/14 11:20	01/17/14 08:18	1
Cesium-137	-0.00203	U	0.0403	0.0403	0.0700	0.0329	pCi/g	01/14/14 11:20	01/17/14 08:18	1

Client Sample ID: FZ02-TU27-004 — Lab Sample ID: 160-5121-4

Date Collected: 12/17/13 15:34 — **Matrix: Solid**
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.453		0.124	0.133	0.700	0.0458	pCi/g	01/14/14 11:20	01/17/14 08:18	1
Cesium-137	-0.00293	U	0.0451	0.0452	0.0700	0.0367	pCi/g	01/14/14 11:20	01/17/14 08:18	1

Client Sample ID: FZ02-TU27-005 — Lab Sample ID: 160-5121-5

Date Collected: 12/17/13 13:01 — **Matrix: Solid**
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.436		0.140	0.147	0.700	0.0571	pCi/g	01/14/14 11:20	01/17/14 08:19	1
Cesium-137	-0.00861	U	0.0454	0.0455	0.0700	0.0364	pCi/g	01/14/14 11:20	01/17/14 08:19	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Client Sample ID: FZ02-TU27-006

Lab Sample ID: 160-5121-6
Matrix: Solid
Date Collected: 12/17/13 13:06
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.468		0.115	0.125	0.700	0.0465	pCi/g	01/14/14 11:20	01/18/14 13:45	1
Cesium-137	0.00587	U	0.0366	0.0366	0.0700	0.0292	pCi/g	01/14/14 11:20	01/18/14 13:45	1

Client Sample ID: FZ02-TU27-007

Lab Sample ID: 160-5121-7
Matrix: Solid
Date Collected: 12/17/13 13:09
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.588		0.168	0.179	0.700	0.0280	pCi/g	01/14/14 11:20	01/17/14 08:21	1
Cesium-137	-0.0346	U	0.0888	0.0888	0.0700	0.0685	pCi/g	01/14/14 11:20	01/17/14 08:21	1

Client Sample ID: FZ02-TU27-008

Lab Sample ID: 160-5121-8
Matrix: Solid
Date Collected: 12/16/13 13:07
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.455		0.157	0.164	0.700	0.0734	pCi/g	01/14/14 11:20	01/17/14 08:20	1
Cesium-137	-0.0156	U	0.167	0.167	0.0700	0.0533	pCi/g	01/14/14 11:20	01/17/14 08:20	1

Client Sample ID: FZ02-TU27-009

Lab Sample ID: 160-5121-9
Matrix: Solid
Date Collected: 12/16/13 14:56
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.432		0.105	0.115	0.700	0.0364	pCi/g	01/14/14 11:20	01/17/14 08:21	1
Cesium-137	0.0108	U	0.0308	0.0308	0.0700	0.0234	pCi/g	01/14/14 11:20	01/17/14 08:21	1

Client Sample ID: FZ02-TU27-010

Lab Sample ID: 160-5121-10
Matrix: Solid
Date Collected: 12/16/13 14:50
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.427		0.125	0.132	0.700	0.0574	pCi/g	01/14/14 11:20	01/17/14 10:57	1
Cesium-137	0.00354	U	0.0350	0.0350	0.0700	0.0283	pCi/g	01/14/14 11:20	01/17/14 10:57	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Client Sample ID: FZ02-TU27-011

Lab Sample ID: 160-5121-11
Date Collected: 12/16/13 14:46
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.431		0.115	0.124	0.700	0.0521	pCi/g	01/14/14 11:20	01/17/14 10:58	1
Cesium-137	0.0113	U	0.0370	0.0370	0.0700	0.0288	pCi/g	01/14/14 11:20	01/17/14 10:58	1

Client Sample ID: FZ02-TU27-012

Lab Sample ID: 160-5121-12
Date Collected: 12/17/13 15:20
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.575		0.170	0.180	0.700	0.0283	pCi/g	01/14/14 11:20	01/17/14 10:59	1
Cesium-137	0.000	U	0.0282	0.0282	0.0700	0.0164	pCi/g	01/14/14 11:20	01/17/14 10:59	1

Client Sample ID: FZ02-TU27-013

Lab Sample ID: 160-5121-13
Date Collected: 12/17/13 15:24
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.541		0.146	0.157	0.700	0.0647	pCi/g	01/14/14 11:20	01/17/14 11:00	1
Cesium-137	0.00254	U	0.0471	0.0471	0.0700	0.0429	pCi/g	01/14/14 11:20	01/17/14 11:00	1

Client Sample ID: FZ02-TU27-014

Lab Sample ID: 160-5121-14
Date Collected: 12/17/13 15:30
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.401		0.120	0.127	0.700	0.0462	pCi/g	01/14/14 11:20	01/17/14 10:59	1
Cesium-137	-0.00705	U	0.0340	0.0340	0.0700	0.0269	pCi/g	01/14/14 11:20	01/17/14 10:59	1

Client Sample ID: FZ02-TU27-015

Lab Sample ID: 160-5121-15
Date Collected: 12/17/13 13:02
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.412		0.132	0.139	0.700	0.0629	pCi/g	01/14/14 11:20	01/17/14 11:46	1
Cesium-137	-0.0113	U	0.0382	0.0382	0.0700	0.0301	pCi/g	01/14/14 11:20	01/17/14 11:46	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Client Sample ID: FZ02-TU27-016

Lab Sample ID: 160-5121-16
Date Collected: 12/17/13 12:55
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.449		0.133	0.141	0.700	0.0615	pCi/g	01/14/14 11:20	01/17/14 11:45	1
Cesium-137	-0.0118	U	0.0483	0.0483	0.0700	0.0384	pCi/g	01/14/14 11:20	01/17/14 11:45	1

Client Sample ID: FZ02-TU27-017

Lab Sample ID: 160-5121-17
Date Collected: 12/17/13 12:47
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.477		0.131	0.140	0.700	0.0629	pCi/g	01/14/14 11:20	01/17/14 11:44	1
Cesium-137	-0.00602	U	0.0429	0.0429	0.0700	0.0345	pCi/g	01/14/14 11:20	01/17/14 11:44	1

Client Sample ID: FZ02-TU27-018

Lab Sample ID: 160-5121-18
Date Collected: 12/16/13 15:15
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.372		0.125	0.130	0.700	0.0627	pCi/g	01/14/14 11:20	01/17/14 11:44	1
Cesium-137	-0.00396	U	0.0451	0.0451	0.0700	0.0367	pCi/g	01/14/14 11:20	01/17/14 11:44	1

Client Sample ID: FZ02-TU27-019

Lab Sample ID: 160-5121-19
Date Collected: 12/16/13 14:10
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.431		0.117	0.125	0.700	0.0598	pCi/g	01/14/14 11:20	01/17/14 11:47	1
Cesium-137	-0.00674	U	0.0431	0.0431	0.0700	0.0347	pCi/g	01/14/14 11:20	01/17/14 11:47	1

Client Sample ID: FZ02-TU27-020

Lab Sample ID: 160-5121-20
Date Collected: 12/16/13 14:14
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.633		0.209	0.219	0.700	0.0573	pCi/g	01/14/14 11:20	01/17/14 11:48	1
Cesium-137	0.0242	U	0.0814	0.0814	0.0700	0.0633	pCi/g	01/14/14 11:20	01/17/14 11:48	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Client Sample ID: FZ02-TU27-020 DUP

Lab Sample ID: 160-5121-21
Date Collected: 12/16/13 14:14
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.438		0.170	0.176	0.700	0.0880	pCi/g	01/14/14 12:49	01/17/14 11:55	1
Cesium-137	-0.000332	U	0.0625	0.0625	0.0700	0.0544	pCi/g	01/14/14 12:49	01/17/14 11:55	1

Client Sample ID: FZ02-TU27-021

Lab Sample ID: 160-5121-22
Date Collected: 12/16/13 14:18
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.289		0.104	0.109	0.700	0.0529	pCi/g	01/14/14 12:49	01/17/14 11:56	1
Cesium-137	0.00882	U	0.0364	0.0364	0.0700	0.0287	pCi/g	01/14/14 12:49	01/17/14 11:56	1

Client Sample ID: FZ02-TU27-022

Lab Sample ID: 160-5121-23
Date Collected: 12/16/13 15:00
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.501		0.128	0.138	0.700	0.0534	pCi/g	01/14/14 12:49	01/17/14 12:43	1
Cesium-137	-0.00161	U	0.0234	0.0234	0.0700	0.0189	pCi/g	01/14/14 12:49	01/17/14 12:43	1

Client Sample ID: FZ02-TU27-023

Lab Sample ID: 160-5121-24
Date Collected: 12/17/13 11:45
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.365		0.134	0.139	0.700	0.0618	pCi/g	01/14/14 12:49	01/17/14 12:43	1
Cesium-137	-0.00114	U	0.0465	0.0465	0.0700	0.0382	pCi/g	01/14/14 12:49	01/17/14 12:43	1

Client Sample ID: FZ02-TU27-024

Lab Sample ID: 160-5121-25
Date Collected: 12/17/13 11:51
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.340		0.107	0.112	0.700	0.0549	pCi/g	01/14/14 12:49	01/17/14 12:44	1
Cesium-137	0.00187	U	0.0356	0.0356	0.0700	0.0290	pCi/g	01/14/14 12:49	01/17/14 12:44	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Client Sample ID: FZ02-TU27-025

Lab Sample ID: 160-5121-26
Date Collected: 12/17/13 11:56
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.224		0.114	0.116	0.700	0.0808	pCi/g	01/14/14 12:49	01/17/14 12:45	1
Cesium-137	-0.00290	U	0.0235	0.0235	0.0700	0.0187	pCi/g	01/14/14 12:49	01/17/14 12:45	1

Client Sample ID: FZ02-TU27-026

Lab Sample ID: 160-5121-27
Date Collected: 12/17/13 12:03
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.347		0.112	0.118	0.700	0.0603	pCi/g	01/14/14 12:49	01/17/14 12:47	1
Cesium-137	-0.0130	U	0.0450	0.0451	0.0700	0.0355	pCi/g	01/14/14 12:49	01/17/14 12:47	1

Client Sample ID: FZ02-TU27-027

Lab Sample ID: 160-5121-28
Date Collected: 12/17/13 14:02
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.256		0.205	0.206	0.700	0.0990	pCi/g	01/14/14 12:49	01/17/14 12:46	1
Cesium-137	0.000225	U	0.0660	0.0660	0.0700	0.0544	pCi/g	01/14/14 12:49	01/17/14 12:46	1

Client Sample ID: FZ02-TU27-028

Lab Sample ID: 160-5121-29
Date Collected: 12/17/13 14:07
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.371		0.121	0.127	0.700	0.0616	pCi/g	01/14/14 12:49	01/17/14 12:47	1
Cesium-137	0.0141	U	0.0611	0.0611	0.0700	0.0518	pCi/g	01/14/14 12:49	01/17/14 12:47	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-98072/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99416 — **Prep Batch: 98072**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.07487	U	10.3	10.3	0.700	0.0680	pCi/g	01/14/14 11:20	01/17/14 08:17	1
Cesium-137	0.007484	U	0.0284	0.0284	0.0700	0.0219	pCi/g	01/14/14 11:20	01/17/14 08:17	1

Lab Sample ID: LCS 160-98072/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99413 — **Prep Batch: 98072**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	99.33		10.4		0.608	pCi/g	102	87 - 116
Cesium-137	31.3	31.28		3.34	0.0700	0.128	pCi/g	100	94 - 118
Cobalt-60	23.5	22.67		2.33		0.0528	pCi/g	97	87 - 115

Lab Sample ID: 160-5121-1 DU — **Client Sample ID: FZ02-TU27-001**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99411 — **Prep Batch: 98072**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.430		0.3755		0.123	0.700	0.0630	pCi/g	0.21	1
Cesium-137	0.000957	U	-0.008753	U	0.0417	0.0700	0.0332	pCi/g	0.13	1

Lab Sample ID: MB 160-98090/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99416 — **Prep Batch: 98090**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02406	U	0.133	0.133	0.700	0.0684	pCi/g	01/14/14 12:49	01/17/14 10:56	1
Cesium-137	-0.00002135	U	0.0235	0.0235	0.0700	0.0193	pCi/g	01/14/14 12:49	01/17/14 10:56	1

Lab Sample ID: LCS 160-98090/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99413 — **Prep Batch: 98090**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	99.37		10.4		0.605	pCi/g	102	87 - 116
Cesium-137	31.3	31.15		3.33	0.0700	0.134	pCi/g	99	94 - 118
Cobalt-60	23.5	23.05		2.37		0.0513	pCi/g	98	87 - 115

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-5121-21 DU
Matrix: Solid
Analysis Batch: 99403

Client Sample ID: FZ02-TU27-020 DUP
Prep Type: Total/NA
Prep Batch: 98090

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit			RER	RER Limit
Radium-226	0.438			0.6111		0.145	0.700	0.0389	pCi/g			0.54	1
Cesium-137	-0.000332	U		-0.004902	U	0.0465	0.0700	0.0377	pCi/g			0.04	1

TestAmerica St. Louis

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5121-1
SDG: 160-5121

Rad

Prep Batch: 98072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5121-1	FZ02-TU27-001	Total/NA	Solid	Fill_Geo-21	
160-5121-1 DU	FZ02-TU27-001	Total/NA	Solid	Fill_Geo-21	
160-5121-2	FZ02-TU27-002	Total/NA	Solid	Fill_Geo-21	
160-5121-3	FZ02-TU27-003	Total/NA	Solid	Fill_Geo-21	
160-5121-4	FZ02-TU27-004	Total/NA	Solid	Fill_Geo-21	
160-5121-5	FZ02-TU27-005	Total/NA	Solid	Fill_Geo-21	
160-5121-6	FZ02-TU27-006	Total/NA	Solid	Fill_Geo-21	
160-5121-7	FZ02-TU27-007	Total/NA	Solid	Fill_Geo-21	
160-5121-8	FZ02-TU27-008	Total/NA	Solid	Fill_Geo-21	
160-5121-9	FZ02-TU27-009	Total/NA	Solid	Fill_Geo-21	
160-5121-10	FZ02-TU27-010	Total/NA	Solid	Fill_Geo-21	
160-5121-11	FZ02-TU27-011	Total/NA	Solid	Fill_Geo-21	
160-5121-12	FZ02-TU27-012	Total/NA	Solid	Fill_Geo-21	
160-5121-13	FZ02-TU27-013	Total/NA	Solid	Fill_Geo-21	
160-5121-14	FZ02-TU27-014	Total/NA	Solid	Fill_Geo-21	
160-5121-15	FZ02-TU27-015	Total/NA	Solid	Fill_Geo-21	
160-5121-16	FZ02-TU27-016	Total/NA	Solid	Fill_Geo-21	
160-5121-17	FZ02-TU27-017	Total/NA	Solid	Fill_Geo-21	
160-5121-18	FZ02-TU27-018	Total/NA	Solid	Fill_Geo-21	
160-5121-19	FZ02-TU27-019	Total/NA	Solid	Fill_Geo-21	
160-5121-20	FZ02-TU27-020	Total/NA	Solid	Fill_Geo-21	
LCS 160-98072/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-98072/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 98090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5121-21	FZ02-TU27-020 DUP	Total/NA	Solid	Fill_Geo-21	
160-5121-21 DU	FZ02-TU27-020 DUP	Total/NA	Solid	Fill_Geo-21	
160-5121-22	FZ02-TU27-021	Total/NA	Solid	Fill_Geo-21	
160-5121-23	FZ02-TU27-022	Total/NA	Solid	Fill_Geo-21	
160-5121-24	FZ02-TU27-023	Total/NA	Solid	Fill_Geo-21	
160-5121-25	FZ02-TU27-024	Total/NA	Solid	Fill_Geo-21	
160-5121-26	FZ02-TU27-025	Total/NA	Solid	Fill_Geo-21	
160-5121-27	FZ02-TU27-026	Total/NA	Solid	Fill_Geo-21	
160-5121-28	FZ02-TU27-027	Total/NA	Solid	Fill_Geo-21	
160-5121-29	FZ02-TU27-028	Total/NA	Solid	Fill_Geo-21	
LCS 160-98090/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-98090/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5125-1
TestAmerica Sample Delivery Group: 160-5125
Client Project/Site: Alameda OU2C Storm Drain

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
1/30/2014 3:53:59 PM
Ivan Vania, Project Manager II
(314)298-8566
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Designee for

Erika Gish, Project Manager II
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LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5125-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda OU2C Storm Drain

Report Number: 160-5125-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 01/10/2014; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 19.0 C.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples FZ02-TU63-001 (160-5125-1), FZ02-TU63-002 (160-5125-2), FZ02-TU63-003 (160-5125-3), FZ02-TU63-004 (160-5125-4), FZ02-TU63-005 (160-5125-5), FZ02-TU63-006 (160-5125-6), FZ02-TU63-007 (160-5125-7), FZ02-TU63-008 (160-5125-8), FZ02-TU63-009 (160-5125-9), FZ02-TU63-010 (160-5125-10), FZ02-TU63-011 (160-5125-11), FZ02-TU63-012 (160-5125-12), FZ02-TU63-013 (160-5125-13), FZ02-TU63-014 (160-5125-14), FZ02-TU63-015 (160-5125-15), FZ02-TU63-016 (160-5125-16), FZ02-TU63-017 (160-5125-17), FZ02-TU63-018 (160-5125-18), FZ02-TU63-019 (160-5125-19), FZ02-TU63-019 DUP (160-5125-20), FZ02-TU63-020 (160-5125-21), FZ02-TU63-021 (160-5125-22), FZ02-TU63-022 (160-5125-23) and FZ02-TU63-023 (160-5125-24) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA Method 901.1. The samples were prepared on 01/14/2014 and analyzed on 01/16/2014. All samples and QC were counted for 30 minutes.
The client has provided the date that samples were placed into the geometry. This date has been used as the preparation date, and the 21 day in-growth completion has been calculated from that date.
No other difficulties were encountered during the Radium 226 by gamma analysis. All other quality control parameters were within the acceptance limits.

TETRA TECH EC, INC.

Chain-of Custody Record

251396

NUMBER: FZ02-0001

1 of 2

160-5125

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: M. Starr	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T Berkeley Lab

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
1 FZ02-TU63-001	12/4/2013	1040	1	3	S	3	X							Systematic sample 1 gal	TU63			N
2 FZ02-TU63-002	12/4/2013	1048	1	3	S	3	X							Systematic sample 1 gal	TU63			N
3 FZ02-TU63-003	12/4/2013	1053	1	3	S	3	X							Systematic sample 1 gal	TU63			N
4 FZ02-TU63-004	12/4/2013	1101	1	3	S	3	X							Systematic sample 1 gal	TU63			N
5 FZ02-TU63-005	12/4/2013	1108	1	3	S	3	X							Systematic sample 1 gal	TU63			N
6 FZ02-TU63-006	12/4/2013	1116	1	3	S	3	X							Systematic sample 1 gal	TU63			N
7 FZ02-TU63-007	12/4/2013	1123	1	3	S	3	X							Systematic sample 1 gal	TU63			N
8 FZ02-TU63-008	12/4/2013	1131	1	3	S	3	X							Systematic sample 1 gal	TU63			N
9 FZ02-TU63-009	12/4/2013	1138	1	3	S	3	X							Systematic sample 1 gal	TU63			N
10 FZ02-TU63-010	12/4/2013	1144	1	3	S	3	X							Systematic sample 1 gal	TU63			N
11 FZ02-TU63-011	12/4/2013	1152	1	3	S	3	X							Systematic sample 1 gal	TU63			N
12 FZ02-TU63-012	12/4/2013	1200	1	3	S	3	X							Systematic sample 1 gal	TU63			N
13 FZ02-TU63-013	12/4/2013	1209	1	3	S	3	X							Systematic sample 1 gal	TU63			N
14 FZ02-TU63-014	12/4/2013	1218	1	3	S	3	X							Systematic sample 1 gal	TU63			N

Relinquished by: (signature)	Date:	Received by (signature)	Laboratory Instructions/Comments:
Neal St	12/5/13	Pat Hamp	Screening (via 186 pk) full isotopes only
Company: RSRS	Time: 0925	Company: C&T 10:35	
Relinquished by: (signature) Miguel C	Date: 01/07/14	Received by (signature) B	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis
Company: C+T	Time: 1700	Company: TA 1/10/14 1110	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: Trench samples

FZ02-0001

TETRA TECH EC, INC.

Chain-of Custody Record

251396

NUMBER: FZ02-0002

2 of 2

160-5125

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: M. Starr	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T, Berkeley Lab

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC	COMMENTS	LOCATION	Depth START	Depth END	QC
15 FZ02-TU63-015	12/4/2013	1225	1	3	S	3	X	Systematic samples	TU63			N
16 FZ02-TU63-016	12/4/2013	1234	1	3	S	3	X	Systematic samples	TU63			N
17 FZ02-TU63-017	12/4/2013	1241	1	3	S	3	X	Systematic samples	TU63			N
18 FZ02-TU63-018	12/4/2013	1250	1	3	S	3	X	Systematic samples	TU63			N
SDUP → 19 FZ02-TU63-019	12/3/2013	1401	1	3	S	3	X	Hot Spot Biased Sample	TU63 North 10"			N
20 FZ02-TU63-020	12/3/2013	1407	1	3	S	3	X	Hot Spot Biased Sample	TU63 North 24"			N
21 FZ02-TU63-021	12/3/2013	1415	1	3	S	3	X	Hot Spot Biased Sample	TU63 South 10"			N
22 FZ02-TU63-022	12/3/2013	1419	1	3	S	3	X	Hot Spot Biased Sample	TU63 South 24"			N
23 FZ02-TU63-023	12/5/2013	0802	1	3	S	3	X	Pipe section sediment sample	TU63			N

Relinquished by: (signature)	Date:	Received by (signature)	Laboratory Instructions/Comments:
Mark [illegible]	12/5/13	[illegible]	Screening (via 186 pk) full isotopes only
Company: RSRS	Time: 0925	Company: C&T 10:30	
Relinquished by: (signature) [illegible]	Date: 01/07/14	Received by (signature) [illegible] 1/10/14	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis
Company: C+T	Time: 1706	Company: TA 1110	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:
Trench samples, 1 pipe section sediment sample

FZ02-0002

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5125-1
SDG Number: 160-5125

Login Number: 5125
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5125-1	FZ02-TU63-001	Solid	12/04/13 10:40	01/10/14 11:10
160-5125-2	FZ02-TU63-002	Solid	12/04/13 10:48	01/10/14 11:10
160-5125-3	FZ02-TU63-003	Solid	12/04/13 10:53	01/10/14 11:10
160-5125-4	FZ02-TU63-004	Solid	12/04/13 11:01	01/10/14 11:10
160-5125-5	FZ02-TU63-005	Solid	12/04/13 11:08	01/10/14 11:10
160-5125-6	FZ02-TU63-006	Solid	12/04/13 11:16	01/10/14 11:10
160-5125-7	FZ02-TU63-007	Solid	12/04/13 11:23	01/10/14 11:10
160-5125-8	FZ02-TU63-008	Solid	12/04/13 11:31	01/10/14 11:10
160-5125-9	FZ02-TU63-009	Solid	12/04/13 11:38	01/10/14 11:10
160-5125-10	FZ02-TU63-010	Solid	12/04/13 11:44	01/10/14 11:10
160-5125-11	FZ02-TU63-011	Solid	12/04/13 11:52	01/10/14 11:10
160-5125-12	FZ02-TU63-012	Solid	12/04/13 12:00	01/10/14 11:10
160-5125-13	FZ02-TU63-013	Solid	12/04/13 12:09	01/10/14 11:10
160-5125-14	FZ02-TU63-014	Solid	12/04/13 12:18	01/10/14 11:10
160-5125-15	FZ02-TU63-015	Solid	12/04/13 12:25	01/10/14 11:10
160-5125-16	FZ02-TU63-016	Solid	12/04/13 12:34	01/10/14 11:10
160-5125-17	FZ02-TU63-017	Solid	12/04/13 12:41	01/10/14 11:10
160-5125-18	FZ02-TU63-018	Solid	12/04/13 12:50	01/10/14 11:10
160-5125-19	FZ02-TU63-019	Solid	12/03/13 14:01	01/10/14 11:10
160-5125-20	FZ02-TU63-019 DUP	Solid	12/03/13 14:01	01/10/14 11:10
160-5125-21	FZ02-TU63-020	Solid	12/03/13 14:07	01/10/14 11:10
160-5125-22	FZ02-TU63-021	Solid	12/03/13 14:15	01/10/14 11:10
160-5125-23	FZ02-TU63-022	Solid	12/03/13 14:19	01/10/14 11:10
160-5125-24	FZ02-TU63-023	Solid	12/05/13 08:02	01/10/14 11:10

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Client Sample ID: FZ02-TU63-001

Lab Sample ID: 160-5125-1
Date Collected: 12/04/13 10:40
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.494		0.122	0.132	0.700	0.0511	pCi/g	01/14/14 13:05	01/16/14 21:17	1
Cesium-137	0.00193	U	0.0437	0.0437	0.0700	0.0358	pCi/g	01/14/14 13:05	01/16/14 21:17	1

Client Sample ID: FZ02-TU63-002

Lab Sample ID: 160-5125-2
Date Collected: 12/04/13 10:48
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.425		0.124	0.132	0.700	0.0529	pCi/g	01/14/14 13:05	01/16/14 21:16	1
Cesium-137	-0.0143	U	0.0425	0.0425	0.0700	0.0329	pCi/g	01/14/14 13:05	01/16/14 21:16	1

Client Sample ID: FZ02-TU63-003

Lab Sample ID: 160-5125-3
Date Collected: 12/04/13 10:53
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.476		0.119	0.129	0.700	0.0411	pCi/g	01/14/14 13:05	01/16/14 21:16	1
Cesium-137	-0.0123	U	0.0535	0.0535	0.0700	0.0425	pCi/g	01/14/14 13:05	01/16/14 21:16	1

Client Sample ID: FZ02-TU63-004

Lab Sample ID: 160-5125-4
Date Collected: 12/04/13 11:01
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.363		0.105	0.111	0.700	0.0387	pCi/g	01/14/14 13:05	01/16/14 21:57	1
Cesium-137	-0.00647	U	0.0349	0.0349	0.0700	0.0277	pCi/g	01/14/14 13:05	01/16/14 21:57	1

Client Sample ID: FZ02-TU63-005

Lab Sample ID: 160-5125-5
Date Collected: 12/04/13 11:08
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.396		0.105	0.113	0.700	0.0468	pCi/g	01/14/14 13:05	01/16/14 22:03	1
Cesium-137	0.000373	U	0.0337	0.0337	0.0700	0.0277	pCi/g	01/14/14 13:05	01/16/14 22:03	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Client Sample ID: FZ02-TU63-006

Lab Sample ID: 160-5125-6
Matrix: Solid
Date Collected: 12/04/13 11:16
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.513		0.155	0.164	0.700	0.0687	pCi/g	01/14/14 13:05	01/16/14 22:02	1
Cesium-137	0.00833	U	0.0401	0.0401	0.0700	0.0319	pCi/g	01/14/14 13:05	01/16/14 22:02	1

Client Sample ID: FZ02-TU63-007

Lab Sample ID: 160-5125-7
Matrix: Solid
Date Collected: 12/04/13 11:23
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.389		0.129	0.135	0.700	0.0595	pCi/g	01/14/14 13:05	01/16/14 22:02	1
Cesium-137	0.00771	U	0.0403	0.0403	0.0700	0.0322	pCi/g	01/14/14 13:05	01/16/14 22:02	1

Client Sample ID: FZ02-TU63-008

Lab Sample ID: 160-5125-8
Matrix: Solid
Date Collected: 12/04/13 11:31
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.503		0.153	0.161	0.700	0.0715	pCi/g	01/14/14 13:05	01/16/14 22:01	1
Cesium-137	-0.00978	U	0.0407	0.0407	0.0700	0.0323	pCi/g	01/14/14 13:05	01/16/14 22:01	1

Client Sample ID: FZ02-TU63-009

Lab Sample ID: 160-5125-9
Matrix: Solid
Date Collected: 12/04/13 11:38
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.445		0.118	0.127	0.700	0.0466	pCi/g	01/14/14 13:05	01/16/14 22:01	1
Cesium-137	0.00178	U	0.0370	0.0370	0.0700	0.0301	pCi/g	01/14/14 13:05	01/16/14 22:01	1

Client Sample ID: FZ02-TU63-010

Lab Sample ID: 160-5125-10
Matrix: Solid
Date Collected: 12/04/13 11:44
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.452		0.132	0.140	0.700	0.0556	pCi/g	01/14/14 13:05	01/16/14 22:02	1
Cesium-137	-0.00383	U	0.0511	0.0511	0.0700	0.0416	pCi/g	01/14/14 13:05	01/16/14 22:02	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Client Sample ID: FZ02-TU63-011

Lab Sample ID: 160-5125-11
Date Collected: 12/04/13 11:52
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.306		0.104	0.109	0.700	0.0515	pCi/g	01/14/14 13:05	01/16/14 22:03	1
Cesium-137	0.00834	U	0.0355	0.0355	0.0700	0.0280	pCi/g	01/14/14 13:05	01/16/14 22:03	1

Client Sample ID: FZ02-TU63-012

Lab Sample ID: 160-5125-12
Date Collected: 12/04/13 12:00
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.422		0.128	0.135	0.700	0.0650	pCi/g	01/14/14 13:05	01/16/14 22:40	1
Cesium-137	0.00324	U	0.0391	0.0391	0.0700	0.0318	pCi/g	01/14/14 13:05	01/16/14 22:40	1

Client Sample ID: FZ02-TU63-013

Lab Sample ID: 160-5125-13
Date Collected: 12/04/13 12:09
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.361		0.170	0.174	0.700	0.0868	pCi/g	01/14/14 13:05	01/16/14 22:41	1
Cesium-137	0.0174	U	0.0463	0.0463	0.0700	0.0334	pCi/g	01/14/14 13:05	01/16/14 22:41	1

Client Sample ID: FZ02-TU63-014

Lab Sample ID: 160-5125-14
Date Collected: 12/04/13 12:18
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.291		0.125	0.128	0.700	0.0686	pCi/g	01/14/14 13:05	01/16/14 22:39	1
Cesium-137	-0.0287	U	1.21	1.21	0.0700	0.0518	pCi/g	01/14/14 13:05	01/16/14 22:39	1

Client Sample ID: FZ02-TU63-015

Lab Sample ID: 160-5125-15
Date Collected: 12/04/13 12:25
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.391		0.116	0.123	0.700	0.0461	pCi/g	01/14/14 13:05	01/16/14 22:40	1
Cesium-137	0.000758	U	0.0368	0.0368	0.0700	0.0302	pCi/g	01/14/14 13:05	01/16/14 22:40	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Client Sample ID: FZ02-TU63-016

Lab Sample ID: 160-5125-16
Date Collected: 12/04/13 12:34
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.435		0.0985	0.108	0.700	0.0405	pCi/g	01/14/14 13:05	01/16/14 22:44	1
Cesium-137	-0.00897	U	0.0395	0.0395	0.0700	0.0315	pCi/g	01/14/14 13:05	01/16/14 22:44	1

Client Sample ID: FZ02-TU63-017

Lab Sample ID: 160-5125-17
Date Collected: 12/04/13 12:41
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.478		0.130	0.139	0.700	0.0552	pCi/g	01/14/14 13:05	01/16/14 22:45	1
Cesium-137	-0.0157	U	0.0516	0.0516	0.0700	0.0406	pCi/g	01/14/14 13:05	01/16/14 22:45	1

Client Sample ID: FZ02-TU63-018

Lab Sample ID: 160-5125-18
Date Collected: 12/04/13 12:50
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.330		0.106	0.112	0.700	0.0580	pCi/g	01/14/14 13:05	01/16/14 22:47	1
Cesium-137	-0.0210	U	0.0484	0.0484	0.0700	0.0373	pCi/g	01/14/14 13:05	01/16/14 22:47	1

Client Sample ID: FZ02-TU63-019

Lab Sample ID: 160-5125-19
Date Collected: 12/03/13 14:01
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.331		0.121	0.126	0.700	0.0604	pCi/g	01/14/14 13:05	01/16/14 22:46	1
Cesium-137	0.000159	U	0.0372	0.0372	0.0700	0.0307	pCi/g	01/14/14 13:05	01/16/14 22:46	1

Client Sample ID: FZ02-TU63-019 DUP

Lab Sample ID: 160-5125-20
Date Collected: 12/03/13 14:01
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.435		0.108	0.117	0.700	0.0405	pCi/g	01/14/14 13:05	01/16/14 22:47	1
Cesium-137	0.00181	U	0.0429	0.0429	0.0700	0.0351	pCi/g	01/14/14 13:05	01/16/14 22:47	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Client Sample ID: FZ02-TU63-020

Lab Sample ID: 160-5125-21
Date Collected: 12/03/13 14:07
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.403		0.108	0.116	0.700	0.0363	pCi/g	01/14/14 13:17	01/16/14 23:23	1
Cesium-137	-0.00692	U	0.0372	0.0372	0.0700	0.0296	pCi/g	01/14/14 13:17	01/16/14 23:23	1

Client Sample ID: FZ02-TU63-021

Lab Sample ID: 160-5125-22
Date Collected: 12/03/13 14:15
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.396		0.0933	0.102	0.700	0.0396	pCi/g	01/14/14 13:17	01/16/14 23:25	1
Cesium-137	0.00711	U	0.0371	0.0371	0.0700	0.0297	pCi/g	01/14/14 13:17	01/16/14 23:25	1

Client Sample ID: FZ02-TU63-022

Lab Sample ID: 160-5125-23
Date Collected: 12/03/13 14:19
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.413		0.113	0.121	0.700	0.0423	pCi/g	01/14/14 13:17	01/16/14 22:45	1
Cesium-137	0.0219	U	0.0442	0.0443	0.0700	0.0330	pCi/g	01/14/14 13:17	01/16/14 22:45	1

Client Sample ID: FZ02-TU63-023

Lab Sample ID: 160-5125-24
Date Collected: 12/05/13 08:02
Matrix: Solid
Date Received: 01/10/14 11:10

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.284		0.103	0.107	0.700	0.0636	pCi/g	01/14/14 13:17	01/16/14 22:45	1
Cesium-137	0.00665	U	0.0249	0.0249	0.0700	0.0191	pCi/g	01/14/14 13:17	01/16/14 22:45	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-98094/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99409 — **Prep Batch: 98094**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.01490	U	0.130	0.130	0.700	0.104	pCi/g	01/14/14 13:05	01/16/14 21:57	1
Cesium-137	0.0000	U	0.0252	0.0252	0.0700	0.0208	pCi/g	01/14/14 13:05	01/16/14 21:57	1

Lab Sample ID: LCS 160-98094/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99404 — **Prep Batch: 98094**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	98.27		10.3		0.614	pCi/g	101	87 - 116
Cesium-137	31.3	30.83		3.32	0.0700	0.161	pCi/g	98	94 - 118
Cobalt-60	23.5	22.77		2.37		0.101	pCi/g	97	87 - 115

Lab Sample ID: 160-5125-20 DU — **Client Sample ID: FZ02-TU63-019 DUP**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99408 — **Prep Batch: 98094**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.435		0.2399		0.105	0.700	0.0756	pCi/g	0.88	1
Cesium-137	0.00181	U	0.003515	U	0.0415	0.0700	0.0338	pCi/g	0.02	1

Lab Sample ID: MB 160-98096/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99409 — **Prep Batch: 98096**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.006751	U	0.139	0.139	0.700	0.113	pCi/g	01/14/14 13:17	01/16/14 23:22	1
Cesium-137	0.0000	U	0.0252	0.0252	0.0700	0.0208	pCi/g	01/14/14 13:17	01/16/14 23:22	1

Lab Sample ID: LCS 160-98096/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99404 — **Prep Batch: 98096**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	98.38		10.3		0.596	pCi/g	101	87 - 116
Cesium-137	31.3	29.99		3.24	0.0700	0.172	pCi/g	96	94 - 118
Cobalt-60	23.5	22.70		2.36		0.0461	pCi/g	97	87 - 115

Lab Sample ID: 160-5125-24 DU — **Client Sample ID: FZ02-TU63-023**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 99039 — **Prep Batch: 98096**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.284		0.5232		0.140	0.700	0.0511	pCi/g	0.97	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-5125-24 DU
Matrix: Solid
Analysis Batch: 99039

Client Sample ID: FZ02-TU63-023
Prep Type: Total/NA
Prep Batch: 98096

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit			RER	RER Limit
Cesium-137	0.00665	U		0.01640	U	0.0373	0.0700	0.0282	pCi/g			0.16	1

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5125-1
SDG: 160-5125

Rad

Prep Batch: 98094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5125-1	FZ02-TU63-001	Total/NA	Solid	Fill_Geo-21	
160-5125-2	FZ02-TU63-002	Total/NA	Solid	Fill_Geo-21	
160-5125-3	FZ02-TU63-003	Total/NA	Solid	Fill_Geo-21	
160-5125-4	FZ02-TU63-004	Total/NA	Solid	Fill_Geo-21	
160-5125-5	FZ02-TU63-005	Total/NA	Solid	Fill_Geo-21	
160-5125-6	FZ02-TU63-006	Total/NA	Solid	Fill_Geo-21	
160-5125-7	FZ02-TU63-007	Total/NA	Solid	Fill_Geo-21	
160-5125-8	FZ02-TU63-008	Total/NA	Solid	Fill_Geo-21	
160-5125-9	FZ02-TU63-009	Total/NA	Solid	Fill_Geo-21	
160-5125-10	FZ02-TU63-010	Total/NA	Solid	Fill_Geo-21	
160-5125-11	FZ02-TU63-011	Total/NA	Solid	Fill_Geo-21	
160-5125-12	FZ02-TU63-012	Total/NA	Solid	Fill_Geo-21	
160-5125-13	FZ02-TU63-013	Total/NA	Solid	Fill_Geo-21	
160-5125-14	FZ02-TU63-014	Total/NA	Solid	Fill_Geo-21	
160-5125-15	FZ02-TU63-015	Total/NA	Solid	Fill_Geo-21	
160-5125-16	FZ02-TU63-016	Total/NA	Solid	Fill_Geo-21	
160-5125-17	FZ02-TU63-017	Total/NA	Solid	Fill_Geo-21	
160-5125-18	FZ02-TU63-018	Total/NA	Solid	Fill_Geo-21	
160-5125-19	FZ02-TU63-019	Total/NA	Solid	Fill_Geo-21	
160-5125-20	FZ02-TU63-019 DUP	Total/NA	Solid	Fill_Geo-21	
160-5125-20 DU	FZ02-TU63-019 DUP	Total/NA	Solid	Fill_Geo-21	
LCS 160-98094/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-98094/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 98096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5125-21	FZ02-TU63-020	Total/NA	Solid	Fill_Geo-21	
160-5125-22	FZ02-TU63-021	Total/NA	Solid	Fill_Geo-21	
160-5125-23	FZ02-TU63-022	Total/NA	Solid	Fill_Geo-21	
160-5125-24	FZ02-TU63-023	Total/NA	Solid	Fill_Geo-21	
160-5125-24 DU	FZ02-TU63-023	Total/NA	Solid	Fill_Geo-21	
LCS 160-98096/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-98096/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5591-1
TestAmerica Sample Delivery Group: 160-5591
Client Project/Site: Alameda OU2C Storm Drain

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
2/28/2014 1:58:23 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5591-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda OU2C Storm Drain

Report Number: 160-5591-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-5591-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 2/19/2014 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 20.6º C.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples FZ02-TU12-001 (160-5591-1), FZ02-TU12-002 (160-5591-2), FZ02-TU12-003 (160-5591-3), FZ02-TU12-004 (160-5591-4), FZ02-TU12-005 (160-5591-5), FZ02-TU12-006 (160-5591-6), FZ02-TU12-007 (160-5591-7), FZ02-TU12-008 (160-5591-8), FZ02-TU12-009 (160-5591-9), FZ02-TU12-010 (160-5591-10), FZ02-TU12-011 (160-5591-11), FZ02-TU12-012 (160-5591-12), FZ02-TU12-013 (160-5591-13), FZ02-TU12-014 (160-5591-14), FZ02-TU12-015 (160-5591-15), FZ02-TU12-016 (160-5591-16), FZ02-TU12-017 (160-5591-17), FZ02-TU12-018 (160-5591-18), FZ02-TU12-018 DUP (160-5591-19) and FZ02-TU12-023 (160-5591-24) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA Method 901.1. The samples were prepared on 02/20/2014 and analyzed on 02/21/2014 and 02/23/2014.

Samples were received sealed in tuna cans. The sealed date was used as prep date and used to calculate ingrowth period.

Count Time: All samples and QC were counted for 30 mins.

No other difficulties were encountered during the Radium 226 by gamma analysis.

All other quality control parameters were within the acceptance limits.

TETRA TECH EC, INC

Chain-of Custody Record

252624

NUMBER: FZ02-0007

160-5591

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: Tobin Wells	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T Berkeley Lab

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
FZ02-TU12-001	1/22/2014	0857	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-002	1/22/2014	0902	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-003	1/21/2014	1431	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-004	1/14/2014	1522	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-005	1/14/2014	1540	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-006	1/21/2014	1507	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-007	1/21/2014	1435	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-008	1/14/2014	1529	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-009	1/14/2014	1546	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-010	1/21/2014	1502	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-011	1/21/2014	1439	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-012	1/14/2014	1536	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-013	1/21/2014	1458	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-014	1/21/2014	1443	1	3	S	3	X							Systematic	TU12			N

Relinquished by: (signature)	Date: 01-24-14	Received by (signature)	Laboratory Instructions/Comments: Screening (via 186 pk) full isotopes only
Company:	Time: 1051	Company: RSRS	
Relinquished by: (signature)	Date: 1-24-14	Received by (signature)	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis
Company:	Time: 11:40	Company: CTT	
Relinquished by: (signature)	Date: 2/10/14	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company: CTT	Time: 1448	Company: TASTL 0915	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: Trench samples

FZ02-0007

TETRA TECH EC, INC

Chain-of Custody Record

252624

NUMBER: FZ02-0007

160-5591

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927	ANALYSES REQUIRED	Laboratory Name: C & T Berkeley Lab
Project Location: Alameda	Project Number: 4659FZ02	GAMMA SPEC	
Sampler Name: Tobin Wells	Airbill Number:		Laboratory ID:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022		

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
FZ02-TU12-015	1/21/2014	1454	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-016	1/21/2014	1447	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-017	1/14/2014	1551	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-018	1/21/2014	1451	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-019	1/14/2014	1037	1	3	S	3	X							Bias Hot Spot E15"	TU12			N
FZ02-TU12-020	1/14/2014	1041	1	3	S	3	X							Bias Hot Spot E30"	TU12			N
FZ02-TU12-021	1/14/2014	1016	1	3	S	3	X							Bias Hot Spot W15"	TU12			N
FZ02-TU12-022	1/14/2014	1023	1	3	S	3	X							Bias Hot Spot W30"	TU12			N
FZ02-TU12-023	1/15/2014	0753	1	3	S	3	X							Characterization hot spot	TU12			N
														pipe sediment				

#24 SD
#18 5

Relinquished by: (signature)	Date: 01-24-14	Received by (signature)	Laboratory Instructions/Comments: Screening (via 186 pk) full isotopes only	Sampling Comments: Trench samples
Company:	Time: 1051	Company: RERS		
Relinquished by: (signature)	Date: 1-24-14	Received by (signature)	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis	
Company:	Time: 11:40	Company: C+T		
Relinquished by: (signature)	Date: 2/19/14	Received by (signature) Jep Clark 2.19.14	Sample Condition Upon Receipt (for Laboratory)	
Company: C+T	Time: 1445	Company: TA SR 0915	Temperature: Sample Condition: Cooler Seal:	FZ02-0007

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5591-1
SDG Number: 160-5591

Login Number: 5591
List Number: 1
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5591-1	FZ02-TU12-001	Solid	01/22/14 08:57	02/19/14 09:15
160-5591-2	FZ02-TU12-002	Solid	01/22/14 09:02	02/19/14 09:15
160-5591-3	FZ02-TU12-003	Solid	01/21/14 14:31	02/19/14 09:15
160-5591-4	FZ02-TU12-004	Solid	01/14/14 15:22	02/19/14 09:15
160-5591-5	FZ02-TU12-005	Solid	01/14/14 15:40	02/19/14 09:15
160-5591-6	FZ02-TU12-006	Solid	01/21/14 15:07	02/19/14 09:15
160-5591-7	FZ02-TU12-007	Solid	01/21/14 14:35	02/19/14 09:15
160-5591-8	FZ02-TU12-008	Solid	01/14/14 15:29	02/19/14 09:15
160-5591-9	FZ02-TU12-009	Solid	01/14/14 15:46	02/19/14 09:15
160-5591-10	FZ02-TU12-010	Solid	01/21/14 15:02	02/19/14 09:15
160-5591-11	FZ02-TU12-011	Solid	01/21/14 14:39	02/19/14 09:15
160-5591-12	FZ02-TU12-012	Solid	01/14/14 15:36	02/19/14 09:15
160-5591-13	FZ02-TU12-013	Solid	01/21/14 14:58	02/19/14 09:15
160-5591-14	FZ02-TU12-014	Solid	01/21/14 14:43	02/19/14 09:15
160-5591-15	FZ02-TU12-015	Solid	01/21/14 14:54	02/19/14 09:15
160-5591-16	FZ02-TU12-016	Solid	01/21/14 14:47	02/19/14 09:15
160-5591-17	FZ02-TU12-017	Solid	01/14/14 15:51	02/19/14 09:15
160-5591-18	FZ02-TU12-018	Solid	01/21/14 14:51	02/19/14 09:15
160-5591-19	FZ02-TU12-018 DUP	Solid	01/21/14 14:51	02/19/14 09:15
160-5591-24	FZ02-TU12-023	Solid	01/15/14 07:53	02/19/14 09:15

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-001
Date Collected: 01/22/14 08:57
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-1
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.452**		0.121	0.130	0.700	0.0564	pCi/g	02/20/14 15:04	02/23/14 20:28	1
Cesium-137	0.00826	U	0.0365	0.0366	0.0700	0.0288	pCi/g	02/20/14 15:04	02/23/14 20:28	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-002
Date Collected: 01/22/14 09:02
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.359**		0.112	0.118	0.700	0.0537	pCi/g	02/20/14 15:04	02/23/14 20:28	1
Cesium-137	0.000	U	0.00619	0.00619	0.0700	0.0425	pCi/g	02/20/14 15:04	02/23/14 20:28	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-003
Date Collected: 01/21/14 14:31
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-3
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.458		0.142	0.149	0.700	0.0592	pCi/g	02/20/14 15:04	02/23/14 20:29	1
Cesium-137	0.0307		0.0412	0.0414	0.0700	0.0289	pCi/g	02/20/14 15:04	02/23/14 20:29	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-004
Date Collected: 01/14/14 15:22
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-4
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.437**		0.127	0.135	0.700	0.0536	pCi/g	02/20/14 15:04	02/23/14 20:29	1
Cesium-137	0.0119	U	0.0385	0.0385	0.0700	0.0295	pCi/g	02/20/14 15:04	02/23/14 20:29	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-005
Date Collected: 01/14/14 15:40
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-5
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.276**		0.0943	0.0985	0.700	0.0499	pCi/g	02/20/14 15:04	02/23/14 20:30	1
Cesium-137	-0.00125	U	0.0385	0.0385	0.0700	0.0315	pCi/g	02/20/14 15:04	02/23/14 20:30	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-006
Date Collected: 01/21/14 15:07
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-6
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.389**		0.144	0.149	0.700	0.0750	pCi/g	02/20/14 15:04	02/23/14 20:31	1
Cesium-137	-0.00403	U	0.0439	0.0439	0.0700	0.0357	pCi/g	02/20/14 15:04	02/23/14 20:31	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-007
Date Collected: 01/21/14 14:35
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-7
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.309**		0.134	0.138	0.700	0.0653	pCi/g	02/20/14 15:04	02/23/14 20:32	1
Cesium-137	-0.0294	U	1.76	1.76	0.0700	0.0515	pCi/g	02/20/14 15:04	02/23/14 20:32	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-008
Date Collected: 01/14/14 15:29
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-8
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.320**		0.0866	0.0927	0.700	0.0249	pCi/g	02/20/14 15:04	02/23/14 20:33	1
Cesium-137	-0.00421	U	0.0400	0.0400	0.0700	0.0324	pCi/g	02/20/14 15:04	02/23/14 20:33	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-009
Date Collected: 01/14/14 15:46
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-9
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.580**		0.157	0.168	0.700	0.0639	pCi/g	02/20/14 15:04	02/23/14 22:22	1
Cesium-137	-0.0168	U	0.238	0.238	0.0700	0.0510	pCi/g	02/20/14 15:04	02/23/14 22:22	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-010
Date Collected: 01/21/14 15:02
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-10
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.409**		0.0986	0.107	0.700	0.0250	pCi/g	02/20/14 15:04	02/23/14 22:21	1
Cesium-137	-0.0153	U	0.0433	0.0433	0.0700	0.0337	pCi/g	02/20/14 15:04	02/23/14 22:21	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-011
Date Collected: 01/21/14 14:39
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-11
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.339**		0.103	0.109	0.700	0.0467	pCi/g	02/20/14 15:04	02/23/14 22:20	1
Cesium-137	-0.00921	U	0.0434	0.0434	0.0700	0.0348	pCi/g	02/20/14 15:04	02/23/14 22:20	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-012
Date Collected: 01/14/14 15:36
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-12
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.368**		0.126	0.132	0.700	0.0591	pCi/g	02/20/14 15:04	02/23/14 22:19	1
Cesium-137	-0.000265	U	0.0408	0.0408	0.0700	0.0336	pCi/g	02/20/14 15:04	02/23/14 22:19	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-013
Date Collected: 01/21/14 14:58
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-13
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.458**		0.148	0.156	0.700	0.0728	pCi/g	02/20/14 15:04	02/23/14 22:18	1
Cesium-137	0.00174	U	0.0415	0.0415	0.0700	0.0340	pCi/g	02/20/14 15:04	02/23/14 22:18	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-014
Date Collected: 01/21/14 14:43
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-14
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.265**		0.127	0.130	0.700	0.0682	pCi/g	02/20/14 15:04	02/23/14 22:17	1
Cesium-137	0.00750	U	0.0420	0.0420	0.0700	0.0336	pCi/g	02/20/14 15:04	02/23/14 22:17	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-015
Date Collected: 01/21/14 14:54
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-15
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.392**		0.122	0.129	0.700	0.0539	pCi/g	02/20/14 15:04	02/23/14 22:19	1
Cesium-137	0.00361	U	0.0338	0.0338	0.0700	0.0271	pCi/g	02/20/14 15:04	02/23/14 22:19	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-016
Date Collected: 01/21/14 14:47
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-16
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.470**		0.138	0.147	0.700	0.0555	pCi/g	02/20/14 15:04	02/23/14 22:19	1
Cesium-137	0.00972	U	0.0306	0.0306	0.0700	0.0229	pCi/g	02/20/14 15:04	02/23/14 22:19	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-017
Date Collected: 01/14/14 15:51
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-17
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.406**		0.108	0.116	0.700	0.0478	pCi/g	02/20/14 15:04	02/23/14 22:18	1
Cesium-137	0.00803	U	0.0413	0.0413	0.0700	0.0330	pCi/g	02/20/14 15:04	02/23/14 22:18	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-018
Date Collected: 01/21/14 14:51
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-18
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.342**		0.119	0.124	0.700	0.0688	pCi/g	02/20/14 15:04	02/23/14 23:16	1
Cesium-137	0.0240	U	0.0415	0.0416	0.0700	0.0303	pCi/g	02/20/14 15:04	02/23/14 23:16	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-018 DUP
Date Collected: 01/21/14 14:51
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-19
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.363**		0.158	0.162	0.700	0.0810	pCi/g	02/20/14 15:04	02/23/14 23:15	1
Cesium-137	-0.0505	U	0.321	0.321	0.0700	0.0604	pCi/g	02/20/14 15:04	02/23/14 23:15	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-023
Date Collected: 01/15/14 07:53
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-24
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.352**		0.121	0.126	0.700	0.0638	pCi/g	02/20/14 15:19	02/21/14 14:11	1
Cesium-137	0.0167	U	0.0342	0.0342	0.0700	0.0255	pCi/g	02/20/14 15:19	02/21/14 14:11	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-106620/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106993 — **Prep Batch: 106620**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.005449	U	0.0131	0.0131	0.700	0.0657	pCi/g	02/20/14 15:04	02/23/14 20:26	1
Cesium-137	0.005124	U	0.0287	0.0287	0.0700	0.0226	pCi/g	02/20/14 15:04	02/23/14 20:26	1

Lab Sample ID: LCS 160-106620/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106992 — **Prep Batch: 106620**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	97.63		10.3		0.597	pCi/g	100	87 - 116
Cesium-137	31.3	30.74		3.28	0.0700	0.142	pCi/g	98	94 - 118
Cobalt-60	23.2	23.13		2.38		0.0126	pCi/g	100	87 - 115

Lab Sample ID: 160-5591-1 DU — **Client Sample ID: FZ02-TU12-001**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106980 — **Prep Batch: 106620**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.452		0.4030		0.131	0.700	0.0639	pCi/g	0.19	1
Cesium-137	0.00826	U	0.001824	U	0.0324	0.0700	0.0263	pCi/g	0.09	1

Lab Sample ID: MB 160-106622/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107608 — **Prep Batch: 106622**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02746	U	0.192	0.192	0.700	0.0663	pCi/g	02/20/14 15:19	02/21/14 12:40	1
Cesium-137	0.01178	U	0.0269	0.0269	0.0700	0.0196	pCi/g	02/20/14 15:19	02/21/14 12:40	1

Lab Sample ID: LCS 160-106622/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107605 — **Prep Batch: 106622**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	98.42		10.4		0.607	pCi/g	101	87 - 116
Cesium-137	31.3	30.65		3.27	0.0700	0.131	pCi/g	98	94 - 118
Cobalt-60	23.2	22.57		2.32		0.0729	pCi/g	97	87 - 115

Lab Sample ID: 160-5591-A-21-C DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106984 — **Prep Batch: 106622**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.395		0.2240		0.136	0.700	0.0757	pCi/g	0.63	1

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-5591-A-21-C DU
Matrix: Solid
Analysis Batch: 106984

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 106622

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit			RER	RER Limit
Cesium-137	-0.000747	U		-0.02657	U	0.0746	0.0700	0.0573	pCi/g			0.23	1

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-1
SDG: 160-5591

Rad

Prep Batch: 106620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5591-1	FZ02-TU12-001	Total/NA	Solid	Fill_Geo-21	
160-5591-1 DU	FZ02-TU12-001	Total/NA	Solid	Fill_Geo-21	
160-5591-2	FZ02-TU12-002	Total/NA	Solid	Fill_Geo-21	
160-5591-3	FZ02-TU12-003	Total/NA	Solid	Fill_Geo-21	
160-5591-4	FZ02-TU12-004	Total/NA	Solid	Fill_Geo-21	
160-5591-5	FZ02-TU12-005	Total/NA	Solid	Fill_Geo-21	
160-5591-6	FZ02-TU12-006	Total/NA	Solid	Fill_Geo-21	
160-5591-7	FZ02-TU12-007	Total/NA	Solid	Fill_Geo-21	
160-5591-8	FZ02-TU12-008	Total/NA	Solid	Fill_Geo-21	
160-5591-9	FZ02-TU12-009	Total/NA	Solid	Fill_Geo-21	
160-5591-10	FZ02-TU12-010	Total/NA	Solid	Fill_Geo-21	
160-5591-11	FZ02-TU12-011	Total/NA	Solid	Fill_Geo-21	
160-5591-12	FZ02-TU12-012	Total/NA	Solid	Fill_Geo-21	
160-5591-13	FZ02-TU12-013	Total/NA	Solid	Fill_Geo-21	
160-5591-14	FZ02-TU12-014	Total/NA	Solid	Fill_Geo-21	
160-5591-15	FZ02-TU12-015	Total/NA	Solid	Fill_Geo-21	
160-5591-16	FZ02-TU12-016	Total/NA	Solid	Fill_Geo-21	
160-5591-17	FZ02-TU12-017	Total/NA	Solid	Fill_Geo-21	
160-5591-18	FZ02-TU12-018	Total/NA	Solid	Fill_Geo-21	
160-5591-19	FZ02-TU12-018 DUP	Total/NA	Solid	Fill_Geo-21	
LCS 160-106620/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-106620/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 106622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5591-24	FZ02-TU12-023	Total/NA	Solid	Fill_Geo-21	
160-5591-A-21-C DU	Duplicate	Total/NA	Solid	Fill_Geo-21	
LCS 160-106622/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-106622/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5591-2
TestAmerica Sample Delivery Group: 160-5591
Client Project/Site: Alameda OU2C Storm Drain

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
2/28/2014 2:03:38 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5591-2

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda OU2C Storm Drain

Report Number: 160-5591-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-5591-2 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 2/19/2014 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 20.6º C.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples FZ02-TU12-019 (160-5591-20), FZ02-TU12-020 (160-5591-21), FZ02-TU12-021 (160-5591-22) and FZ02-TU12-022 (160-5591-23) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA Method 901.1. The samples were prepared on 02/20/2014 and analyzed on 02/21/2014 and 02/23/2014.

Samples were received sealed in tuna cans. The sealed date was used as prep date and used to calculate ingrowth period.

Count Time: All samples and QC were counted for 30 mins.

No other difficulties were encountered during the Radium 226 by gamma analysis.

All other quality control parameters were within the acceptance limits.

TETRA TECH EC, INC

Chain-of Custody Record

252624

NUMBER: FZ02-0007

160-5591

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: Tobin Wells	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T Berkeley Lab

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
FZ02-TU12-001	1/22/2014	0857	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-002	1/22/2014	0902	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-003	1/21/2014	1431	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-004	1/14/2014	1522	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-005	1/14/2014	1540	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-006	1/21/2014	1507	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-007	1/21/2014	1435	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-008	1/14/2014	1529	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-009	1/14/2014	1546	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-010	1/21/2014	1502	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-011	1/21/2014	1439	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-012	1/14/2014	1536	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-013	1/21/2014	1458	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-014	1/21/2014	1443	1	3	S	3	X							Systematic	TU12			N

Relinquished by: (signature)	Date: 01-24-14	Received by (signature)	Laboratory Instructions/Comments: Screening (via 186 pk) full isotopes only
Company:	Time: 1051	Company: RSRS	
Relinquished by: (signature)	Date: 1-24-14	Received by (signature)	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis
Company:	Time: 11:40	Company: CTT	
Relinquished by: (signature)	Date: 2/18/14	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company: CTT	Time: 1448	Company: TASTL 0915	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: Trench samples

FZ02-0007

TETRA TECH EC, INC

Chain-of Custody Record

252624

NUMBER: FZ02-0007

160-5591

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927	ANALYSES REQUIRED	Laboratory Name: C & T Berkeley Lab
Project Location: Alameda	Project Number: 4659FZ02		
Sampler Name: Tobin Wells	Airbill Number:		Laboratory ID:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022		

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
FZ02-TU12-015	1/21/2014	1454	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-016	1/21/2014	1447	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-017	1/14/2014	1551	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-018	1/21/2014	1451	1	3	S	3	X							Systematic	TU12			N
FZ02-TU12-019	1/14/2014	1037	1	3	S	3	X							Bias Hot Spot E15"	TU12			N
FZ02-TU12-020	1/14/2014	1041	1	3	S	3	X							Bias Hot Spot E30"	TU12			N
FZ02-TU12-021	1/14/2014	1016	1	3	S	3	X							Bias Hot Spot W15"	TU12			N
FZ02-TU12-022	1/14/2014	1023	1	3	S	3	X							Bias Hot Spot W30"	TU12			N
FZ02-TU12-023	1/15/2014	0753	1	3	S	3	X							Characterization hot spot	TU12			N
														pipe sediment				

Relinquished by: (signature)	Date: 01-24-14	Received by (signature)	Laboratory Instructions/Comments: Screening (via 186 pk) full isotopes only
Company:	Time: 1051	Company: RERS	
Relinquished by: (signature)	Date: 1-24-14	Received by (signature)	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis
Company:	Time: 11:40	Company: C+T	
Relinquished by: (signature)	Date: 2/19/14	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company: C+T	Time: 1445	Company: TA SR 0915	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: Trench samples

FZ02-0007

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5591-2
SDG Number: 160-5591

Login Number: 5591
List Number: 1
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-2
SDG: 160-5591

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-2
SDG: 160-5591

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-2
SDG: 160-5591

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5591-20	FZ02-TU12-019	Solid	01/14/14 10:37	02/19/14 09:15
160-5591-21	FZ02-TU12-020	Solid	01/14/14 10:47	02/19/14 09:15
160-5591-22	FZ02-TU12-021	Solid	01/14/14 10:16	02/19/14 09:15
160-5591-23	FZ02-TU12-022	Solid	01/14/14 10:23	02/19/14 09:15

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-2
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-019
Date Collected: 01/14/14 10:37
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-20
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.469**		0.120	0.130	0.700	0.0442	pCi/g	02/20/14 15:04	02/23/14 23:16	1
Cesium-137	-0.0143	U	0.0428	0.0428	0.0700	0.0335	pCi/g	02/20/14 15:04	02/23/14 23:16	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-2
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-020
Date Collected: 01/14/14 10:47
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-21
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.395**		0.129	0.135	0.700	0.0621	pCi/g	02/20/14 15:19	02/21/14 12:42	1
Cesium-137	-0.000747	U	0.0395	0.0395	0.0700	0.0325	pCi/g	02/20/14 15:19	02/21/14 12:42	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-2
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-021
Date Collected: 01/14/14 10:16
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-22
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.564**		0.189	0.198	0.700	0.0514	pCi/g	02/20/14 15:19	02/21/14 12:44	1
Cesium-137	0.000	U	0.0140	0.0140	0.0700	0.0419	pCi/g	02/20/14 15:19	02/21/14 12:44	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-2
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-TU12-022
Date Collected: 01/14/14 10:23
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5591-23
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.307**		0.145	0.149	0.700	0.0870	pCi/g	02/20/14 15:19	02/21/14 12:45	1
Cesium-137	-0.0105	U	0.119	0.119	0.0700	0.0486	pCi/g	02/20/14 15:19	02/21/14 12:45	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-2
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-106620/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106993 — **Prep Batch: 106620**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.005449	U	0.0131	0.0131	0.700	0.0657	pCi/g	02/20/14 15:04	02/23/14 20:26	1
Cesium-137	0.005124	U	0.0287	0.0287	0.0700	0.0226	pCi/g	02/20/14 15:04	02/23/14 20:26	1

Lab Sample ID: LCS 160-106620/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106992 — **Prep Batch: 106620**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	97.63		10.3		0.597	pCi/g	100	87 - 116
Cesium-137	31.3	30.74		3.28	0.0700	0.142	pCi/g	98	94 - 118
Cobalt-60	23.2	23.13		2.38		0.0126	pCi/g	100	87 - 115

Lab Sample ID: 160-5591-A-1-C DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106980 — **Prep Batch: 106620**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.452		0.4030		0.131	0.700	0.0639	pCi/g	0.19	1
Cesium-137	0.00826	U	0.001824	U	0.0324	0.0700	0.0263	pCi/g	0.09	1

Lab Sample ID: MB 160-106622/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107608 — **Prep Batch: 106622**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02746	U	0.192	0.192	0.700	0.0663	pCi/g	02/20/14 15:19	02/21/14 12:40	1
Cesium-137	0.01178	U	0.0269	0.0269	0.0700	0.0196	pCi/g	02/20/14 15:19	02/21/14 12:40	1

Lab Sample ID: LCS 160-106622/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107605 — **Prep Batch: 106622**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	98.42		10.4		0.607	pCi/g	101	87 - 116
Cesium-137	31.3	30.65		3.27	0.0700	0.131	pCi/g	98	94 - 118
Cobalt-60	23.2	22.57		2.32		0.0729	pCi/g	97	87 - 115

Lab Sample ID: 160-5591-21 DU — **Client Sample ID: FZ02-TU12-020**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106984 — **Prep Batch: 106622**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.395		0.2240		0.136	0.700	0.0757	pCi/g	0.63	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-2
SDG: 160-5591

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-5591-21 DU
Matrix: Solid
Analysis Batch: 106984

Client Sample ID: FZ02-TU12-020
Prep Type: Total/NA
Prep Batch: 106622

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit			RER	RER Limit
Cesium-137	-0.000747	U		-0.02657	U	0.0746	0.0700	0.0573	pCi/g			0.23	1

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5591-2
SDG: 160-5591

Rad

Prep Batch: 106620

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5591-20	FZ02-TU12-019	Total/NA	Solid	Fill_Geo-21	
160-5591-A-1-C DU	Duplicate	Total/NA	Solid	Fill_Geo-21	
LCS 160-106620/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-106620/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 106622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5591-21	FZ02-TU12-020	Total/NA	Solid	Fill_Geo-21	
160-5591-21 DU	FZ02-TU12-020	Total/NA	Solid	Fill_Geo-21	
160-5591-22	FZ02-TU12-021	Total/NA	Solid	Fill_Geo-21	
160-5591-23	FZ02-TU12-022	Total/NA	Solid	Fill_Geo-21	
LCS 160-106622/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-106622/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Subappendix C2

Focused Storm Drain Line Investigations: Waste Characterization Data for Excavated Soil and Water

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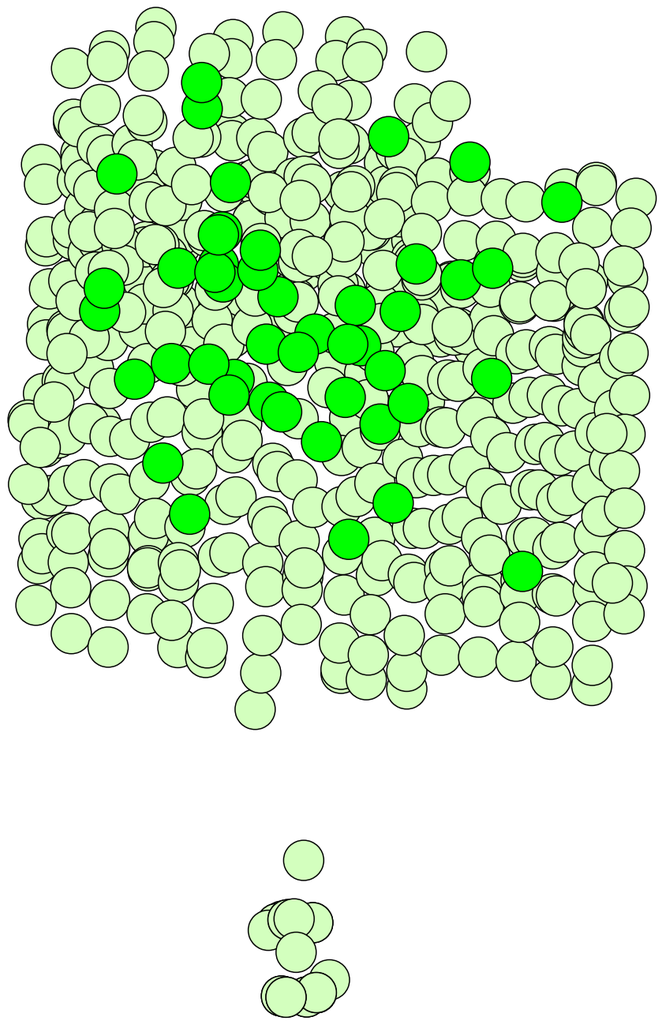
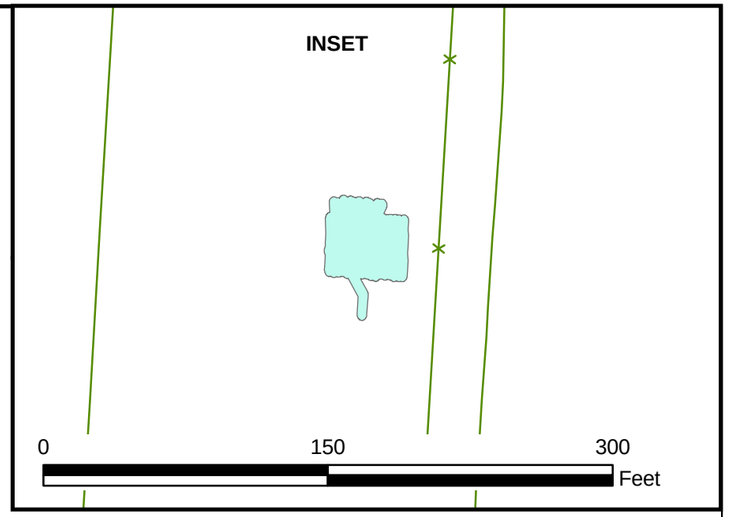
Vehicle Towed Array Data





LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6
- SCREENING PAD

0 2 4 8 12 16 Feet

Scale: 1 " = 10 '

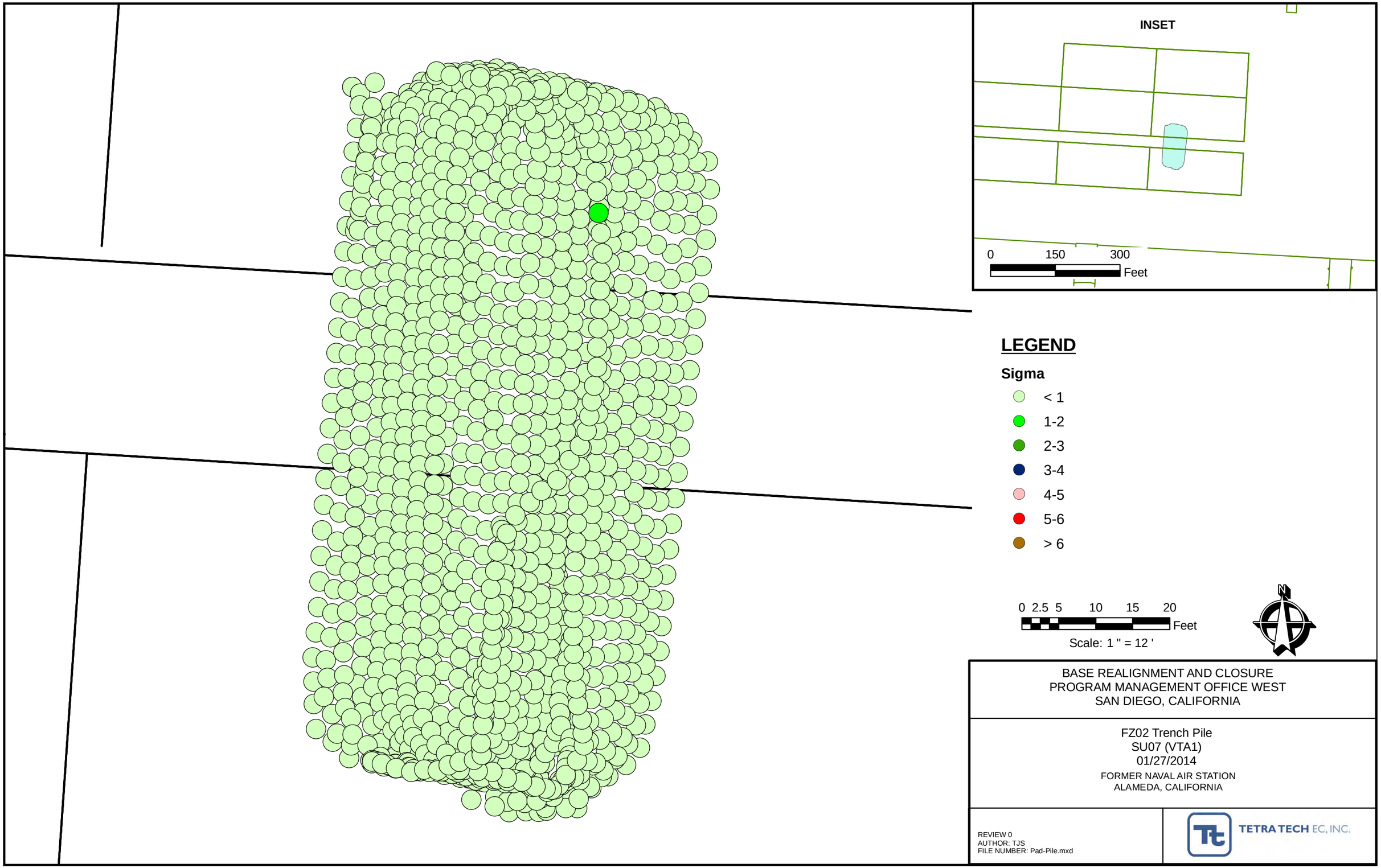
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FZ02 Trench Pile
Background Pad (VTA1)
01/27/2014

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.


INSET
0
150
300
Feet
LEGEND
Sigma
< 1
1-2
2-3
3-4
4-5
5-6
> 6
0 2.5 5 10 15 20
Feet
Scale: 1 " = 12 '
N
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA
FZ02 Trench Pile
SU07 (VTA1)
01/27/2014
FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA
REVIEW 0
AUTHOR: TJS
FILE NUMBER: Pad-Pile.mxd
TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO 05, FZ02

Vehicle Towed Array Decimated Data

Survey Unit: FZ02-SU-007 **VTA #:** 1
Date: 1/27/2014 **Serial #:** 018

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Survey Unit FZ02-SU-007 Data

Gamma Total CPS	
1372	Total Counts
418.43	Average
16.26	Std Dev
472.00	Max
515.84	3 sigma

Sigma	Total Points
< 3 sigma	1372
≥ 3 sigma	0

Investigation Level Exceeded

01/27/2014 Background Data

Gamma Total CPS	
516	Total Counts
439.76	Average
25.36	Std Dev
478.00	Max
515.84	3 sigma

Sigma	Total Points
<1	474
1	46
2	0
3	0
4	0
5	0
>6	0

Count #	Reading	Easting	Northing
1	423	561312.14	4181753.738
2	419	561312.14	4181753.736
3	403	561312.45	4181753.463
4	451	561312.45	4181752.984
5	422	561312.33	4181752.049
6	418	561312.19	4181751.071
7	437	561312.10	4181750.047
8	443	561312.00	4181749.022
9	437	561311.91	4181747.993
10	434	561311.82	4181746.948
11	442	561311.72	4181745.9
12	420	561311.64	4181744.846
13	405	561311.56	4181743.8
14	404	561311.49	4181742.756
15	411	561311.40	4181741.725
16	403	561311.30	4181740.687
17	406	561311.21	4181739.641
18	404	561311.12	4181738.592
19	410	561311.04	4181737.541
20	407	561310.97	4181736.486
21	391	561310.89	4181735.433
22	418	561310.83	4181734.381
23	409	561310.78	4181733.324
24	426	561310.73	4181732.266
25	415	561310.63	4181731.214
26	431	561310.51	4181730.19
27	419	561310.54	4181729.189
28	392	561310.55	4181728.263
29	421	561310.64	4181727.229
30	391	561311.33	4181726.704
31	398	561312.00	4181726.026
32	393	561312.94	4181725.815
33	395	561313.93	4181725.599
34	389	561314.94	4181725.481
35	429	561315.94	4181725.342
36	416	561316.96	4181725.192
37	399	561317.99	4181725.09
38	411	561319.07	4181724.982
39	409	561320.13	4181724.711
40	390	561321.05	4181724.829
41	383	561322.00	4181724.78
42	405	561322.71	4181725.275

Count #	Reading	Easting	Northing	Sigma
1	474	560852.1776	4181361.64	1
2	464	560852.34	4181360.632	< 1
3	463	560852.4561	4181360.172	< 1
4	452	560852.648	4181358.434	< 1
5	476	560852.4983	4181359.328	1
6	458	560852.2992	4181360.274	< 1
7	477	560852.2717	4181361.291	1
8	476	560852.2503	4181362.302	1
9	469	560852.4289	4181363.298	1
10	430	560852.4373	4181364.28	< 1
11	430	560852.4771	4181366.174	< 1
12	434	560852.4585	4181365.783	< 1
13	447	560852.4008	4181365.006	< 1
14	457	560852.4549	4181364.135	< 1
15	454	560852.7599	4181363.314	< 1
16	465	560853.1351	4181362.536	< 1
17	442	560853.2555	4181361.715	< 1
18	439	560853.4636	4181360.432	< 1
19	475	560853.3833	4181360.998	1
20	435	560853.188	4181361.762	< 1
21	450	560852.8681	4181362.538	< 1
22	419	560852.921	4181363.371	< 1
23	444	560852.9542	4181364.203	< 1
24	422	560853.4863	4181366.332	< 1
25	444	560853.3458	4181365.772	< 1
26	442	560853.0482	4181364.981	< 1
27	454	560853.1795	4181363.922	< 1
28	456	560853.2632	4181363.036	< 1
29	459	560853.744	4181362.307	< 1
30	456	560853.8923	4181361.511	< 1
31	438	560854.5366	4181359.671	< 1
32	435	560854.5158	4181359.703	< 1
33	476	560854.1194	4181360.244	1
34	443	560853.7367	4181360.975	< 1
35	462	560853.6878	4181361.777	< 1
36	439	560853.5216	4181362.598	< 1
37	442	560853.7177	4181363.395	< 1
38	444	560853.9004	4181364.206	< 1
39	437	560854.7466	4181366.243	< 1
40	459	560854.5462	4181365.761	< 1
41	462	560854.1936	4181365.152	< 1
42	442	560854.0681	4181364.309	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
43	384	561323.44	4181725.742	43	458	560853.9135	4181363.437	< 1
44	411	561324.01	4181726.46	44	440	560854.0325	4181362.542	< 1
45	427	561324.23	4181727.413	45	428	560854.4028	4181361.734	< 1
46	412	561324.49	4181728.392	46	455	560854.8513	4181360.928	< 1
47	414	561324.65	4181729.42	47	478	560855.0473	4181360.015	1
48	396	561324.82	4181730.445	48	472	560855.4306	4181358.433	1
49	417	561324.90	4181731.483	49	429	560855.3821	4181358.694	< 1
50	389	561325.00	4181732.54	50	453	560855.1292	4181359.48	< 1
51	406	561325.09	4181733.598	51	442	560854.7714	4181360.267	< 1
52	380	561325.21	4181734.653	52	418	560854.7391	4181361.13	< 1
53	383	561325.33	4181735.707	53	444	560854.7063	4181362.125	< 1
54	401	561325.46	4181736.759	54	443	560854.7061	4181363.14	< 1
55	407	561325.56	4181737.813	55	455	560854.8244	4181364.095	< 1
56	407	561325.66	4181738.873	56	426	560855.1704	4181366.002	< 1
57	407	561325.80	4181739.932	57	430	560855.0926	4181365.739	< 1
58	403	561325.95	4181740.985	58	433	560854.8528	4181364.966	< 1
59	423	561326.07	4181742.042	59	456	560854.6125	4181364.002	< 1
60	421	561326.19	4181743.108	60	441	560854.9508	4181363.083	< 1
61	403	561326.32	4181744.174	61	439	560855.2981	4181362.158	< 1
62	437	561326.44	4181745.243	62	434	560855.6214	4181361.217	< 1
63	427	561326.56	4181746.343	63	468	560855.8436	4181360.707	1
64	436	561326.73	4181747.43	64	453	560856.3253	4181358.917	< 1
65	424	561326.77	4181748.449	65	450	560856.0702	4181359.654	< 1
66	410	561326.90	4181749.513	66	420	560855.7744	4181360.416	< 1
67	430	561326.81	4181750.662	67	459	560855.5631	4181361.239	< 1
68	411	561326.17	4181751.501	68	456	560855.3151	4181362.035	< 1
69	424	561325.63	4181752.254	69	466	560855.6009	4181364.216	1
70	417	561324.82	4181752.703	70	450	560855.5251	4181363.724	< 1
71	420	561323.88	4181752.928	71	450	560855.2597	4181362.369	< 1
72	432	561322.92	4181753.165	72	445	560855.5528	4181363.251	< 1
73	429	561321.93	4181753.375	73	440	560855.8025	4181363.994	< 1
74	432	561321.06	4181753.569	74	440	560856.3717	4181365.961	< 1
75	443	561320.19	4181753.653	75	450	560856.1251	4181364.914	< 1
76	415	561319.16	4181753.753	76	465	560855.7562	4181363.974	< 1
77	413	561318.12	4181753.924	77	440	560855.9029	4181363.121	< 1
78	426	561317.14	4181753.945	78	457	560856.07	4181362.168	< 1
79	425	561316.11	4181754.055	79	443	560856.8785	4181361.348	< 1
80	449	561315.04	4181753.953	80	435	560856.8639	4181361.314	< 1
81	422	561314.44	4181753.482	81	457	560856.6513	4181360.227	< 1
82	414	561313.70	4181753.116	82	453	560856.3657	4181361.066	< 1
83	426	561313.35	4181752.414	83	444	560856.0612	4181361.809	< 1
84	410	561312.95	4181751.612	84	445	560855.8272	4181362.644	< 1
85	436	561312.71	4181750.742	85	448	560856.137	4181363.483	< 1
86	426	561312.60	4181749.963	86	465	560856.2485	4181364.172	< 1
87	428	561312.26	4181747.784	87	455	560856.4939	4181364.541	< 1
88	433	561312.32	4181748.078	88	439	560856.8413	4181364.972	< 1
89	416	561312.45	4181748.592	89	456	560855.9429	4181363.835	< 1
90	425	561312.54	4181749.346	90	450	560856.1057	4181362.759	< 1
91	440	561312.66	4181750.354	91	466	560856.1694	4181361.661	1
92	447	561312.77	4181751.284	92	444	560856.7128	4181360.747	< 1
93	398	561312.88	4181752.085	93	456	560857.0081	4181360.406	< 1
94	445	561312.99	4181752.349	94	436	560857.613	4181358.737	< 1
95	416	561313.07	4181753.913	95	444	560857.4711	4181359.218	< 1
96	406	561312.97	4181752.898	96	441	560857.3254	4181360.007	< 1
97	426	561312.92	4181752.064	97	456	560856.7183	4181360.885	< 1
98	404	561312.82	4181751.422	98	461	560856.1141	4181361.743	< 1
99	439	561312.68	4181750.655	99	447	560855.1945	4181362.382	< 1
100	433	561312.59	4181749.751	100	442	560854.9236	4181363.279	< 1
101	417	561312.50	4181748.793	101	444	560854.467	4181364.925	< 1
102	444	561312.41	4181747.825	102	446	560854.6135	4181364.221	< 1
103	425	561312.34	4181746.868	103	447	560854.8262	4181362.656	< 1
104	448	561312.26	4181745.785	104	467	560854.9345	4181360.824	1
105	432	561312.12	4181744.619	105	435	560854.8204	4181358.611	< 1
106	417	561312.06	4181743.646	106	348	560854.1503	4181347.045	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
107	416	561312.00	4181742.681	107	348	560854.1478	4181347.049	< 1
108	412	561311.94	4181741.726	108	347	560853.474	4181348.487	< 1
109	414	561311.90	4181740.896	109	358	560853.9602	4181346.959	< 1
110	427	561311.84	4181740.093	110	337	560853.9588	4181346.964	< 1
111	397	561311.78	4181739.173	111	345	560853.3602	4181348.44	< 1
112	428	561311.72	4181738.227	112	341	560853.3606	4181348.44	< 1
113	415	561311.66	4181737.271	113	334	560853.1845	4181348.31	< 1
114	410	561311.61	4181736.172	114	337	560854.0795	4181348.459	< 1
115	431	561311.52	4181734.974	115	338	560854.0793	4181348.458	< 1
116	402	561311.45	4181733.987	116	354	560853.5792	4181348.516	< 1
117	422	561311.39	4181732.996	117	343	560853.5797	4181348.514	< 1
118	423	561311.31	4181732	118	354	560854.421	4181347.308	< 1
119	396	561311.24	4181731.012	119	345	560853.4512	4181346.985	< 1
120	427	561311.04	4181730.069	120	336	560853.4517	4181346.986	< 1
121	417	561311.12	4181729.347	121	343	560854.1573	4181347.052	< 1
122	429	561310.96	4181728.552	122	354	560854.1548	4181347.056	< 1
123	396	561311.30	4181727.846	123	355	560853.7071	4181348.536	< 1
124	403	561311.51	4181727.042	124	351	560853.5387	4181346.96	< 1
125	396	561312.09	4181726.547	125	338	560853.5392	4181346.961	< 1
126	392	561312.88	4181725.931	126	345	560853.7484	4181347.864	< 1
127	385	561313.83	4181725.661	127	340	560853.8966	4181349.713	< 1
128	390	561314.73	4181725.563	128	435	560852.9183	4181352.759	< 1
129	395	561315.61	4181725.469	129	427	560851.2205	4181355.837	< 1
130	366	561316.47	4181725.34	130	444	560849.8218	4181358.492	< 1
131	398	561317.24	4181725.297	131	446	560848.7499	4181360.513	< 1
132	413	561318.04	4181725.286	132	444	560848.7021	4181362.085	< 1
133	400	561318.96	4181725.187	133	441	560848.6231	4181363.72	< 1
134	403	561319.84	4181725.01	134	457	560848.6849	4181363.323	< 1
135	420	561320.69	4181725.106	135	461	560848.721	4181362.27	< 1
136	434	561321.50	4181725.152	136	425	560848.7832	4181361.226	< 1
137	424	561322.43	4181725.25	137	453	560848.7219	4181360.192	< 1
138	408	561322.99	4181725.98	138	428	560848.6636	4181359.122	< 1
139	426	561323.53	4181726.614	139	430	560848.6878	4181358.045	< 1
140	416	561323.85	4181727.383	140	429	560848.6256	4181356.984	< 1
141	420	561324.00	4181728.287	141	414	560848.5711	4181356.199	< 1
142	421	561324.16	4181729.117	142	420	560848.5493	4181355.69	< 1
143	450	561324.24	4181729.887	143	421	560848.5175	4181354.858	< 1
144	415	561324.32	4181730.735	144	437	560848.6317	4181355.9	< 1
145	418	561324.42	4181731.662	145	447	560848.7875	4181357.067	< 1
146	428	561324.52	4181732.579	146	446	560848.9533	4181358.22	< 1
147	410	561324.55	4181733.502	147	446	560849.0458	4181359.369	< 1
148	405	561324.63	4181734.435	148	441	560849.1295	4181360.412	< 1
149	396	561324.71	4181735.486	149	440	560849.2076	4181361.401	< 1
150	402	561324.81	4181736.62	150	430	560849.264	4181362.219	< 1
151	417	561324.90	4181737.566	151	444	560849.4124	4181363.951	< 1
152	393	561324.99	4181738.508	152	445	560849.3452	4181363.41	< 1
153	413	561325.12	4181739.438	153	443	560849.2316	4181362.449	< 1
154	432	561325.24	4181740.226	154	427	560849.1747	4181361.399	< 1
155	427	561325.32	4181740.99	155	416	560849.1444	4181360.358	< 1
156	416	561325.42	4181741.9	156	427	560849.0957	4181359.327	< 1
157	417	561325.52	4181742.839	157	432	560849.1323	4181358.304	< 1
158	414	561325.63	4181743.77	158	417	560849.167	4181357.282	< 1
159	451	561325.76	4181744.866	159	420	560849.1286	4181356.33	< 1
160	434	561325.91	4181746.084	160	419	560849.1604	4181355.733	< 1
161	424	561326.01	4181747.088	161	427	560849.22	4181354.3	< 1
162	429	561326.10	4181748.047	162	435	560849.2169	4181355.228	< 1
163	434	561326.20	4181748.959	163	452	560849.2357	4181356.308	< 1
164	440	561326.33	4181749.781	164	426	560849.4804	4181357.401	< 1
165	429	561326.37	4181750.638	165	442	560849.581	4181358.53	< 1
166	439	561326.01	4181751.165	166	430	560849.6744	4181359.637	< 1
167	433	561325.81	4181751.872	167	470	560849.7924	4181360.717	1
168	426	561325.20	4181752.303	168	450	560849.8902	4181361.606	< 1
169	430	561324.64	4181752.9	169	456	560850.161	4181363.774	< 1
170	418	561323.87	4181753.062	170	431	560850.0286	4181363.029	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
171	416	561322.83	4181753.274	171	439	560849.7958	4181362.167	< 1
172	421	561321.94	4181753.437	172	471	560849.8848	4181361.17	1
173	427	561321.27	4181753.524	173	442	560849.9706	4181360.206	< 1
174	443	561320.52	4181753.747	174	425	560849.9995	4181359.243	< 1
175	420	561319.70	4181753.716	175	464	560850.0014	4181358.269	< 1
176	413	561319.11	4181753.469	176	426	560850.0113	4181357.32	< 1
177	411	561318.43	4181753.452	177	427	560849.9912	4181356.394	< 1
178	449	561318.10	4181753.061	178	430	560849.9629	4181355.857	< 1
179	416	561317.56	4181752.692	179	440	560849.9617	4181354.033	< 1
180	430	561317.35	4181752.049	180	447	560849.9953	4181354.985	< 1
181	438	561317.08	4181751.279	181	444	560849.9947	4181356.023	< 1
182	444	561316.92	4181750.407	182	455	560850.2055	4181357.119	< 1
183	432	561316.82	4181749.307	183	462	560850.4035	4181358.226	< 1
184	434	561316.74	4181748.368	184	467	560850.4983	4181359.345	1
185	433	561316.65	4181747.46	185	443	560850.5899	4181360.447	< 1
186	410	561316.59	4181746.54	186	454	560850.6742	4181361.397	< 1
187	423	561316.54	4181745.614	187	448	560850.7299	4181362.196	< 1
188	429	561316.46	4181744.687	188	430	560850.8712	4181363.648	< 1
189	435	561316.40	4181743.891	189	459	560850.7183	4181363.201	< 1
190	442	561316.35	4181743.121	190	433	560850.7131	4181362.094	< 1
191	450	561316.28	4181742.213	191	446	560850.6955	4181360.942	< 1
192	442	561316.21	4181741.277	192	447	560850.7622	4181359.748	< 1
193	432	561316.13	4181740.337	193	436	560850.8151	4181358.57	< 1
194	440	561316.05	4181739.293	194	434	560850.7974	4181357.405	< 1
195	441	561315.91	4181738.19	195	436	560850.7779	4181356.288	< 1
196	425	561315.88	4181737.281	196	427	560850.7766	4181355.679	< 1
197	418	561315.85	4181736.363	197	421	560850.7737	4181355.58	< 1
198	420	561315.82	4181735.435	198	445	560850.7462	4181354.717	< 1
199	414	561315.78	4181734.5	199	432	560850.758	4181355.642	< 1
200	420	561315.74	4181733.586	200	429	560850.9028	4181356.643	< 1
201	421	561315.68	4181732.779	201	474	560851.0659	4181357.651	1
202	420	561315.64	4181731.936	202	423	560851.1517	4181358.677	< 1
203	421	561315.54	4181730.923	203	466	560851.2334	4181359.655	1
204	418	561315.44	4181729.964	204	459	560851.3013	4181360.622	< 1
205	393	561315.38	4181729.053	205	466	560851.3649	4181361.577	1
206	393	561315.33	4181728.081	206	453	560851.4259	4181362.149	< 1
207	396	561315.29	4181727.213	207	451	560851.4324	4181362.34	< 1
208	412	561315.64	4181726.684	208	448	560851.45	4181363.041	< 1
209	380	561315.96	4181725.948	209	463	560851.1579	4181361.934	< 1
210	401	561316.59	4181725.218	210	450	560851.3907	4181360.979	< 1
211	392	561317.41	4181725.068	211	447	560851.6584	4181360.094	< 1
212	412	561318.17	4181724.929	212	438	560851.7462	4181359.241	< 1
213	386	561318.86	4181724.801	213	445	560851.8575	4181358.376	< 1
214	400	561319.59	4181724.549	214	448	560851.622	4181357.504	< 1
215	417	561320.36	4181724.632	215	428	560851.5121	4181356.47	< 1
216	391	561321.13	4181724.641	216	427	560851.3809	4181355.757	< 1
217	405	561321.94	4181724.845	217	429	560851.3754	4181355.356	< 1
218	402	561322.51	4181725.513	218	425	560851.3695	4181354.051	< 1
219	426	561323.09	4181726.1	219	416	560851.2469	4181354.593	< 1
220	422	561323.29	4181726.886	220	442	560851.4223	4181355.61	< 1
221	416	561323.42	4181727.773	221	468	560851.6067	4181356.623	1
222	413	561323.56	4181728.666	222	429	560851.7477	4181357.641	< 1
223	414	561323.67	4181729.573	223	450	560851.8848	4181358.646	< 1
224	429	561323.76	4181730.362	224	474	560851.9874	4181359.648	1
225	420	561323.85	4181731.128	225	435	560852.0584	4181360.631	< 1
226	419	561323.96	4181732.017	226	477	560852.1079	4181361.499	1
227	393	561324.00	4181732.935	227	474	560852.185	4181362.247	1
228	416	561324.07	4181733.845	228	460	560852.2891	4181363.225	< 1
229	402	561324.13	4181734.753	229	442	560851.9577	4181362.316	< 1
230	418	561324.21	4181735.659	230	459	560852.1153	4181361.245	< 1
231	399	561324.30	4181736.73	231	447	560852.2894	4181360.152	< 1
232	427	561324.40	4181737.741	232	470	560852.3923	4181359.024	1
233	435	561324.49	4181738.66	233	448	560852.4725	4181357.972	< 1
234	412	561324.58	4181739.582	234	424	560852.3105	4181356.937	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
235	430	561324.71	4181740.474	235	438	560852.1821	4181355.875	< 1
236	400	561324.79	4181741.237	236	429	560851.9288	4181353.853	< 1
237	428	561324.88	4181742.027	237	433	560851.9549	4181354.048	< 1
238	421	561324.98	4181742.947	238	446	560852.0824	4181354.943	< 1
239	440	561325.07	4181743.875	239	431	560852.4136	4181355.96	< 1
240	412	561325.16	4181744.811	240	465	560852.5336	4181357.088	< 1
241	419	561325.27	4181745.808	241	450	560852.6585	4181358.224	< 1
242	440	561325.34	4181746.858	242	455	560852.7604	4181359.37	< 1
243	431	561325.47	4181748.097	243	458	560852.866	4181360.516	< 1
244	416	561325.56	4181749.015	244	475	560852.9735	4181361.538	1
245	414	561325.85	4181749.879	245	472	560853.0228	4181361.94	1
246	409	561325.64	4181750.607	246	445	560853.1836	4181363.214	< 1
247	410	561325.64	4181751.364	247	444	560853.0405	4181362.187	< 1
248	446	561325.24	4181751.827	248	462	560852.9211	4181361.125	< 1
249	430	561324.90	4181752.478	249	468	560853.151	4181360.05	1
250	419	561324.23	4181752.814	250	475	560853.1989	4181358.885	1
251	424	561323.54	4181753.2	251	440	560853.2814	4181357.763	< 1
252	420	561322.73	4181753.368	252	427	560853.1755	4181356.69	< 1
253	415	561321.72	4181753.526	253	419	560853.0793	4181355.768	< 1
254	409	561321.00	4181753.71	254	433	560853.031	4181353.547	< 1
255	428	561320.29	4181753.803	255	410	560853.079	4181354.303	< 1
256	445	561319.72	4181753.548	256	449	560853.1347	4181355.288	< 1
257	402	561319.06	4181753.444	257	441	560853.2556	4181356.498	< 1
258	437	561318.63	4181753.018	258	454	560853.3657	4181357.608	< 1
259	447	561318.11	4181752.717	259	474	560853.4526	4181358.694	1
260	451	561317.92	4181752.211	260	444	560853.5713	4181359.742	< 1
261	452	561317.64	4181751.498	261	454	560853.6917	4181360.784	< 1
262	440	561317.52	4181750.69	262	445	560853.8003	4181361.821	< 1
263	416	561317.43	4181749.843	263	442	560854.0501	4181363.386	< 1
264	432	561317.32	4181748.867	264	441	560853.8224	4181363.064	< 1
265	412	561317.22	4181747.795	265	451	560853.8058	4181362.075	< 1
266	433	561317.16	4181746.9	266	457	560853.784	4181361.018	< 1
267	418	561317.09	4181746.073	267	467	560853.7845	4181359.892	1
268	410	561317.04	4181745.31	268	455	560853.7852	4181358.672	< 1
269	418	561316.99	4181744.469	269	428	560853.7672	4181357.437	< 1
270	444	561316.94	4181743.549	270	436	560853.8077	4181356.224	< 1
271	429	561316.90	4181742.629	271	396	560853.8831	4181355.492	< 1
272	447	561316.81	4181741.71	272	445	560853.8725	4181355.24	< 1
273	450	561316.76	4181740.791	273	429	560853.8479	4181354.535	< 1
274	430	561316.70	4181739.754	274	464	560853.9056	4181355.675	< 1
275	417	561316.65	4181738.637	275	449	560854.0773	4181356.89	< 1
276	413	561316.60	4181737.706	276	468	560854.2527	4181358.096	1
277	430	561316.55	4181736.798	277	447	560854.3905	4181359.297	< 1
278	432	561316.49	4181735.915	278	444	560854.5155	4181360.397	< 1
279	405	561316.42	4181735.002	279	445	560854.5916	4181361.387	< 1
280	408	561316.36	4181734.106	280	432	560854.6648	4181361.904	< 1
281	433	561316.28	4181733.325	281	419	560854.853	4181363.244	< 1
282	423	561316.21	4181732.513	282	441	560854.7153	4181362.236	< 1
283	429	561316.11	4181731.551	283	458	560854.5958	4181361.148	< 1
284	432	561316.03	4181730.587	284	472	560854.7833	4181360.048	1
285	423	561315.91	4181729.625	285	474	560854.7321	4181358.981	1
286	405	561315.80	4181728.673	286	428	560854.6652	4181357.936	< 1
287	397	561315.78	4181727.79	287	427	560854.6756	4181356.912	< 1
288	389	561316.09	4181727.098	288	446	560854.6855	4181355.945	< 1
289	391	561316.31	4181726.402	289	409	560854.6486	4181353.562	< 1
290	402	561316.68	4181725.661	290	415	560854.6488	4181353.638	< 1
291	399	561317.39	4181725.427	291	444	560854.6223	4181354.165	< 1
292	410	561318.04	4181725.143	292	441	560854.7131	4181355.137	< 1
293	408	561318.67	4181725.031	293	475	560854.8077	4181356.131	1
294	415	561319.33	4181724.771	294	465	560854.9601	4181357.12	< 1
295	423	561320.03	4181724.873	295	440	560855.0805	4181358.097	< 1
296	420	561320.75	4181724.899	296	444	560855.2023	4181359.065	< 1
297	414	561321.53	4181725.098	297	447	560855.3127	4181360.025	< 1
298	421	561322.05	4181725.736	298	450	560855.4239	4181360.995	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
299	409	561322.61	4181726.327	299	463	560855.8052	4181363.348	< 1
300	439	561322.85	4181727.104	300	442	560855.7713	4181363.238	< 1
301	453	561322.99	4181727.992	301	451	560855.5276	4181362.703	< 1
302	425	561323.13	4181728.805	302	445	560855.4963	4181361.671	< 1
303	423	561323.22	4181729.549	303	443	560855.4675	4181360.602	< 1
304	428	561323.34	4181730.382	304	474	560855.5346	4181359.524	1
305	410	561323.40	4181731.31	305	433	560855.4439	4181358.457	< 1
306	425	561323.47	4181732.221	306	442	560855.3298	4181357.386	< 1
307	437	561323.51	4181733.128	307	396	560855.3345	4181356.306	< 1
308	428	561323.56	4181734.021	308	422	560855.3605	4181355.533	< 1
309	397	561323.61	4181735.032	309	419	560855.1536	4181353.436	< 1
310	429	561323.70	4181736.115	310	423	560855.1966	4181353.933	< 1
311	398	561323.77	4181736.996	311	440	560855.2355	4181354.743	< 1
312	406	561323.85	4181737.896	312	429	560855.4737	4181355.834	< 1
313	413	561323.94	4181738.815	313	473	560855.6946	4181356.863	1
314	425	561324.03	4181739.713	314	458	560855.8884	4181357.877	< 1
315	425	561324.14	4181740.583	315	471	560856	4181358.86	1
316	403	561324.21	4181741.343	316	458	560856.1131	4181359.824	< 1
317	434	561324.29	4181742.131	317	447	560856.2098	4181360.772	< 1
318	430	561324.37	4181743.062	318	457	560856.2807	4181361.484	< 1
319	421	561324.45	4181743.997	319	461	560856.5663	4181363.538	< 1
320	414	561324.54	4181744.936	320	454	560856.4723	4181363.06	< 1
321	408	561324.64	4181746.113	321	445	560856.2652	4181362.416	< 1
322	445	561324.71	4181747.226	322	438	560856.2777	4181361.577	< 1
323	430	561324.85	4181748.217	323	462	560856.2903	4181360.589	< 1
324	429	561324.98	4181749.037	324	444	560856.2781	4181359.569	< 1
325	428	561325.15	4181749.839	325	441	560856.2161	4181358.537	< 1
326	426	561324.98	4181750.54	326	448	560856.1603	4181357.514	< 1
327	428	561325.03	4181751.296	327	420	560856.0798	4181356.5	< 1
328	432	561324.62	4181751.788	328	426	560856.0038	4181355.569	< 1
329	433	561324.30	4181752.483	329	392	560855.9725	4181353.264	< 1
330	428	561323.60	4181752.796	330	444	560855.9703	4181353.621	< 1
331	439	561322.89	4181753.145	331	442	560855.9182	4181354.345	< 1
332	424	561322.13	4181753.514	332	440	560856.1106	4181355.41	< 1
333	415	561321.35	4181753.459	333	439	560856.3058	4181356.494	< 1
334	418	561320.70	4181753.507	334	449	560856.5096	4181357.56	< 1
335	442	561319.99	4181753.528	335	436	560856.6523	4181358.535	< 1
336	415	561319.63	4181753.163	336	454	560856.7915	4181359.479	< 1
337	414	561319.02	4181752.919	337	444	560856.9219	4181360.391	< 1
338	429	561318.74	4181752.217	338	443	560857.0569	4181361.335	< 1
339	424	561318.47	4181751.621	339	478	560857.2469	4181363.719	1
340	429	561318.33	4181751.005	340	449	560857.2426	4181363.674	< 1
341	447	561318.15	4181750.233	341	442	560857.1901	4181363.196	< 1
342	419	561318.05	4181749.409	342	447	560857.1243	4181362.283	< 1
343	436	561317.95	4181748.565	343	466	560857.0558	4181361.358	1
344	433	561317.82	4181747.594	344	430	560857.1684	4181360.411	< 1
345	422	561317.74	4181746.522	345	424	560856.9961	4181359.462	< 1
346	439	561317.67	4181745.618	346	445	560856.7544	4181358.528	< 1
347	430	561317.60	4181744.708	347	461	560856.791	4181357.585	< 1
348	428	561317.54	4181743.792	348	414	560856.8254	4181356.588	< 1
349	415	561317.47	4181742.877	349	433	560856.7345	4181355.69	< 1
350	439	561317.43	4181741.986	350	428	560856.7258	4181355.324	< 1
351	435	561317.38	4181741.223	351	436	560856.6671	4181353.958	< 1
352	417	561317.33	4181740.434	352	432	560856.743	4181354.784	< 1
353	429	561317.28	4181739.512	353	436	560856.8361	4181355.753	< 1
354	445	561317.24	4181738.594	354	457	560857.0862	4181356.73	< 1
355	424	561317.18	4181737.68	355	439	560857.2292	4181357.745	< 1
356	398	561317.12	4181736.624	356	435	560857.3713	4181358.744	< 1
357	424	561317.03	4181735.627	357	439	560857.5056	4181359.729	< 1
358	412	561316.94	4181734.715	358	456	560857.6388	4181360.715	< 1
359	435	561316.85	4181733.789	359	468	560857.7008	4181361.586	1
360	431	561316.80	4181732.849	360	450	560857.7281	4181361.843	< 1
361	434	561316.72	4181731.876	361	449	560857.8725	4181363.138	< 1
362	419	561316.64	4181730.981	362	446	560857.7671	4181362.292	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
363	422	561316.59	4181730.163	363	461	560857.6507	4181361.358	< 1
364	437	561316.52	4181729.335	364	456	560857.7204	4181360.39	< 1
365	407	561316.52	4181728.495	365	472	560857.6809	4181359.371	1
366	400	561316.48	4181727.696	366	457	560857.6555	4181358.347	< 1
367	400	561316.50	4181726.799	367	440	560857.5645	4181357.323	< 1
368	412	561317.10	4181726.128	368	454	560857.4782	4181356.321	< 1
369	374	561317.52	4181725.536	369	414	560857.4942	4181355.44	< 1
370	397	561318.02	4181724.959	370	400	560857.4821	4181355.16	< 1
371	403	561318.66	4181724.878	371	418	560857.4101	4181353.929	< 1
372	405	561319.30	4181724.634	372	440	560857.5188	4181354.937	< 1
373	403	561319.91	4181724.767	373	460	560857.6375	4181355.98	< 1
374	430	561320.51	4181724.764	374	444	560857.8769	4181357.009	< 1
375	426	561320.96	4181725.075	375	455	560857.9857	4181358.036	< 1
376	419	561321.55	4181725.362	376	454	560858.1045	4181359.04	< 1
377	414	561322.20	4181725.831	377	452	560858.1688	4181360.028	< 1
378	415	561322.36	4181726.787	378	456	560858.2343	4181361.033	< 1
379	429	561322.52	4181727.655	379	464	560858.2995	4181361.888	< 1
380	428	561322.60	4181728.524	380	440	560858.3041	4181361.973	< 1
381	444	561322.69	4181729.432	381	446	560858.3655	4181363.092	< 1
382	419	561322.79	4181730.352	382	444	560858.3046	4181362.05	< 1
383	430	561322.84	4181731.288	383	465	560858.2481	4181361.074	< 1
384	414	561322.89	4181732.2	384	422	560858.3717	4181360.117	< 1
385	415	561322.96	4181733.077	385	464	560858.4346	4181359.157	< 1
386	398	561323.01	4181733.812	386	451	560858.5515	4181358.215	< 1
387	418	561323.05	4181734.572	387	421	560858.4605	4181357.295	< 1
388	419	561323.12	4181735.453	388	445	560858.3656	4181356.335	< 1
389	407	561323.19	4181736.428	389	415	560858.2636	4181355.482	< 1
390	421	561323.24	4181737.47	390	392	560858.2487	4181355.195	< 1
391	414	561323.31	4181738.373	391	416	560858.1648	4181353.85	< 1
392	431	561323.38	4181739.28	392	434	560858.233	4181354.641	< 1
393	423	561323.46	4181740.189	393	470	560858.2972	4181355.488	1
394	439	561323.54	4181741.095	394	434	560858.5213	4181356.341	< 1
395	420	561323.61	4181742.007	395	434	560858.6248	4181357.302	< 1
396	437	561323.68	4181742.945	396	425	560858.7469	4181358.256	< 1
397	434	561323.75	4181743.805	397	434	560858.7921	4181359.211	< 1
398	433	561323.82	4181744.589	398	453	560858.8392	4181360.186	< 1
399	428	561323.88	4181745.451	399	437	560858.9269	4181361.098	< 1
400	425	561323.97	4181746.39	400	454	560858.9781	4181361.692	< 1
401	436	561324.08	4181747.582	401	445	560859.1546	4181363.359	< 1
402	412	561324.21	4181748.651	402	467	560859.092	4181362.921	1
403	434	561324.25	4181749.553	403	438	560858.969	4181362.076	< 1
404	429	561324.35	4181750.308	404	439	560858.8602	4181361.113	< 1
405	427	561324.37	4181751.058	405	460	560858.957	4181360.031	< 1
406	417	561324.09	4181751.574	406	461	560859.0941	4181358.995	< 1
407	432	561324.05	4181752.336	407	462	560859.0366	4181358.001	< 1
408	424	561323.46	4181752.725	408	426	560858.9817	4181357.054	< 1
409	430	561322.94	4181753.272	409	416	560858.9051	4181356.122	< 1
410	418	561322.26	4181753.401	410	423	560858.9015	4181355.217	< 1
411	439	561321.66	4181753.617	411	416	560858.8651	4181353.494	< 1
412	432	561321.00	4181753.729	412	417	560858.9088	4181354.149	< 1
413	409	561320.38	4181753.422	413	461	560858.9812	4181355.173	< 1
414	428	561319.78	4181753.263	414	454	560859.0609	4181356.249	< 1
415	431	561319.13	4181752.994	415	454	560859.1995	4181357.201	< 1
416	439	561313.28	4181742.7	416	439	560859.3521	4181358.095	< 1
417	426	561313.22	4181741.998	417	446	560859.4248	4181358.941	< 1
418	424	561313.30	4181741.296	418	432	560859.5008	4181359.804	< 1
419	432	561313.23	4181740.526	419	441	560859.5343	4181360.67	< 1
420	435	561313.15	4181739.684	420	451	560859.6098	4181361.511	< 1
421	429	561313.07	4181738.767	421	433	560859.7845	4181363.498	< 1
422	414	561313.00	4181738.08	422	443	560859.7797	4181363.441	< 1
423	435	561312.96	4181737.437	423	443	560859.7064	4181362.596	< 1
424	425	561312.91	4181736.502	424	429	560859.5038	4181360.198	< 1
425	420	561312.85	4181735.603	425	451	560859.5059	4181360.37	< 1
426	413	561312.80	4181734.8	426	452	560859.5464	4181360.518	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
427	422	561312.75	4181733.973	427	438	560859.5416	4181360.64	< 1
428	431	561312.68	4181733.142	428	442	560859.432	4181361.877	< 1
429	409	561312.65	4181732.301	429	435	560859.5795	4181361.362	< 1
430	422	561312.63	4181731.452	430	419	560859.6749	4181360.435	< 1
431	428	561312.59	4181730.597	431	431	560859.8236	4181359.473	< 1
432	411	561312.52	4181729.833	432	426	560859.7596	4181358.472	< 1
433	410	561312.34	4181729.073	433	444	560859.6991	4181357.435	< 1
434	409	561312.54	4181728.545	434	429	560859.7372	4181356.384	< 1
435	408	561312.59	4181727.922	435	424	560859.721	4181355.311	< 1
436	399	561312.97	4181727.385	436	420	560859.6939	4181353.381	< 1
437	414	561313.28	4181726.637	437	447	560859.6987	4181353.794	< 1
438	406	561313.96	4181726.13	438	449	560859.7096	4181354.673	< 1
439	398	561314.65	4181725.937	439	444	560859.7445	4181355.673	< 1
440	403	561315.29	4181725.71	440	451	560859.8937	4181356.787	< 1
441	418	561315.92	4181725.596	441	440	560860.0492	4181357.873	< 1
442	393	561316.45	4181725.424	442	406	560860.151	4181358.938	< 1
443	408	561317.03	4181725.191	443	426	560860.2485	4181359.957	< 1
444	418	561317.50	4181725.383	444	448	560860.3536	4181360.908	< 1
445	422	561318.00	4181725.451	445	453	560860.4098	4181361.576	< 1
446	433	561318.36	4181725.7	446	449	560860.5829	4181363.194	< 1
447	383	561318.91	4181725.855	447	420	560860.4866	4181362.59	< 1
448	381	561319.23	4181726.333	448	455	560860.3361	4181361.831	< 1
449	407	561319.71	4181727.013	449	437	560860.4435	4181361.012	< 1
450	423	561319.94	4181727.827	450	452	560860.4271	4181360.084	< 1
451	441	561320.06	4181728.629	451	432	560860.4492	4181359.226	< 1
452	427	561320.19	4181729.457	452	436	560860.364	4181358.448	< 1
453	428	561320.32	4181730.294	453	430	560860.2492	4181357.711	< 1
454	424	561320.40	4181731.146	454	428	560860.3543	4181356.962	< 1
455	399	561320.50	4181731.992	455	422	560860.3491	4181356.108	< 1
456	407	561320.56	4181732.832	456	420	560860.3991	4181355.396	< 1
457	403	561320.62	4181733.549	457	401	560860.3366	4181354.837	< 1
458	411	561320.66	4181734.24	458	432	560860.1109	4181355.458	< 1
459	415	561320.82	4181735.781	459	449	560859.9912	4181358.464	< 1
460	426	561320.73	4181735.47	460	460	560856.885	4181360.608	< 1
461	410	561320.65	4181734.561	461	461	560854.0681	4181362.037	< 1
462	422	561320.53	4181733.863	462	452	560851.2778	4181361.587	< 1
463	416	561320.68	4181733.203	463	441	560849.5763	4181360.403	< 1
464	425	561320.76	4181732.431	464	419	560848.3538	4181358.745	< 1
465	434	561320.94	4181731.733	465	423	560848.3641	4181358.674	< 1
466	439	561320.86	4181731.11	466	434	560848.3617	4181357.452	< 1
467	420	561320.81	4181730.374	467	460	560848.5901	4181358.19	< 1
468	417	561320.60	4181729.581	468	429	560848.8716	4181359.109	< 1
469	416	561320.49	4181728.891	469	447	560849.1346	4181360.087	< 1
470	419	561320.39	4181728.233	470	450	560849.3126	4181361.147	< 1
471	403	561320.27	4181727.614	471	430	560849.5609	4181362.115	< 1
472	404	561320.17	4181727.099	472	414	560849.4925	4181363.009	< 1
473	409	561320.15	4181726.6	473	463	560849.4213	4181363.944	< 1
474	404	561320.04	4181726.189	474	430	560849.2633	4181364.734	< 1
475	393	561319.97	4181725.801	475	423	560849.2623	4181364.794	< 1
476	394	561319.86	4181725.46	476	440	560849.2254	4181365.827	< 1
477	392	561319.72	4181725.405	477	460	560849.3625	4181364.644	< 1
478	406	561319.72	4181725.374	478	459	560849.4876	4181363.59	< 1
479	394	561319.57	4181724.508	479	461	560849.7665	4181362.69	< 1
480	400	561319.83	4181725.271	480	439	560849.7627	4181362.337	< 1
481	403	561319.89	4181725.99	481	458	560849.8057	4181360.955	< 1
482	400	561319.94	4181726.763	482	457	560849.7031	4181361.731	< 1
483	413	561320.07	4181727.534	483	426	560849.5699	4181362.546	< 1
484	441	561320.14	4181728.285	484	461	560849.6679	4181363.379	< 1
485	438	561320.23	4181729.04	485	456	560849.747	4181364.257	< 1
486	415	561320.27	4181729.804	486	437	560849.9837	4181366.175	< 1
487	405	561320.32	4181730.57	487	444	560849.9453	4181365.967	< 1
488	416	561320.36	4181731.315	488	434	560849.8	4181365.103	< 1
489	434	561320.40	4181731.956	489	451	560849.9384	4181364.087	< 1
490	422	561320.42	4181732.647	490	451	560850.0861	4181362.999	< 1

Count #	Reading	Easting	Northing
491	416	561320.49	4181733.573
492	403	561320.54	4181734.243
493	408	561320.58	4181734.863
494	420	561320.64	4181735.732
495	398	561320.73	4181736.551
496	404	561320.78	4181737.272
497	420	561320.84	4181738.009
498	422	561320.91	4181738.748
499	414	561318.98	4181752.466
500	414	561318.68	4181751.919
501	423	561318.68	4181751.289
502	433	561318.70	4181750.614
503	424	561318.63	4181749.936
504	452	561318.54	4181749.113
505	442	561318.45	4181748.253
506	419	561318.42	4181747.351
507	424	561318.39	4181746.348
508	422	561318.29	4181745.283
509	429	561318.23	4181744.388
510	420	561318.17	4181743.488
511	419	561318.12	4181742.584
512	454	561318.07	4181741.66
513	424	561318.01	4181740.757
514	429	561317.97	4181739.98
515	439	561317.93	4181739.183
516	416	561317.87	4181738.288
517	401	561317.82	4181737.399
518	400	561317.75	4181736.517
519	400	561317.67	4181735.432
520	409	561317.55	4181734.416
521	419	561317.49	4181733.503
522	408	561317.42	4181732.562
523	424	561317.34	4181731.61
524	407	561317.27	4181730.625
525	425	561317.25	4181729.741
526	412	561317.13	4181728.97
527	397	561316.95	4181728.177
528	418	561316.95	4181727.344
529	396	561316.88	4181726.553
530	384	561316.99	4181725.698
531	374	561317.60	4181725.033
532	395	561318.04	4181724.424
533	414	561318.61	4181723.799
534	396	561319.31	4181723.834
535	385	561319.83	4181723.81
536	410	561320.17	4181723.854
537	405	561321.42	4181723.958
538	407	561320.95	4181723.966
539	388	561320.11	4181723.973
540	395	561319.25	4181724.181
541	393	561318.53	4181724.221
542	380	561317.05	4181724.311
543	417	561318.02	4181724.034
544	406	561318.95	4181724.256
545	387	561319.88	4181724.338
546	415	561320.57	4181724.816
547	424	561321.29	4181725.232
548	431	561321.85	4181725.908
549	419	561321.89	4181726.713
550	397	561321.90	4181727.541
551	418	561321.99	4181728.468
552	439	561322.09	4181729.356
553	415	561322.15	4181730.21
554	439	561322.22	4181731.299

Count #	Reading	Easting	Northing	Sigma
491	441	560850.2433	4181362.265	< 1
492	445	560850.2592	4181361.871	< 1
493	453	560850.3083	4181360.923	< 1
494	443	560849.9639	4181361.766	< 1
495	444	560850.0857	4181362.61	< 1
496	469	560850.1383	4181363.487	1
497	434	560850.4388	4181364.315	< 1
498	417	560850.7351	4181364.759	< 1
499	433	560850.9195	4181366.653	< 1
500	441	560850.8758	4181366.374	< 1
501	451	560850.7706	4181365.789	< 1
502	439	560850.6653	4181364.888	< 1
503	444	560850.54	4181364	< 1
504	454	560850.7921	4181363.148	< 1
505	433	560850.9839	4181362.292	< 1
506	464	560851.1931	4181361.575	< 1
507	461	560851.2688	4181360.972	< 1
508	441	560851.4366	4181359.864	< 1
509	446	560851.1191	4181360.548	< 1
510	455	560851.0763	4181361.437	< 1
511	449	560850.9101	4181362.299	< 1
512	434	560851.1267	4181363.077	< 1
513	443	560851.3254	4181363.851	< 1
514	449	560851.8301	4181364.462	< 1
515	473	560851.8548	4181364.799	1
516	443	560851.9956	4181366.144	< 1

516	Total Counts
439.76	Average
25.36	Std Dev
478.00	Max
515.84	3 sigma

Count #	Reading	Easting	Northing
555	432	561322.30	4181732.312
556	416	561322.37	4181733.2
557	421	561322.44	4181734.072
558	418	561322.47	4181734.941
559	412	561322.53	4181735.805
560	399	561322.59	4181736.587
561	411	561322.64	4181737.288
562	429	561322.70	4181738.085
563	435	561322.77	4181738.976
564	422	561322.85	4181739.873
565	412	561322.90	4181740.77
566	441	561322.97	4181741.657
567	431	561323.04	4181742.67
568	418	561323.12	4181743.771
569	433	561323.21	4181744.687
570	410	561323.30	4181745.606
571	422	561323.39	4181746.529
572	444	561323.47	4181747.351
573	446	561323.56	4181748.153
574	428	561323.66	4181749.027
575	443	561323.88	4181749.926
576	436	561323.72	4181750.796
577	423	561323.65	4181751.524
578	431	561323.65	4181752.384
579	438	561323.08	4181752.792
580	416	561322.56	4181753.394
581	418	561321.80	4181753.52
582	433	561321.02	4181753.662
583	412	561318.81	4181753.898
584	417	561319.07	4181753.853
585	422	561319.41	4181753.814
586	451	561320.14	4181753.667
587	424	561320.99	4181753.481
588	402	561321.88	4181753.297
589	415	561322.35	4181753.252
590	411	561323.96	4181753.037
591	437	561323.55	4181753.117
592	416	561322.94	4181753.283
593	419	561322.23	4181753.505
594	413	561321.58	4181753.295
595	434	561320.92	4181753.285
596	444	561320.52	4181752.959
597	443	561319.84	4181752.697
598	436	561319.60	4181751.996
599	425	561319.30	4181751.104
600	428	561319.19	4181750.142
601	419	561319.11	4181749.19
602	421	561319.03	4181748.228
603	429	561318.98	4181747.258
604	434	561318.91	4181746.267
605	439	561318.82	4181745.282
606	427	561318.76	4181744.3
607	421	561318.71	4181743.448
608	426	561318.66	4181742.622
609	433	561318.61	4181741.659
610	436	561318.57	4181740.628
611	432	561318.50	4181739.398
612	411	561318.45	4181738.406
613	387	561318.40	4181737.466
614	411	561318.33	4181736.551
615	421	561318.27	4181735.618
616	435	561318.19	4181734.669
617	411	561318.11	4181733.707
618	428	561318.06	4181732.766

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
619	450	561318.01	4181731.944
620	417	561317.96	4181731.092
621	428	561317.89	4181730.094
622	407	561317.79	4181729.064
623	413	561317.61	4181728.029
624	408	561317.81	4181727.341
625	417	561317.86	4181726.597
626	394	561318.26	4181726.049
627	396	561318.53	4181725.474
628	379	561319.03	4181725.191
629	412	561319.71	4181724.77
630	415	561320.39	4181724.426
631	393	561320.42	4181724.427
632	417	561321.49	4181724.345
633	397	561320.50	4181724.734
634	390	561319.60	4181725.091
635	387	561318.69	4181725.464
636	360	561317.71	4181725.477
637	387	561317.28	4181725.447
638	413	561315.54	4181725.623
639	399	561316.23	4181725.532
640	380	561316.85	4181725.36
641	396	561317.41	4181725.382
642	421	561318.03	4181725.305
643	408	561318.64	4181725.461
644	401	561319.34	4181725.554
645	432	561320.09	4181725.824
646	427	561320.52	4181726.514
647	421	561320.97	4181727.114
648	417	561321.24	4181727.8
649	426	561321.37	4181728.58
650	394	561321.54	4181729.349
651	446	561321.61	4181730.124
652	426	561321.66	4181730.792
653	438	561321.72	4181731.438
654	412	561321.79	4181732.335
655	411	561321.85	4181733.183
656	413	561321.91	4181733.932
657	406	561321.97	4181734.663
658	416	561321.99	4181735.391
659	415	561322.04	4181736.111
660	433	561322.10	4181736.816
661	430	561322.14	4181737.507
662	428	561322.19	4181738.237
663	434	561322.24	4181738.955
664	463	561322.27	4181739.577
665	407	561322.29	4181740.253
666	410	561322.36	4181741.191
667	408	561322.42	4181741.974
668	405	561322.42	4181742.716
669	428	561322.53	4181743.36
670	427	561322.76	4181744.095
671	435	561322.68	4181744.939
672	428	561322.56	4181745.727
673	445	561322.77	4181746.481
674	431	561322.84	4181747.25
675	433	561322.88	4181747.935
676	438	561322.97	4181748.527
677	433	561323.08	4181749.149
678	430	561323.15	4181749.811
679	426	561323.28	4181750.538
680	440	561323.24	4181751.229
681	430	561322.98	4181751.774
682	428	561322.79	4181752.35

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
683	424	561322.61	4181753.094
684	433	561322.02	4181753.32
685	421	561321.43	4181753.672
686	443	561320.74	4181753.748
687	423	561320.10	4181753.832
688	414	561319.47	4181753.867
689	429	561318.56	4181753.92
690	418	561317.76	4181754.117
691	407	561317.11	4181754.079
692	431	561316.49	4181754.132
693	415	561315.88	4181754.063
694	430	561315.41	4181753.769
695	414	561314.88	4181753.624
696	429	561314.58	4181753.285
697	403	561314.13	4181752.979
698	437	561313.85	4181752.527
699	423	561313.73	4181752.016
700	420	561313.53	4181751.446
701	424	561313.39	4181750.492
702	425	561313.24	4181749.485
703	441	561313.10	4181748.457
704	433	561313.03	4181747.594
705	464	561312.96	4181746.736
706	424	561312.90	4181745.881
707	435	561312.84	4181745.042
708	419	561312.77	4181744.208
709	443	561312.71	4181743.375
710	408	561312.66	4181742.616
711	407	561312.62	4181741.93
712	394	561312.57	4181741.169
713	418	561312.52	4181740.334
714	434	561312.46	4181739.342
715	415	561312.41	4181738.429
716	419	561312.35	4181737.629
717	433	561312.30	4181736.811
718	396	561312.24	4181735.99
719	412	561312.16	4181735.175
720	406	561312.09	4181734.421
721	405	561312.03	4181733.727
722	428	561311.94	4181732.951
723	399	561311.92	4181732.086
724	416	561311.90	4181731.25
725	433	561311.78	4181730.402
726	417	561311.81	4181729.443
727	395	561311.75	4181728.736
728	392	561311.84	4181728.1
729	411	561312.09	4181727.667
730	405	561312.15	4181727.006
731	381	561312.77	4181726.553
732	407	561313.30	4181726.079
733	385	561313.91	4181725.789
734	384	561314.52	4181725.693
735	392	561315.17	4181725.592
736	393	561316.02	4181725.455
737	398	561316.65	4181725.316
738	399	561317.24	4181725.104
739	418	561317.72	4181725.218
740	406	561318.24	4181725.251
741	382	561318.71	4181725.447
742	400	561319.27	4181725.551
743	397	561319.87	4181725.779
744	422	561320.10	4181726.245
745	426	561320.44	4181726.654
746	408	561320.56	4181727.13

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
747	408	561320.75	4181727.776
748	439	561320.90	4181728.574
749	430	561320.95	4181729.159
750	427	561321.16	4181730.907
751	435	561321.11	4181730.648
752	418	561321.02	4181730.065
753	421	561320.76	4181729.449
754	411	561320.75	4181728.859
755	394	561320.66	4181728.334
756	402	561320.71	4181727.883
757	391	561320.75	4181727.358
758	407	561321.15	4181726.837
759	387	561321.06	4181726.474
760	400	561321.10	4181726.135
761	396	561321.00	4181725.936
762	413	561320.96	4181725.622
763	398	561320.93	4181725.2
764	389	561320.83	4181725.121
765	404	561319.74	4181724.273
766	406	561320.19	4181724.645
767	407	561320.67	4181724.907
768	428	561320.95	4181725.332
769	404	561321.41	4181725.93
770	414	561321.70	4181726.553
771	445	561321.65	4181727.046
772	405	561321.61	4181727.621
773	441	561321.44	4181728.21
774	441	561321.38	4181728.898
775	432	561321.29	4181729.605
776	437	561321.28	4181730.338
777	407	561321.26	4181731.08
778	422	561321.25	4181731.81
779	409	561321.27	4181732.462
780	421	561321.27	4181733.168
781	418	561321.33	4181734.135
782	417	561321.38	4181734.945
783	415	561321.41	4181735.722
784	413	561321.45	4181736.489
785	415	561321.49	4181737.265
786	411	561321.54	4181738.046
787	430	561321.60	4181738.841
788	412	561321.65	4181739.645
789	430	561321.69	4181740.475
790	424	561321.72	4181741.236
791	410	561321.78	4181741.926
792	434	561321.84	4181742.789
793	432	561321.91	4181743.788
794	426	561321.99	4181744.601
795	420	561322.07	4181745.413
796	422	561322.14	4181746.225
797	429	561322.21	4181747.055
798	443	561322.27	4181747.899
799	422	561322.34	4181748.783
800	413	561322.46	4181749.615
801	410	561322.44	4181750.4
802	410	561322.53	4181751.021
803	409	561322.33	4181751.549
804	398	561322.10	4181752.26
805	425	561321.92	4181752.974
806	430	561321.48	4181753.256
807	430	561320.96	4181753.778
808	430	561320.11	4181753.903
809	423	561319.29	4181754.016
810	430	561318.52	4181754.157

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
811	407	561317.77	4181754.199
812	407	561317.08	4181754.311
813	436	561316.38	4181754.334
814	408	561315.95	4181754.08
815	453	561315.38	4181753.968
816	439	561314.96	4181753.531
817	417	561314.46	4181753.201
818	442	561314.12	4181752.714
819	419	561313.99	4181752.051
820	433	561313.81	4181751.361
821	433	561313.75	4181750.619
822	421	561313.71	4181749.858
823	430	561313.61	4181749.116
824	431	561313.58	4181748.462
825	451	561313.54	4181747.784
826	398	561313.51	4181746.983
827	420	561313.48	4181746.083
828	403	561313.44	4181745.116
829	419	561313.39	4181744.304
830	417	561313.32	4181743.499
831	433	561320.96	4181739.493
832	402	561321.01	4181740.18
833	423	561321.05	4181740.81
834	408	561321.11	4181741.596
835	436	561321.18	4181742.509
836	451	561321.23	4181743.273
837	426	561321.25	4181744.023
838	421	561321.33	4181744.757
839	410	561321.41	4181745.485
840	420	561321.42	4181746.213
841	438	561321.46	4181746.925
842	424	561321.51	4181747.62
843	443	561321.54	4181748.3
844	439	561321.57	4181749.072
845	450	561321.77	4181749.894
846	429	561321.69	4181750.502
847	432	561321.80	4181751.141
848	427	561321.53	4181751.62
849	420	561321.32	4181752.066
850	430	561321.19	4181752.584
851	422	561320.83	4181752.893
852	424	561320.53	4181753.427
853	417	561319.97	4181753.591
854	396	561319.34	4181753.794
855	426	561318.71	4181754.047
856	427	561318.14	4181754.069
857	434	561317.58	4181754.236
858	415	561317.07	4181754.115
859	425	561316.56	4181754.091
860	419	561316.01	4181754.052
861	425	561315.72	4181753.763
862	416	561315.35	4181753.548
863	436	561315.13	4181753.23
864	439	561314.74	4181752.928
865	428	561314.49	4181752.498
866	401	561314.43	4181751.96
867	452	561314.34	4181751.432
868	420	561314.32	4181750.908
869	398	561314.29	4181750.231
870	452	561314.24	4181749.432
871	445	561314.21	4181748.777
872	425	561314.17	4181748.115
873	426	561314.13	4181747.447
874	433	561314.10	4181746.762

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
875	425	561314.04	4181746.074
876	416	561314.01	4181745.385
877	439	561313.97	4181744.698
878	444	561313.93	4181744.013
879	421	561313.88	4181743.325
880	440	561313.85	4181742.636
881	425	561313.82	4181741.942
882	415	561313.79	4181741.251
883	432	561313.76	4181740.562
884	440	561313.73	4181739.888
885	432	561313.71	4181739.235
886	420	561313.68	4181738.679
887	414	561313.64	4181738.08
888	414	561313.59	4181737.269
889	421	561313.55	4181736.555
890	436	561313.50	4181735.863
891	398	561313.48	4181735.179
892	407	561313.46	4181734.546
893	408	561313.43	4181733.966
894	415	561313.39	4181733.223
895	408	561313.33	4181732.345
896	446	561313.31	4181731.599
897	410	561313.30	4181730.886
898	419	561313.25	4181730.207
899	417	561313.16	4181729.612
900	438	561313.00	4181728.96
901	409	561313.28	4181728.303
902	408	561313.40	4181727.612
903	372	561313.80	4181727.171
904	392	561314.10	4181726.684
905	411	561314.51	4181726.279
906	389	561315.05	4181726.089
907	398	561315.50	4181725.795
908	411	561315.96	4181725.74
909	387	561316.35	4181725.603
910	383	561316.76	4181725.441
911	405	561317.13	4181725.565
912	440	561317.59	4181725.546
913	402	561317.94	4181725.791
914	414	561318.49	4181725.978
915	399	561319.04	4181726.379
916	384	561319.21	4181726.891
917	394	561319.49	4181727.436
918	420	561319.56	4181728.082
919	425	561319.63	4181728.668
920	435	561319.67	4181729.244
921	420	561319.74	4181730.087
922	422	561319.81	4181730.889
923	415	561319.86	4181731.598
924	425	561319.90	4181732.209
925	430	561319.93	4181732.801
926	403	561319.97	4181733.637
927	394	561320.00	4181734.429
928	386	561320.05	4181735.125
929	423	561320.10	4181735.807
930	421	561320.15	4181736.486
931	416	561320.20	4181737.169
932	429	561320.26	4181737.867
933	421	561320.29	4181738.582
934	451	561320.32	4181739.302
935	422	561320.33	4181740.007
936	401	561320.39	4181740.611
937	426	561320.48	4181741.263
938	445	561320.54	4181742.177

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
939	427	561320.59	4181742.961
940	417	561320.64	4181743.714
941	425	561320.67	4181744.442
942	428	561320.70	4181745.169
943	421	561320.74	4181745.895
944	446	561320.78	4181746.619
945	410	561320.80	4181747.355
946	407	561320.85	4181748.147
947	435	561320.91	4181748.836
948	445	561320.94	4181749.425
949	418	561321.00	4181750.092
950	419	561321.17	4181750.839
951	436	561321.01	4181751.35
952	412	561320.93	4181751.868
953	429	561320.71	4181752.302
954	406	561320.55	4181752.776
955	415	561320.45	4181753.399
956	435	561320.00	4181753.65
957	422	561319.61	4181754.055
958	401	561319.12	4181754.153
959	412	561318.63	4181754.352
960	430	561318.10	4181754.503
961	427	561317.66	4181754.352
962	417	561317.18	4181754.365
963	412	561316.87	4181754.152
964	425	561316.40	4181754.013
965	437	561315.86	4181753.744
966	403	561315.69	4181753.273
967	435	561315.45	4181752.758
968	439	561315.32	4181752.149
969	424	561315.15	4181751.503
970	419	561315.09	4181750.831
971	411	561315.02	4181750.144
972	424	561314.95	4181749.451
973	460	561314.90	4181748.752
974	415	561314.84	4181748.031
975	438	561314.80	4181747.305
976	433	561314.76	4181746.585
977	432	561314.71	4181745.863
978	447	561314.68	4181745.137
979	406	561314.66	4181744.404
980	428	561314.62	4181743.691
981	421	561314.58	4181743.08
982	436	561314.54	4181742.417
983	450	561314.47	4181741.496
984	441	561314.40	4181740.744
985	434	561314.33	4181740.027
986	433	561314.30	4181739.32
987	442	561314.26	4181738.607
988	417	561314.23	4181737.89
989	430	561314.21	4181737.167
990	417	561314.17	4181736.442
991	417	561314.13	4181735.707
992	424	561314.08	4181734.971
993	418	561314.05	4181734.232
994	426	561314.02	4181733.468
995	425	561313.97	4181732.7
996	440	561313.93	4181731.931
997	437	561313.91	4181731.155
998	413	561313.85	4181730.375
999	403	561313.79	4181729.719
1000	411	561313.59	4181729.067
1001	433	561313.75	4181728.495
1002	431	561313.76	4181727.874

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1003	402	561314.06	4181727.412
1004	394	561314.30	4181726.953
1005	397	561314.49	4181726.396
1006	396	561314.91	4181726.155
1007	367	561315.32	4181725.751
1008	402	561315.88	4181725.632
1009	404	561316.47	4181725.492
1010	399	561317.03	4181725.318
1011	419	561317.41	4181725.297
1012	394	561319.05	4181725.117
1013	403	561318.80	4181725.165
1014	393	561318.08	4181725.296
1015	388	561317.29	4181725.578
1016	400	561316.51	4181725.64
1017	393	561315.90	4181725.754
1018	399	561315.46	4181725.738
1019	397	561313.93	4181725.779
1020	395	561314.20	4181725.677
1021	379	561314.95	4181725.674
1022	398	561315.63	4181725.56
1023	375	561316.19	4181725.679
1024	391	561316.75	4181725.745
1025	408	561317.43	4181725.698
1026	397	561317.81	4181726.085
1027	406	561318.35	4181726.409
1028	403	561318.62	4181726.98
1029	425	561318.96	4181727.497
1030	433	561319.03	4181728.086
1031	431	561319.14	4181729.034
1032	410	561319.21	4181729.967
1033	410	561319.28	4181730.81
1034	446	561319.35	4181731.647
1035	420	561319.34	4181732.483
1036	412	561319.39	4181733.298
1037	408	561319.44	4181734.112
1038	415	561319.49	4181734.926
1039	414	561319.55	4181735.722
1040	422	561319.59	4181736.519
1041	426	561319.63	4181737.331
1042	438	561319.67	4181738.145
1043	417	561319.71	4181738.96
1044	421	561319.76	4181739.795
1045	395	561319.78	4181740.635
1046	437	561319.82	4181741.466
1047	383	561319.85	4181742.306
1048	432	561319.90	4181743.154
1049	442	561319.95	4181743.849
1050	424	561319.98	4181744.513
1051	423	561320.03	4181745.431
1052	419	561320.11	4181746.312
1053	431	561320.14	4181747.11
1054	426	561320.17	4181747.955
1055	422	561320.22	4181748.789
1056	419	561320.29	4181749.532
1057	420	561320.38	4181750.214
1058	419	561320.39	4181750.839
1059	443	561320.50	4181751.42
1060	430	561320.46	4181752.009
1061	423	561320.18	4181752.488
1062	424	561320.03	4181753.034
1063	420	561319.68	4181753.359
1064	424	561319.32	4181753.961
1065	413	561318.61	4181754.303
1066	420	561317.91	4181754.322

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1067	421	561317.32	4181754.436
1068	414	561316.85	4181754.366
1069	423	561315.57	4181754.225
1070	417	561316.10	4181754.327
1071	422	561316.98	4181754.238
1072	424	561317.85	4181754.141
1073	426	561318.73	4181754.073
1074	405	561319.07	4181754.026
1075	418	561320.78	4181753.903
1076	405	561320.27	4181753.96
1077	400	561319.65	4181754.09
1078	417	561318.90	4181754.065
1079	433	561318.23	4181754.114
1080	422	561317.53	4181754.144
1081	452	561317.18	4181753.884
1082	436	561316.65	4181753.737
1083	416	561316.22	4181753.149
1084	434	561315.73	4181752.673
1085	422	561315.48	4181752.039
1086	425	561315.46	4181751.24
1087	429	561315.44	4181750.488
1088	417	561315.41	4181749.783
1089	414	561315.37	4181749.107
1090	410	561315.33	4181748.436
1091	421	561315.31	4181747.76
1092	434	561315.30	4181747.099
1093	434	561315.28	4181746.453
1094	442	561315.26	4181745.793
1095	445	561315.24	4181745.133
1096	431	561315.20	4181744.482
1097	412	561315.17	4181743.833
1098	448	561315.13	4181743.185
1099	433	561315.09	4181742.549
1100	427	561315.05	4181741.913
1101	438	561315.03	4181741.274
1102	451	561315.02	4181740.634
1103	428	561314.99	4181739.995
1104	415	561314.97	4181739.364
1105	427	561314.94	4181738.735
1106	421	561314.90	4181738.11
1107	430	561314.88	4181737.492
1108	438	561314.84	4181736.883
1109	425	561314.79	4181736.259
1110	428	561314.77	4181735.628
1111	425	561314.75	4181734.979
1112	422	561314.74	4181734.328
1113	389	561314.70	4181733.676
1114	417	561314.66	4181733.015
1115	454	561314.64	4181732.351
1116	435	561314.62	4181731.691
1117	438	561314.60	4181731.03
1118	405	561314.56	4181730.37
1119	434	561314.52	4181729.79
1120	421	561314.36	4181729.232
1121	417	561314.42	4181728.739
1122	422	561314.35	4181728.234
1123	401	561314.51	4181727.807
1124	415	561314.62	4181727.381
1125	403	561314.65	4181726.891
1126	376	561314.94	4181726.582
1127	413	561315.14	4181726.165
1128	402	561315.48	4181725.941
1129	392	561315.82	4181725.578
1130	392	561316.27	4181725.372

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1131	431	561316.84	4181725.278
1132	398	561317.41	4181725.182
1133	393	561317.98	4181725.089
1134	402	561318.46	4181724.995
1135	391	561320.38	4181724.719
1136	406	561320.12	4181724.765
1137	386	561319.59	4181724.847
1138	410	561318.81	4181724.999
1139	403	561318.03	4181725.151
1140	397	561317.26	4181725.334
1141	397	561316.51	4181725.433
1142	393	561315.99	4181725.594
1143	388	561315.69	4181725.591
1144	404	561315.28	4181725.551
1145	394	561313.44	4181725.684
1146	421	561314.13	4181725.629
1147	397	561314.77	4181725.497
1148	390	561315.34	4181725.544
1149	406	561315.84	4181725.488
1150	388	561316.33	4181725.536
1151	397	561316.75	4181725.754
1152	402	561317.31	4181725.838
1153	410	561317.67	4181726.215
1154	397	561318.19	4181726.581
1155	422	561318.58	4181727.139
1156	427	561318.63	4181727.859
1157	428	561318.67	4181728.547
1158	417	561318.71	4181729.202
1159	410	561318.76	4181730.033
1160	440	561318.82	4181731.009
1161	414	561318.84	4181731.835
1162	423	561318.87	4181732.652
1163	411	561318.90	4181733.461
1164	420	561318.93	4181734.24
1165	419	561318.93	4181735.013
1166	404	561318.96	4181735.784
1167	412	561318.97	4181736.569
1168	399	561319.03	4181737.363
1169	416	561319.10	4181738.173
1170	421	561319.09	4181738.993
1171	429	561319.14	4181739.818
1172	416	561319.18	4181740.64
1173	434	561319.23	4181741.458
1174	420	561319.28	4181742.288
1175	430	561319.32	4181743.1
1176	407	561319.35	4181743.809
1177	413	561319.36	4181744.572
1178	434	561319.42	4181745.599
1179	417	561319.48	4181746.46
1180	423	561319.54	4181747.283
1181	433	561319.58	4181748.097
1182	448	561319.61	4181748.887
1183	446	561319.67	4181749.65
1184	426	561319.76	4181750.346
1185	422	561319.90	4181751.045
1186	439	561319.72	4181751.604
1187	459	561319.67	4181752.239
1188	426	561319.33	4181752.75
1189	419	561319.07	4181753.339
1190	436	561318.65	4181753.895
1191	432	561318.02	4181754.039
1192	433	561317.44	4181754.289
1193	432	561316.85	4181754.291
1194	409	561315.61	4181754.376

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1195	435	561316.19	4181754.202
1196	428	561317.07	4181754.029
1197	415	561317.84	4181753.776
1198	428	561318.53	4181753.796
1199	420	561319.08	4181753.836
1200	438	561321.03	4181753.718
1201	418	561320.55	4181753.767
1202	438	561319.91	4181753.901
1203	427	561319.12	4181753.843
1204	426	561318.44	4181753.878
1205	428	561317.74	4181753.849
1206	416	561317.35	4181753.501
1207	432	561316.83	4181753.26
1208	413	561316.56	4181752.813
1209	416	561316.15	4181752.364
1210	427	561316.01	4181751.768
1211	432	561315.98	4181751.039
1212	408	561315.94	4181750.288
1213	436	561315.91	4181749.515
1214	442	561315.87	4181748.715
1215	417	561315.84	4181747.91
1216	444	561315.82	4181747.105
1217	436	561315.79	4181746.297
1218	434	561315.77	4181745.484
1219	436	561315.76	4181744.775
1220	439	561315.73	4181744.088
1221	431	561315.70	4181743.12
1222	438	561315.67	4181742.201
1223	418	561315.65	4181741.387
1224	427	561315.62	4181740.574
1225	442	561315.59	4181739.762
1226	440	561315.56	4181738.948
1227	434	561315.54	4181738.133
1228	432	561315.52	4181737.315
1229	437	561315.50	4181736.516
1230	406	561315.48	4181735.716
1231	413	561315.46	4181734.893
1232	413	561315.46	4181734.062
1233	424	561315.41	4181733.225
1234	410	561315.35	4181732.373
1235	434	561315.34	4181731.505
1236	417	561315.27	4181730.594
1237	409	561315.17	4181729.773
1238	394	561315.17	4181729.037
1239	391	561315.11	4181728.384
1240	400	561315.05	4181727.681
1241	377	561315.39	4181727.149
1242	408	561315.62	4181726.579
1243	368	561316.01	4181726.204
1244	385	561316.29	4181725.723
1245	388	561316.76	4181725.542
1246	403	561317.51	4181725.233
1247	396	561318.15	4181725.153
1248	399	561318.55	4181725.084
1249	398	561319.71	4181724.85
1250	396	561319.14	4181725.052
1251	397	561318.51	4181725.212
1252	408	561317.92	4181725.46
1253	388	561317.31	4181725.496
1254	379	561316.57	4181725.544
1255	387	561314.38	4181725.865
1256	395	561314.44	4181725.845
1257	398	561314.45	4181725.658
1258	387	561314.51	4181725.651

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1259	410	561315.31	4181725.548
1260	360	561312.95	4181725.95
1261	384	561313.05	4181725.926
1262	405	561313.16	4181725.889
1263	413	561313.29	4181725.858
1264	365	561313.57	4181725.755
1265	391	561315.30	4181725.458
1266	410	561314.65	4181725.568
1267	374	561312.96	4181725.883
1268	409	561313.36	4181725.793
1269	401	561313.94	4181725.611
1270	403	561314.57	4181725.457
1271	375	561315.11	4181725.559
1272	402	561315.67	4181725.514
1273	383	561316.11	4181725.728
1274	404	561316.57	4181725.878
1275	413	561317.16	4181725.958
1276	432	561317.46	4181726.42
1277	397	561317.92	4181726.836
1278	405	561318.05	4181727.416
1279	433	561318.24	4181728.063
1280	414	561318.25	4181728.759
1281	424	561318.28	4181729.514
1282	434	561318.32	4181730.263
1283	423	561318.32	4181731.008
1284	420	561318.32	4181731.765
1285	416	561318.37	4181732.521
1286	406	561318.37	4181733.263
1287	408	561318.38	4181733.815
1288	415	561318.37	4181734.179
1289	418	561318.31	4181735.441
1290	445	561318.45	4181734.941
1291	416	561318.43	4181734.28
1292	416	561318.46	4181733.635
1293	452	561318.39	4181733.017
1294	414	561318.35	4181732.381
1295	424	561318.21	4181731.763
1296	438	561318.03	4181731.168
1297	417	561317.80	4181730.578
1298	427	561317.69	4181729.95
1299	427	561317.54	4181729.44
1300	426	561317.48	4181728.924
1301	407	561317.51	4181728.331
1302	414	561317.60	4181727.839
1303	400	561317.56	4181727.453
1304	386	561317.48	4181726.154
1305	413	561317.45	4181726.645
1306	427	561317.53	4181727.393
1307	415	561317.58	4181728.069
1308	410	561317.66	4181728.669
1309	420	561317.75	4181729.304
1310	426	561317.86	4181729.934
1311	412	561317.89	4181730.513
1312	421	561317.92	4181731.104
1313	434	561317.95	4181731.708
1314	428	561317.99	4181732.341
1315	408	561317.86	4181733.021
1316	404	561318.04	4181733.761
1317	410	561318.14	4181734.56
1318	405	561318.51	4181735.288
1319	402	561318.87	4181736.049
1320	393	561319.47	4181736.593
1321	411	561319.95	4181737.075
1322	423	561320.59	4181737.495

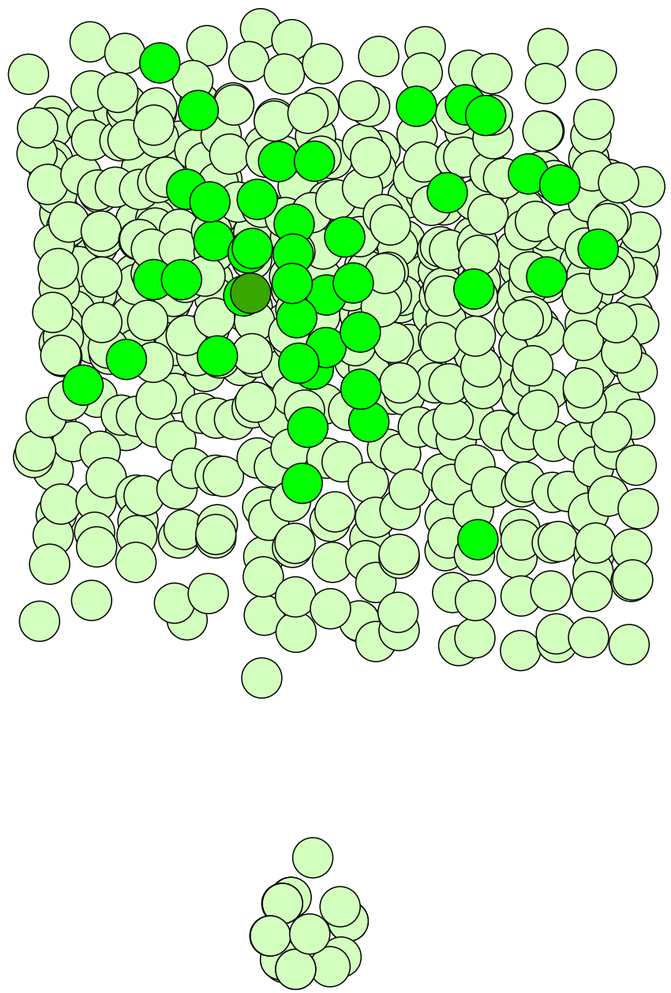
Count #	Reading	Easting	Northing	Sigma

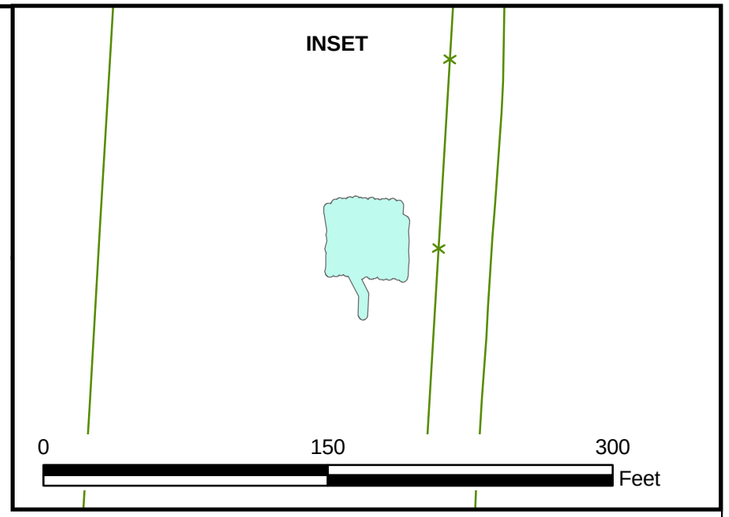
Count #	Reading	Easting	Northing
1323	429	561321.10	4181738.325
1324	445	561321.53	4181738.924
1325	422	561321.82	4181739.541
1326	421	561321.92	4181740.146
1327	424	561322.03	4181740.766
1328	440	561322.12	4181741.406
1329	399	561322.24	4181742.181
1330	418	561322.25	4181742.99
1331	433	561322.29	4181743.784
1332	429	561322.36	4181744.569
1333	442	561322.37	4181745.346
1334	415	561322.39	4181746.102
1335	431	561322.47	4181746.868
1336	430	561322.39	4181747.691
1337	472	561322.31	4181748.538
1338	397	561322.24	4181749.413
1339	441	561322.20	4181750.22
1340	434	561322.24	4181751.049
1341	416	561321.92	4181751.622
1342	413	561321.69	4181752.205
1343	428	561321.33	4181752.661
1344	432	561321.03	4181753.259
1345	414	561320.48	4181753.693
1346	405	561319.75	4181753.805
1347	437	561319.08	4181753.927
1348	433	561318.46	4181753.997
1349	425	561317.41	4181754.138
1350	412	561318.17	4181753.83
1351	431	561319.11	4181753.729
1352	427	561319.75	4181753.604
1353	413	561320.09	4181753.599
1354	432	561321.42	4181753.567
1355	423	561320.56	4181753.783
1356	425	561319.92	4181753.647
1357	419	561319.29	4181753.573
1358	453	561318.71	4181753.378
1359	417	561318.09	4181753.322
1360	420	561317.57	4181753.013
1361	425	561317.29	4181752.55
1362	429	561316.81	4181752.126
1363	422	561316.71	4181751.527
1364	423	561316.57	4181750.825
1365	438	561316.45	4181750.089
1366	444	561316.42	4181749.313
1367	428	561316.40	4181748.535
1368	426	561316.37	4181747.756
1369	429	561316.33	4181747.005
1370	428	561316.32	4181746.26
1371	435	561316.32	4181745.528
1372	429	561316.31	4181744.813

1372	Total Counts
418.43	Average
16.26	Std Dev
472.00	Max
515.84	3 sigma

Count #	Reading	Easting	Northing	Sigma

Investigation Level Exceeded





LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6
- SCREENING PAD

0 2 4 8 12 16 Feet

Scale: 1 " = 10 '

N

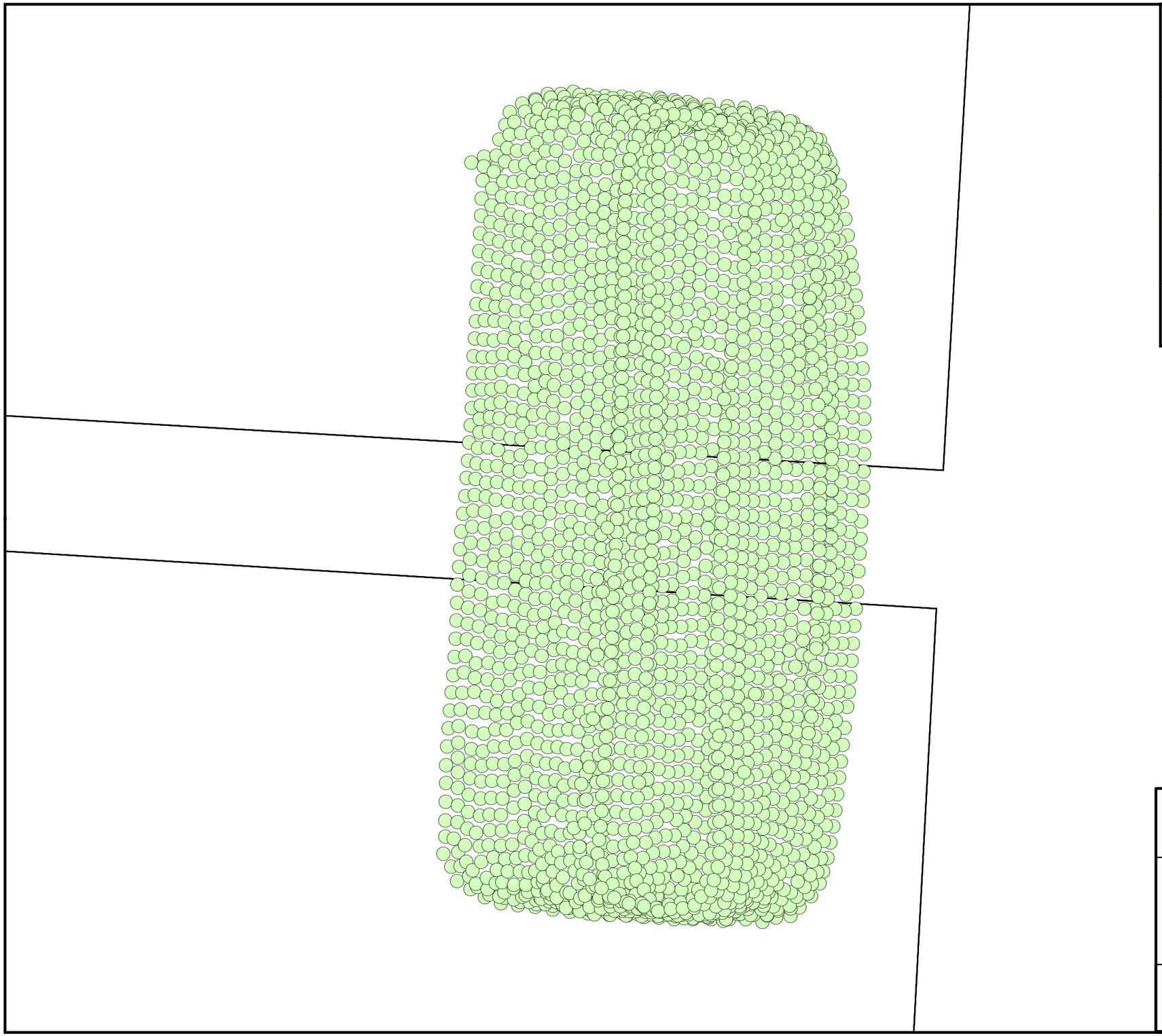
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

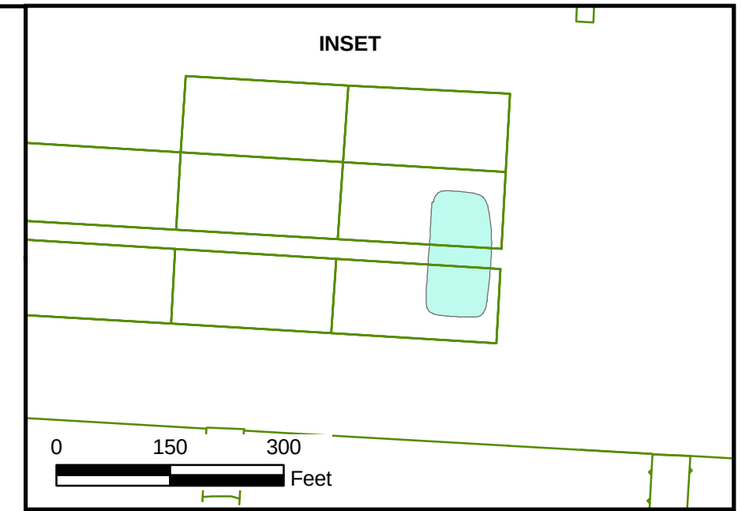
FZ02 Trench Pile
Background Pad (VTA1)
01/28/2014

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.





LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6

0 5 10 20 30 40 Feet

Scale: 1 " = 20 '

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FZ02 Trench Pile
SU12 (VTA1)
01/28/2014

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO 05, FZ02

Vehicle Towed Array Decimated Data

Survey Unit: FZ02-SU-012 **VTA #:** 1
Date: 1/28/2014 **Serial #:** 018

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Survey Unit FZ02-SU-012 Data

Gamma Total CPS	
2646	Total Counts
390.00	Average
13.21	Std Dev
439.00	Max
508.18	3 sigma

Sigma	Total Points
< 3 sigma	2646
≥ 3 sigma	0

Investigation Level Exceeded

01/28/2014 Background Data

Gamma Total CPS	
516	Total Counts
434.86	Average
24.44	Std Dev
488.00	Max
508.18	3 sigma

Sigma	Total Points
<1	478
1	41
2	1
3	0
4	0
5	0
>6	0

Count #	Reading	Easting	Northing
1	406	561339.66	4181760.967
2	404	561341.16	4181760.73
3	412	561341.16	4181760.73
4	411	561340.41	4181761.296
5	400	561340.38	4181760.737
6	410	561340.32	4181759.914
7	425	561340.26	4181758.826
8	421	561340.22	4181757.789
9	416	561340.17	4181756.759
10	422	561340.12	4181755.708
11	415	561340.08	4181754.657
12	431	561340.02	4181753.61
13	426	561339.96	4181752.575
14	423	561339.92	4181751.544
15	433	561339.85	4181750.531
16	402	561339.78	4181749.507
17	426	561339.75	4181748.473
18	406	561339.72	4181747.442
19	410	561339.68	4181746.413
20	404	561339.60	4181745.392
21	402	561339.52	4181744.354
22	400	561339.45	4181743.298
23	389	561339.37	4181742.255
24	404	561339.28	4181741.213
25	394	561339.17	4181740.159
26	407	561339.05	4181739.108
27	402	561338.98	4181738.053
28	411	561338.91	4181736.995
29	402	561338.83	4181735.939
30	422	561338.79	4181734.89
31	415	561338.76	4181733.829
32	417	561338.71	4181732.759
33	410	561338.66	4181731.681
34	397	561338.58	4181730.607
35	391	561338.48	4181729.56
36	424	561338.37	4181728.504
37	384	561338.29	4181727.437
38	398	561338.22	4181726.361
39	408	561338.15	4181725.279
40	391	561338.14	4181724.188
41	395	561338.13	4181723.089
42	399	561338.12	4181721.981

Count #	Reading	Easting	Northing	Sigma
1	322	560853.5371	4181348.513	< 1
2	348	560853.5385	4181348.51	< 1
3	353	560853.3973	4181347.2	< 1
4	336	560854.6883	4181348.028	< 1
5	352	560854.6867	4181348.028	< 1
6	348	560854.5444	4181347.311	< 1
7	343	560853.364	4181348.387	< 1
8	335	560853.3646	4181348.386	< 1
9	344	560853.3651	4181348.386	< 1
10	351	560853.3657	4181348.385	< 1
11	356	560853.3323	4181347.261	< 1
12	338	560853.3331	4181347.262	< 1
13	340	560854.3235	4181347.118	< 1
14	345	560853.121	4181347.74	< 1
15	345	560853.1224	4181347.74	< 1
16	345	560853.6306	4181347.064	< 1
17	335	560853.6307	4181347.064	< 1
18	328	560854.5285	4181348.328	< 1
19	324	560853.9181	4181347.776	< 1
20	357	560853.9816	4181349.308	< 1
21	421	560852.9539	4181352.932	< 1
22	451	560850.2214	4181357.908	< 1
23	422	560849.536	4181360.519	< 1
24	436	560848.7312	4181364.23	< 1
25	424	560848.7405	4181363.998	< 1
26	436	560848.7429	4181363.341	< 1
27	429	560848.8851	4181362.274	< 1
28	424	560848.993	4181361.009	< 1
29	412	560848.8829	4181359.666	< 1
30	424	560848.806	4181358.154	< 1
31	422	560848.7524	4181357.101	< 1
32	416	560848.814	4181356.222	< 1
33	425	560848.7532	4181355.808	< 1
34	416	560848.4771	4181354.076	< 1
35	418	560848.6891	4181355.226	< 1
36	444	560848.9104	4181356.433	< 1
37	435	560849.1496	4181357.692	< 1
38	466	560849.3511	4181358.814	1
39	446	560849.4774	4181359.916	< 1
40	443	560849.5553	4181361.006	< 1
41	442	560849.627	4181361.893	< 1
42	445	560849.7169	4181363.87	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
43	402	561338.10	4181721.017	43	433	560849.6844	4181362.708	< 1
44	394	561337.99	4181720.01	44	454	560849.6553	4181361.645	< 1
45	404	561338.45	4181719.263	45	455	560849.6268	4181360.683	< 1
46	402	561338.81	4181718.381	46	437	560849.5716	4181359.664	< 1
47	401	561339.60	4181717.931	47	433	560849.6424	4181358.591	< 1
48	416	561340.45	4181717.453	48	435	560849.6997	4181357.503	< 1
49	402	561341.40	4181717.103	49	407	560849.6157	4181356.492	< 1
50	410	561342.42	4181716.978	50	420	560849.5931	4181355.876	< 1
51	392	561343.44	4181716.854	51	428	560849.5263	4181354.508	< 1
52	410	561344.46	4181716.722	52	426	560849.6347	4181355.58	< 1
53	388	561345.49	4181716.593	53	407	560849.8246	4181356.973	< 1
54	383	561346.56	4181716.49	54	440	560850.1296	4181358.231	< 1
55	383	561347.83	4181716.414	55	466	560850.2334	4181359.336	1
56	383	561348.88	4181716.35	56	441	560850.3169	4181360.222	< 1
57	393	561349.87	4181716.273	57	454	560850.3942	4181361.065	< 1
58	396	561350.76	4181716.226	58	455	560850.4718	4181361.843	< 1
59	402	561351.67	4181716.149	59	452	560850.6118	4181363.951	< 1
60	384	561352.77	4181716.142	60	444	560850.539	4181363.193	< 1
61	412	561353.85	4181716.134	61	437	560850.4264	4181362.167	< 1
62	417	561354.91	4181716.128	62	458	560850.4246	4181360.867	< 1
63	386	561355.91	4181716.123	63	434	560850.424	4181359.566	< 1
64	404	561356.90	4181715.99	64	430	560850.4301	4181358.218	< 1
65	412	561357.71	4181716.257	65	435	560850.426	4181356.632	< 1
66	406	561358.56	4181716.34	66	441	560850.4623	4181356.114	< 1
67	412	561359.08	4181716.836	67	439	560850.4407	4181355.812	< 1
68	402	561359.78	4181717.513	68	423	560850.4224	4181355.275	< 1
69	389	561360.29	4181718.251	69	452	560850.5895	4181356.613	< 1
70	412	561360.49	4181718.966	70	450	560850.8172	4181358.002	< 1
71	388	561360.75	4181719.774	71	448	560851.0492	4181359.291	< 1
72	380	561360.92	4181720.707	72	449	560851.119	4181360.498	< 1
73	382	561361.10	4181721.64	73	437	560851.1773	4181361.508	< 1
74	387	561361.21	4181722.586	74	452	560851.2975	4181363.748	< 1
75	402	561361.33	4181723.553	75	444	560851.2311	4181362.748	< 1
76	385	561361.45	4181724.514	76	433	560851.1369	4181361.711	< 1
77	394	561361.54	4181725.471	77	411	560851.1704	4181360.634	< 1
78	394	561361.64	4181726.448	78	441	560851.2009	4181359.648	< 1
79	381	561361.77	4181727.471	79	427	560851.1982	4181358.682	< 1
80	415	561361.91	4181728.725	80	436	560851.2219	4181357.728	< 1
81	399	561362.01	4181729.628	81	447	560851.2434	4181356.759	< 1
82	389	561362.09	4181730.462	82	407	560851.2766	4181355.775	< 1
83	393	561362.18	4181731.449	83	419	560851.4483	4181354.129	< 1
84	386	561362.25	4181732.469	84	420	560851.1985	4181354.467	< 1
85	382	561362.34	4181733.498	85	439	560851.3854	4181355.947	< 1
86	392	561362.42	4181734.525	86	422	560851.5436	4181357.173	< 1
87	376	561362.49	4181735.551	87	457	560851.7429	4181358.286	< 1
88	370	561362.58	4181736.757	88	447	560851.8145	4181359.13	< 1
89	387	561362.65	4181737.799	89	438	560851.8981	4181359.994	< 1
90	377	561362.69	4181738.643	90	452	560851.9647	4181360.964	< 1
91	386	561362.75	4181739.698	91	460	560851.9884	4181361.717	1
92	404	561362.83	4181740.895	92	438	560852.0525	4181362.245	< 1
93	391	561362.86	4181741.754	93	440	560852.1461	4181362.989	< 1
94	393	561362.89	4181742.642	94	436	560851.956	4181361.851	< 1
95	412	561362.91	4181743.68	95	436	560852.0035	4181360.618	< 1
96	397	561362.94	4181744.716	96	466	560852.0614	4181359.398	1
97	408	561362.92	4181745.751	97	428	560852.0411	4181358.193	< 1
98	415	561362.90	4181746.762	98	422	560852.0195	4181357.047	< 1
99	439	561362.90	4181747.769	99	424	560852.0606	4181356.053	< 1
100	412	561362.82	4181748.769	100	421	560852.0257	4181355.789	< 1
101	418	561362.73	4181749.902	101	439	560851.8782	4181354.667	< 1
102	423	561362.62	4181751.121	102	450	560852.0287	4181355.86	< 1
103	400	561362.51	4181752.107	103	446	560852.1829	4181357.028	< 1
104	421	561362.41	4181753.082	104	440	560852.4051	4181358.169	< 1
105	407	561362.28	4181754.043	105	438	560852.5232	4181359.256	< 1
106	365	561362.18	4181754.869	106	453	560852.6423	4181360.331	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
107	404	561362.07	4181755.667	107	443	560852.7487	4181361.396	< 1
108	381	561361.95	4181756.624	108	458	560852.7929	4181361.919	< 1
109	391	561361.81	4181757.613	109	449	560853.0015	4181363.665	< 1
110	406	561361.61	4181758.595	110	464	560852.8645	4181362.552	1
111	395	561361.47	4181759.6	111	464	560852.6762	4181361.477	1
112	406	561361.06	4181760.523	112	450	560852.7598	4181360.435	< 1
113	403	561360.69	4181761.373	113	424	560852.8372	4181359.423	< 1
114	391	561360.30	4181762.275	114	451	560852.7622	4181358.411	< 1
115	381	561359.50	4181762.76	115	454	560852.8588	4181357.405	< 1
116	390	561358.71	4181763.327	116	413	560852.9777	4181356.411	< 1
117	399	561357.77	4181763.632	117	444	560852.9965	4181355.423	< 1
118	395	561356.81	4181763.937	118	431	560853.0091	4181354.239	< 1
119	389	561355.83	4181764.202	119	447	560852.987	4181355.012	< 1
120	390	561354.84	4181764.284	120	450	560853.097	4181356.151	< 1
121	412	561353.69	4181764.372	121	445	560853.2067	4181357.218	< 1
122	403	561352.48	4181764.541	122	440	560853.2803	4181358.213	< 1
123	385	561351.67	4181764.63	123	458	560853.3505	4181359.166	< 1
124	381	561350.80	4181764.775	124	436	560853.4211	4181360.11	< 1
125	398	561349.62	4181764.807	125	432	560853.5115	4181361.057	< 1
126	401	561348.58	4181764.837	126	449	560853.5685	4181361.704	< 1
127	434	561347.56	4181764.893	127	462	560853.6041	4181362.05	1
128	390	561346.56	4181764.967	128	422	560853.6885	4181362.863	< 1
129	404	561345.69	4181765.118	129	443	560853.5376	4181361.854	< 1
130	416	561344.95	4181765.021	130	455	560853.5533	4181360.806	< 1
131	373	561344.16	4181765.032	131	449	560853.5778	4181359.744	< 1
132	397	561343.43	4181764.705	132	453	560853.5585	4181358.669	< 1
133	388	561342.67	4181764.429	133	432	560853.5421	4181357.593	< 1
134	384	561341.94	4181763.942	134	425	560853.5327	4181356.54	< 1
135	393	561341.66	4181763.148	135	412	560853.5772	4181355.609	< 1
136	394	561341.30	4181762.315	136	415	560853.6489	4181353.901	< 1
137	403	561341.14	4181761.374	137	425	560853.6311	4181354.611	< 1
138	411	561340.98	4181760.416	138	456	560853.6264	4181355.693	< 1
139	394	561340.88	4181759.44	139	464	560853.7624	4181356.839	1
140	418	561340.83	4181758.427	140	467	560853.8732	4181357.968	1
141	411	561340.78	4181757.426	141	467	560853.9869	4181359.135	1
142	396	561340.73	4181756.436	142	451	560854.1219	4181360.261	< 1
143	425	561340.68	4181755.451	143	430	560854.1758	4181361.006	< 1
144	415	561340.62	4181754.47	144	453	560854.2111	4181361.693	< 1
145	421	561340.56	4181753.497	145	423	560854.2466	4181362.079	< 1
146	398	561340.50	4181752.541	146	445	560854.3773	4181363.436	< 1
147	422	561340.45	4181751.603	147	447	560854.2849	4181362.579	< 1
148	416	561340.39	4181750.476	148	459	560854.1845	4181361.622	< 1
149	406	561340.33	4181749.417	149	465	560854.2523	4181360.628	1
150	417	561340.29	4181748.464	150	464	560854.2422	4181359.57	1
151	405	561340.25	4181747.498	151	459	560854.2181	4181358.498	< 1
152	406	561340.20	4181746.562	152	440	560854.2659	4181357.414	< 1
153	393	561340.15	4181745.785	153	439	560854.3215	4181356.141	< 1
154	404	561340.12	4181744.982	154	417	560854.9324	4181354.12	< 1
155	404	561340.04	4181744.057	155	436	560854.9175	4181354.135	< 1
156	404	561339.96	4181743.135	156	435	560854.3391	4181354.386	< 1
157	392	561339.90	4181742.215	157	447	560854.379	4181355.321	< 1
158	405	561339.83	4181741.273	158	426	560854.4269	4181356.329	< 1
159	402	561339.76	4181740.327	159	449	560854.5739	4181357.344	< 1
160	405	561339.70	4181739.388	160	455	560854.6984	4181358.372	< 1
161	402	561339.61	4181738.435	161	433	560854.8235	4181359.364	< 1
162	377	561339.58	4181737.468	162	434	560854.9243	4181360.322	< 1
163	402	561339.54	4181736.509	163	416	560855.0254	4181361.283	< 1
164	390	561339.49	4181735.553	164	439	560855.3322	4181363.601	< 1
165	410	561339.45	4181734.604	165	422	560855.2503	4181363.226	< 1
166	418	561339.42	4181733.656	166	442	560855.0667	4181362.265	< 1
167	409	561339.36	4181732.712	167	458	560855.0696	4181361.187	< 1
168	390	561339.30	4181731.745	168	457	560855.083	4181360.228	< 1
169	383	561339.20	4181730.739	169	432	560855.1063	4181359.236	< 1
170	392	561339.10	4181729.546	170	460	560855.1045	4181358.08	1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
171	388	561339.01	4181728.542	171	454	560855.0962	4181356.936	< 1
172	416	561338.88	4181727.577	172	428	560855.126	4181355.805	< 1
173	401	561338.87	4181726.6	173	383	560855.0454	4181355.362	< 1
174	383	561338.84	4181725.689	174	433	560855.2454	4181353.734	< 1
175	397	561338.84	4181724.844	175	436	560855.2465	4181354.92	< 1
176	381	561338.84	4181723.905	176	436	560855.2355	4181356.234	< 1
177	393	561338.84	4181722.871	177	440	560855.4877	4181357.6	< 1
178	392	561338.83	4181721.884	178	456	560855.5886	4181358.713	< 1
179	394	561338.59	4181720.893	179	435	560855.6829	4181359.697	< 1
180	382	561338.87	4181720.11	180	435	560855.7484	4181360.553	< 1
181	395	561339.01	4181719.278	181	444	560855.8106	4181361.253	< 1
182	419	561339.51	4181718.69	182	442	560855.8434	4181361.799	< 1
183	398	561339.99	4181718.037	183	426	560855.8946	4181362.666	< 1
184	404	561340.71	4181717.601	184	447	560855.6863	4181361.684	< 1
185	416	561341.61	4181717.401	185	450	560855.7747	4181360.708	< 1
186	416	561342.53	4181717.166	186	438	560855.9157	4181359.715	< 1
187	406	561343.50	4181717.044	187	413	560855.8303	4181358.704	< 1
188	388	561344.48	4181716.922	188	434	560855.7459	4181357.509	< 1
189	402	561345.46	4181716.815	189	432	560855.7345	4181356.399	< 1
190	399	561346.40	4181716.763	190	407	560855.7154	4181355.414	< 1
191	411	561347.43	4181716.706	191	426	560855.7129	4181353.962	< 1
192	395	561348.47	4181716.595	192	438	560855.7005	4181354.336	< 1
193	400	561349.09	4181716.605	193	416	560855.7188	4181355.504	< 1
194	396	561349.78	4181716.444	194	451	560855.9244	4181356.809	< 1
195	392	561350.63	4181716.697	195	434	560856.1002	4181358.06	< 1
196	412	561351.32	4181716.785	196	451	560856.2689	4181359.225	< 1
197	388	561351.99	4181716.987	197	438	560856.4006	4181360.311	< 1
198	403	561352.27	4181717.467	198	437	560856.5114	4181361.2	< 1
199	406	561352.74	4181717.911	199	443	560856.737	4181363.362	< 1
200	411	561352.93	4181718.683	200	420	560856.6187	4181362.531	< 1
201	400	561353.17	4181719.51	201	423	560856.486	4181361.616	< 1
202	400	561353.31	4181720.423	202	439	560856.5263	4181360.688	< 1
203	396	561353.46	4181721.564	203	443	560856.5128	4181359.829	< 1
204	402	561353.54	4181722.567	204	443	560856.4382	4181358.957	< 1
205	400	561353.57	4181723.381	205	457	560856.511	4181358.032	< 1
206	409	561353.60	4181724.272	206	422	560856.5909	4181357.127	< 1
207	389	561353.63	4181725.24	207	440	560856.6397	4181356.238	< 1
208	401	561353.67	4181726.201	208	390	560856.6463	4181355.577	< 1
209	408	561353.72	4181727.157	209	397	560856.9196	4181353.668	< 1
210	398	561353.76	4181728.1	210	422	560856.7996	4181354.742	< 1
211	404	561353.79	4181729.034	211	440	560856.7008	4181355.84	< 1
212	379	561353.82	4181729.959	212	448	560856.7742	4181356.912	< 1
213	375	561353.86	4181730.91	213	436	560856.8644	4181357.809	< 1
214	395	561353.87	4181731.904	214	447	560856.937	4181358.733	< 1
215	376	561353.91	4181733.084	215	422	560857.0758	4181359.773	< 1
216	385	561353.93	4181733.947	216	467	560857.2194	4181360.757	1
217	384	561353.97	4181734.746	217	453	560857.3094	4181361.693	< 1
218	392	561354.03	4181735.89	218	445	560857.4163	4181362.758	< 1
219	397	561354.08	4181736.981	219	423	560857.2118	4181361.901	< 1
220	384	561354.12	4181737.951	220	437	560857.2209	4181360.789	< 1
221	362	561354.15	4181738.795	221	426	560857.2312	4181359.536	< 1
222	386	561354.21	4181739.612	222	446	560857.255	4181358.221	< 1
223	416	561354.28	4181740.594	223	435	560857.2433	4181357.304	< 1
224	399	561354.39	4181741.603	224	432	560857.2123	4181356.391	< 1
225	374	561354.49	4181742.595	225	417	560857.2274	4181355.496	< 1
226	386	561354.60	4181743.716	226	427	560857.245	4181353.828	< 1
227	390	561354.72	4181744.897	227	442	560857.2512	4181354.588	< 1
228	369	561354.78	4181745.743	228	478	560857.2988	4181355.71	1
229	392	561354.84	4181746.62	229	444	560857.5722	4181356.869	< 1
230	392	561354.91	4181747.65	230	446	560857.7413	4181358.005	< 1
231	384	561354.97	4181748.67	231	421	560857.9172	4181359.117	< 1
232	400	561355.04	4181749.68	232	427	560858.0344	4181360.213	< 1
233	397	561355.10	4181750.699	233	436	560858.1455	4181361.27	< 1
234	398	561355.15	4181751.715	234	462	560858.3228	4181363.069	1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
235	411	561355.19	4181752.708	235	448	560858.234	4181362.44	< 1
236	401	561355.24	4181753.708	236	418	560858.0681	4181361.642	< 1
237	386	561355.27	4181754.716	237	443	560858.0988	4181360.662	< 1
238	398	561355.31	4181755.884	238	424	560858.1295	4181359.682	< 1
239	406	561355.31	4181757.004	239	441	560858.1787	4181358.711	< 1
240	411	561355.31	4181758.043	240	443	560858.1721	4181357.779	< 1
241	384	561355.31	4181759.016	241	433	560858.1767	4181356.885	< 1
242	389	561355.37	4181759.968	242	425	560858.1451	4181356.03	< 1
243	392	561355.28	4181760.855	243	397	560858.0903	4181355.445	< 1
244	404	561355.39	4181761.699	244	416	560858.1528	4181353.587	< 1
245	369	561355.05	4181762.287	245	433	560858.1652	4181354.683	< 1
246	402	561354.79	4181762.984	246	448	560858.1663	4181355.815	< 1
247	403	561354.24	4181763.47	247	431	560858.243	4181356.98	< 1
248	394	561353.63	4181764.061	248	456	560858.3142	4181358.036	< 1
249	410	561352.79	4181764.372	249	420	560858.363	4181359.074	< 1
250	404	561351.83	4181764.511	250	440	560858.5312	4181360.099	< 1
251	416	561350.90	4181764.69	251	461	560858.6893	4181360.997	1
252	375	561349.98	4181764.708	252	440	560858.7958	4181361.774	< 1
253	412	561349.01	4181764.727	253	462	560858.9511	4181362.844	1
254	397	561348.02	4181764.734	254	426	560858.6721	4181362.047	< 1
255	401	561347.00	4181764.804	255	433	560858.6713	4181361.001	< 1
256	387	561346.05	4181764.936	256	427	560858.6495	4181359.933	< 1
257	418	561345.15	4181764.829	257	435	560858.7371	4181358.851	< 1
258	405	561344.34	4181764.779	258	449	560858.8157	4181357.81	< 1
259	388	561343.47	4181764.628	259	421	560858.7997	4181356.779	< 1
260	394	561342.82	4181763.948	260	409	560858.8003	4181355.767	< 1
261	401	561342.19	4181763.363	261	417	560858.9003	4181353.759	< 1
262	385	561341.90	4181762.589	262	416	560858.8749	4181353.939	< 1
263	391	561341.80	4181761.826	263	448	560858.7645	4181354.795	< 1
264	393	561341.65	4181760.998	264	452	560858.9151	4181355.79	< 1
265	391	561341.55	4181759.819	265	425	560859.107	4181356.799	< 1
266	391	561341.47	4181758.953	266	446	560859.3216	4181357.796	< 1
267	419	561341.43	4181758.146	267	430	560859.4273	4181358.8	< 1
268	411	561341.39	4181757.222	268	438	560859.5343	4181359.817	< 1
269	405	561341.30	4181756.276	269	440	560859.6189	4181360.794	< 1
270	409	561341.26	4181755.326	270	467	560859.7203	4181361.552	1
271	415	561341.21	4181754.266	271	448	560859.9361	4181363.083	< 1
272	409	561341.12	4181753.165	272	446	560859.7951	4181362.223	< 1
273	405	561341.08	4181752.398	273	445	560859.6428	4181361.248	< 1
274	396	561341.02	4181751.565	274	437	560859.6505	4181360.242	< 1
275	404	561340.97	4181750.399	275	448	560859.6743	4181359.254	< 1
276	387	561340.92	4181749.415	276	456	560859.7388	4181358.272	< 1
277	404	561340.86	4181748.468	277	450	560859.6349	4181357.303	< 1
278	408	561340.82	4181747.514	278	403	560859.531	4181356.377	< 1
279	411	561340.81	4181746.647	279	411	560859.6402	4181355.549	< 1
280	412	561340.75	4181745.87	280	383	560859.6173	4181355.191	< 1
281	412	561340.68	4181745.017	281	403	560859.5309	4181353.878	< 1
282	417	561340.63	4181744.085	282	446	560859.5964	4181354.802	< 1
283	406	561340.58	4181742.967	283	430	560859.6677	4181355.771	< 1
284	382	561340.53	4181741.983	284	453	560859.9205	4181356.719	< 1
285	401	561340.50	4181741.17	285	432	560860.0457	4181357.669	< 1
286	394	561340.45	4181740.273	286	425	560860.1659	4181358.59	< 1
287	374	561340.42	4181739.291	287	428	560860.2869	4181359.484	< 1
288	397	561340.38	4181738.315	288	422	560860.4109	4181360.39	< 1
289	395	561340.34	4181737.34	289	446	560860.5158	4181361.216	< 1
290	373	561340.28	4181736.364	290	420	560860.5466	4181361.614	< 1
291	374	561340.23	4181735.398	291	422	560860.6543	4181362.95	< 1
292	373	561340.16	4181734.442	292	413	560860.5723	4181362.034	< 1
293	409	561340.09	4181733.481	293	445	560860.4867	4181361.115	< 1
294	402	561339.99	4181732.484	294	428	560860.5376	4181360.184	< 1
295	391	561339.92	4181731.295	295	425	560860.5059	4181359.217	< 1
296	392	561339.86	4181730.415	296	438	560860.4522	4181358.271	< 1
297	393	561339.81	4181729.598	297	409	560860.4836	4181357.347	< 1
298	378	561339.75	4181728.397	298	422	560860.5241	4181356.476	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
299	395	561339.70	4181727.244	299	418	560860.3919	4181355.659	< 1
300	398	561339.65	4181726.215	300	408	560860.3779	4181355.012	< 1
301	398	561339.60	4181725.342	301	401	560860.3462	4181353.741	< 1
302	405	561339.56	4181724.499	302	415	560860.4095	4181355.042	< 1
303	401	561339.50	4181723.507	303	417	560859.9878	4181358.019	< 1
304	399	561339.44	4181722.491	304	440	560859.3563	4181361.439	< 1
305	379	561339.41	4181721.512	305	438	560856.2574	4181362.827	< 1
306	417	561339.27	4181720.512	306	442	560853.4028	4181363.565	< 1
307	394	561339.34	4181719.514	307	444	560850.817	4181362.294	< 1
308	382	561339.72	4181719.006	308	427	560849.3665	4181360.758	< 1
309	416	561339.92	4181718.235	309	440	560848.359	4181357.516	< 1
310	408	561340.60	4181717.908	310	403	560848.3979	4181357.641	< 1
311	397	561341.31	4181717.465	311	424	560848.6144	4181358.31	< 1
312	425	561342.17	4181717.306	312	436	560848.9332	4181359.545	< 1
313	396	561343.08	4181717.134	313	455	560849.1914	4181360.46	< 1
314	390	561344.03	4181717.045	314	434	560849.2651	4181361.354	< 1
315	416	561344.99	4181716.993	315	443	560849.0287	4181362.142	< 1
316	391	561345.93	4181716.932	316	432	560848.8327	4181362.819	< 1
317	392	561346.86	4181716.908	317	412	560848.6563	4181363.38	< 1
318	381	561347.89	4181716.878	318	416	560848.4297	4181363.627	< 1
319	388	561348.78	4181716.753	319	411	560848.2569	4181365.222	< 1
320	395	561349.51	4181716.842	320	412	560848.4397	4181364.144	< 1
321	398	561350.24	4181716.857	321	444	560848.6432	4181363.011	< 1
322	397	561351.01	4181717.013	322	438	560848.7771	4181361.811	< 1
323	403	561351.47	4181717.524	323	454	560848.8807	4181360.923	< 1
324	396	561352.09	4181717.9	324	452	560848.9533	4181360.191	< 1
325	405	561352.28	4181718.482	325	410	560848.9637	4181359.936	< 1
326	367	561352.56	4181719.179	326	449	560849.0573	4181358.67	< 1
327	383	561352.69	4181720.049	327	434	560848.9087	4181359.571	< 1
328	378	561352.82	4181720.967	328	426	560848.742	4181360.441	< 1
329	365	561352.90	4181721.904	329	445	560848.8588	4181361.325	< 1
330	376	561352.94	4181722.862	330	429	560849.0684	4181362.256	< 1
331	382	561352.97	4181723.824	331	445	560849.3116	4181363.209	< 1
332	390	561353.01	4181724.791	332	407	560849.4389	4181364.21	< 1
333	392	561353.04	4181725.736	333	423	560849.9704	4181364.535	< 1
334	394	561353.09	4181726.718	334	432	560849.4939	4181365.881	< 1
335	394	561353.13	4181727.905	335	421	560849.5237	4181364.904	< 1
336	382	561353.16	4181728.746	336	444	560849.528	4181363.91	< 1
337	408	561353.20	4181729.516	337	442	560849.647	4181362.909	< 1
338	383	561353.24	4181730.421	338	442	560849.7612	4181361.965	< 1
339	375	561353.27	4181731.393	339	427	560849.8813	4181359.61	< 1
340	366	561353.32	4181732.569	340	458	560849.863	4181359.732	< 1
341	396	561353.35	4181733.548	341	444	560849.7356	4181360.243	< 1
342	385	561353.43	4181734.464	342	451	560849.7324	4181361.163	< 1
343	390	561353.46	4181735.274	343	443	560849.7219	4181362.084	< 1
344	387	561353.49	4181736.109	344	434	560850.0075	4181362.971	< 1
345	373	561353.54	4181737.07	345	437	560850.093	4181363.9	< 1
346	390	561353.59	4181738.144	346	424	560850.243	4181364.454	< 1
347	392	561353.65	4181739.273	347	415	560850.2341	4181364.639	< 1
348	407	561353.69	4181740.111	348	414	560850.1952	4181365.661	< 1
349	399	561353.72	4181740.976	349	442	560850.0541	4181364.877	< 1
350	386	561353.80	4181741.966	350	442	560850.2591	4181363.926	< 1
351	367	561353.88	4181742.96	351	442	560850.493	4181362.933	< 1
352	397	561353.94	4181743.959	352	454	560850.6412	4181361.877	< 1
353	383	561354.02	4181745.154	353	476	560850.7771	4181360.95	1
354	389	561354.10	4181746.271	354	445	560850.8287	4181358.715	< 1
355	379	561354.17	4181747.271	355	425	560850.771	4181359.45	< 1
356	393	561354.24	4181748.139	356	435	560850.6525	4181360.292	< 1
357	378	561354.29	4181748.98	357	436	560850.7326	4181361.243	< 1
358	389	561354.37	4181750.153	358	454	560850.8119	4181362.158	< 1
359	409	561354.46	4181751.188	359	439	560850.8551	4181363.069	< 1
360	387	561354.50	4181752.023	360	433	560850.8679	4181363.977	< 1
361	394	561354.54	4181752.937	361	436	560850.8314	4181364.481	< 1
362	383	561354.60	4181753.93	362	412	560850.8382	4181364.575	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
363	404	561354.66	4181754.93	363	461	560850.8979	4181365.304	1
364	400	561354.65	4181755.971	364	431	560850.7755	4181364.225	< 1
365	409	561354.67	4181757.201	365	452	560851.0211	4181363.178	< 1
366	378	561354.68	4181758.119	366	450	560851.2996	4181362.137	< 1
367	390	561354.65	4181758.973	367	439	560851.4095	4181361.07	< 1
368	409	561354.62	4181760.105	368	422	560851.6391	4181359.595	< 1
369	390	561354.78	4181761.142	369	449	560851.4334	4181360.003	< 1
370	389	561354.48	4181761.92	370	473	560851.3382	4181360.945	1
371	387	561354.31	4181762.57	371	455	560850.4766	4181361.921	< 1
372	399	561353.93	4181763.056	372	456	560850.4965	4181361.929	< 1
373	407	561353.51	4181763.699	373	446	560850.7282	4181361.744	< 1
374	396	561352.86	4181764.264	374	455	560851.2909	4181361.736	< 1
375	374	561351.97	4181764.37	375	460	560851.4434	4181362.769	1
376	409	561350.95	4181764.516	376	418	560851.5989	4181363.746	< 1
377	396	561349.85	4181764.501	377	437	560851.7044	4181364.675	< 1
378	383	561349.01	4181764.519	378	441	560851.8413	4181365.84	< 1
379	391	561348.14	4181764.54	379	457	560851.557	4181365.131	< 1
380	389	561347.13	4181764.558	380	474	560851.6723	4181364.355	1
381	372	561346.18	4181764.665	381	447	560851.82	4181363.487	< 1
382	411	561345.33	4181764.463	382	477	560851.9066	4181362.515	1
383	391	561344.52	4181764.313	383	438	560851.9894	4181361.688	< 1
384	408	561343.62	4181764.113	384	448	560852.098	4181359.558	< 1
385	388	561343.20	4181763.45	385	439	560852.001	4181360.352	< 1
386	394	561342.60	4181762.694	386	458	560851.8073	4181361.203	< 1
387	400	561342.36	4181761.653	387	439	560851.9354	4181362.107	< 1
388	375	561342.26	4181760.72	388	434	560852.0742	4181363.078	< 1
389	410	561342.15	4181759.784	389	446	560852.1313	4181364.038	< 1
390	400	561342.07	4181758.84	390	430	560852.3714	4181364.685	< 1
391	398	561341.99	4181757.88	391	424	560852.919	4181366.182	< 1
392	411	561342.02	4181756.911	392	453	560852.6867	4181365.521	< 1
393	398	561341.93	4181755.952	393	457	560852.383	4181364.645	< 1
394	411	561341.84	4181755.075	394	421	560852.3018	4181363.662	< 1
395	380	561341.80	4181754.276	395	451	560852.4678	4181362.695	< 1
396	385	561341.75	4181753.403	396	446	560852.6707	4181361.7	< 1
397	395	561341.69	4181752.457	397	488	560852.7287	4181360.658	2
398	391	561341.63	4181751.515	398	441	560852.7963	4181360.294	< 1
399	409	561341.59	4181750.567	399	455	560852.8245	4181358.669	< 1
400	408	561341.52	4181749.602	400	444	560852.7474	4181359.645	< 1
401	389	561341.45	4181748.638	401	462	560852.5903	4181360.62	1
402	391	561341.42	4181747.675	402	464	560852.7609	4181361.574	1
403	382	561341.38	4181746.731	403	448	560852.941	4181362.597	< 1
404	420	561341.31	4181745.794	404	454	560853.0375	4181363.603	< 1
405	404	561341.27	4181744.859	405	440	560853.203	4181364.37	< 1
406	399	561341.24	4181743.918	406	448	560853.5524	4181365.969	< 1
407	383	561341.20	4181742.971	407	448	560853.3962	4181365.277	< 1
408	406	561341.17	4181741.997	408	457	560853.1996	4181364.332	< 1
409	385	561341.09	4181740.971	409	467	560853.2921	4181363.328	1
410	388	561341.09	4181739.705	410	432	560853.4235	4181362.386	< 1
411	407	561341.09	4181738.684	411	462	560853.5808	4181361.461	1
412	377	561341.03	4181737.741	412	455	560853.6324	4181360.539	< 1
413	395	561341.00	4181736.932	413	462	560853.652	4181360.185	1
414	369	561340.97	4181736.059	414	438	560853.8082	4181358.52	< 1
415	400	561340.91	4181734.869	415	473	560853.6962	4181359.268	1
416	380	561340.86	4181734.004	416	439	560853.487	4181360.048	< 1
417	389	561340.80	4181733.207	417	466	560853.5612	4181360.871	1
418	396	561340.72	4181732.273	418	427	560853.6182	4181361.701	< 1
419	390	561340.68	4181731.309	419	425	560853.9533	4181362.487	< 1
420	403	561340.61	4181730.334	420	468	560854.0062	4181363.332	1
421	389	561340.54	4181729.345	421	427	560854.0349	4181364.04	< 1
422	400	561340.48	4181728.34	422	427	560854.0875	4181364.606	< 1
423	396	561340.41	4181727.114	423	434	560854.1694	4181365.485	< 1
424	377	561340.33	4181726.056	424	458	560853.879	4181364.498	< 1
425	382	561340.29	4181725.208	425	436	560854.1392	4181363.635	< 1
426	416	561340.24	4181724.276	426	452	560854.4408	4181362.752	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
427	395	561340.20	4181723.257	427	461	560854.6189	4181361.81	1
428	400	561340.16	4181722.242	428	473	560854.7955	4181360.889	1
429	394	561339.94	4181721.24	429	446	560854.9416	4181360.085	< 1
430	407	561340.14	4181720.445	430	463	560854.9381	4181359.903	1
431	389	561340.25	4181719.532	431	472	560854.9503	4181358.753	1
432	387	561340.58	4181718.59	432	440	560854.8296	4181359.822	< 1
433	409	561341.09	4181718.27	433	435	560854.737	4181360.927	< 1
434	400	561341.60	4181717.728	434	439	560854.9257	4181362.009	< 1
435	387	561342.66	4181717.473	435	444	560854.9794	4181362.991	< 1
436	421	561343.48	4181717.257	436	406	560854.974	4181363.874	< 1
437	390	561344.27	4181717.175	437	414	560855.1163	4181364.635	< 1
438	388	561345.39	4181717.071	438	453	560855.3043	4181365.64	< 1
439	395	561346.35	4181717.017	439	431	560854.9065	4181364.752	< 1
440	395	561347.10	4181717.006	440	426	560855.1392	4181363.607	< 1
441	391	561347.84	4181716.956	441	434	560855.396	4181362.464	< 1
442	400	561348.59	4181717.012	442	434	560855.4987	4181361.299	< 1
443	392	561349.33	4181717.013	443	454	560855.5571	4181360.821	< 1
444	405	561350.15	4181717.049	444	447	560855.7254	4181359.082	< 1
445	394	561350.64	4181717.511	445	406	560855.5937	4181359.886	< 1
446	405	561351.31	4181717.959	446	441	560855.3503	4181360.615	< 1
447	410	561351.87	4181718.683	447	454	560855.42	4181361.282	< 1
448	388	561352.01	4181719.542	448	424	560855.5367	4181362.257	< 1
449	386	561352.20	4181720.437	449	449	560856.0013	4181363.195	< 1
450	396	561352.27	4181721.386	450	429	560856.0734	4181364.077	< 1
451	389	561352.34	4181722.224	451	430	560856.2388	4181365.845	< 1
452	389	561352.37	4181723.041	452	443	560856.1747	4181365.316	< 1
453	390	561352.41	4181724.004	453	463	560856.0659	4181364.446	1
454	396	561352.42	4181724.991	454	432	560856.2038	4181363.523	< 1
455	402	561352.45	4181725.954	455	447	560856.355	4181362.656	< 1
456	405	561352.49	4181727.032	456	424	560856.5405	4181361.823	< 1
457	429	561352.51	4181728.154	457	446	560856.5989	4181361.002	< 1
458	381	561352.54	4181728.926	458	447	560856.6524	4181360.342	< 1
459	375	561352.56	4181729.726	459	450	560856.7948	4181358.346	< 1
460	359	561352.59	4181730.667	460	445	560856.7091	4181359.07	< 1
461	374	561352.62	4181731.626	461	436	560856.5405	4181359.898	< 1
462	418	561352.65	4181732.602	462	439	560856.6309	4181360.833	< 1
463	382	561352.68	4181733.55	463	434	560856.7219	4181361.763	< 1
464	389	561352.75	4181734.498	464	467	560856.6868	4181362.703	1
465	400	561352.79	4181735.481	465	441	560856.8496	4181363.61	< 1
466	388	561352.83	4181736.589	466	444	560857.0309	4181364.193	< 1
467	366	561352.87	4181737.78	467	462	560857.0485	4181364.474	1
468	360	561352.94	4181738.751	468	452	560857.1072	4181365.38	< 1
469	406	561353.01	4181739.744	469	438	560856.8471	4181364.49	< 1
470	364	561353.08	4181740.76	470	448	560857.011	4181363.626	< 1
471	387	561353.14	4181741.748	471	452	560857.217	4181362.769	< 1
472	385	561353.20	4181742.728	472	443	560857.2775	4181361.894	< 1
473	379	561353.26	4181743.704	473	452	560857.3448	4181361.127	< 1
474	390	561353.32	4181744.597	474	416	560857.3966	4181358.98	< 1
475	396	561353.37	4181745.408	475	438	560857.3562	4181359.416	< 1
476	401	561353.44	4181746.304	476	456	560857.2418	4181360.033	< 1
477	392	561353.49	4181747.287	477	432	560857.283	4181360.837	< 1
478	395	561353.54	4181748.276	478	445	560857.3153	4181361.659	< 1
479	400	561353.63	4181749.263	479	426	560857.4917	4181362.477	< 1
480	371	561353.70	4181750.245	480	407	560857.5324	4181363.335	< 1
481	390	561353.78	4181751.243	481	450	560857.6021	4181364.002	< 1
482	406	561353.83	4181752.258	482	427	560857.5925	4181364.48	< 1
483	394	561353.89	4181753.265	483	434	560857.5769	4181365.316	< 1
484	405	561353.93	4181754.27	484	467	560857.4578	4181364.257	1
485	414	561353.93	4181755.268	485	459	560857.8152	4181363.212	< 1
486	401	561353.93	4181756.263	486	440	560858.2344	4181362.172	< 1
487	439	561353.97	4181757.254	487	441	560858.3202	4181361.054	< 1
488	405	561354.00	4181758.477	488	434	560858.3814	4181360.432	< 1
489	395	561353.99	4181759.58	489	430	560858.5088	4181358.55	< 1
490	394	561354.02	4181760.515	490	446	560858.4006	4181359.441	< 1

Count #	Reading	Easting	Northing
491	408	561354.10	4181761.31
492	388	561354.08	4181762.113
493	396	561353.70	4181762.615
494	397	561353.49	4181763.386
495	402	561352.62	4181763.831
496	405	561351.84	4181764.263
497	412	561350.99	4181764.391
498	406	561350.21	4181764.401
499	425	561349.40	4181764.397
500	395	561348.41	4181764.433
501	410	561347.46	4181764.495
502	385	561346.56	4181764.458
503	388	561345.55	4181764.395
504	384	561344.67	4181764.227
505	388	561344.20	4181763.773
506	417	561343.51	4181763.365
507	386	561343.26	4181762.587
508	391	561342.99	4181761.726
509	414	561342.85	4181760.813
510	406	561342.75	4181759.88
511	406	561342.63	4181758.815
512	423	561342.51	4181757.685
513	429	561342.48	4181756.894
514	389	561342.47	4181756.038
515	387	561342.41	4181754.864
516	400	561342.37	4181754.022
517	401	561342.34	4181753.247
518	404	561342.29	4181752.134
519	395	561342.27	4181751.145
520	408	561342.24	4181750.349
521	409	561342.21	4181749.476
522	394	561342.16	4181748.526
523	387	561342.11	4181747.387
524	403	561342.06	4181746.403
525	402	561342.03	4181745.613
526	400	561341.98	4181744.624
527	401	561341.90	4181743.502
528	391	561341.88	4181742.695
529	386	561341.87	4181741.857
530	390	561341.82	4181740.865
531	391	561341.78	4181739.879
532	386	561341.73	4181738.901
533	377	561341.69	4181737.936
534	378	561341.63	4181736.978
535	397	561341.60	4181736.042
536	396	561341.57	4181734.979
537	379	561341.50	4181733.831
538	382	561341.43	4181732.883
539	383	561341.36	4181731.934
540	403	561341.30	4181730.983
541	397	561341.24	4181730.012
542	412	561341.17	4181729.06
543	395	561341.12	4181728.224
544	399	561341.07	4181727.358
545	387	561341.00	4181726.345
546	389	561340.93	4181725.332
547	393	561340.88	4181724.318
548	395	561340.83	4181723.31
549	392	561340.72	4181722.318
550	374	561340.76	4181721.399
551	371	561340.67	4181720.511
552	393	561340.96	4181719.755
553	392	561341.15	4181719.03
554	374	561341.49	4181718.296

Count #	Reading	Easting	Northing	Sigma
491	450	560858.2116	4181360.368	< 1
492	430	560858.3307	4181361.331	< 1
493	429	560858.4552	4181362.354	< 1
494	445	560858.583	4181363.352	< 1
495	419	560858.6208	4181364.165	< 1
496	453	560858.7092	4181365.821	< 1
497	440	560858.6592	4181365.127	< 1
498	453	560858.6048	4181364.168	< 1
499	446	560858.831	4181363.174	< 1
500	455	560859.1153	4181362.186	< 1
501	430	560859.4872	4181361.25	< 1
502	454	560859.4622	4181360.303	< 1
503	411	560859.4762	4181358.699	< 1
504	428	560859.4172	4181359.01	< 1
505	421	560859.419	4181359.964	< 1
506	451	560859.4006	4181360.903	< 1
507	454	560859.4572	4181361.823	< 1
508	452	560859.5147	4181362.757	< 1
509	424	560859.5328	4181363.616	< 1
510	446	560859.5737	4181364.074	< 1
511	451	560859.6811	4181365.405	< 1
512	446	560859.6297	4181364.417	< 1
513	428	560859.6	4181363.374	< 1
514	435	560859.9805	4181362.389	< 1
515	432	560860.0365	4181361.46	< 1
516	422	560860.1918	4181359.716	< 1

516	Total Counts
434.86	Average
24.44	Std Dev
488.00	Max
508.18	3 sigma

Count #	Reading	Easting	Northing
555	416	561342.15	4181717.986
556	401	561342.86	4181717.548
557	377	561343.74	4181717.408
558	389	561344.65	4181717.26
559	389	561345.56	4181717.218
560	409	561346.46	4181717.182
561	401	561347.36	4181717.115
562	398	561348.27	4181716.949
563	412	561348.84	4181717.157
564	389	561349.55	4181717.183
565	399	561350.21	4181717.744
566	390	561350.79	4181718.076
567	363	561351.05	4181718.602
568	396	561351.43	4181719.306
569	388	561351.64	4181720.137
570	396	561351.71	4181721.063
571	392	561351.80	4181721.993
572	382	561351.84	4181722.932
573	401	561351.88	4181723.886
574	402	561351.89	4181724.843
575	389	561351.91	4181725.797
576	386	561351.95	4181726.752
577	387	561351.96	4181727.709
578	400	561351.97	4181728.638
579	400	561351.99	4181729.558
580	379	561352.01	4181730.463
581	381	561352.02	4181731.38
582	385	561352.05	4181732.309
583	389	561352.09	4181733.426
584	391	561352.14	4181734.481
585	366	561352.17	4181735.436
586	369	561352.19	4181736.391
587	388	561352.24	4181737.344
588	374	561352.27	4181738.293
589	376	561352.30	4181739.171
590	397	561352.35	4181739.975
591	395	561352.40	4181740.87
592	378	561352.46	4181741.856
593	374	561352.53	4181742.84
594	392	561352.60	4181743.818
595	397	561352.67	4181744.765
596	402	561352.74	4181745.693
597	397	561352.80	4181746.603
598	411	561352.86	4181747.534
599	387	561352.94	4181748.471
600	391	561352.99	4181749.425
601	376	561353.03	4181750.389
602	396	561353.08	4181751.365
603	401	561353.13	4181752.553
604	378	561353.16	4181753.663
605	378	561353.20	4181754.651
606	393	561353.25	4181755.628
607	403	561353.28	4181756.608
608	394	561353.32	4181757.606
609	388	561353.37	4181758.509
610	397	561353.40	4181759.32
611	381	561353.47	4181760.253
612	398	561353.59	4181761.296
613	406	561353.33	4181761.85
614	403	561353.29	4181762.632
615	428	561352.66	4181763.1
616	380	561352.08	4181763.719
617	389	561351.27	4181763.918
618	393	561350.41	4181764.138

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
619	388	561349.47	4181764.265
620	398	561348.29	4181764.378
621	391	561347.48	4181764.488
622	401	561346.73	4181764.424
623	382	561345.92	4181764.402
624	394	561345.08	4181764.207
625	381	561344.58	4181763.668
626	379	561343.85	4181763.1
627	390	561343.54	4181762.147
628	406	561343.43	4181761.232
629	393	561343.31	4181760.387
630	404	561343.26	4181759.604
631	416	561343.19	4181758.627
632	397	561343.15	4181757.518
633	374	561343.11	4181756.728
634	406	561343.03	4181755.874
635	398	561343.00	4181754.697
636	402	561342.98	4181753.847
637	391	561342.97	4181753.063
638	378	561342.95	4181752.144
639	391	561342.90	4181751.159
640	378	561342.87	4181749.972
641	382	561342.85	4181749.125
642	384	561342.82	4181748.347
643	411	561342.78	4181747.235
644	396	561342.74	4181746.246
645	387	561342.69	4181745.449
646	374	561342.62	4181744.57
647	396	561342.58	4181743.607
648	371	561342.54	4181742.642
649	405	561342.49	4181741.673
650	383	561342.48	4181740.691
651	371	561342.46	4181739.594
652	387	561342.41	4181738.427
653	392	561342.36	4181737.475
654	401	561342.30	4181736.54
655	381	561342.26	4181735.619
656	394	561342.22	4181734.681
657	361	561342.15	4181733.767
658	372	561342.10	4181732.983
659	397	561342.04	4181732.173
660	398	561341.98	4181731.229
661	390	561341.92	4181730.279
662	388	561341.85	4181729.321
663	392	561341.79	4181728.329
664	370	561341.72	4181727.329
665	389	561341.66	4181726.322
666	384	561341.61	4181725.311
667	395	561341.56	4181724.298
668	389	561341.51	4181723.285
669	395	561341.41	4181722.286
670	374	561341.46	4181721.362
671	381	561341.41	4181720.471
672	412	561341.65	4181719.686
673	374	561341.82	4181718.932
674	396	561342.17	4181718.159
675	402	561343.01	4181717.747
676	399	561343.79	4181717.331
677	409	561344.67	4181717.152
678	396	561345.60	4181717.136
679	395	561346.39	4181717.105
680	392	561347.05	4181717.116
681	398	561347.74	4181717.012
682	384	561348.41	4181717.201

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
683	384	561349.09	4181717.311
684	390	561349.81	4181717.524
685	388	561350.16	4181718.043
686	369	561350.71	4181718.538
687	381	561350.85	4181719.259
688	398	561351.03	4181720.119
689	399	561351.16	4181721.065
690	399	561351.22	4181722.257
691	392	561351.26	4181723.119
692	385	561351.29	4181723.917
693	381	561351.32	4181724.835
694	407	561351.33	4181725.775
695	393	561351.34	4181726.705
696	394	561351.36	4181727.753
697	414	561351.37	4181728.877
698	391	561351.40	4181729.784
699	365	561351.45	4181730.608
700	369	561351.46	4181731.351
701	379	561351.46	4181732.32
702	396	561351.47	4181733.443
703	365	561351.49	4181734.202
704	399	561351.54	4181734.991
705	390	561351.54	4181735.931
706	386	561351.50	4181736.888
707	390	561351.58	4181737.857
708	384	561351.66	4181738.801
709	373	561351.72	4181739.785
710	387	561351.80	4181740.982
711	374	561351.86	4181741.841
712	388	561351.91	4181742.633
713	412	561351.98	4181743.769
714	395	561352.06	4181744.745
715	397	561352.10	4181745.494
716	389	561352.13	4181746.304
717	386	561352.18	4181747.173
718	373	561352.24	4181748.071
719	396	561352.26	4181749.025
720	389	561352.32	4181750.22
721	374	561352.37	4181751.244
722	389	561352.45	4181752.23
723	388	561352.49	4181753.21
724	395	561352.53	4181754.183
725	379	561352.58	4181755.149
726	386	561352.63	4181756.127
727	389	561352.68	4181757.081
728	379	561352.71	4181757.902
729	389	561352.73	4181758.739
730	390	561352.77	4181759.659
731	390	561352.93	4181760.519
732	390	561352.75	4181761.279
733	389	561352.62	4181762.064
734	375	561352.38	4181762.939
735	386	561351.70	4181763.292
736	391	561351.02	4181763.734
737	395	561350.24	4181763.948
738	419	561349.34	4181764.192
739	385	561348.43	4181764.476
740	389	561347.58	4181764.433
741	408	561346.71	4181764.564
742	378	561346.02	4181764.191
743	419	561345.22	4181763.769
744	384	561344.42	4181763.264
745	372	561344.24	4181762.492
746	383	561344.04	4181761.631

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
747	391	561343.89	4181760.732
748	387	561343.83	4181759.782
749	401	561343.75	4181758.916
750	396	561343.73	4181758.131
751	398	561343.70	4181757.265
752	374	561343.66	4181756.319
753	412	561343.62	4181755.369
754	388	561343.58	4181754.418
755	401	561343.56	4181753.469
756	384	561343.56	4181752.518
757	379	561343.52	4181751.564
758	390	561343.49	4181750.634
759	401	561343.45	4181749.668
760	382	561343.42	4181748.505
761	393	561343.40	4181747.665
762	388	561343.37	4181746.89
763	400	561343.32	4181745.955
764	370	561343.22	4181744.991
765	399	561343.18	4181744.029
766	402	561343.14	4181742.94
767	409	561343.10	4181741.762
768	391	561343.08	4181740.776
769	409	561343.07	4181739.876
770	416	561343.04	4181739.061
771	389	561343.01	4181738.058
772	366	561342.93	4181736.942
773	395	561342.89	4181736.175
774	390	561342.86	4181735.38
775	394	561342.80	4181734.445
776	374	561342.72	4181733.51
777	387	561342.67	4181732.573
778	400	561342.62	4181731.619
779	364	561342.55	4181730.624
780	379	561342.47	4181729.428
781	385	561342.41	4181728.549
782	387	561342.36	4181727.733
783	376	561342.30	4181726.552
784	382	561342.24	4181725.505
785	388	561342.21	4181724.666
786	391	561342.18	4181723.744
787	392	561342.16	4181722.739
788	386	561342.15	4181721.576
789	384	561342.07	4181720.536
790	385	561342.33	4181719.723
791	385	561342.51	4181718.934
792	398	561342.88	4181718.136
793	395	561343.59	4181717.803
794	386	561344.33	4181717.365
795	387	561345.23	4181717.183
796	404	561345.91	4181717.019
797	387	561346.57	4181716.956
798	384	561347.22	4181716.811
799	373	561347.96	4181716.74
800	382	561348.52	4181717.112
801	377	561349.19	4181717.356
802	387	561349.57	4181717.893
803	379	561350.05	4181718.449
804	377	561350.27	4181719.175
805	357	561350.40	4181720.053
806	369	561350.55	4181720.953
807	382	561350.61	4181721.887
808	396	561350.68	4181722.837
809	388	561350.70	4181723.829
810	406	561350.73	4181725.008

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
811	375	561350.75	4181725.975
812	385	561350.75	4181726.906
813	384	561350.77	4181727.865
814	402	561350.80	4181728.802
815	398	561350.82	4181729.718
816	392	561350.84	4181730.632
817	367	561350.87	4181731.551
818	379	561350.90	4181732.496
819	393	561350.94	4181733.338
820	407	561350.95	4181734.078
821	393	561350.97	4181734.908
822	361	561350.98	4181735.826
823	391	561350.99	4181736.782
824	383	561351.03	4181737.781
825	419	561351.10	4181738.961
826	371	561351.16	4181739.963
827	372	561351.23	4181740.902
828	393	561351.26	4181741.707
829	367	561351.29	4181742.541
830	375	561351.35	4181743.511
831	418	561351.43	4181744.456
832	406	561351.47	4181745.378
833	399	561351.50	4181746.269
834	411	561351.58	4181747.192
835	384	561351.66	4181748.317
836	384	561351.73	4181749.286
837	389	561351.79	4181750.228
838	394	561351.81	4181751.184
839	404	561351.81	4181752.062
840	395	561351.84	4181752.863
841	386	561351.87	4181753.753
842	398	561351.93	4181754.731
843	383	561351.99	4181755.696
844	418	561352.07	4181756.658
845	404	561352.07	4181757.615
846	400	561352.07	4181758.688
847	388	561352.18	4181759.828
848	369	561352.06	4181760.674
849	390	561352.08	4181761.535
850	377	561351.72	4181762.256
851	378	561351.53	4181762.911
852	400	561351.05	4181763.282
853	397	561350.35	4181763.827
854	399	561349.51	4181764.335
855	391	561348.58	4181764.398
856	385	561347.57	4181764.577
857	395	561346.44	4181764.474
858	398	561345.88	4181763.874
859	378	561345.17	4181763.348
860	401	561344.93	4181762.536
861	404	561344.66	4181761.621
862	393	561344.48	4181760.681
863	378	561344.43	4181759.835
864	370	561344.39	4181758.964
865	384	561344.33	4181757.968
866	389	561344.25	4181756.973
867	393	561344.23	4181755.977
868	381	561344.22	4181754.785
869	393	561344.23	4181753.667
870	387	561344.21	4181752.663
871	390	561344.19	4181751.665
872	398	561344.20	4181750.666
873	405	561344.14	4181749.67
874	405	561344.09	4181748.775

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
875	394	561344.04	4181747.98
876	378	561343.97	4181747.099
877	366	561343.92	4181746.129
878	389	561343.88	4181745.114
879	404	561343.83	4181744.046
880	397	561343.78	4181742.755
881	368	561343.74	4181741.688
882	385	561343.71	4181740.666
883	385	561343.67	4181739.654
884	376	561343.64	4181738.649
885	384	561343.59	4181737.653
886	378	561343.55	4181736.817
887	382	561343.50	4181736.013
888	385	561343.44	4181735.083
889	386	561343.36	4181734.122
890	371	561343.28	4181733.134
891	405	561343.20	4181732.021
892	370	561343.09	4181730.826
893	378	561343.05	4181729.838
894	376	561343.02	4181728.838
895	389	561342.98	4181727.826
896	396	561342.95	4181726.794
897	404	561342.95	4181725.78
898	374	561342.90	4181724.883
899	373	561342.82	4181723.965
900	387	561342.80	4181722.928
901	385	561342.79	4181721.923
902	365	561342.79	4181720.951
903	374	561342.84	4181719.878
904	411	561343.02	4181718.893
905	391	561343.58	4181718.316
906	383	561344.11	4181717.693
907	386	561344.83	4181717.272
908	380	561345.65	4181717.115
909	403	561346.33	4181716.794
910	383	561346.89	4181716.893
911	409	561347.55	4181716.844
912	408	561348.12	4181717.185
913	412	561348.76	4181717.446
914	378	561349.40	4181717.917
915	383	561349.60	4181718.846
916	392	561349.80	4181719.741
917	378	561349.99	4181720.649
918	406	561350.02	4181721.614
919	398	561350.06	4181722.583
920	392	561350.07	4181723.558
921	375	561350.07	4181724.393
922	405	561350.09	4181725.2
923	398	561350.10	4181726.122
924	401	561350.09	4181727.069
925	370	561350.13	4181728.018
926	393	561350.17	4181729.086
927	387	561350.19	4181730.235
928	370	561350.22	4181731.2
929	398	561350.25	4181732.194
930	394	561350.28	4181733.215
931	354	561350.32	4181734.162
932	405	561350.32	4181735.072
933	394	561350.36	4181735.861
934	395	561350.41	4181736.684
935	369	561350.45	4181737.672
936	399	561350.50	4181738.785
937	384	561350.55	4181739.978
938	391	561350.60	4181740.95

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
939	380	561350.64	4181741.925
940	382	561350.68	4181742.903
941	384	561350.72	4181743.875
942	389	561350.83	4181744.835
943	434	561350.87	4181745.767
944	400	561350.91	4181746.627
945	406	561350.95	4181747.417
946	372	561351.00	4181748.273
947	393	561351.04	4181749.197
948	391	561351.09	4181750.358
949	393	561351.17	4181751.459
950	397	561351.19	4181752.457
951	408	561351.21	4181753.458
952	372	561351.27	4181754.459
953	359	561351.32	4181755.469
954	388	561351.36	4181756.378
955	377	561351.39	4181757.188
956	374	561351.42	4181758.085
957	367	561351.45	4181759.069
958	390	561351.48	4181760
959	416	561351.64	4181760.972
960	399	561351.30	4181761.925
961	397	561351.12	4181762.692
962	392	561350.76	4181763.399
963	398	561350.11	4181763.742
964	397	561349.51	4181764.249
965	380	561348.77	4181764.313
966	392	561348.11	4181764.491
967	407	561347.51	4181764.263
968	376	561346.81	4181764.076
969	382	561345.99	4181763.744
970	380	561345.76	4181762.988
971	387	561345.46	4181762.083
972	388	561345.21	4181761.017
973	397	561345.13	4181760.055
974	404	561345.04	4181759.106
975	377	561344.98	4181758.168
976	377	561344.92	4181757.215
977	397	561344.89	4181756.284
978	400	561344.87	4181755.483
979	385	561344.85	4181754.657
980	390	561344.83	4181753.71
981	388	561344.81	4181752.762
982	396	561344.78	4181751.814
983	383	561344.73	4181750.678
984	408	561344.68	4181749.624
985	387	561344.62	4181748.691
986	411	561344.56	4181747.749
987	391	561344.51	4181746.8
988	379	561344.48	4181745.828
989	378	561344.45	4181744.93
990	390	561344.43	4181744.106
991	383	561344.40	4181743.193
992	403	561344.37	4181742.191
993	391	561344.35	4181741.195
994	419	561344.31	4181740.16
995	405	561344.25	4181738.931
996	379	561344.21	4181737.936
997	381	561344.16	4181736.991
998	405	561344.11	4181736.062
999	374	561344.06	4181735.14
1000	374	561343.99	4181734.227
1001	377	561343.92	4181733.414
1002	388	561343.87	4181732.62

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1003	398	561343.81	4181731.698
1004	406	561343.72	4181730.75
1005	373	561343.70	4181729.793
1006	386	561343.68	4181728.708
1007	388	561343.61	4181727.532
1008	401	561343.57	4181726.53
1009	381	561343.53	4181725.512
1010	393	561343.49	4181724.477
1011	393	561343.45	4181723.442
1012	394	561343.43	4181722.437
1013	389	561343.40	4181721.586
1014	379	561343.22	4181720.714
1015	386	561343.41	4181719.85
1016	402	561343.44	4181718.968
1017	382	561343.89	4181718.324
1018	402	561344.38	4181717.593
1019	396	561345.05	4181716.973
1020	405	561345.89	4181716.792
1021	398	561346.79	4181716.595
1022	387	561347.71	4181716.516
1023	377	561348.62	4181716.471
1024	386	561349.47	4181716.423
1025	408	561350.27	4181716.399
1026	368	561351.17	4181716.367
1027	376	561352.17	4181716.351
1028	377	561353.40	4181716.348
1029	402	561354.51	4181716.424
1030	384	561355.44	4181716.403
1031	392	561356.31	4181716.366
1032	393	561357.17	4181716.346
1033	409	561357.81	4181716.624
1034	394	561358.55	4181716.755
1035	396	561359.04	4181717.256
1036	395	561359.56	4181717.652
1037	389	561359.81	4181718.217
1038	408	561360.14	4181718.896
1039	384	561360.37	4181719.698
1040	389	561360.52	4181720.764
1041	381	561360.65	4181721.682
1042	371	561360.73	4181722.58
1043	383	561360.82	4181723.491
1044	366	561360.91	4181724.397
1045	395	561360.98	4181725.3
1046	365	561361.06	4181726.2
1047	390	561361.16	4181727.075
1048	398	561361.23	4181727.848
1049	380	561361.31	4181728.649
1050	383	561361.38	4181729.591
1051	391	561361.46	4181730.539
1052	355	561361.54	4181731.491
1053	396	561361.62	4181732.454
1054	384	561361.69	4181733.418
1055	396	561361.76	4181734.367
1056	396	561361.83	4181735.312
1057	374	561361.90	4181736.254
1058	398	561361.95	4181737.178
1059	375	561362.03	4181738.102
1060	395	561362.08	4181739.043
1061	376	561362.14	4181739.987
1062	394	561362.18	4181740.935
1063	399	561362.22	4181741.912
1064	379	561362.21	4181742.894
1065	398	561362.23	4181743.864
1066	391	561362.26	4181744.847

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1067	394	561362.24	4181745.842
1068	398	561362.22	4181746.806
1069	405	561362.22	4181747.765
1070	391	561362.15	4181748.723
1071	386	561362.09	4181749.68
1072	390	561362.01	4181750.635
1073	420	561361.94	4181751.576
1074	401	561361.86	4181752.517
1075	398	561361.75	4181753.467
1076	387	561361.65	4181754.404
1077	394	561361.54	4181755.329
1078	369	561361.44	4181756.283
1079	375	561361.25	4181757.231
1080	382	561361.16	4181758.177
1081	371	561361.11	4181759.104
1082	404	561360.92	4181759.98
1083	385	561360.77	4181760.81
1084	391	561360.54	4181761.689
1085	354	561359.88	4181762.194
1086	379	561359.22	4181762.797
1087	401	561358.37	4181763.161
1088	397	561357.52	4181763.532
1089	419	561356.61	4181763.787
1090	394	561355.69	4181763.871
1091	416	561354.74	4181763.966
1092	383	561353.78	4181764.024
1093	396	561352.82	4181764.082
1094	401	561351.87	4181764.245
1095	383	561350.93	4181764.264
1096	413	561350.09	4181764.346
1097	390	561349.36	4181764.25
1098	377	561348.56	4181764.187
1099	378	561347.67	4181764.083
1100	396	561347.17	4181763.485
1101	385	561346.52	4181762.962
1102	386	561346.32	4181762.203
1103	389	561346.08	4181761.331
1104	388	561345.87	4181760.421
1105	387	561345.79	4181759.472
1106	396	561345.69	4181758.528
1107	376	561345.66	4181757.584
1108	394	561345.64	4181756.637
1109	404	561345.57	4181755.694
1110	376	561345.55	4181754.769
1111	403	561345.53	4181753.847
1112	381	561345.51	4181752.928
1113	384	561345.50	4181751.99
1114	376	561345.47	4181751.055
1115	397	561345.41	4181750.158
1116	415	561345.35	4181749.249
1117	386	561345.28	4181748.327
1118	406	561345.22	4181747.383
1119	394	561345.17	4181746.389
1120	400	561345.13	4181745.173
1121	407	561345.10	4181744.281
1122	374	561345.08	4181743.453
1123	385	561345.05	4181742.488
1124	384	561345.04	4181741.494
1125	388	561344.99	4181740.494
1126	399	561344.95	4181739.508
1127	406	561344.91	4181738.534
1128	400	561344.87	4181737.611
1129	389	561344.82	4181736.697
1130	391	561344.77	4181735.768

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1131	387	561344.72	4181734.736
1132	379	561344.60	4181733.665
1133	373	561344.56	4181732.879
1134	363	561344.54	4181732.063
1135	388	561344.47	4181731.103
1136	382	561344.39	4181730.153
1137	381	561344.32	4181729.211
1138	386	561344.25	4181728.251
1139	381	561344.24	4181727.281
1140	392	561344.16	4181726.304
1141	391	561344.06	4181725.304
1142	380	561344.01	4181724.278
1143	383	561343.96	4181723.259
1144	379	561343.91	4181722.237
1145	392	561343.84	4181721.195
1146	372	561343.68	4181720.238
1147	376	561343.83	4181719.386
1148	396	561343.90	4181718.599
1149	392	561344.14	4181717.81
1150	379	561344.70	4181717.383
1151	386	561345.25	4181716.773
1152	395	561346.06	4181716.588
1153	394	561346.94	4181716.381
1154	388	561347.86	4181716.341
1155	390	561348.79	4181716.325
1156	408	561349.74	4181716.304
1157	397	561350.71	4181716.305
1158	390	561351.72	4181716.308
1159	416	561352.73	4181716.362
1160	400	561353.73	4181716.397
1161	397	561354.68	4181716.454
1162	388	561355.56	4181716.424
1163	391	561356.36	4181716.353
1164	392	561357.16	4181716.365
1165	403	561357.77	4181716.716
1166	403	561358.49	4181716.918
1167	387	561358.89	4181717.456
1168	389	561359.39	4181718.014
1169	368	561359.72	4181718.715
1170	394	561359.83	4181719.536
1171	403	561359.97	4181720.381
1172	369	561360.06	4181721.257
1173	375	561360.15	4181722.144
1174	383	561360.24	4181723.074
1175	384	561360.35	4181724.2
1176	392	561360.42	4181725.011
1177	404	561360.48	4181725.76
1178	407	561360.55	4181726.667
1179	393	561360.67	4181727.605
1180	382	561360.75	4181728.57
1181	381	561360.83	4181729.536
1182	383	561360.90	4181730.504
1183	400	561360.97	4181731.465
1184	389	561361.04	4181732.428
1185	371	561361.12	4181733.41
1186	389	561361.20	4181734.51
1187	382	561361.27	4181735.659
1188	385	561361.31	4181736.46
1189	381	561361.37	4181737.285
1190	389	561361.41	4181738.235
1191	378	561361.46	4181739.191
1192	368	561361.49	4181740.153
1193	393	561361.51	4181741.102
1194	386	561361.57	4181742.05

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1195	388	561361.58	4181743.01
1196	408	561361.58	4181743.973
1197	402	561361.59	4181744.94
1198	385	561361.60	4181746.129
1199	377	561361.61	4181747.136
1200	391	561361.60	4181747.914
1201	400	561361.59	4181748.794
1202	391	561361.56	4181749.773
1203	392	561361.54	4181750.739
1204	404	561361.51	4181751.698
1205	398	561361.42	4181752.632
1206	393	561361.34	4181753.544
1207	367	561361.27	4181754.435
1208	371	561361.18	4181755.372
1209	392	561361.07	4181756.37
1210	405	561361.01	4181757.637
1211	382	561360.97	4181758.48
1212	390	561360.90	4181759.236
1213	398	561360.85	4181760.047
1214	393	561360.90	4181760.955
1215	389	561360.43	4181761.563
1216	370	561360.08	4181762.299
1217	373	561359.41	4181762.662
1218	402	561358.64	4181763.096
1219	393	561357.76	4181763.376
1220	395	561356.83	4181763.502
1221	400	561355.82	4181763.662
1222	397	561354.76	4181763.705
1223	403	561353.95	4181763.734
1224	383	561353.12	4181763.735
1225	399	561352.17	4181763.81
1226	402	561351.29	4181763.914
1227	412	561350.48	4181763.907
1228	406	561349.67	4181763.933
1229	383	561348.77	4181763.953
1230	391	561348.16	4181763.449
1231	374	561347.43	4181763.066
1232	387	561347.09	4181762.387
1233	392	561346.66	4181761.467
1234	402	561346.50	4181760.544
1235	390	561346.40	4181759.747
1236	417	561346.25	4181758.879
1237	380	561346.23	4181757.926
1238	387	561346.21	4181756.974
1239	412	561346.14	4181756.026
1240	385	561346.15	4181755.095
1241	377	561346.16	4181754.158
1242	385	561346.13	4181753.218
1243	377	561346.09	4181752.294
1244	398	561346.08	4181751.336
1245	394	561346.04	4181750.194
1246	356	561346.01	4181749.362
1247	392	561345.98	4181748.593
1248	390	561345.94	4181747.663
1249	388	561345.92	4181746.698
1250	378	561345.88	4181745.719
1251	389	561345.83	4181744.741
1252	381	561345.79	4181743.762
1253	384	561345.74	4181742.783
1254	375	561345.67	4181741.764
1255	374	561345.59	4181740.54
1256	401	561345.53	4181739.671
1257	378	561345.47	4181738.872
1258	378	561345.39	4181737.787

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1259	373	561345.34	4181736.83
1260	388	561345.29	4181736.061
1261	402	561345.23	4181735.216
1262	388	561345.16	4181734.298
1263	388	561345.07	4181733.168
1264	398	561345.05	4181732.115
1265	380	561345.01	4181731.184
1266	369	561344.98	4181730.354
1267	372	561344.92	4181729.545
1268	378	561344.85	4181728.399
1269	392	561344.81	4181727.297
1270	390	561344.73	4181726.312
1271	399	561344.65	4181725.317
1272	383	561344.61	4181724.342
1273	399	561344.54	4181723.501
1274	376	561344.45	4181722.586
1275	393	561344.37	4181721.299
1276	388	561344.28	4181720.473
1277	387	561344.39	4181719.747
1278	398	561344.45	4181718.959
1279	390	561344.67	4181718.119
1280	403	561345.26	4181717.713
1281	386	561345.82	4181717.143
1282	368	561346.62	4181716.957
1283	394	561347.67	4181716.73
1284	402	561348.62	4181716.619
1285	386	561349.40	4181716.596
1286	393	561350.40	4181716.562
1287	416	561351.54	4181716.533
1288	408	561352.39	4181716.556
1289	394	561353.25	4181716.617
1290	388	561354.22	4181716.588
1291	396	561355.19	4181716.519
1292	403	561356.18	4181716.38
1293	403	561356.82	4181716.693
1294	402	561357.51	4181716.875
1295	400	561357.98	4181717.306
1296	389	561358.56	4181717.714
1297	369	561358.96	4181718.335
1298	391	561359.12	4181719.132
1299	400	561359.30	4181719.963
1300	389	561359.42	4181720.84
1301	382	561359.54	4181721.614
1302	390	561359.63	4181722.371
1303	400	561359.73	4181723.258
1304	377	561359.79	4181724.174
1305	394	561359.86	4181725.076
1306	402	561359.93	4181726.006
1307	404	561360.00	4181726.963
1308	397	561360.08	4181727.92
1309	398	561360.15	4181728.878
1310	381	561360.23	4181729.847
1311	371	561360.31	4181730.937
1312	389	561360.41	4181732.084
1313	391	561360.46	4181732.909
1314	402	561360.52	4181733.799
1315	370	561360.60	4181735.015
1316	398	561360.66	4181736.023
1317	382	561360.70	4181736.989
1318	386	561360.75	4181737.942
1319	396	561360.80	4181738.826
1320	372	561360.85	4181739.639
1321	360	561360.90	4181740.526
1322	374	561360.97	4181741.486

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1323	406	561361.04	4181742.668
1324	395	561361.05	4181743.782
1325	383	561361.05	4181744.781
1326	403	561361.04	4181745.778
1327	381	561361.00	4181746.741
1328	396	561360.98	4181747.541
1329	384	561360.95	4181748.371
1330	402	561360.91	4181749.341
1331	392	561360.87	4181750.305
1332	408	561360.84	4181751.262
1333	397	561360.81	4181752.412
1334	400	561360.82	4181753.389
1335	389	561360.80	4181754.153
1336	390	561360.77	4181755.015
1337	373	561360.75	4181755.973
1338	401	561360.72	4181757.155
1339	395	561360.72	4181758.152
1340	381	561360.63	4181758.907
1341	398	561360.54	4181759.845
1342	380	561360.54	4181760.998
1343	376	561360.06	4181761.662
1344	369	561359.69	4181762.393
1345	403	561359.07	4181762.848
1346	375	561358.51	4181763.363
1347	384	561357.79	4181763.509
1348	423	561356.72	4181763.707
1349	402	561355.77	4181763.826
1350	376	561355.02	4181763.825
1351	398	561354.15	4181763.815
1352	414	561353.14	4181763.84
1353	383	561352.21	4181763.86
1354	392	561351.32	4181764.152
1355	378	561350.56	4181764.029
1356	392	561349.77	4181764.015
1357	380	561349.07	4181763.686
1358	394	561348.33	4181763.41
1359	378	561347.60	4181762.935
1360	412	561347.40	4181762.202
1361	399	561347.13	4181761.399
1362	404	561347.01	4181760.482
1363	402	561346.88	4181759.343
1364	399	561346.83	4181758.356
1365	400	561346.83	4181757.57
1366	388	561346.83	4181756.588
1367	382	561346.80	4181755.457
1368	393	561346.77	4181754.553
1369	383	561346.73	4181753.719
1370	375	561346.72	4181752.953
1371	376	561346.70	4181751.985
1372	384	561346.68	4181750.881
1373	375	561346.65	4181750.108
1374	373	561346.64	4181749.27
1375	392	561346.58	4181748.11
1376	411	561346.53	4181747.118
1377	396	561346.45	4181746.158
1378	366	561346.40	4181745.177
1379	404	561346.34	4181744.194
1380	390	561346.29	4181743.209
1381	388	561346.24	4181742.357
1382	357	561346.20	4181741.531
1383	378	561346.14	4181740.354
1384	365	561346.06	4181739.262
1385	393	561346.02	4181738.323
1386	399	561345.99	4181737.54

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1387	397	561345.93	4181736.789
1388	368	561345.87	4181735.894
1389	383	561345.82	4181734.971
1390	388	561345.75	4181734.061
1391	395	561345.66	4181733.036
1392	389	561345.66	4181731.945
1393	383	561345.60	4181731.136
1394	380	561345.50	4181730.263
1395	371	561345.47	4181729.066
1396	394	561345.45	4181728.182
1397	357	561345.37	4181727.365
1398	376	561345.27	4181726.179
1399	404	561345.15	4181725.04
1400	386	561345.10	4181724.019
1401	382	561345.05	4181723.138
1402	380	561345.00	4181722.285
1403	364	561344.93	4181721.099
1404	384	561344.75	4181720.108
1405	371	561344.94	4181719.437
1406	359	561345.05	4181718.585
1407	389	561345.45	4181717.676
1408	390	561346.07	4181717.337
1409	399	561346.63	4181716.847
1410	409	561347.30	4181716.754
1411	398	561348.08	4181716.605
1412	382	561348.99	4181716.59
1413	408	561349.94	4181716.574
1414	390	561350.90	4181716.575
1415	402	561351.88	4181716.623
1416	413	561352.82	4181716.665
1417	403	561353.69	4181716.717
1418	385	561355.30	4181716.792
1419	403	561355.14	4181716.848
1420	384	561355.03	4181716.836
1421	387	561354.55	4181716.023
1422	380	561354.73	4181717.364
1423	407	561354.73	4181717.363
1424	414	561353.64	4181716.202
1425	392	561353.64	4181716.204
1426	370	561353.63	4181716.208
1427	419	561355.02	4181716.819
1428	380	561355.02	4181716.819
1429	390	561353.97	4181717.514
1430	398	561353.97	4181717.512
1431	407	561354.72	4181716.129
1432	373	561354.72	4181716.13
1433	415	561353.58	4181716.275
1434	387	561354.64	4181717.432
1435	395	561354.64	4181717.431
1436	394	561354.42	4181717.527
1437	376	561354.42	4181717.526
1438	384	561353.74	4181716.775
1439	395	561354.20	4181716.652
1440	390	561355.07	4181716.742
1441	413	561356.00	4181716.716
1442	386	561356.95	4181716.92
1443	389	561357.39	4181717.427
1444	381	561358.12	4181717.865
1445	389	561358.43	4181718.963
1446	373	561358.69	4181719.899
1447	359	561358.87	4181720.825
1448	391	561359.00	4181721.769
1449	368	561359.15	4181722.726
1450	367	561359.22	4181723.705

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1451	383	561359.29	4181724.545
1452	381	561359.36	4181725.356
1453	376	561359.46	4181726.525
1454	389	561359.55	4181727.557
1455	399	561359.61	4181728.382
1456	375	561359.67	4181729.277
1457	395	561359.74	4181730.242
1458	395	561359.81	4181731.215
1459	386	561359.89	4181732.236
1460	382	561359.95	4181733.483
1461	400	561359.99	4181734.501
1462	400	561360.07	4181735.441
1463	382	561360.09	4181736.223
1464	399	561360.11	4181737.068
1465	373	561360.18	4181738.227
1466	394	561360.24	4181739.194
1467	406	561360.27	4181740.124
1468	386	561360.31	4181741.055
1469	383	561360.35	4181741.907
1470	397	561360.36	4181742.681
1471	375	561360.35	4181743.538
1472	388	561360.38	4181744.478
1473	408	561360.39	4181745.605
1474	394	561360.37	4181746.649
1475	408	561360.33	4181747.571
1476	376	561360.30	4181748.361
1477	399	561360.29	4181749.125
1478	383	561360.27	4181750.201
1479	377	561360.25	4181751.232
1480	369	561360.24	4181752.155
1481	385	561360.24	4181753.09
1482	389	561360.27	4181754.022
1483	387	561360.22	4181754.919
1484	404	561360.14	4181755.808
1485	394	561360.15	4181756.692
1486	369	561360.16	4181757.567
1487	375	561360.08	4181758.401
1488	397	561360.08	4181759.057
1489	373	561360.25	4181759.781
1490	366	561359.99	4181760.655
1491	402	561359.89	4181761.399
1492	384	561359.53	4181762.024
1493	377	561358.97	4181762.389
1494	405	561358.40	4181762.937
1495	410	561357.60	4181763.081
1496	398	561356.78	4181763.228
1497	380	561355.98	4181763.458
1498	398	561355.22	4181763.474
1499	413	561354.50	4181763.484
1500	402	561353.80	4181763.507
1501	369	561352.93	4181763.52
1502	382	561351.95	4181763.748
1503	380	561351.26	4181763.657
1504	378	561350.57	4181763.675
1505	378	561349.96	4181763.445
1506	393	561349.30	4181763.288
1507	370	561348.61	4181763.008
1508	412	561348.32	4181762.457
1509	396	561347.88	4181761.975
1510	408	561347.80	4181761.4
1511	390	561347.68	4181760.609
1512	391	561347.56	4181759.631
1513	395	561347.52	4181758.812
1514	418	561347.48	4181757.984

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1515	414	561347.44	4181757.146
1516	390	561347.41	4181756.333
1517	377	561347.39	4181755.528
1518	392	561347.36	4181754.745
1519	387	561347.32	4181753.946
1520	385	561347.30	4181753.13
1521	382	561347.28	4181752.316
1522	359	561347.28	4181751.503
1523	384	561347.27	4181750.41
1524	374	561347.24	4181749.381
1525	392	561347.21	4181748.473
1526	372	561347.17	4181747.532
1527	373	561347.11	4181746.585
1528	365	561347.07	4181745.627
1529	410	561347.02	4181744.666
1530	386	561346.96	4181743.704
1531	388	561346.90	4181742.741
1532	375	561346.84	4181741.803
1533	382	561346.80	4181740.991
1534	370	561346.77	4181740.161
1535	384	561346.73	4181739.248
1536	379	561346.68	4181738.343
1537	387	561346.64	4181737.445
1538	378	561346.59	4181736.424
1539	385	561346.54	4181735.446
1540	384	561346.48	4181734.537
1541	381	561346.42	4181733.637
1542	367	561346.36	4181732.737
1543	385	561346.30	4181731.831
1544	379	561346.25	4181730.983
1545	376	561346.18	4181730.194
1546	373	561346.10	4181729.337
1547	375	561346.04	4181728.409
1548	407	561345.96	4181727.245
1549	393	561345.89	4181726.154
1550	389	561345.81	4181725.187
1551	365	561345.73	4181724.206
1552	366	561345.71	4181723.214
1553	391	561345.61	4181722.207
1554	370	561345.45	4181721.241
1555	384	561345.51	4181720.313
1556	358	561345.47	4181719.583
1557	396	561345.73	4181718.964
1558	402	561345.94	4181718.26
1559	384	561346.34	4181717.537
1560	392	561347.13	4181717.219
1561	390	561347.87	4181716.884
1562	401	561348.67	4181716.717
1563	378	561349.55	4181716.722
1564	384	561350.47	4181716.722
1565	417	561351.42	4181716.742
1566	390	561352.38	4181716.761
1567	411	561353.30	4181716.82
1568	378	561353.98	4181716.827
1569	405	561354.72	4181716.64
1570	393	561355.54	4181716.901
1571	397	561356.20	4181717.015
1572	394	561356.88	4181717.193
1573	398	561357.22	4181717.717
1574	391	561357.73	4181718.187
1575	386	561357.87	4181718.824
1576	397	561358.03	4181719.548
1577	397	561358.22	4181720.299
1578	388	561358.36	4181721.134

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1579	362	561358.52	4181721.897
1580	388	561358.59	4181722.602
1581	395	561358.69	4181723.495
1582	379	561358.72	4181724.547
1583	394	561358.78	4181725.42
1584	410	561358.85	4181726.312
1585	385	561358.89	4181727.224
1586	406	561358.92	4181728.139
1587	397	561358.99	4181729.054
1588	405	561359.06	4181729.977
1589	369	561359.13	4181730.901
1590	380	561359.20	4181731.826
1591	382	561359.26	4181732.63
1592	382	561359.30	4181733.412
1593	386	561359.35	4181734.511
1594	374	561359.41	4181735.553
1595	384	561359.44	4181736.477
1596	385	561359.47	4181737.384
1597	378	561359.50	4181738.285
1598	387	561359.52	4181739.178
1599	402	561359.55	4181740.078
1600	389	561359.53	4181740.987
1601	378	561359.51	4181741.916
1602	372	561359.60	4181742.849
1603	389	561359.58	4181743.787
1604	417	561359.56	4181744.726
1605	391	561359.54	4181745.667
1606	384	561359.53	4181746.583
1607	382	561359.52	4181747.494
1608	396	561359.52	4181748.41
1609	386	561359.52	4181749.332
1610	391	561359.52	4181750.259
1611	420	561359.52	4181751.179
1612	383	561359.51	4181752.1
1613	385	561359.53	4181753.035
1614	380	561359.55	4181753.958
1615	384	561359.53	4181754.871
1616	386	561359.50	4181755.811
1617	401	561359.60	4181756.743
1618	379	561359.56	4181757.604
1619	416	561359.49	4181758.466
1620	388	561359.48	4181759.33
1621	401	561359.53	4181760.083
1622	383	561359.57	4181760.916
1623	389	561359.08	4181761.449
1624	370	561358.69	4181762.116
1625	386	561358.04	4181762.426
1626	385	561357.32	4181762.804
1627	387	561356.50	4181762.967
1628	382	561355.66	4181763.084
1629	380	561354.81	4181763.234
1630	382	561353.92	4181763.279
1631	405	561353.07	4181763.321
1632	366	561352.24	4181763.555
1633	398	561351.54	4181763.425
1634	378	561350.81	4181763.447
1635	377	561350.23	4181763.112
1636	404	561349.66	4181762.908
1637	381	561349.30	4181762.483
1638	369	561348.74	4181761.874
1639	395	561348.47	4181761.034
1640	395	561348.35	4181760.155
1641	380	561348.23	4181759.29
1642	388	561348.16	4181758.42

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1643	389	561348.11	4181757.529
1644	410	561348.06	4181756.637
1645	373	561348.04	4181755.741
1646	402	561348.02	4181754.86
1647	373	561347.98	4181754.012
1648	400	561347.97	4181753.306
1649	365	561347.96	4181752.577
1650	378	561347.94	4181751.725
1651	383	561347.93	4181750.758
1652	409	561347.88	4181749.715
1653	384	561347.85	4181748.853
1654	377	561347.81	4181747.966
1655	385	561347.78	4181747.054
1656	382	561347.74	4181746.144
1657	390	561347.68	4181745.235
1658	392	561347.64	4181744.32
1659	401	561347.61	4181743.479
1660	405	561347.56	4181742.713
1661	385	561347.49	4181741.745
1662	368	561347.40	4181740.624
1663	360	561347.36	4181739.745
1664	386	561347.32	4181738.891
1665	368	561347.29	4181738.063
1666	389	561347.27	4181737.243
1667	376	561347.25	4181736.413
1668	378	561347.15	4181735.54
1669	389	561347.03	4181734.757
1670	371	561347.00	4181734.055
1671	372	561346.98	4181733.264
1672	360	561346.94	4181732.384
1673	377	561346.90	4181731.489
1674	384	561346.85	4181730.55
1675	381	561346.76	4181729.411
1676	411	561346.69	4181728.476
1677	370	561346.62	4181727.575
1678	374	561346.55	4181726.638
1679	380	561346.48	4181725.684
1680	391	561346.40	4181724.714
1681	387	561346.32	4181723.892
1682	396	561346.27	4181723.098
1683	397	561346.22	4181722.16
1684	362	561346.00	4181721.211
1685	404	561346.11	4181720.364
1686	379	561346.12	4181719.443
1687	386	561346.29	4181718.475
1688	383	561346.79	4181718.017
1689	394	561347.19	4181717.406
1690	392	561347.82	4181717.174
1691	388	561348.43	4181716.883
1692	381	561349.10	4181716.814
1693	394	561349.97	4181716.723
1694	389	561350.88	4181716.662
1695	390	561351.83	4181716.646
1696	393	561352.84	4181716.627
1697	408	561353.86	4181716.475
1698	396	561354.56	4181716.623
1699	388	561355.26	4181716.605
1700	406	561355.78	4181716.911
1701	417	561356.30	4181717.12
1702	374	561356.96	4181717.338
1703	382	561357.14	4181717.887
1704	378	561357.44	4181718.448
1705	371	561357.56	4181719.246
1706	376	561357.70	4181720.207

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1707	372	561357.93	4181721.28
1708	400	561357.99	4181722.161
1709	385	561358.06	4181723.049
1710	411	561358.11	4181723.944
1711	381	561358.16	4181724.843
1712	391	561358.21	4181725.74
1713	383	561358.24	4181726.628
1714	395	561358.27	4181727.447
1715	401	561358.30	4181728.196
1716	402	561358.35	4181729.018
1717	372	561358.38	4181729.912
1718	426	561358.41	4181731.002
1719	394	561358.46	4181732.017
1720	403	561358.51	4181732.917
1721	387	561358.56	4181733.834
1722	390	561358.61	4181734.753
1723	377	561358.66	4181735.662
1724	385	561358.72	4181736.546
1725	386	561358.75	4181737.408
1726	387	561358.78	4181738.156
1727	391	561358.80	4181738.881
1728	371	561358.82	4181739.733
1729	392	561358.88	4181740.649
1730	386	561358.87	4181741.763
1731	396	561358.86	4181742.726
1732	389	561358.95	4181743.656
1733	398	561358.93	4181744.58
1734	380	561358.89	4181745.496
1735	389	561358.91	4181746.403
1736	380	561358.93	4181747.312
1737	396	561358.98	4181748.198
1738	407	561359.00	4181748.973
1739	391	561359.05	4181749.772
1740	387	561359.04	4181750.693
1741	392	561359.03	4181751.735
1742	405	561359.04	4181752.861
1743	394	561359.02	4181753.806
1744	382	561358.98	4181754.756
1745	396	561358.98	4181755.709
1746	371	561358.98	4181756.586
1747	394	561358.92	4181757.446
1748	389	561358.94	4181758.295
1749	370	561359.02	4181759.044
1750	360	561358.94	4181759.678
1751	365	561359.01	4181760.422
1752	389	561358.63	4181761.069
1753	375	561358.24	4181761.801
1754	409	561357.72	4181762.454
1755	377	561357.01	4181762.642
1756	415	561356.23	4181762.865
1757	370	561355.41	4181763.044
1758	386	561354.58	4181763.103
1759	375	561353.73	4181763.178
1760	417	561352.87	4181763.205
1761	391	561352.24	4181763.31
1762	405	561351.69	4181763.179
1763	400	561351.02	4181763.09
1764	394	561350.23	4181762.982
1765	403	561349.85	4181762.444
1766	395	561349.28	4181761.85
1767	396	561348.99	4181760.976
1768	383	561348.87	4181760.108
1769	401	561348.72	4181759.238
1770	400	561348.68	4181758.356

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1771	397	561348.64	4181757.48
1772	402	561348.56	4181756.63
1773	371	561348.57	4181755.893
1774	394	561348.60	4181755.136
1775	391	561348.57	4181754.276
1776	414	561348.54	4181753.421
1777	375	561348.53	4181752.572
1778	391	561348.51	4181751.557
1779	379	561348.47	4181750.6
1780	403	561348.46	4181749.732
1781	396	561348.45	4181748.858
1782	385	561348.39	4181747.981
1783	381	561348.36	4181747.084
1784	391	561348.34	4181746.256
1785	378	561348.31	4181745.497
1786	395	561348.28	4181744.671
1787	379	561348.23	4181743.779
1788	406	561348.18	4181742.873
1789	376	561348.16	4181741.92
1790	388	561348.09	4181740.75
1791	361	561348.03	4181739.82
1792	360	561348.02	4181738.94
1793	403	561347.96	4181738.09
1794	385	561347.89	4181737.252
1795	379	561347.84	4181736.425
1796	397	561347.80	4181735.69
1797	393	561347.74	4181734.974
1798	362	561347.67	4181734.139
1799	390	561347.66	4181733.275
1800	370	561347.61	4181732.409
1801	377	561347.54	4181731.41
1802	382	561347.50	4181730.316
1803	366	561347.42	4181729.432
1804	377	561347.34	4181728.548
1805	387	561347.27	4181727.661
1806	385	561347.21	4181726.738
1807	384	561347.17	4181725.827
1808	389	561347.10	4181725.026
1809	381	561347.02	4181724.199
1810	395	561346.95	4181723.242
1811	366	561346.87	4181722.288
1812	378	561346.81	4181721.337
1813	387	561346.77	4181720.316
1814	399	561346.78	4181719.392
1815	388	561347.14	4181718.736
1816	380	561347.40	4181718.076
1817	397	561347.79	4181717.388
1818	409	561348.45	4181717.191
1819	379	561349.10	4181716.922
1820	394	561349.78	4181716.838
1821	366	561350.71	4181716.707
1822	402	561351.83	4181716.657
1823	414	561352.70	4181716.624
1824	403	561353.51	4181716.496
1825	390	561354.24	4181716.638
1826	388	561354.88	4181716.673
1827	392	561355.52	4181716.787
1828	392	561355.91	4181717.174
1829	395	561356.53	4181717.51
1830	389	561356.76	4181718.181
1831	393	561357.03	4181718.843
1832	390	561357.13	4181719.546
1833	371	561357.27	4181720.542
1834	393	561357.41	4181721.495

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1835	379	561357.45	4181722.355
1836	396	561357.49	4181723.264
1837	365	561357.52	4181724.185
1838	405	561357.56	4181725.117
1839	383	561357.60	4181726.05
1840	396	561357.62	4181726.984
1841	393	561357.63	4181727.779
1842	382	561357.66	4181728.547
1843	364	561357.69	4181729.442
1844	386	561357.72	4181730.404
1845	387	561357.78	4181731.572
1846	391	561357.84	4181732.555
1847	381	561357.89	4181733.5
1848	366	561357.93	4181734.436
1849	375	561357.96	4181735.372
1850	371	561358.02	4181736.306
1851	382	561358.08	4181737.213
1852	391	561358.11	4181738.094
1853	386	561358.14	4181738.865
1854	399	561358.18	4181739.665
1855	399	561358.22	4181740.612
1856	375	561358.27	4181741.689
1857	389	561358.26	4181742.857
1858	380	561358.29	4181743.81
1859	380	561358.32	4181744.765
1860	396	561358.33	4181745.721
1861	370	561358.35	4181746.671
1862	389	561358.40	4181747.619
1863	381	561358.40	4181748.569
1864	409	561358.40	4181749.451
1865	391	561358.42	4181750.265
1866	405	561358.45	4181751.149
1867	386	561358.43	4181752.105
1868	396	561358.41	4181753.292
1869	376	561358.36	4181754.398
1870	395	561358.35	4181755.378
1871	391	561358.35	4181756.293
1872	377	561358.25	4181757.191
1873	385	561358.27	4181758.085
1874	380	561358.38	4181758.944
1875	400	561358.23	4181759.744
1876	383	561358.22	4181760.398
1877	407	561357.93	4181760.913
1878	403	561357.65	4181761.564
1879	380	561357.22	4181762.266
1880	367	561356.50	4181762.449
1881	383	561355.66	4181762.678
1882	349	561354.73	4181762.928
1883	400	561353.88	4181763.004
1884	373	561353.07	4181763.191
1885	375	561352.32	4181763.05
1886	403	561351.60	4181762.992
1887	394	561350.88	4181762.828
1888	381	561350.54	4181762.432
1889	378	561349.88	4181762.155
1890	386	561349.72	4181761.427
1891	394	561349.50	4181760.64
1892	390	561349.42	4181759.763
1893	401	561349.32	4181758.665
1894	397	561349.30	4181757.636
1895	402	561349.25	4181756.724
1896	383	561349.21	4181755.807
1897	396	561349.16	4181754.892
1898	385	561349.16	4181753.996

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1899	405	561349.16	4181753.175
1900	384	561349.14	4181752.43
1901	375	561349.11	4181751.626
1902	388	561349.10	4181750.763
1903	398	561349.08	4181749.883
1904	407	561349.05	4181748.963
1905	388	561349.05	4181747.856
1906	401	561349.05	4181746.921
1907	389	561349.00	4181746.019
1908	385	561348.98	4181745.111
1909	397	561348.97	4181744.2
1910	393	561348.93	4181743.288
1911	390	561348.89	4181742.486
1912	404	561348.84	4181741.708
1913	392	561348.79	4181740.828
1914	378	561348.73	4181739.935
1915	362	561348.66	4181739.078
1916	399	561348.59	4181738.113
1917	373	561348.54	4181737.07
1918	392	561348.47	4181736.18
1919	370	561348.40	4181735.291
1920	377	561348.34	4181734.4
1921	385	561348.29	4181733.528
1922	374	561348.22	4181732.679
1923	394	561348.18	4181731.921
1924	371	561348.15	4181731.133
1925	394	561348.07	4181730.209
1926	384	561347.98	4181729.175
1927	389	561347.90	4181728.063
1928	398	561347.84	4181727.123
1929	403	561347.78	4181726.173
1930	359	561347.72	4181725.213
1931	355	561347.67	4181724.247
1932	386	561347.65	4181723.271
1933	414	561347.57	4181722.275
1934	391	561347.46	4181721.404
1935	359	561347.46	4181720.651
1936	398	561347.37	4181719.764
1937	385	561347.45	4181718.752
1938	387	561347.89	4181718.202
1939	394	561348.22	4181717.534
1940	372	561348.81	4181717.19
1941	383	561349.47	4181716.755
1942	388	561350.27	4181716.527
1943	404	561351.19	4181716.453
1944	409	561352.06	4181716.349
1945	406	561352.90	4181716.352
1946	391	561353.56	4181716.264
1947	400	561354.14	4181716.452
1948	437	561354.85	4181716.632
1949	387	561355.50	4181716.883
1950	396	561355.85	4181717.332
1951	400	561356.32	4181717.753
1952	395	561356.57	4181718.34
1953	368	561356.65	4181719.069
1954	390	561356.75	4181719.842
1955	381	561356.82	4181720.663
1956	399	561356.90	4181721.499
1957	373	561356.90	4181722.319
1958	378	561356.93	4181723.021
1959	400	561356.98	4181723.786
1960	391	561357.02	4181724.87
1961	394	561357.05	4181725.791
1962	352	561357.08	4181726.681

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1963	387	561357.08	4181727.578
1964	390	561357.08	4181728.47
1965	405	561357.10	4181729.355
1966	385	561357.13	4181730.241
1967	366	561357.16	4181731.102
1968	399	561357.19	4181731.839
1969	374	561357.23	4181732.602
1970	398	561357.27	4181733.498
1971	402	561357.32	4181734.515
1972	380	561357.35	4181735.612
1973	395	561357.40	4181736.499
1974	379	561357.45	4181737.384
1975	376	561357.49	4181738.27
1976	382	561357.54	4181739.145
1977	376	561357.55	4181740.027
1978	385	561357.58	4181740.951
1979	378	561357.61	4181741.794
1980	406	561357.62	4181742.559
1981	406	561357.62	4181743.391
1982	374	561357.64	4181744.292
1983	375	561357.67	4181745.192
1984	388	561357.69	4181746.131
1985	391	561357.72	4181747.267
1986	359	561357.75	4181748.227
1987	391	561357.75	4181749.154
1988	365	561357.73	4181750.088
1989	375	561357.72	4181751.015
1990	387	561357.71	4181751.935
1991	409	561357.70	4181752.738
1992	380	561357.70	4181753.518
1993	385	561357.69	4181754.426
1994	383	561357.72	4181755.351
1995	386	561357.70	4181756.233
1996	383	561357.68	4181757.209
1997	371	561357.67	4181758.241
1998	380	561357.66	4181759.084
1999	384	561357.81	4181759.876
2000	396	561357.57	4181760.507
2001	397	561357.37	4181761.184
2002	392	561357.13	4181761.917
2003	395	561356.66	4181762.201
2004	398	561356.23	4181762.712
2005	377	561355.50	4181762.863
2006	404	561354.76	4181763.058
2007	386	561353.98	4181763.138
2008	395	561353.09	4181763.239
2009	394	561352.26	4181763.223
2010	408	561351.67	4181762.904
2011	376	561351.03	4181762.673
2012	385	561350.36	4181762.296
2013	391	561350.18	4181761.621
2014	412	561349.90	4181760.965
2015	404	561349.88	4181760.275
2016	388	561349.84	4181759.508
2017	376	561349.82	4181758.662
2018	389	561349.81	4181757.581
2019	413	561349.79	4181756.565
2020	407	561349.79	4181755.662
2021	394	561349.78	4181754.775
2022	391	561349.79	4181753.893
2023	388	561349.77	4181753.029
2024	394	561349.74	4181752.168
2025	403	561349.73	4181751.308
2026	410	561349.71	4181750.57

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
2027	386	561349.70	4181749.857
2028	395	561349.68	4181749.033
2029	403	561349.67	4181748.152
2030	398	561349.63	4181747.097
2031	391	561349.60	4181746.191
2032	391	561349.60	4181745.313
2033	407	561349.54	4181744.436
2034	385	561349.45	4181743.55
2035	408	561349.44	4181742.652
2036	400	561349.42	4181741.748
2037	394	561349.38	4181740.875
2038	371	561349.33	4181740.158
2039	397	561349.28	4181739.42
2040	375	561349.22	4181738.575
2041	395	561349.14	4181737.625
2042	391	561349.06	4181736.601
2043	387	561349.00	4181735.733
2044	377	561348.94	4181734.861
2045	391	561348.88	4181733.982
2046	372	561348.82	4181733.119
2047	404	561348.73	4181732.257
2048	389	561348.70	4181731.376
2049	386	561348.68	4181730.484
2050	379	561348.65	4181729.579
2051	389	561348.62	4181728.807
2052	399	561348.58	4181728.063
2053	377	561348.52	4181727.177
2054	373	561348.48	4181726.257
2055	406	561348.41	4181725.324
2056	391	561348.34	4181724.383
2057	386	561348.27	4181723.434
2058	392	561348.21	4181722.472
2059	374	561348.03	4181721.493
2060	387	561348.03	4181720.397
2061	380	561347.97	4181719.561
2062	395	561348.05	4181718.752
2063	388	561348.46	4181718.205
2064	374	561348.70	4181717.536
2065	384	561349.20	4181717.265
2066	402	561349.87	4181716.81
2067	381	561350.81	4181716.55
2068	432	561351.49	4181716.466
2069	416	561352.22	4181716.192
2070	389	561353.12	4181716.341
2071	411	561353.82	4181716.379
2072	387	561354.50	4181716.493
2073	402	561354.91	4181716.886
2074	400	561355.47	4181717.136
2075	392	561355.68	4181717.599
2076	409	561356.01	4181718.206
2077	396	561356.17	4181718.945
2078	394	561356.27	4181719.886
2079	369	561356.38	4181720.819
2080	404	561356.41	4181721.752
2081	370	561356.45	4181722.706
2082	395	561356.49	4181723.666
2083	388	561356.51	4181724.639
2084	383	561356.52	4181725.607
2085	396	561356.54	4181726.568
2086	389	561356.56	4181727.538
2087	386	561356.54	4181728.506
2088	391	561356.57	4181729.456
2089	394	561356.60	4181730.422
2090	388	561356.63	4181731.403

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
2091	387	561356.66	4181732.36
2092	378	561356.70	4181733.315
2093	379	561356.74	4181734.286
2094	381	561356.79	4181735.25
2095	393	561356.82	4181736.21
2096	390	561356.84	4181737.124
2097	365	561356.86	4181738.034
2098	395	561356.88	4181738.967
2099	396	561356.90	4181739.91
2100	400	561356.92	4181740.863
2101	374	561356.95	4181741.843
2102	393	561356.97	4181742.825
2103	392	561356.99	4181743.781
2104	370	561357.01	4181744.739
2105	389	561357.05	4181745.697
2106	375	561357.10	4181746.656
2107	384	561357.11	4181747.619
2108	373	561357.11	4181748.589
2109	378	561357.13	4181749.564
2110	399	561357.09	4181750.541
2111	369	561357.06	4181751.515
2112	386	561357.08	4181752.49
2113	394	561357.06	4181753.472
2114	392	561357.02	4181754.443
2115	403	561357.03	4181755.403
2116	405	561357.04	4181756.319
2117	387	561356.97	4181757.231
2118	382	561357.04	4181758.149
2119	384	561357.19	4181759.007
2120	392	561357.07	4181759.789
2121	387	561357.01	4181760.514
2122	395	561356.89	4181761.258
2123	394	561356.44	4181761.77
2124	419	561356.08	4181762.463
2125	374	561355.39	4181762.75
2126	381	561354.75	4181763.063
2127	396	561354.06	4181763.432
2128	393	561353.38	4181763.321
2129	397	561352.64	4181763.392
2130	384	561352.09	4181763.036
2131	396	561351.50	4181762.764
2132	370	561350.85	4181762.395
2133	374	561350.68	4181761.721
2134	379	561350.44	4181760.984
2135	404	561350.36	4181760.145
2136	378	561350.28	4181759.28
2137	394	561350.26	4181758.403
2138	397	561350.23	4181757.515
2139	392	561350.20	4181756.624
2140	394	561350.18	4181755.73
2141	400	561350.15	4181754.826
2142	391	561350.16	4181753.925
2143	372	561350.15	4181753.05
2144	403	561350.14	4181752.196
2145	418	561350.15	4181751.361
2146	398	561350.15	4181750.515
2147	393	561350.17	4181749.666
2148	397	561350.13	4181748.819
2149	398	561350.08	4181747.963
2150	405	561350.06	4181747.098
2151	398	561350.04	4181746.228
2152	396	561350.02	4181745.36
2153	410	561349.98	4181744.504
2154	401	561349.93	4181743.635

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
2155	402	561349.90	4181742.753
2156	392	561349.86	4181741.87
2157	360	561349.81	4181740.992
2158	397	561349.78	4181740.14
2159	375	561349.75	4181739.293
2160	397	561349.71	4181738.452
2161	377	561349.67	4181737.626
2162	383	561349.58	4181736.798
2163	371	561349.55	4181735.931
2164	367	561349.53	4181735.049
2165	369	561349.47	4181734.155
2166	388	561349.42	4181733.273
2167	378	561349.35	4181732.397
2168	373	561349.32	4181731.528
2169	394	561349.30	4181730.641
2170	377	561349.26	4181729.736
2171	387	561349.21	4181728.835
2172	399	561349.15	4181727.933
2173	384	561349.12	4181727.017
2174	389	561349.10	4181726.092
2175	386	561349.04	4181725.16
2176	373	561348.98	4181724.22
2177	390	561348.89	4181723.273
2178	396	561348.81	4181722.29
2179	385	561348.71	4181721.361
2180	395	561348.70	4181720.481
2181	405	561348.64	4181719.684
2182	400	561348.64	4181718.85
2183	399	561349.06	4181718.278
2184	392	561349.34	4181717.578
2185	391	561349.93	4181717.218
2186	388	561350.58	4181716.781
2187	417	561351.31	4181716.419
2188	387	561352.03	4181716.378
2189	406	561352.76	4181716.168
2190	386	561353.41	4181716.384
2191	407	561354.01	4181716.488
2192	394	561354.61	4181716.653
2193	388	561354.95	4181717.073
2194	363	561355.52	4181717.4
2195	386	561355.64	4181717.955
2196	368	561355.83	4181718.641
2197	385	561355.95	4181719.381
2198	385	561355.96	4181720.183
2199	391	561355.98	4181720.994
2200	385	561355.97	4181721.815
2201	396	561355.96	4181722.672
2202	377	561355.97	4181723.543
2203	386	561355.97	4181724.445
2204	384	561355.97	4181725.328
2205	380	561355.97	4181726.192
2206	410	561355.97	4181727.052
2207	384	561355.97	4181727.913
2208	386	561355.99	4181728.778
2209	394	561356.00	4181729.649
2210	391	561356.03	4181730.525
2211	396	561356.06	4181731.4
2212	391	561356.11	4181732.271
2213	378	561356.13	4181733.121
2214	380	561356.16	4181733.974
2215	382	561356.17	4181734.828
2216	376	561356.18	4181735.691
2217	391	561356.22	4181736.554
2218	404	561356.23	4181737.409

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
2219	361	561356.24	4181738.272
2220	399	561356.26	4181739.144
2221	396	561356.28	4181740.014
2222	377	561356.31	4181740.885
2223	376	561356.31	4181741.765
2224	373	561356.28	4181742.637
2225	379	561356.33	4181743.5
2226	384	561356.38	4181744.385
2227	385	561356.42	4181745.28
2228	377	561356.43	4181746.2
2229	378	561356.44	4181747.118
2230	374	561356.42	4181748.032
2231	400	561356.40	4181748.929
2232	350	561356.44	4181749.825
2233	384	561356.41	4181750.731
2234	383	561356.36	4181751.632
2235	388	561356.39	4181752.528
2236	418	561356.41	4181753.416
2237	402	561356.33	4181754.301
2238	392	561356.35	4181755.185
2239	421	561356.37	4181756.048
2240	392	561356.38	4181756.888
2241	416	561356.38	4181757.791
2242	407	561356.53	4181758.675
2243	404	561356.50	4181759.438
2244	389	561356.58	4181760.208
2245	395	561356.36	4181760.908
2246	406	561356.20	4181761.591
2247	394	561356.03	4181762.358
2248	388	561355.46	4181762.745
2249	389	561355.00	4181763.279
2250	405	561354.41	4181763.408
2251	373	561353.80	4181763.642
2252	396	561353.07	4181763.811
2253	404	561352.56	4181763.481
2254	392	561351.95	4181763.27
2255	401	561351.57	4181762.827
2256	390	561351.07	4181762.438
2257	380	561350.70	4181761.865
2258	374	561350.71	4181761.107
2259	388	561350.72	4181760.313
2260	388	561350.71	4181759.483
2261	404	561350.70	4181758.657
2262	395	561350.70	4181757.825
2263	396	561350.68	4181756.96
2264	394	561350.66	4181756.093
2265	395	561350.67	4181755.224
2266	387	561350.68	4181754.374
2267	383	561350.68	4181753.529
2268	408	561350.68	4181752.701
2269	393	561350.70	4181751.88
2270	367	561350.69	4181751.066
2271	404	561350.68	4181750.259
2272	382	561350.70	4181749.449
2273	430	561350.66	4181748.634
2274	400	561350.61	4181747.832
2275	406	561350.59	4181747.042
2276	402	561350.57	4181746.216
2277	400	561350.56	4181745.381
2278	375	561350.53	4181744.544
2279	384	561350.51	4181743.703
2280	382	561350.48	4181742.857
2281	363	561350.45	4181742.015
2282	350	561350.43	4181741.175

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
2283	386	561350.40	4181740.348
2284	378	561350.38	4181739.53
2285	395	561350.34	4181738.722
2286	387	561350.30	4181737.922
2287	399	561350.25	4181737.126
2288	385	561350.21	4181736.325
2289	378	561350.18	4181735.495
2290	392	561350.15	4181734.634
2291	373	561350.12	4181733.779
2292	375	561350.05	4181732.93
2293	382	561350.03	4181732.092
2294	381	561350.02	4181731.233
2295	397	561349.96	4181730.355
2296	366	561349.91	4181729.484
2297	390	561349.84	4181728.62
2298	364	561349.78	4181727.772
2299	400	561349.72	4181726.905
2300	386	561349.67	4181726.02
2301	378	561349.61	4181725.11
2302	408	561349.56	4181724.196
2303	371	561349.47	4181723.288
2304	399	561349.39	4181722.373
2305	389	561349.30	4181721.451
2306	391	561349.20	4181720.635
2307	396	561349.07	4181719.812
2308	384	561349.31	4181719.128
2309	380	561349.40	4181718.388
2310	377	561349.83	4181717.861
2311	394	561350.17	4181717.288
2312	391	561350.64	4181716.771
2313	398	561351.25	4181716.632
2314	386	561351.85	4181716.322
2315	404	561352.47	4181716.401
2316	389	561353.10	4181716.364
2317	393	561353.73	4181716.479
2318	405	561354.09	4181716.856
2319	369	561354.61	4181717.109
2320	373	561354.80	4181717.554
2321	382	561355.12	4181718.079
2322	402	561355.25	4181718.712
2323	387	561355.30	4181719.461
2324	370	561355.38	4181720.236
2325	384	561355.39	4181721.04
2326	381	561355.39	4181721.854
2327	390	561355.38	4181722.674
2328	360	561355.38	4181723.516
2329	390	561355.38	4181724.355
2330	394	561355.38	4181725.191
2331	382	561355.37	4181726.019
2332	387	561355.37	4181726.844
2333	391	561355.39	4181727.663
2334	408	561355.40	4181728.473
2335	370	561355.41	4181729.275
2336	381	561355.43	4181730.087
2337	386	561355.45	4181730.904
2338	402	561355.46	4181731.732
2339	381	561355.47	4181732.566
2340	392	561355.50	4181733.406
2341	389	561355.53	4181734.233
2342	391	561355.55	4181735.058
2343	398	561355.58	4181735.878
2344	410	561355.62	4181736.694
2345	395	561355.64	4181737.509
2346	382	561355.67	4181738.345

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
2347	383	561355.70	4181739.186
2348	379	561355.72	4181740.039
2349	372	561355.73	4181740.897
2350	383	561355.75	4181741.758
2351	392	561355.77	4181742.595
2352	384	561355.75	4181743.431
2353	407	561355.75	4181744.288
2354	358	561355.75	4181745.157
2355	393	561355.75	4181746.039
2356	371	561355.75	4181746.921
2357	373	561355.72	4181747.802
2358	365	561355.73	4181748.68
2359	383	561355.74	4181749.544
2360	376	561355.74	4181750.397
2361	376	561355.74	4181751.259
2362	390	561355.72	4181752.124
2363	388	561355.74	4181752.981
2364	387	561355.77	4181753.854
2365	378	561355.78	4181754.743
2366	399	561355.78	4181755.597
2367	367	561355.83	4181756.444
2368	388	561355.86	4181757.292
2369	413	561355.85	4181758.143
2370	389	561355.95	4181758.987
2371	385	561356.09	4181759.71
2372	413	561356.15	4181760.452
2373	393	561355.88	4181761.104
2374	402	561355.74	4181761.835
2375	396	561355.27	4181762.344
2376	390	561354.90	4181762.89
2377	403	561354.38	4181763.36
2378	394	561353.65	4181763.496
2379	381	561352.95	4181763.726
2380	389	561352.26	4181763.703
2381	379	561351.61	4181763.789
2382	391	561350.94	4181763.707
2383	403	561350.46	4181763.299
2384	398	561349.81	4181763.03
2385	396	561349.56	4181762.47
2386	388	561349.23	4181761.829
2387	396	561349.03	4181761.101
2388	394	561348.93	4181760.267
2389	387	561348.80	4181759.454
2390	382	561348.77	4181758.651
2391	383	561348.74	4181757.83
2392	371	561348.64	4181757.008
2393	373	561348.66	4181756.192
2394	393	561348.69	4181755.376
2395	393	561348.69	4181754.56
2396	394	561348.70	4181753.762
2397	385	561348.71	4181752.969
2398	372	561348.68	4181752.184
2399	363	561348.63	4181751.402
2400	388	561348.61	4181750.62
2401	367	561348.58	4181749.821
2402	379	561348.58	4181749.014
2403	381	561348.55	4181748.181
2404	385	561348.51	4181747.35
2405	377	561348.51	4181746.522
2406	372	561348.51	4181745.693
2407	387	561348.47	4181744.864
2408	373	561348.44	4181744.026
2409	379	561348.41	4181743.18
2410	389	561348.38	4181742.324

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
2411	389	561348.35	4181741.463
2412	382	561348.27	4181740.613
2413	384	561348.25	4181739.811
2414	384	561348.23	4181739.034
2415	388	561348.19	4181738.282
2416	385	561348.16	4181737.64
2417	372	561348.13	4181737.02
2418	375	561348.08	4181736.067
2419	388	561348.01	4181735.151
2420	396	561347.99	4181734.332
2421	366	561347.97	4181733.551
2422	390	561347.96	4181732.767
2423	386	561347.92	4181731.937
2424	369	561347.87	4181731.099
2425	364	561347.83	4181730.253
2426	368	561347.79	4181729.418
2427	382	561347.70	4181728.591
2428	391	561347.65	4181727.763
2429	392	561347.60	4181726.922
2430	395	561347.55	4181726.068
2431	380	561347.49	4181725.184
2432	387	561347.42	4181724.294
2433	365	561347.38	4181723.395
2434	383	561347.34	4181722.501
2435	403	561347.27	4181721.612
2436	385	561347.19	4181720.814
2437	400	561347.09	4181719.995
2438	374	561347.38	4181719.339
2439	397	561347.53	4181718.628
2440	368	561347.98	4181718.151
2441	367	561348.40	4181717.58
2442	393	561349.01	4181717.193
2443	384	561349.71	4181716.974
2444	393	561350.35	4181716.646
2445	400	561351.01	4181716.619
2446	380	561351.65	4181716.507
2447	397	561352.34	4181716.465
2448	402	561352.82	4181716.787
2449	396	561353.39	4181716.987
2450	397	561353.73	4181717.409
2451	386	561354.18	4181717.752
2452	382	561354.48	4181718.246
2453	395	561354.56	4181718.924
2454	372	561354.69	4181719.65
2455	379	561354.71	4181720.438
2456	384	561354.72	4181721.246
2457	373	561354.77	4181722.061
2458	381	561354.78	4181722.89
2459	387	561354.80	4181723.72
2460	385	561354.78	4181724.553
2461	413	561354.77	4181725.373
2462	379	561354.74	4181726.194
2463	391	561354.75	4181727.026
2464	385	561354.74	4181727.844
2465	392	561354.77	4181728.65
2466	366	561354.79	4181729.452
2467	372	561354.83	4181730.259
2468	378	561354.87	4181731.098
2469	377	561354.91	4181731.933
2470	370	561354.94	4181732.763
2471	390	561354.97	4181733.593
2472	379	561354.96	4181734.422
2473	362	561354.98	4181735.244
2474	382	561355.00	4181736.052

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
2475	382	561355.02	4181736.848
2476	382	561355.03	4181737.657
2477	387	561355.09	4181738.47
2478	376	561355.10	4181739.292
2479	377	561355.10	4181740.137
2480	390	561355.12	4181741.006
2481	383	561355.15	4181741.846
2482	391	561355.12	4181742.679
2483	391	561355.11	4181743.505
2484	365	561355.10	4181744.35
2485	382	561355.10	4181745.215
2486	344	561355.09	4181746.085
2487	397	561355.08	4181746.96
2488	370	561355.07	4181747.85
2489	377	561355.04	4181748.806
2490	375	561355.08	4181749.827
2491	383	561353.39	4181751.955
2492	385	561350.19	4181753.346
2493	392	561348.36	4181744.717
2494	378	561347.04	4181736.233
2495	368	561346.45	4181727.864
2496	396	561346.14	4181724.114
2497	362	561345.69	4181721.505
2498	348	561346.05	4181720.088
2499	388	561346.21	4181718.794
2500	370	561346.98	4181718.118
2501	396	561347.78	4181717.46
2502	391	561348.76	4181717.129
2503	388	561349.69	4181717.018
2504	403	561350.56	4181716.759
2505	397	561351.32	4181716.968
2506	364	561352.03	4181717.072
2507	378	561352.74	4181717.312
2508	373	561353.06	4181717.834
2509	381	561353.56	4181718.367
2510	377	561353.70	4181719.121
2511	381	561353.86	4181719.984
2512	407	561353.98	4181720.883
2513	400	561354.02	4181721.811
2514	412	561354.07	4181722.752
2515	364	561354.07	4181723.707
2516	399	561354.07	4181724.658
2517	387	561354.06	4181725.605
2518	391	561354.08	4181726.537
2519	362	561354.10	4181727.457
2520	373	561354.11	4181728.365
2521	393	561354.12	4181729.274
2522	391	561354.13	4181730.189
2523	374	561354.15	4181731.129
2524	381	561354.16	4181732.06
2525	380	561354.20	4181732.982
2526	370	561354.23	4181733.888
2527	380	561354.26	4181734.797
2528	381	561354.30	4181735.73
2529	387	561354.35	4181736.668
2530	378	561354.38	4181737.61
2531	358	561354.42	4181738.57
2532	393	561354.45	4181739.536
2533	387	561354.49	4181740.512
2534	390	561354.53	4181741.483
2535	391	561354.56	4181742.449
2536	370	561354.59	4181743.416
2537	393	561354.61	4181744.383
2538	378	561354.64	4181745.353

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
2539	400	561354.61	4181746.914
2540	392	561353.95	4181748.994
2541	404	561352.22	4181749.994
2542	392	561349.31	4181749.99
2543	393	561348.53	4181746.701
2544	397	561347.90	4181743.149
2545	354	561347.69	4181739.294
2546	372	561347.42	4181735.513
2547	380	561347.10	4181731.748
2548	391	561346.83	4181727.972
2549	375	561346.62	4181725.123
2550	376	561346.44	4181723.201
2551	376	561346.34	4181721.75
2552	395	561346.04	4181720.399
2553	393	561346.43	4181719.464
2554	368	561346.65	4181718.478
2555	405	561347.34	4181717.953
2556	401	561348.08	4181717.386
2557	374	561348.96	4181717.029
2558	402	561349.85	4181716.875
2559	380	561350.68	4181716.592
2560	397	561351.45	4181716.725
2561	395	561352.16	4181716.75
2562	386	561352.85	4181716.942
2563	379	561353.25	4181717.422
2564	376	561353.84	4181717.806
2565	392	561354.00	4181718.416
2566	402	561354.22	4181719.195
2567	382	561354.32	4181720.048
2568	372	561354.32	4181720.968
2569	375	561354.32	4181721.905
2570	397	561354.31	4181722.859
2571	361	561354.30	4181723.822
2572	385	561354.21	4181724.78
2573	385	561354.26	4181725.705
2574	410	561354.34	4181726.965
2575	380	561355.28	4181728.256
2576	396	561356.45	4181729.456
2577	378	561357.91	4181730.24
2578	388	561358.81	4181731.064
2579	376	561359.69	4181731.675
2580	394	561360.05	4181732.441
2581	369	561360.45	4181733.283
2582	379	561360.68	4181734.203
2583	402	561360.74	4181735.114
2584	385	561360.81	4181736.015
2585	395	561360.86	4181736.905
2586	378	561360.92	4181737.808
2587	375	561360.96	4181738.718
2588	388	561360.96	4181739.653
2589	399	561360.96	4181740.583
2590	398	561360.97	4181741.506
2591	388	561360.99	4181742.433
2592	379	561360.98	4181743.357
2593	384	561360.95	4181744.259
2594	378	561360.96	4181745.184
2595	403	561360.80	4181746.107
2596	354	561360.63	4181747.018
2597	385	561360.43	4181747.924
2598	391	561360.34	4181748.848
2599	393	561360.26	4181749.764
2600	384	561360.18	4181750.672
2601	391	561360.09	4181751.578
2602	381	561360.02	4181752.486

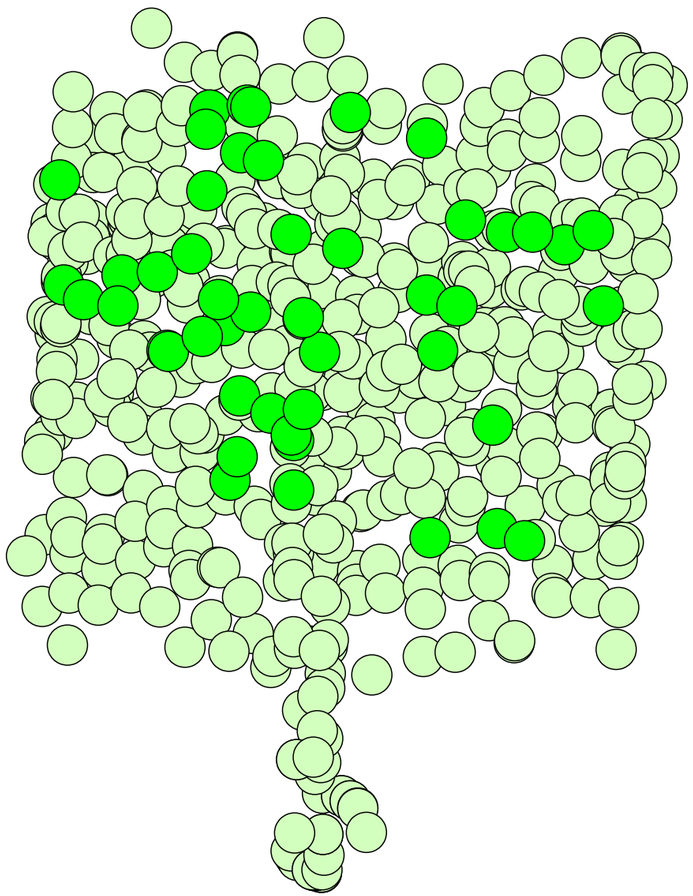
Count #	Reading	Easting	Northing	Sigma

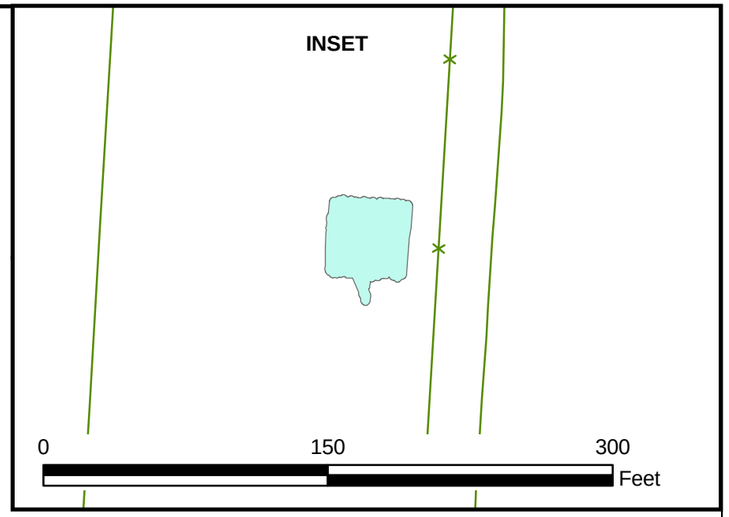
Count #	Reading	Easting	Northing
2603	385	561360.02	4181753.394
2604	381	561360.11	4181754.259
2605	380	561359.93	4181755.038
2606	381	561359.76	4181755.882
2607	363	561359.46	4181756.984
2608	374	561358.02	4181757.507
2609	417	561356.43	4181757.945
2610	405	561354.94	4181756.746
2611	382	561352.86	4181750.795
2612	375	561351.21	4181743.359
2613	387	561350.18	4181734.821
2614	400	561351.23	4181728.442
2615	369	561355.78	4181724.814
2616	386	561357.86	4181724.565
2617	364	561359.46	4181726.051
2618	400	561359.62	4181727.118
2619	397	561359.78	4181728.119
2620	389	561359.85	4181729.064
2621	389	561359.93	4181730.082
2622	388	561360.00	4181731.112
2623	386	561360.05	4181732.134
2624	384	561360.11	4181733.16
2625	387	561360.14	4181734.191
2626	380	561360.17	4181735.183
2627	380	561360.22	4181736.153
2628	388	561360.24	4181737.046
2629	375	561360.27	4181737.945
2630	393	561360.28	4181738.851
2631	361	561360.30	4181739.787
2632	387	561360.27	4181740.724
2633	402	561360.28	4181741.632
2634	396	561360.30	4181742.67
2635	370	561360.26	4181743.797
2636	384	561360.26	4181744.734
2637	376	561360.30	4181745.667
2638	372	561360.17	4181746.579
2639	392	561360.04	4181747.503
2640	407	561359.90	4181748.427
2641	386	561359.83	4181749.354
2642	392	561359.75	4181750.275
2643	385	561359.71	4181751.195
2644	392	561359.66	4181752.117
2645	377	561359.66	4181752.889
2646	400	561359.66	4181752.906

Count #	Reading	Easting	Northing	Sigma

2646	Total Counts
390.00	Average
13.21	Std Dev
439.00	Max
508.18	3 sigma

Investigation Level Exceeded





LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6
- SCREENING PAD

0 2 4 8 12 16 Feet

Scale: 1 " = 10 '

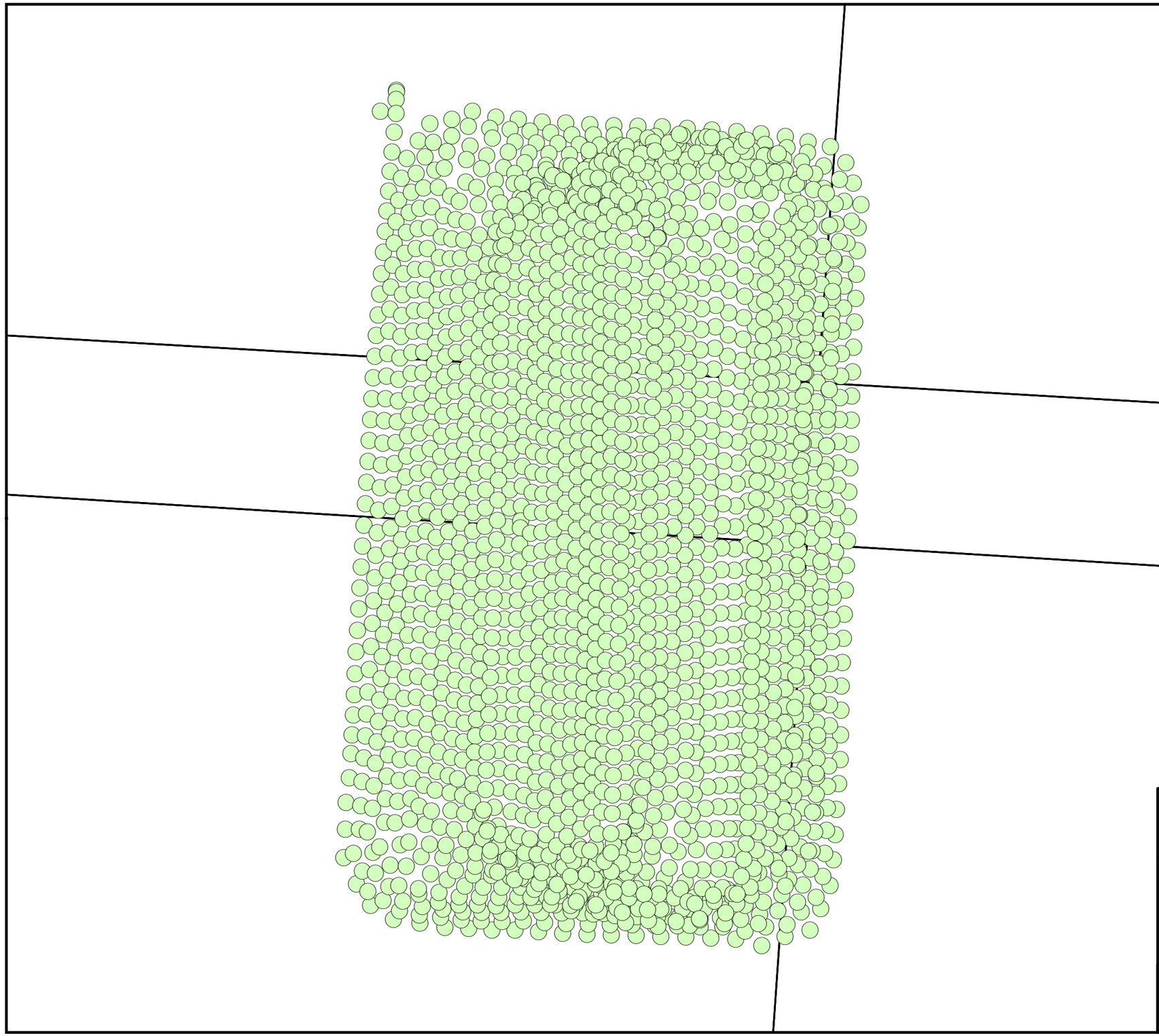
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

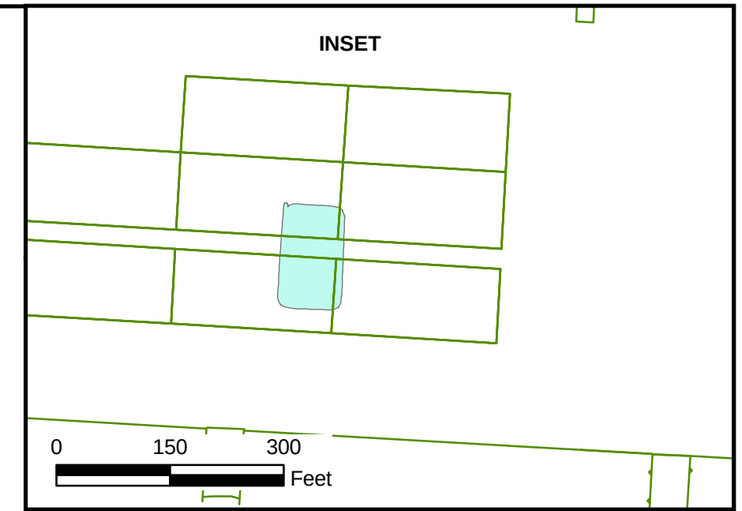
FZ02 Trench Pile
Background Pad (VTA2)
01/28/2014

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.





LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6

0 3.757.5 15 22.5 30 Feet

Scale: 1 " = 17 '

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FZ02 Trench Pile
SU27 (VTA2)
01/28/2014

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO 05, FZ02

Vehicle Towed Array Decimated Data

Survey Unit: FZ02-SU-027 **VTA #:** 2
Date: 1/28/2014 **Serial #:** 020

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Survey Unit FZ02-SU-027 Data

Gamma Total CPS	
2059	Total Counts
377.78	Average
13.56	Std Dev
421.00	Max
490.75	3 sigma

Sigma	Total Points
< 3 sigma	2059
≥ 3 sigma	0

Investigation Level Exceeded

01/28/2014 Background Data

Gamma Total CPS	
516	Total Counts
413.30	Average
25.82	Std Dev
457.00	Max
490.75	3 sigma

Sigma	Total Points
<1	473
1	47
2	0
3	0
4	0
5	0
>6	0

Count #	Reading	Easting	Northing
1	356	561280.94	4181760.972
2	382	561280.15	4181759.963
3	382	561280.95	4181760.909
4	379	561280.93	4181760.533
5	401	561280.93	4181759.869
6	405	561280.83	4181758.924
7	393	561280.72	4181757.953
8	403	561280.63	4181756.977
9	376	561280.55	4181756.01
10	390	561280.47	4181755.029
11	397	561280.38	4181754.033
12	388	561280.30	4181752.997
13	390	561280.21	4181751.956
14	369	561280.12	4181750.93
15	402	561280.03	4181749.911
16	389	561279.95	4181748.896
17	361	561279.87	4181747.854
18	368	561279.79	4181746.808
19	371	561279.73	4181745.766
20	353	561279.66	4181744.737
21	357	561279.60	4181743.721
22	359	561279.53	4181742.683
23	358	561279.47	4181741.638
24	366	561279.40	4181740.587
25	372	561279.33	4181739.543
26	365	561279.27	4181738.504
27	365	561279.21	4181737.468
28	385	561279.14	4181736.432
29	356	561279.08	4181735.392
30	373	561279.01	4181734.339
31	365	561278.95	4181733.272
32	375	561278.90	4181732.211
33	362	561278.87	4181731.158
34	368	561278.81	4181730.156
35	373	561278.74	4181729.182
36	355	561278.69	4181728.236
37	366	561278.61	4181727.078
38	376	561278.46	4181725.859
39	358	561278.41	4181724.511
40	372	561278.33	4181723.112
41	389	561278.95	4181721.822
42	386	561279.66	4181720.772

Count #	Reading	Easting	Northing	Sigma
1	340	560854.2378	4181350.946	< 1
2	332	560854.2151	4181349.356	< 1
3	335	560854.2155	4181349.358	< 1
4	348	560853.6811	4181349.666	< 1
5	310	560854.2117	4181349.362	< 1
6	310	560854.212	4181349.364	< 1
7	331	560854.6164	4181350.898	< 1
8	339	560854.6152	4181350.895	< 1
9	330	560853.7388	4181349.6	< 1
10	345	560854.7909	4181350.799	< 1
11	332	560854.7895	4181350.797	< 1
12	326	560854.0784	4181349.387	< 1
13	312	560854.0786	4181349.388	< 1
14	336	560853.6035	4181349.793	< 1
15	318	560854.9499	4181350.647	< 1
16	332	560854.9483	4181350.646	< 1
17	334	560854.0278	4181349.408	< 1
18	327	560854.0283	4181349.409	< 1
19	328	560855.116	4181350.161	< 1
20	317	560854.2267	4181349.41	< 1
21	325	560854.262	4181349.711	< 1
22	361	560854.0764	4181351.337	< 1
23	398	560852.845	4181354.167	< 1
24	424	560851.2803	4181356.675	< 1
25	435	560849.285	4181358.823	< 1
26	454	560849.0316	4181361.168	1
27	417	560848.7772	4181362.363	< 1
28	398	560848.78	4181362.416	< 1
29	404	560848.8246	4181363.198	< 1
30	401	560848.8928	4181362.062	< 1
31	394	560848.8613	4181360.193	< 1
32	426	560848.8143	4181358.225	< 1
33	383	560848.6579	4181356.163	< 1
34	412	560848.2753	4181355.729	< 1
35	393	560848.593	4181354.714	< 1
36	399	560848.6479	4181358.038	< 1
37	410	560848.6936	4181360.552	< 1
38	419	560848.8561	4181362.251	< 1
39	440	560848.9542	4181363.289	1
40	429	560848.713	4181362.171	< 1
41	395	560848.8386	4181360.453	< 1
42	390	560848.9719	4181358.57	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
43	409	561280.80	4181720.081	43	401	560849.0806	4181356.52	< 1
44	391	561282.10	4181719.89	44	401	560849.1524	4181355.776	< 1
45	392	561283.34	4181719.692	45	400	560849.0972	4181353.948	< 1
46	377	561284.51	4181719.621	46	397	560849.1325	4181354.992	< 1
47	382	561285.65	4181719.556	47	421	560849.1682	4181356.116	< 1
48	390	561286.79	4181719.527	48	403	560849.2222	4181357.319	< 1
49	394	561287.95	4181719.461	49	404	560849.2776	4181358.508	< 1
50	380	561289.14	4181719.392	50	420	560849.3268	4181359.695	< 1
51	404	561290.35	4181719.338	51	448	560849.4239	4181360.875	1
52	399	561291.55	4181719.29	52	416	560849.4995	4181361.812	< 1
53	370	561292.76	4181719.278	53	430	560849.5591	4181362.506	< 1
54	384	561293.99	4181719.234	54	415	560849.7145	4181364.21	< 1
55	375	561295.22	4181719.192	55	424	560849.7905	4181364.183	< 1
56	376	561296.45	4181719.141	56	426	560849.7781	4181364.121	< 1
57	390	561297.69	4181719.086	57	398	560849.6248	4181363.452	< 1
58	394	561298.96	4181718.775	58	423	560849.5449	4181362.148	< 1
59	391	561300.12	4181719.227	59	420	560849.5848	4181360.606	< 1
60	370	561301.35	4181719.55	60	420	560850.024	4181359.028	< 1
61	385	561301.87	4181720.597	61	419	560849.9195	4181357.36	< 1
62	367	561302.34	4181721.746	62	402	560849.8581	4181356.177	< 1
63	356	561302.50	4181723.007	63	415	560849.7948	4181355.481	< 1
64	371	561302.58	4181724.26	64	397	560849.7244	4181354.762	< 1
65	365	561302.66	4181725.514	65	422	560849.8031	4181355.987	< 1
66	391	561302.76	4181726.766	66	432	560849.8975	4181357.377	< 1
67	382	561302.84	4181727.973	67	414	560849.9897	4181358.756	< 1
68	394	561302.86	4181729.177	68	418	560850.0986	4181360.122	< 1
69	394	561302.88	4181730.397	69	440	560850.201	4181361.376	1
70	364	561302.89	4181731.593	70	434	560850.3228	4181362.418	< 1
71	377	561302.95	4181732.763	71	433	560850.3281	4181362.519	< 1
72	377	561303.00	4181733.949	72	434	560850.4114	4181363.662	< 1
73	367	561303.05	4181735.141	73	411	560850.28	4181362.664	< 1
74	371	561303.10	4181736.34	74	427	560850.22	4181361.403	< 1
75	372	561303.16	4181737.546	75	431	560850.6331	4181360.082	< 1
76	402	561303.20	4181738.759	76	409	560850.624	4181358.544	< 1
77	376	561303.24	4181739.965	77	428	560850.6252	4181357.072	< 1
78	365	561303.27	4181741.167	78	421	560850.4737	4181355.677	< 1
79	384	561303.32	4181742.348	79	405	560850.3842	4181355.008	< 1
80	395	561303.37	4181743.533	80	413	560850.4594	4181356.458	< 1
81	397	561303.39	4181744.722	81	431	560850.6156	4181358.198	< 1
82	421	561303.41	4181745.913	82	428	560850.7644	4181359.856	< 1
83	392	561303.46	4181747.109	83	452	560850.9064	4181361.432	1
84	375	561303.51	4181748.334	84	426	560850.9888	4181362.075	< 1
85	372	561303.55	4181749.543	85	422	560851.0855	4181363.86	< 1
86	389	561303.60	4181750.734	86	406	560850.9709	4181362.701	< 1
87	410	561303.65	4181751.907	87	425	560850.8281	4181361.362	< 1
88	407	561303.68	4181753.072	88	453	560851.1051	4181359.861	1
89	382	561303.73	4181754.212	89	419	560851.2465	4181358.261	< 1
90	392	561303.86	4181755.358	90	419	560851.1027	4181356.766	< 1
91	392	561303.49	4181756.425	91	400	560851.0444	4181355.952	< 1
92	394	561303.11	4181757.399	92	412	560850.9575	4181354.739	< 1
93	393	561302.35	4181758.222	93	423	560851.0833	4181356.317	< 1
94	400	561301.26	4181758.458	94	421	560851.2175	4181357.849	< 1
95	378	561300.13	4181758.727	95	429	560851.3847	4181359.363	< 1
96	379	561298.93	4181758.846	96	414	560851.5199	4181360.851	< 1
97	373	561297.73	4181758.957	97	451	560851.6055	4181361.796	1
98	390	561296.52	4181759.029	98	405	560851.6423	4181362.199	< 1
99	371	561295.28	4181759.101	99	438	560851.7029	4181362.726	< 1
100	373	561294.06	4181759.177	100	422	560851.5631	4181361.31	< 1
101	382	561292.85	4181759.213	101	419	560851.6742	4181359.633	< 1
102	380	561291.66	4181759.251	102	413	560851.771	4181357.853	< 1
103	393	561290.48	4181759.291	103	406	560851.6194	4181355.974	< 1
104	362	561289.30	4181759.37	104	399	560851.5472	4181355.483	< 1
105	356	561288.13	4181759.444	105	400	560851.4739	4181353.934	< 1
106	374	561286.95	4181759.559	106	407	560851.5839	4181355.3	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
107	358	561285.84	4181759.662	107	421	560851.6987	4181356.737	< 1
108	376	561284.70	4181759.966	108	430	560851.8517	4181358.242	< 1
109	370	561283.67	4181759.574	109	417	560852.0056	4181359.668	< 1
110	381	561282.58	4181759.336	110	434	560852.1728	4181361.008	< 1
111	400	561282.01	4181758.509	111	436	560852.2993	4181362.01	< 1
112	387	561281.45	4181757.65	112	443	560852.5916	4181363.837	1
113	407	561281.17	4181756.638	113	414	560852.4723	4181363.344	< 1
114	380	561281.05	4181755.577	114	428	560852.2652	4181361.964	< 1
115	405	561280.91	4181754.517	115	447	560852.2696	4181360.353	1
116	407	561280.82	4181753.451	116	430	560852.2723	4181358.612	< 1
117	393	561280.74	4181752.373	117	409	560852.2824	4181357.009	< 1
118	390	561280.66	4181751.29	118	379	560852.1212	4181355.552	< 1
119	383	561280.61	4181750.198	119	423	560852.0031	4181354.492	< 1
120	379	561280.55	4181749.1	120	437	560852.1723	4181355.542	< 1
121	370	561280.50	4181747.996	121	442	560852.3697	4181357.246	1
122	382	561280.45	4181746.884	122	441	560852.5671	4181358.943	1
123	371	561280.41	4181745.772	123	445	560852.7864	4181360.63	1
124	353	561280.34	4181744.679	124	427	560852.9201	4181361.658	< 1
125	361	561280.27	4181743.586	125	425	560853.1784	4181363.777	< 1
126	346	561280.20	4181742.493	126	437	560853.0314	4181362.48	< 1
127	359	561280.13	4181741.377	127	424	560852.8758	4181360.783	< 1
128	367	561280.05	4181740.261	128	421	560852.9412	4181358.676	< 1
129	358	561279.98	4181739.161	129	418	560852.8631	4181356.782	< 1
130	380	561279.92	4181738.053	130	384	560852.3549	4181353.865	< 1
131	379	561279.86	4181736.939	131	422	560852.6333	4181354.953	< 1
132	362	561279.80	4181735.816	132	427	560852.9943	4181356.519	< 1
133	393	561279.74	4181734.689	133	456	560853.1937	4181358.604	1
134	386	561279.67	4181733.547	134	431	560853.3831	4181360.401	< 1
135	386	561279.59	4181732.416	135	405	560853.5684	4181361.897	< 1
136	369	561279.52	4181731.296	136	446	560853.6039	4181362.195	1
137	368	561279.45	4181730.209	137	411	560853.7261	4181363.248	< 1
138	376	561279.40	4181729.125	138	431	560853.607	4181361.876	< 1
139	365	561279.32	4181728.033	139	439	560853.5421	4181360.022	< 1
140	356	561279.23	4181726.893	140	444	560853.6544	4181358.054	1
141	372	561279.16	4181725.705	141	368	560853.4705	4181356.028	< 1
142	362	561279.10	4181724.536	142	364	560853.1969	4181353.541	< 1
143	375	561278.81	4181723.331	143	388	560853.2334	4181353.767	< 1
144	376	561279.25	4181722.441	144	408	560853.4473	4181355.273	< 1
145	386	561279.52	4181721.472	145	456	560853.6566	4181357.052	1
146	358	561280.26	4181721.008	146	436	560853.8781	4181358.889	< 1
147	362	561281.09	4181720.503	147	439	560854.0736	4181360.516	< 1
148	371	561282.06	4181720.28	148	405	560854.2555	4181361.933	< 1
149	389	561283.11	4181720.172	149	419	560854.5113	4181363.466	< 1
150	388	561284.12	4181720.046	150	413	560854.2554	4181362.912	< 1
151	370	561285.12	4181720.008	151	417	560854.2488	4181361.088	< 1
152	368	561286.15	4181719.971	152	437	560854.2267	4181359.117	< 1
153	381	561287.20	4181719.988	153	395	560854.0984	4181357	< 1
154	397	561288.25	4181719.924	154	372	560854.0039	4181355.354	< 1
155	380	561289.32	4181719.848	155	349	560853.8345	4181352.682	< 1
156	385	561290.40	4181719.834	156	402	560853.9805	4181353.98	< 1
157	384	561291.48	4181719.82	157	390	560854.1644	4181355.584	< 1
158	388	561292.57	4181719.817	158	424	560854.4196	4181357.491	< 1
159	375	561293.68	4181719.783	159	422	560854.6669	4181359.356	< 1
160	377	561294.80	4181719.747	160	419	560854.9021	4181361.033	< 1
161	368	561295.92	4181719.724	161	434	560854.9857	4181361.82	< 1
162	385	561297.03	4181719.699	162	410	560855.1562	4181363.314	< 1
163	359	561298.14	4181719.497	163	410	560855.0162	4181362.342	< 1
164	372	561299.15	4181719.723	164	422	560854.9328	4181360.655	< 1
165	378	561300.20	4181719.798	165	414	560855.1316	4181358.777	< 1
166	375	561300.92	4181720.452	166	388	560855.0057	4181356.686	< 1
167	395	561301.64	4181721.178	167	406	560854.9482	4181355.502	< 1
168	374	561301.98	4181722.202	168	393	560854.9259	4181355.228	< 1
169	376	561302.07	4181723.333	169	408	560854.9154	4181355.002	< 1
170	394	561302.16	4181724.458	170	426	560855.0566	4181356.716	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
171	365	561302.19	4181725.579	171	412	560855.293	4181358.495	< 1
172	380	561302.22	4181726.624	172	428	560855.5138	4181360.151	< 1
173	374	561302.27	4181727.647	173	409	560855.6729	4181361.691	< 1
174	387	561302.29	4181728.64	174	406	560855.9919	4181363.37	< 1
175	394	561302.30	4181729.644	175	412	560855.6762	4181362.969	< 1
176	404	561302.30	4181730.66	176	431	560855.7435	4181361.099	< 1
177	395	561302.30	4181731.679	177	402	560855.7736	4181359.076	< 1
178	384	561302.36	4181732.707	178	427	560855.5304	4181356.909	< 1
179	389	561302.40	4181733.788	179	397	560855.3951	4181355.635	< 1
180	382	561302.43	4181734.881	180	390	560855.2307	4181353.403	< 1
181	391	561302.49	4181735.984	181	411	560855.4997	4181355.05	< 1
182	367	561302.54	4181737.098	182	428	560855.8134	4181357.039	< 1
183	381	561302.60	4181738.211	183	439	560856.1269	4181359.376	< 1
184	371	561302.64	4181739.312	184	444	560856.331	4181360.977	1
185	374	561302.68	4181740.414	185	435	560856.6545	4181363.648	< 1
186	353	561302.71	4181741.517	186	431	560856.5313	4181362.873	< 1
187	384	561302.74	4181742.597	187	412	560856.3532	4181361.613	< 1
188	382	561302.75	4181743.672	188	445	560856.5482	4181359.858	1
189	384	561302.79	4181744.741	189	419	560856.5533	4181357.688	< 1
190	380	561302.83	4181745.815	190	404	560856.2571	4181355.724	< 1
191	395	561302.86	4181746.895	191	363	560856.2651	4181355.18	< 1
192	406	561302.90	4181748.009	192	411	560856.2657	4181353.784	< 1
193	408	561302.96	4181749.128	193	407	560856.3103	4181354.736	< 1
194	382	561303.00	4181750.234	194	441	560856.4027	4181356.096	1
195	380	561303.04	4181751.331	195	412	560856.581	4181357.511	< 1
196	388	561303.10	4181752.416	196	422	560856.7118	4181358.837	< 1
197	381	561303.16	4181753.456	197	415	560856.8391	4181360.131	< 1
198	380	561303.39	4181754.531	198	412	560856.9682	4181361.394	< 1
199	409	561303.03	4181755.531	199	416	560857.0413	4181361.732	< 1
200	382	561302.79	4181756.595	200	428	560857.0841	4181363.186	< 1
201	376	561302.01	4181757.27	201	427	560857.0795	4181361.536	< 1
202	375	561301.22	4181757.92	202	422	560857.0603	4181359.3	< 1
203	378	561300.20	4181758.173	203	416	560856.992	4181356.479	< 1
204	379	561299.12	4181758.321	204	401	560856.969	4181355.617	< 1
205	389	561298.04	4181758.488	205	399	560856.9083	4181353.869	< 1
206	387	561296.95	4181758.551	206	431	560857.0072	4181355.317	< 1
207	381	561295.85	4181758.612	207	411	560857.1091	4181356.817	< 1
208	401	561294.76	4181758.668	208	418	560857.2697	4181358.367	< 1
209	397	561293.72	4181758.705	209	418	560857.4265	4181359.881	< 1
210	364	561292.69	4181758.747	210	418	560857.5972	4181361.202	< 1
211	393	561291.66	4181758.767	211	426	560857.6207	4181361.617	< 1
212	374	561290.63	4181758.788	212	402	560857.6863	4181362.361	< 1
213	368	561289.59	4181758.803	213	420	560857.7551	4181360.237	< 1
214	380	561288.53	4181758.889	214	419	560857.7251	4181357.692	< 1
215	387	561287.51	4181758.974	215	378	560857.593	4181355.475	< 1
216	373	561286.53	4181759.049	216	400	560857.5902	4181355.305	< 1
217	370	561285.54	4181759.118	217	406	560857.5843	4181354.511	< 1
218	389	561284.47	4181759.22	218	445	560857.7548	4181356.285	1
219	383	561283.65	4181758.736	219	393	560857.9219	4181358.011	< 1
220	365	561282.73	4181758.429	220	420	560858.0845	4181359.689	< 1
221	397	561282.34	4181757.703	221	426	560858.2344	4181361.168	< 1
222	396	561281.89	4181756.895	222	425	560858.5234	4181363.307	< 1
223	391	561281.66	4181755.968	223	431	560858.445	4181362.952	< 1
224	366	561281.55	4181754.966	224	413	560858.3241	4181361.242	< 1
225	387	561281.42	4181753.964	225	427	560858.5467	4181359.181	< 1
226	384	561281.34	4181752.955	226	410	560858.3201	4181356.827	< 1
227	409	561281.27	4181751.938	227	379	560858.1005	4181354.075	< 1
228	389	561281.22	4181750.915	228	382	560858.1021	4181354.116	< 1
229	372	561281.18	4181749.882	229	447	560858.3022	4181356.042	1
230	390	561281.15	4181748.838	230	437	560858.6652	4181358.284	< 1
231	402	561281.09	4181747.785	231	410	560858.8657	4181360.295	< 1
232	367	561281.03	4181746.729	232	404	560858.9915	4181361.523	< 1
233	376	561281.02	4181745.674	233	419	560859.0333	4181361.969	< 1
234	338	561280.96	4181744.64	234	444	560859.1034	4181361.991	1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
235	368	561280.90	4181743.604	235	429	560859.0872	4181359.9	< 1
236	347	561280.83	4181742.568	236	417	560858.9602	4181357.251	< 1
237	374	561280.76	4181741.511	237	403	560858.8707	4181355.641	< 1
238	358	561280.69	4181740.453	238	385	560858.857	4181355.068	< 1
239	364	561280.63	4181739.41	239	387	560858.9078	4181354.993	< 1
240	377	561280.56	4181738.367	240	421	560859.0693	4181356.931	< 1
241	360	561280.49	4181737.324	241	400	560859.2743	4181358.843	< 1
242	372	561280.43	4181736.271	242	414	560859.4446	4181360.447	< 1
243	390	561280.36	4181735.212	243	427	560859.5982	4181361.742	< 1
244	356	561280.29	4181734.129	244	445	560859.6774	4181362.279	1
245	375	561280.22	4181733.046	245	399	560859.437	4181360.679	< 1
246	372	561280.16	4181731.961	246	432	560859.7005	4181358.728	< 1
247	391	561280.09	4181730.896	247	417	560859.9191	4181356.83	< 1
248	375	561280.04	4181729.842	248	393	560859.6333	4181354.99	< 1
249	361	561279.96	4181728.829	249	405	560859.6831	4181355.767	< 1
250	373	561279.88	4181727.778	250	426	560860.0429	4181358.778	< 1
251	387	561279.81	4181726.687	251	411	560860.258	4181360.842	< 1
252	371	561279.75	4181725.548	252	404	560860.4673	4181362.892	< 1
253	364	561279.48	4181724.398	253	419	560860.3693	4181361.742	< 1
254	368	561279.76	4181723.403	254	422	560860.3122	4181359.982	< 1
255	358	561279.88	4181722.366	255	397	560860.4277	4181358.083	< 1
256	353	561280.54	4181721.677	256	426	560860.2934	4181356.113	< 1
257	360	561281.23	4181720.98	257	399	560860.15	4181353.955	< 1
258	371	561282.20	4181720.698	258	383	560860.1994	4181354.803	< 1
259	385	561283.22	4181720.589	259	414	560860.3537	4181356.915	< 1
260	377	561284.19	4181720.454	260	416	560860.7473	4181359.354	< 1
261	389	561285.12	4181720.438	261	411	560859.6074	4181361.708	< 1
262	379	561286.09	4181720.421	262	400	560857.6315	4181363.635	< 1
263	382	561287.06	4181720.446	263	433	560853.9175	4181363.738	< 1
264	399	561288.06	4181720.42	264	418	560851.1463	4181362.085	< 1
265	376	561289.08	4181720.39	265	428	560848.8947	4181359.803	< 1
266	404	561290.12	4181720.376	266	393	560848.7765	4181359.02	< 1
267	395	561291.16	4181720.362	267	429	560848.6059	4181357.884	< 1
268	384	561292.20	4181720.347	268	422	560848.8932	4181359.553	< 1
269	401	561293.30	4181720.325	269	415	560849.1174	4181361.77	< 1
270	374	561294.41	4181720.21	270	400	560849.1904	4181363.826	< 1
271	396	561295.43	4181720.58	271	415	560849.2127	4181364.466	< 1
272	372	561296.36	4181720.92	272	409	560849.2266	4181365.183	< 1
273	375	561297.24	4181721.56	273	439	560849.0769	4181362.781	< 1
274	361	561297.42	4181722.539	274	436	560848.9882	4181361.365	< 1
275	382	561297.63	4181723.53	275	430	560848.8142	4181358.998	< 1
276	368	561297.70	4181724.554	276	408	560848.9671	4181360.457	< 1
277	359	561297.77	4181725.629	277	432	560848.9877	4181361.467	< 1
278	362	561297.78	4181726.717	278	420	560849.1265	4181361.981	< 1
279	387	561297.82	4181727.811	279	424	560849.3434	4181362.73	< 1
280	396	561297.85	4181728.899	280	422	560848.9806	4181360.534	< 1
281	377	561297.89	4181729.981	281	418	560849.4168	4181362.164	< 1
282	377	561297.93	4181731.034	282	403	560849.8203	4181363.569	< 1
283	377	561298.00	4181732.083	283	379	560849.9623	4181364.79	< 1
284	371	561298.05	4181733.145	284	425	560850.0523	4181364.352	< 1
285	372	561298.10	4181734.214	285	431	560850.0345	4181361.882	< 1
286	362	561298.14	4181735.291	286	431	560849.9429	4181360.487	< 1
287	389	561298.18	4181736.365	287	431	560849.8545	4181359.055	< 1
288	387	561298.21	4181737.442	288	442	560850.1164	4181360.765	1
289	338	561298.23	4181738.531	289	412	560850.2938	4181361.927	< 1
290	354	561298.24	4181739.621	290	420	560850.601	4181364.234	< 1
291	346	561298.27	4181740.71	291	427	560850.5082	4181363.285	< 1
292	343	561298.29	4181741.8	292	429	560850.4034	4181362.204	< 1
293	346	561298.33	4181742.885	293	426	560850.6059	4181364.174	< 1
294	347	561298.37	4181743.944	294	416	560850.6995	4181364.832	< 1
295	371	561298.41	4181744.999	295	416	560850.8037	4181366.479	< 1
296	374	561298.47	4181746.049	296	437	560850.6377	4181364.796	< 1
297	380	561298.53	4181747.115	297	406	560850.4569	4181362.64	< 1
298	369	561298.59	4181748.193	298	419	560850.3587	4181360.006	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
299	377	561298.63	4181749.308	299	437	560850.3238	4181358.545	< 1
300	400	561298.68	4181750.422	300	422	560850.1064	4181359.419	< 1
301	374	561298.71	4181751.533	301	411	560850.5765	4181361.014	< 1
302	361	561298.74	4181752.626	302	414	560851.053	4181362.693	< 1
303	380	561298.92	4181753.732	303	408	560851.2981	4181364.506	< 1
304	373	561298.72	4181754.858	304	439	560851.4585	4181365.793	< 1
305	377	561298.65	4181756.032	305	413	560851.3958	4181364.92	< 1
306	383	561297.89	4181756.839	306	431	560851.3131	4181363.306	< 1
307	380	561297.23	4181757.547	307	409	560851.2265	4181361.617	< 1
308	397	561296.32	4181757.874	308	443	560851.1347	4181359.854	1
309	386	561295.21	4181757.993	309	426	560851.1018	4181358.43	< 1
310	390	561294.11	4181758.121	310	421	560850.8938	4181359.259	< 1
311	390	561293.02	4181758.192	311	425	560851.4323	4181361.28	< 1
312	390	561291.98	4181758.259	312	457	560851.9082	4181363.079	1
313	386	561290.95	4181758.291	313	444	560851.9693	4181364.711	1
314	403	561289.93	4181758.323	314	393	560851.9991	4181365.631	< 1
315	383	561288.89	4181758.355	315	445	560851.8869	4181364.321	1
316	369	561287.82	4181758.397	316	428	560851.85	4181362.153	< 1
317	379	561286.77	4181758.435	317	446	560851.813	4181360.153	1
318	367	561285.66	4181758.649	318	425	560851.7347	4181358.322	< 1
319	366	561284.56	4181758.235	319	412	560851.6867	4181357.265	< 1
320	379	561283.40	4181757.961	320	438	560851.5703	4181358.529	< 1
321	374	561282.80	4181757.049	321	448	560852.1436	4181360.897	1
322	394	561282.26	4181756.174	322	434	560852.6194	4181362.883	< 1
323	393	561282.07	4181755.168	323	405	560852.6841	4181364.529	< 1
324	393	561281.98	4181754.167	324	448	560852.7192	4181364.807	1
325	373	561281.88	4181753.164	325	432	560852.7114	4181362.759	< 1
326	358	561281.84	4181752.154	326	408	560852.6044	4181360.054	< 1
327	380	561281.79	4181751.134	327	457	560852.5132	4181357.738	1
328	367	561281.79	4181750.111	328	420	560852.5605	4181359.009	< 1
329	364	561281.73	4181749.082	329	432	560852.825	4181361.317	< 1
330	370	561281.68	4181748.047	330	408	560853.307	4181363.523	< 1
331	363	561281.63	4181747.005	331	409	560853.3313	4181364.317	< 1
332	366	561281.59	4181745.976	332	429	560853.3665	4181365.366	< 1
333	351	561281.52	4181744.953	333	422	560853.3497	4181363.472	< 1
334	358	561281.47	4181743.941	334	432	560853.3074	4181361.38	< 1
335	338	561281.42	4181742.922	335	425	560853.6268	4181358.124	< 1
336	356	561281.36	4181741.897	336	442	560853.6008	4181358.168	1
337	348	561281.29	4181740.861	337	431	560853.2211	4181359.16	< 1
338	351	561281.23	4181739.823	338	428	560853.5418	4181361.308	< 1
339	389	561281.17	4181738.789	339	407	560853.8116	4181363.274	< 1
340	397	561281.11	4181737.747	340	413	560854.263	4181366.306	< 1
341	354	561281.04	4181736.7	341	409	560854.0332	4181365.417	< 1
342	350	561280.96	4181735.638	342	432	560853.741	4181363.546	< 1
343	374	561280.91	4181734.568	343	429	560853.8438	4181360.641	< 1
344	390	561280.84	4181733.476	344	447	560853.8504	4181358.687	1
345	364	561280.76	4181732.39	345	438	560853.6597	4181355.946	< 1
346	365	561280.69	4181731.311	346	414	560853.903	4181357.87	< 1
347	372	561280.62	4181730.261	347	433	560854.2512	4181360.22	< 1
348	372	561280.57	4181729.219	348	445	560854.171	4181359.842	1
349	371	561280.50	4181728.189	349	438	560854.023	4181359.165	< 1
350	374	561280.44	4181727.122	350	404	560854.3121	4181360.458	< 1
351	364	561280.37	4181726.016	351	418	560854.4892	4181362.55	< 1
352	355	561280.32	4181724.868	352	425	560854.5874	4181363.875	< 1
353	370	561280.09	4181723.646	353	401	560854.649	4181364.428	< 1
354	370	561280.61	4181722.761	354	419	560854.7141	4181364.568	< 1
355	385	561281.03	4181721.734	355	407	560854.6005	4181362.683	< 1
356	368	561282.01	4181721.314	356	420	560854.6346	4181360.646	< 1
357	383	561282.98	4181720.923	357	431	560854.6712	4181359.183	< 1
358	393	561283.99	4181720.772	358	436	560854.6557	4181358.294	< 1
359	387	561284.90	4181720.764	359	421	560854.7009	4181358.029	< 1
360	396	561285.83	4181720.745	360	433	560854.8537	4181359.85	< 1
361	378	561286.77	4181720.766	361	415	560855.0912	4181361.892	< 1
362	393	561287.74	4181720.788	362	407	560855.2695	4181363.468	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
363	391	561288.73	4181720.782	363	397	560855.4211	4181364.574	< 1
364	364	561289.74	4181720.811	364	424	560855.511	4181364.885	< 1
365	389	561290.73	4181720.856	365	410	560855.3581	4181363.061	< 1
366	376	561291.72	4181720.837	366	428	560855.3753	4181360.891	< 1
367	381	561292.85	4181720.822	367	430	560855.3856	4181359.294	< 1
368	362	561294.09	4181720.594	368	419	560855.4022	4181358.272	< 1
369	371	561295.20	4181721.166	369	423	560855.4502	4181357.889	< 1
370	368	561296.37	4181721.575	370	422	560855.5196	4181359.619	< 1
371	385	561296.80	4181722.553	371	420	560855.7449	4181361.657	< 1
372	358	561297.21	4181723.497	372	416	560855.8975	4181363.34	< 1
373	365	561297.33	4181724.525	373	404	560856.3476	4181364.58	< 1
374	361	561297.36	4181725.618	374	401	560856.6669	4181365.389	< 1
375	366	561297.39	4181726.711	375	452	560856.3301	4181364.143	1
376	383	561297.42	4181727.805	376	408	560856.3658	4181362.195	< 1
377	358	561297.44	4181728.87	377	429	560856.3958	4181360.371	< 1
378	376	561297.45	4181729.927	378	423	560856.3091	4181358.674	< 1
379	393	561297.48	4181730.975	379	424	560856.311	4181357.057	< 1
380	369	561297.50	4181732.023	380	420	560856.0717	4181357.66	< 1
381	364	561297.53	4181733.071	381	405	560856.6044	4181359.564	< 1
382	380	561297.55	4181734.125	382	407	560857.183	4181361.628	< 1
383	389	561297.56	4181735.183	383	446	560856.9396	4181360.771	1
384	386	561297.58	4181736.244	384	423	560856.5856	4181359.401	< 1
385	372	561297.59	4181737.305	385	421	560856.7579	4181360.116	< 1
386	372	561297.62	4181738.365	386	443	560857.1092	4181362.499	1
387	339	561297.64	4181739.43	387	412	560857.3316	4181363.974	< 1
388	344	561297.68	4181740.493	388	410	560857.4099	4181364.543	< 1
389	348	561297.72	4181741.55	389	394	560857.4939	4181364.917	< 1
390	366	561297.77	4181742.591	390	435	560857.3479	4181363.282	< 1
391	370	561297.80	4181743.616	391	414	560857.3079	4181361.335	< 1
392	367	561297.83	4181744.619	392	421	560857.274	4181359.616	< 1
393	379	561297.88	4181745.618	393	420	560857.2052	4181358.125	< 1
394	362	561297.93	4181746.627	394	416	560857.157	4181357.095	< 1
395	354	561297.98	4181747.654	395	420	560857.1013	4181358.293	< 1
396	370	561298.02	4181748.701	396	420	560857.5028	4181360.5	< 1
397	383	561298.06	4181749.761	397	409	560857.8528	4181362.49	< 1
398	361	561298.10	4181750.817	398	420	560857.9637	4181364.286	< 1
399	378	561298.12	4181751.842	399	418	560858.0268	4181365.269	< 1
400	373	561298.15	4181752.861	400	398	560857.9681	4181364.054	< 1
401	370	561298.14	4181753.875	401	453	560857.9335	4181362.253	1
402	401	561298.11	4181754.893	402	431	560857.8998	4181360.521	< 1
403	368	561298.00	4181756.048	403	412	560857.8463	4181358.859	< 1
404	372	561297.20	4181756.629	404	431	560857.827	4181357.507	< 1
405	387	561296.44	4181757.35	405	447	560857.6547	4181358.373	1
406	388	561295.42	4181757.502	406	430	560858.0741	4181360.322	< 1
407	382	561294.40	4181757.649	407	441	560858.4648	4181362.261	1
408	378	561293.38	4181757.748	408	425	560858.6004	4181364.222	< 1
409	409	561292.41	4181757.768	409	407	560858.6942	4181365.586	< 1
410	379	561291.43	4181757.793	410	427	560858.6038	4181364.732	< 1
411	378	561290.45	4181757.797	411	427	560858.6029	4181362.954	< 1
412	371	561289.44	4181757.801	412	413	560858.6012	4181361.218	< 1
413	387	561288.43	4181757.859	413	412	560858.573	4181359.525	< 1
414	401	561287.46	4181757.872	414	424	560858.5548	4181358.407	< 1
415	377	561286.43	4181757.93	415	435	560858.5235	4181356.245	< 1
416	386	561285.37	4181757.76	416	421	560858.6121	4181357.881	< 1
417	365	561284.36	4181757.575	417	413	560858.789	4181360.034	< 1
418	367	561283.26	4181757.144	418	424	560859.2311	4181362.684	< 1
419	352	561282.98	4181756.19	419	422	560859.4356	4181363.854	< 1
420	364	561282.64	4181755.23	420	414	560859.4547	4181365.932	< 1
421	387	561282.54	4181754.204	421	432	560859.4555	4181364.375	< 1
422	382	561282.44	4181753.184	422	427	560859.4544	4181362.711	< 1
423	374	561282.38	4181752.162	423	397	560859.4139	4181360.941	< 1
424	359	561282.36	4181751.141	424	416	560859.3805	4181359.265	< 1
425	377	561282.33	4181750.116	425	428	560859.4022	4181356.408	< 1
426	359	561282.29	4181749.086	426	420	560859.3455	4181357.135	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
427	371	561282.26	4181748.063	427	417	560859.3325	4181358.604	< 1
428	386	561282.21	4181747.044	428	445	560859.8795	4181360.77	1
429	375	561282.16	4181746.042	429	412	560860.1946	4181362.775	< 1
430	363	561282.10	4181745.05	430	410	560860.2532	4181366.034	< 1
431	367	561282.05	4181744.067	431	400	560860.2544	4181365.989	< 1
432	331	561282.00	4181743.082	432	427	560860.2766	4181365.213	< 1
433	353	561281.96	4181742.091	433	406	560860.2763	4181363.704	< 1
434	351	561281.90	4181741.079	434	416	560860.2427	4181361.981	< 1
435	364	561281.84	4181740.083	435	403	560860.1519	4181360.229	< 1
436	376	561281.78	4181739.104	436	424	560860.0798	4181358.536	< 1
437	347	561281.72	4181738.116	437	436	560860.0336	4181357.615	< 1
438	359	561281.67	4181737.124	438	422	560860.0287	4181357.464	< 1
439	367	561281.60	4181736.12	439	407	560860.0356	4181357.007	< 1
440	361	561281.54	4181735.106	440	413	560860.1325	4181358.51	< 1
441	358	561281.47	4181734.082	441	412	560860.4947	4181360.478	< 1
442	377	561281.41	4181733.045	442	417	560860.8258	4181362.296	< 1
443	347	561281.35	4181732.009	443	404	560861.013	4181363.979	< 1
444	373	561281.29	4181730.982	444	404	560861.1722	4181365.396	< 1
445	386	561281.23	4181729.966	445	416	560861.0696	4181364.711	< 1
446	381	561281.17	4181728.962	446	412	560860.9633	4181363.311	< 1
447	403	561281.11	4181727.946	447	399	560860.862	4181361.904	< 1
448	366	561281.04	4181726.926	448	401	560860.6708	4181360.501	< 1
449	381	561280.98	4181725.901	449	418	560860.4883	4181359.063	< 1
450	378	561280.84	4181724.83	450	400	560860.3417	4181357.804	< 1
451	366	561281.09	4181723.755	451	412	560860.3148	4181357.478	< 1
452	372	561281.41	4181722.71	452	414	560860.1708	4181355.862	< 1
453	387	561281.99	4181721.58	453	403	560860.1985	4181356.143	< 1
454	365	561283.01	4181721.405	454	415	560860.3322	4181357.639	< 1
455	383	561284.00	4181721.184	455	398	560860.4761	4181359.392	< 1
456	383	561285.00	4181721.176	456	425	560860.5861	4181361.215	< 1
457	391	561285.95	4181721.169	457	418	560860.673	4181362.721	< 1
458	388	561286.91	4181721.186	458	414	560860.7687	4181363.908	< 1
459	375	561287.91	4181721.218	459	389	560860.6183	4181365.667	< 1
460	387	561288.94	4181721.249	460	409	560860.889	4181365.658	< 1
461	377	561290.00	4181721.293	461	403	560860.8769	4181365.42	< 1
462	370	561291.04	4181721.334	462	411	560860.8735	4181364.743	< 1
463	389	561292.07	4181721.281	463	422	560860.6765	4181363.648	< 1
464	373	561293.12	4181721.362	464	416	560860.1089	4181362.326	< 1
465	371	561294.24	4181721.334	465	436	560858.9958	4181361.098	< 1
466	358	561295.18	4181721.927	466	423	560857.3829	4181360.439	< 1
467	353	561296.04	4181722.519	467	412	560855.8309	4181359.796	< 1
468	368	561296.60	4181723.459	468	429	560855.0727	4181358.363	< 1
469	373	561296.70	4181724.552	469	423	560854.5176	4181356.645	< 1
470	354	561296.81	4181725.615	470	388	560854.389	4181354.94	< 1
471	354	561296.85	4181726.654	471	360	560854.3406	4181354.129	< 1
472	379	561296.88	4181727.707	472	344	560854.2986	4181353.576	< 1
473	393	561296.90	4181728.764	473	350	560854.285	4181353.28	< 1
474	366	561296.90	4181729.819	474	338	560854.2054	4181351.793	< 1
475	363	561296.89	4181730.881	475	383	560854.2401	4181352.283	< 1
476	396	561296.90	4181731.949	476	401	560854.3513	4181354.261	< 1
477	365	561296.91	4181733.017	477	416	560854.4582	4181356.214	< 1
478	377	561296.90	4181734.088	478	425	560854.5325	4181358.143	< 1
479	369	561296.91	4181735.174	479	400	560854.5946	4181360.059	< 1
480	372	561296.92	4181736.257	480	440	560854.64	4181361.936	1
481	370	561296.95	4181737.337	481	411	560854.679	4181363.631	< 1
482	368	561296.97	4181738.421	482	396	560854.637	4181364.537	< 1
483	361	561297.01	4181739.504	483	394	560854.6487	4181364.646	< 1
484	354	561297.03	4181740.581	484	403	560854.7451	4181365.596	< 1
485	355	561297.05	4181741.647	485	441	560854.7879	4181364.664	1
486	381	561297.08	4181742.701	486	393	560854.4114	4181363.188	< 1
487	354	561297.10	4181743.736	487	423	560854.0482	4181361.823	< 1
488	366	561297.13	4181744.764	488	446	560853.8509	4181360.538	1
489	365	561297.17	4181745.777	489	435	560853.6866	4181359.319	< 1
490	362	561297.22	4181746.804	490	439	560853.59	4181358.12	< 1

Count #	Reading	Easting	Northing
491	369	561297.25	4181747.847
492	367	561297.29	4181748.921
493	351	561297.31	4181750.006
494	374	561297.34	4181751.11
495	378	561297.38	4181752.214
496	380	561297.39	4181753.319
497	364	561297.37	4181754.347
498	380	561297.26	4181755.492
499	365	561296.48	4181756.064
500	384	561295.72	4181756.781
501	392	561294.69	4181756.941
502	383	561293.60	4181757.098
503	385	561292.50	4181757.178
504	373	561291.47	4181757.2
505	394	561290.42	4181757.219
506	388	561289.35	4181757.255
507	400	561288.30	4181757.287
508	378	561287.24	4181757.402
509	379	561286.20	4181757.19
510	374	561285.11	4181757.114
511	375	561284.34	4181756.452
512	386	561283.59	4181755.773
513	352	561283.23	4181754.796
514	389	561283.14	4181753.749
515	393	561283.03	4181752.715
516	377	561282.98	4181751.687
517	371	561282.93	4181750.647
518	374	561282.89	4181749.6
519	342	561282.84	4181748.534
520	358	561282.80	4181747.479
521	380	561282.74	4181746.437
522	357	561282.69	4181745.392
523	354	561282.63	4181744.349
524	338	561282.57	4181743.319
525	343	561282.52	4181742.284
526	372	561282.46	4181741.245
527	347	561282.41	4181740.229
528	369	561282.36	4181739.217
529	371	561282.30	4181738.206
530	355	561282.24	4181737.192
531	380	561282.19	4181736.175
532	369	561282.14	4181735.146
533	387	561282.08	4181734.114
534	373	561282.02	4181733.076
535	378	561281.96	4181732.045
536	362	561281.89	4181731.019
537	366	561281.83	4181730.011
538	395	561281.77	4181729.007
539	391	561281.72	4181728.012
540	365	561281.67	4181727.015
541	362	561281.61	4181726.014
542	369	561281.57	4181725.004
543	369	561281.52	4181723.894
544	355	561282.13	4181723.167
545	375	561282.60	4181722.311
546	386	561283.42	4181722.018
547	392	561284.28	4181721.701
548	394	561285.20	4181721.652
549	394	561286.12	4181721.657
550	381	561287.05	4181721.651
551	375	561288.02	4181721.69
552	398	561289.00	4181721.73
553	364	561289.99	4181721.805
554	390	561290.95	4181721.804

Count #	Reading	Easting	Northing	Sigma
491	409	560853.6114	4181357.006	< 1
492	416	560853.6206	4181356.208	< 1
493	399	560853.635	4181355.727	< 1
494	402	560853.673	4181354.094	< 1
495	426	560853.6578	4181354.331	< 1
496	422	560853.6622	4181355.475	< 1
497	424	560853.5802	4181357.409	< 1
498	403	560853.1599	4181360.112	< 1
499	422	560852.8751	4181362.538	< 1
500	427	560852.5216	4181366.101	< 1
501	432	560852.525	4181366.082	< 1
502	422	560852.5803	4181365.634	< 1
503	445	560852.7875	4181364.778	1
504	455	560853.0475	4181363.696	1
505	429	560853.3373	4181362.53	< 1
506	413	560853.5974	4181361.148	< 1
507	410	560853.8641	4181359.768	< 1
508	436	560854.0281	4181358.371	< 1
509	439	560854.1467	4181357.38	< 1
510	402	560854.2567	4181356.409	< 1
511	407	560854.2133	4181355.153	< 1
512	357	560854.1773	4181354.063	< 1
513	343	560854.1409	4181353.139	< 1
514	332	560854.1295	4181352.454	< 1
515	333	560853.711	4181351.875	< 1
516	332	560853.7121	4181351.872	< 1

516	Total Counts
413.30	Average
25.82	Std Dev
457.00	Max
490.75	3 sigma

Count #	Reading	Easting	Northing
555	393	561291.97	4181721.775
556	388	561293.03	4181721.887
557	359	561294.14	4181722.093
558	398	561295.42	4181722.518
559	372	561295.71	4181723.522
560	362	561296.06	4181724.513
561	364	561296.17	4181725.545
562	378	561296.28	4181726.606
563	360	561296.28	4181727.675
564	381	561296.29	4181728.725
565	370	561296.30	4181729.764
566	383	561296.29	4181730.792
567	374	561296.29	4181731.836
568	384	561296.30	4181732.882
569	377	561296.30	4181733.923
570	359	561296.30	4181734.964
571	386	561296.30	4181736.005
572	353	561296.30	4181737.042
573	366	561296.35	4181738.075
574	391	561296.37	4181739.09
575	370	561296.39	4181740.106
576	357	561296.41	4181741.122
577	377	561296.43	4181742.143
578	382	561296.43	4181743.164
579	381	561296.47	4181744.182
580	367	561296.52	4181745.194
581	365	561296.55	4181746.202
582	393	561296.58	4181747.221
583	371	561296.64	4181748.248
584	363	561296.66	4181749.312
585	396	561296.69	4181750.379
586	406	561296.72	4181751.45
587	368	561296.75	4181752.516
588	382	561296.99	4181753.63
589	380	561296.56	4181754.507
590	394	561296.28	4181755.484
591	378	561295.51	4181755.97
592	387	561294.70	4181756.474
593	388	561293.73	4181756.597
594	387	561292.73	4181756.653
595	384	561291.73	4181756.719
596	382	561290.72	4181756.742
597	383	561289.71	4181756.765
598	369	561288.71	4181756.766
599	370	561287.75	4181756.774
600	380	561286.75	4181756.887
601	388	561285.79	4181756.537
602	382	561284.87	4181756.182
603	365	561284.01	4181755.515
604	393	561283.84	4181754.589
605	371	561283.64	4181753.653
606	360	561283.57	4181752.689
607	370	561283.49	4181751.735
608	362	561283.44	4181750.779
609	366	561283.41	4181749.804
610	355	561283.37	4181748.822
611	379	561283.33	4181747.834
612	361	561283.28	4181746.858
613	377	561283.25	4181745.881
614	363	561283.20	4181744.899
615	357	561283.13	4181743.911
616	358	561283.09	4181742.914
617	369	561283.04	4181741.908
618	355	561282.99	4181740.902

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
619	345	561282.94	4181739.91
620	380	561282.88	4181738.917
621	377	561282.83	4181737.923
622	381	561282.78	4181736.912
623	357	561282.74	4181735.896
624	364	561282.69	4181734.875
625	380	561282.64	4181733.843
626	370	561282.59	4181732.801
627	360	561282.53	4181731.768
628	376	561282.49	4181730.737
629	370	561282.44	4181729.717
630	376	561282.38	4181728.697
631	373	561282.32	4181727.678
632	362	561282.26	4181726.686
633	367	561282.02	4181725.663
634	391	561282.35	4181724.751
635	377	561282.55	4181723.776
636	363	561283.22	4181723.127
637	383	561283.84	4181722.472
638	372	561284.71	4181722.264
639	377	561285.61	4181722.226
640	387	561286.53	4181722.167
641	384	561287.48	4181722.181
642	381	561288.45	4181722.196
643	374	561289.41	4181722.244
644	388	561290.37	4181722.27
645	381	561291.32	4181722.286
646	384	561292.27	4181722.338
647	402	561293.25	4181722.405
648	372	561294.37	4181722.617
649	391	561294.81	4181723.411
650	376	561295.39	4181724.213
651	358	561295.50	4181725.212
652	368	561295.62	4181726.228
653	393	561295.68	4181727.255
654	360	561295.69	4181728.289
655	385	561295.71	4181729.311
656	373	561295.70	4181730.321
657	394	561295.69	4181731.332
658	369	561295.68	4181732.345
659	377	561295.70	4181733.362
660	370	561295.71	4181734.379
661	373	561295.71	4181735.396
662	367	561295.72	4181736.415
663	390	561295.70	4181737.43
664	370	561295.72	4181738.433
665	377	561295.75	4181739.435
666	382	561295.76	4181740.437
667	376	561295.78	4181741.421
668	377	561295.80	4181742.396
669	400	561295.82	4181743.346
670	370	561295.83	4181744.303
671	374	561295.86	4181745.265
672	358	561295.90	4181746.222
673	380	561295.90	4181747.183
674	359	561295.93	4181748.168
675	387	561295.96	4181749.177
676	381	561295.98	4181750.209
677	386	561296.01	4181751.219
678	391	561296.27	4181752.233
679	388	561296.05	4181753.184
680	396	561295.97	4181754.184
681	393	561295.38	4181754.903
682	388	561294.79	4181755.629

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
683	396	561293.92	4181756.059
684	390	561292.86	4181756.143
685	375	561291.81	4181756.241
686	388	561290.76	4181756.263
687	379	561289.75	4181756.284
688	414	561288.75	4181756.34
689	399	561287.78	4181756.296
690	388	561286.73	4181756.373
691	377	561285.81	4181755.848
692	372	561284.96	4181755.35
693	383	561284.40	4181754.515
694	371	561284.26	4181753.599
695	372	561284.09	4181752.693
696	383	561284.02	4181751.779
697	386	561283.96	4181750.872
698	341	561283.90	4181749.956
699	354	561283.88	4181748.998
700	372	561283.88	4181748.044
701	362	561283.84	4181747.097
702	376	561283.81	4181746.128
703	373	561283.79	4181745.152
704	388	561283.75	4181744.166
705	382	561283.71	4181743.179
706	359	561283.65	4181742.191
707	366	561283.60	4181741.193
708	367	561283.54	4181740.196
709	392	561283.48	4181739.211
710	353	561283.42	4181738.223
711	366	561283.38	4181737.23
712	397	561283.33	4181736.231
713	386	561283.30	4181735.229
714	375	561283.26	4181734.223
715	387	561283.23	4181733.22
716	377	561283.19	4181732.22
717	378	561283.15	4181731.23
718	393	561283.10	4181730.247
719	380	561283.04	4181729.279
720	366	561282.98	4181728.322
721	357	561282.90	4181727.379
722	385	561282.82	4181726.437
723	372	561282.64	4181725.426
724	383	561283.07	4181724.637
725	395	561283.37	4181723.743
726	382	561284.10	4181723.239
727	371	561284.80	4181722.709
728	355	561285.67	4181722.507
729	393	561286.62	4181722.53
730	380	561287.57	4181722.553
731	384	561288.52	4181722.573
732	373	561289.51	4181722.594
733	371	561290.52	4181722.64
734	395	561291.57	4181722.72
735	374	561292.65	4181722.679
736	385	561293.55	4181723.211
737	390	561294.39	4181723.714
738	377	561295.03	4181724.532
739	366	561295.09	4181725.495
740	376	561295.18	4181726.46
741	373	561295.19	4181727.432
742	377	561295.20	4181728.403
743	375	561295.19	4181729.373
744	378	561295.18	4181730.333
745	380	561295.17	4181731.296
746	385	561295.16	4181732.262

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
747	398	561295.15	4181733.224
748	391	561295.14	4181734.185
749	372	561295.14	4181735.139
750	373	561295.13	4181736.104
751	381	561295.15	4181737.079
752	390	561295.16	4181738.055
753	379	561295.19	4181739.032
754	372	561295.20	4181740.018
755	373	561295.20	4181740.994
756	374	561295.21	4181741.957
757	362	561295.22	4181742.906
758	383	561295.26	4181743.85
759	387	561295.28	4181744.79
760	377	561295.28	4181745.72
761	399	561295.31	4181746.638
762	400	561295.34	4181747.559
763	363	561295.30	4181748.492
764	367	561295.35	4181749.471
765	379	561295.39	4181750.45
766	399	561295.45	4181751.427
767	375	561295.51	4181752.37
768	379	561295.66	4181753.403
769	378	561295.15	4181754.107
770	369	561294.79	4181754.924
771	395	561294.08	4181755.285
772	383	561293.31	4181755.704
773	382	561292.43	4181755.834
774	378	561291.57	4181755.846
775	396	561290.69	4181755.857
776	376	561289.77	4181755.873
777	386	561288.87	4181755.891
778	374	561287.90	4181756.097
779	375	561287.03	4181755.699
780	388	561286.04	4181755.438
781	339	561285.53	4181754.636
782	382	561285.02	4181753.849
783	364	561284.77	4181752.942
784	367	561284.69	4181752.024
785	372	561284.59	4181751.109
786	353	561284.54	4181750.192
787	365	561284.49	4181749.224
788	378	561284.48	4181748.252
789	382	561284.44	4181747.32
790	358	561284.39	4181746.379
791	373	561284.37	4181745.43
792	357	561284.34	4181744.461
793	360	561284.29	4181743.488
794	363	561284.24	4181742.51
795	366	561284.17	4181741.538
796	368	561284.13	4181740.572
797	376	561284.09	4181739.617
798	387	561284.05	4181738.662
799	364	561284.02	4181737.702
800	369	561283.99	4181736.737
801	379	561283.96	4181735.768
802	381	561283.93	4181734.793
803	377	561283.90	4181733.817
804	367	561283.86	4181732.844
805	390	561283.82	4181731.872
806	379	561283.77	4181730.901
807	378	561283.72	4181729.944
808	347	561283.68	4181728.994
809	359	561283.62	4181728.074
810	384	561283.49	4181727.18

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
811	372	561283.57	4181726.316
812	375	561283.61	4181725.443
813	379	561283.77	4181724.498
814	396	561284.37	4181724.018
815	373	561284.85	4181723.364
816	377	561285.54	4181723.232
817	369	561286.33	4181723.067
818	388	561287.18	4181722.982
819	392	561288.06	4181722.941
820	365	561288.95	4181722.896
821	400	561289.86	4181722.863
822	391	561290.79	4181722.827
823	385	561291.84	4181722.712
824	385	561292.65	4181723.276
825	384	561293.58	4181723.682
826	376	561293.91	4181724.503
827	388	561294.26	4181725.354
828	347	561294.40	4181726.271
829	365	561294.45	4181727.207
830	378	561294.51	4181728.144
831	379	561294.52	4181729.082
832	391	561294.53	4181730.015
833	379	561294.54	4181730.948
834	384	561294.53	4181731.887
835	372	561294.52	4181732.829
836	362	561294.53	4181733.772
837	365	561294.53	4181734.705
838	372	561294.53	4181735.64
839	380	561294.54	4181736.593
840	375	561294.55	4181737.546
841	349	561294.58	4181738.498
842	362	561294.61	4181739.448
843	389	561294.64	4181740.396
844	371	561294.64	4181741.338
845	381	561294.63	4181742.263
846	368	561294.66	4181743.169
847	385	561294.68	4181744.088
848	377	561294.66	4181745.009
849	373	561294.69	4181745.925
850	386	561294.71	4181746.839
851	403	561294.74	4181747.751
852	364	561294.78	4181748.697
853	384	561294.79	4181749.648
854	401	561294.84	4181750.587
855	393	561294.96	4181751.513
856	373	561294.83	4181752.41
857	378	561294.73	4181753.286
858	395	561294.48	4181754.242
859	380	561293.78	4181754.607
860	388	561293.09	4181755.129
861	388	561292.22	4181755.207
862	396	561291.28	4181755.29
863	378	561290.34	4181755.345
864	383	561289.44	4181755.371
865	382	561288.54	4181755.524
866	376	561287.74	4181755.264
867	367	561286.94	4181755.064
868	388	561286.08	4181754.706
869	370	561285.83	4181753.977
870	386	561285.51	4181753.225
871	380	561285.38	4181752.386
872	376	561285.25	4181751.51
873	368	561285.17	4181750.61
874	383	561285.10	4181749.658

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
875	381	561285.02	4181748.733
876	389	561285.00	4181747.832
877	353	561284.97	4181746.913
878	362	561284.94	4181745.983
879	356	561284.91	4181745.014
880	378	561284.89	4181744.04
881	359	561284.84	4181743.061
882	387	561284.80	4181742.089
883	369	561284.74	4181741.121
884	349	561284.71	4181740.161
885	372	561284.69	4181739.21
886	392	561284.65	4181738.269
887	374	561284.62	4181737.327
888	394	561284.61	4181736.384
889	390	561284.56	4181735.445
890	386	561284.52	4181734.499
891	394	561284.48	4181733.546
892	369	561284.43	4181732.596
893	392	561284.38	4181731.649
894	364	561284.33	4181730.705
895	383	561284.29	4181729.767
896	394	561284.24	4181728.833
897	388	561284.20	4181727.923
898	363	561283.95	4181726.997
899	367	561284.20	4181726.167
900	365	561284.30	4181725.301
901	377	561284.80	4181724.691
902	374	561285.18	4181724.058
903	371	561285.77	4181723.604
904	389	561286.55	4181723.51
905	386	561287.37	4181723.382
906	371	561288.24	4181723.348
907	402	561289.11	4181723.313
908	394	561290.00	4181723.093
909	382	561290.83	4181723.296
910	385	561291.74	4181723.373
911	395	561292.45	4181723.907
912	387	561293.18	4181724.395
913	377	561293.62	4181725.173
914	397	561292.65	4181723.772
915	387	561292.73	4181724.729
916	389	561292.81	4181725.668
917	377	561292.84	4181726.607
918	358	561292.84	4181727.555
919	386	561292.84	4181728.506
920	388	561292.84	4181729.46
921	386	561292.84	4181730.406
922	373	561292.84	4181731.348
923	390	561292.83	4181732.282
924	371	561292.82	4181733.205
925	390	561292.82	4181734.118
926	390	561292.82	4181735.025
927	399	561292.84	4181735.936
928	369	561292.86	4181736.874
929	399	561292.88	4181737.816
930	361	561292.88	4181738.762
931	383	561292.89	4181739.712
932	382	561292.90	4181740.665
933	380	561292.93	4181741.623
934	396	561292.96	4181742.572
935	387	561292.99	4181743.511
936	381	561293.03	4181744.468
937	384	561293.08	4181745.429
938	384	561293.10	4181746.398

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
939	386	561293.11	4181747.367
940	390	561293.14	4181748.335
941	391	561293.17	4181749.307
942	367	561293.19	4181750.279
943	381	561293.22	4181751.244
944	399	561293.25	4181752.213
945	407	561293.25	4181753.184
946	392	561293.26	4181754.132
947	381	561293.19	4181755.185
948	387	561292.49	4181755.841
949	388	561291.81	4181756.656
950	402	561290.77	4181756.895
951	374	561289.66	4181757.062
952	399	561288.33	4181757.06
953	386	561287.83	4181756.287
954	384	561287.19	4181755.587
955	392	561287.07	4181754.721
956	364	561286.93	4181753.845
957	394	561286.81	4181752.961
958	375	561286.77	4181752.059
959	383	561286.72	4181751.164
960	392	561286.70	4181750.275
961	384	561286.67	4181749.382
962	379	561286.68	4181748.493
963	382	561286.67	4181747.626
964	376	561286.67	4181746.747
965	403	561286.65	4181745.856
966	400	561286.62	4181744.953
967	352	561286.61	4181744.046
968	353	561286.58	4181743.127
969	352	561286.56	4181742.207
970	382	561286.53	4181741.288
971	369	561286.50	4181740.367
972	378	561286.45	4181739.449
973	389	561286.41	4181738.541
974	375	561286.37	4181737.629
975	380	561286.33	4181736.715
976	374	561286.29	4181735.802
977	387	561286.26	4181734.888
978	385	561286.22	4181733.967
979	380	561286.17	4181733.036
980	372	561286.13	4181732.096
981	386	561286.09	4181731.166
982	372	561286.06	4181730.24
983	366	561286.03	4181729.318
984	374	561286.00	4181728.403
985	348	561285.98	4181727.494
986	348	561285.96	4181726.554
987	359	561285.76	4181725.598
988	379	561285.94	4181724.663
989	369	561285.98	4181723.68
990	390	561286.52	4181722.925
991	391	561287.25	4181722.078
992	380	561288.33	4181721.213
993	400	561289.68	4181721.594
994	387	561290.99	4181721.746
995	370	561291.48	4181722.633
996	383	561291.94	4181723.467
997	368	561292.14	4181724.399
998	380	561292.18	4181725.371
999	392	561292.23	4181726.339
1000	372	561292.25	4181727.307
1001	382	561292.27	4181728.28
1002	398	561292.27	4181729.255

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1003	381	561292.27	4181730.226
1004	400	561292.26	4181731.184
1005	397	561292.25	4181732.127
1006	400	561292.24	4181733.071
1007	374	561292.26	4181734.013
1008	358	561292.25	4181734.942
1009	374	561292.25	4181735.88
1010	379	561292.27	4181736.827
1011	396	561292.29	4181737.78
1012	373	561292.29	4181738.735
1013	371	561292.32	4181739.689
1014	363	561292.34	4181740.646
1015	369	561292.37	4181741.606
1016	380	561292.40	4181742.555
1017	388	561292.41	4181743.506
1018	401	561292.45	4181744.475
1019	376	561292.49	4181745.452
1020	391	561292.52	4181746.436
1021	393	561292.55	4181747.417
1022	404	561292.60	4181748.397
1023	392	561292.62	4181749.38
1024	379	561292.65	4181750.36
1025	387	561292.65	4181751.337
1026	403	561292.66	4181752.374
1027	390	561292.83	4181753.456
1028	395	561292.56	4181754.565
1029	384	561292.43	4181755.693
1030	396	561291.72	4181756.445
1031	363	561290.50	4181757.239
1032	390	561292.23	4181756.939
1033	395	561291.72	4181757.036
1034	406	561290.91	4181757.296
1035	376	561289.84	4181757.022
1036	400	561288.85	4181756.727
1037	390	561287.90	4181756.064
1038	373	561287.75	4181755.122
1039	388	561287.57	4181754.176
1040	397	561287.47	4181753.213
1041	377	561287.38	4181752.231
1042	393	561287.35	4181751.242
1043	376	561287.33	4181750.268
1044	389	561287.32	4181749.291
1045	372	561287.31	4181748.312
1046	398	561287.30	4181747.344
1047	375	561287.25	4181746.375
1048	387	561287.23	4181745.388
1049	353	561287.21	4181744.404
1050	348	561287.19	4181743.424
1051	365	561287.16	4181742.438
1052	366	561287.15	4181741.445
1053	353	561287.10	4181740.433
1054	365	561287.06	4181739.747
1055	364	561287.04	4181739.386
1056	397	561287.00	4181738.594
1057	379	561286.98	4181737.707
1058	378	561286.94	4181736.769
1059	381	561286.90	4181735.831
1060	367	561286.87	4181734.893
1061	388	561286.84	4181733.956
1062	368	561286.81	4181733.016
1063	372	561286.78	4181732.067
1064	369	561286.75	4181731.119
1065	360	561286.72	4181730.171
1066	362	561286.68	4181729.221

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1067	378	561286.66	4181728.272
1068	376	561286.64	4181727.324
1069	387	561286.61	4181726.366
1070	384	561286.59	4181725.398
1071	385	561286.60	4181724.27
1072	388	561286.45	4181723.02
1073	385	561287.07	4181722.137
1074	385	561287.57	4181721.138
1075	389	561288.53	4181720.811
1076	403	561289.56	4181720.485
1077	384	561290.65	4181720.329
1078	379	561291.72	4181720.271
1079	369	561292.78	4181720.206
1080	400	561293.83	4181720.179
1081	411	561294.87	4181720.154
1082	373	561295.92	4181720.141
1083	373	561296.93	4181720.14
1084	388	561297.93	4181720.06
1085	383	561298.87	4181720.299
1086	377	561299.76	4181720.505
1087	371	561300.72	4181720.911
1088	387	561301.00	4181721.745
1089	375	561301.35	4181722.567
1090	378	561301.45	4181723.445
1091	380	561301.57	4181724.387
1092	368	561301.63	4181725.335
1093	378	561301.65	4181726.222
1094	381	561301.68	4181727.111
1095	375	561301.69	4181728.003
1096	385	561301.70	4181728.891
1097	363	561301.68	4181729.782
1098	391	561301.70	4181730.694
1099	368	561301.72	4181731.616
1100	394	561301.74	4181732.547
1101	357	561301.76	4181733.51
1102	407	561301.80	4181734.483
1103	388	561301.85	4181735.475
1104	377	561301.90	4181736.478
1105	383	561301.94	4181737.49
1106	385	561301.99	4181738.511
1107	369	561302.04	4181739.531
1108	365	561302.08	4181740.54
1109	377	561302.11	4181741.529
1110	388	561302.14	4181742.498
1111	412	561302.17	4181743.458
1112	376	561302.19	4181744.408
1113	376	561302.23	4181745.311
1114	392	561302.27	4181746.218
1115	386	561302.30	4181747.127
1116	398	561302.33	4181748.046
1117	396	561302.38	4181748.965
1118	393	561302.42	4181749.875
1119	412	561302.45	4181750.779
1120	391	561302.50	4181751.677
1121	404	561302.54	4181752.597
1122	389	561302.79	4181753.526
1123	391	561302.62	4181754.414
1124	401	561302.58	4181755.375
1125	368	561302.03	4181756.133
1126	391	561301.58	4181756.85
1127	383	561300.93	4181757.456
1128	368	561300.05	4181757.608
1129	379	561299.13	4181757.793
1130	382	561298.16	4181757.878

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1131	393	561297.17	4181757.962
1132	392	561296.16	4181757.996
1133	391	561295.10	4181757.998
1134	377	561294.01	4181757.99
1135	388	561292.87	4181758.045
1136	381	561291.71	4181758.05
1137	378	561290.43	4181758.025
1138	392	561289.54	4181757.254
1139	368	561288.60	4181756.646
1140	377	561288.30	4181755.735
1141	400	561287.99	4181754.822
1142	400	561287.93	4181753.859
1143	421	561287.90	4181752.892
1144	376	561287.87	4181751.917
1145	404	561287.84	4181750.933
1146	400	561287.82	4181749.954
1147	405	561287.80	4181748.976
1148	367	561287.79	4181748.006
1149	377	561287.78	4181747.041
1150	383	561287.76	4181746.081
1151	381	561287.73	4181745.104
1152	361	561287.74	4181744.124
1153	366	561287.71	4181743.141
1154	366	561287.67	4181742.149
1155	348	561287.64	4181741.149
1156	372	561287.61	4181740.142
1157	368	561287.56	4181739.135
1158	384	561287.53	4181738.135
1159	384	561287.50	4181737.139
1160	388	561287.48	4181736.148
1161	372	561287.46	4181735.16
1162	385	561287.44	4181734.171
1163	381	561293.72	4181726.067
1164	362	561293.84	4181726.967
1165	376	561293.89	4181727.881
1166	386	561293.93	4181728.797
1167	393	561293.94	4181729.702
1168	380	561293.94	4181730.547
1169	385	561293.94	4181731.379
1170	386	561293.93	4181732.2
1171	376	561293.93	4181733.019
1172	366	561293.90	4181733.844
1173	373	561293.91	4181734.695
1174	372	561293.91	4181735.573
1175	364	561293.92	4181736.477
1176	386	561293.93	4181737.399
1177	395	561293.95	4181738.327
1178	373	561293.97	4181739.268
1179	394	561293.98	4181740.214
1180	383	561294.00	4181741.165
1181	376	561294.03	4181742.088
1182	374	561294.04	4181743.006
1183	382	561294.07	4181743.925
1184	393	561294.09	4181744.839
1185	371	561294.13	4181745.748
1186	404	561294.17	4181746.633
1187	386	561294.23	4181747.517
1188	392	561294.26	4181748.42
1189	374	561294.28	4181749.335
1190	402	561294.31	4181750.259
1191	399	561294.34	4181751.162
1192	400	561294.53	4181752.128
1193	381	561294.12	4181752.878
1194	396	561293.86	4181753.715

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1195	392	561293.23	4181754.169
1196	413	561292.64	4181754.686
1197	400	561291.88	4181754.828
1198	382	561291.03	4181754.906
1199	371	561290.18	4181755.01
1200	368	561289.34	4181755.028
1201	377	561288.50	4181755.086
1202	392	561287.58	4181755.021
1203	403	561287.02	4181754.456
1204	376	561286.29	4181754.001
1205	374	561286.09	4181753.245
1206	368	561285.87	4181752.447
1207	387	561285.74	4181751.621
1208	378	561285.69	4181750.788
1209	373	561285.63	4181749.948
1210	409	561285.59	4181749.102
1211	390	561285.53	4181748.307
1212	396	561285.64	4181747.512
1213	353	561285.58	4181746.668
1214	373	561285.50	4181745.806
1215	377	561285.48	4181744.921
1216	377	561285.45	4181744.022
1217	372	561285.43	4181743.116
1218	373	561285.39	4181742.195
1219	361	561285.35	4181741.28
1220	364	561285.33	4181740.371
1221	378	561285.30	4181739.462
1222	378	561285.28	4181738.553
1223	366	561285.25	4181737.649
1224	377	561285.22	4181736.747
1225	375	561285.18	4181735.847
1226	376	561285.14	4181734.944
1227	408	561285.10	4181734.051
1228	371	561285.07	4181733.216
1229	381	561285.03	4181732.382
1230	382	561284.99	4181731.549
1231	399	561284.94	4181730.744
1232	360	561284.89	4181729.942
1233	378	561284.85	4181729.125
1234	387	561284.79	4181728.327
1235	393	561284.77	4181727.548
1236	395	561284.71	4181726.764
1237	378	561284.69	4181725.899
1238	358	561285.16	4181725.289
1239	383	561285.47	4181724.553
1240	375	561286.07	4181724.263
1241	395	561286.71	4181723.892
1242	389	561287.46	4181723.725
1243	406	561288.30	4181723.69
1244	397	561289.13	4181723.614
1245	388	561289.95	4181723.667
1246	373	561290.76	4181723.666
1247	369	561291.65	4181723.806
1248	381	561292.12	4181724.402
1249	368	561292.79	4181724.933
1250	372	561292.94	4181725.719
1251	381	561293.11	4181726.574
1252	375	561293.24	4181727.457
1253	385	561293.27	4181728.366
1254	380	561293.31	4181729.28
1255	386	561293.32	4181730.199
1256	393	561293.33	4181731.094
1257	402	561293.36	4181731.986
1258	391	561293.35	4181732.882

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1259	373	561293.34	4181733.768
1260	364	561293.34	4181734.642
1261	393	561293.34	4181735.515
1262	355	561293.35	4181736.393
1263	376	561293.37	4181737.299
1264	359	561293.39	4181738.202
1265	368	561293.41	4181739.102
1266	383	561293.43	4181740
1267	360	561293.44	4181740.898
1268	383	561293.46	4181741.794
1269	353	561293.47	4181742.68
1270	398	561293.50	4181743.555
1271	379	561293.52	4181744.446
1272	385	561293.58	4181745.342
1273	384	561293.61	4181746.249
1274	400	561293.64	4181747.133
1275	378	561293.67	4181747.994
1276	376	561293.70	4181748.83
1277	400	561293.71	4181749.67
1278	400	561293.75	4181750.56
1279	388	561293.77	4181751.524
1280	384	561293.83	4181752.56
1281	387	561293.83	4181753.705
1282	386	561293.80	4181755.1
1283	373	561292.66	4181755.829
1284	370	561291.47	4181756.617
1285	378	561289.99	4181756.803
1286	402	561288.66	4181756.773
1287	391	561287.16	4181756.411
1288	367	561286.80	4181755.313
1289	398	561286.40	4181754.312
1290	359	561286.30	4181753.337
1291	386	561286.20	4181752.365
1292	397	561286.14	4181751.395
1293	378	561286.11	4181750.457
1294	393	561286.09	4181749.502
1295	373	561286.07	4181748.529
1296	384	561286.06	4181747.594
1297	365	561286.07	4181746.659
1298	368	561286.05	4181745.694
1299	380	561286.02	4181744.72
1300	378	561286.00	4181743.737
1301	364	561285.98	4181742.741
1302	345	561285.98	4181741.743
1303	369	561285.95	4181740.753
1304	355	561285.92	4181739.774
1305	387	561285.88	4181738.805
1306	380	561285.85	4181737.839
1307	379	561285.80	4181736.874
1308	364	561285.76	4181735.911
1309	385	561285.71	4181734.942
1310	395	561285.67	4181733.967
1311	364	561285.63	4181732.981
1312	375	561285.59	4181732.003
1313	392	561285.54	4181731.084
1314	369	561285.49	4181730.169
1315	366	561285.45	4181729.255
1316	397	561285.41	4181728.348
1317	374	561285.39	4181727.433
1318	386	561285.35	4181726.474
1319	363	561285.25	4181725.467
1320	376	561285.42	4181724.43
1321	392	561285.58	4181723.453
1322	395	561285.93	4181722.396

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1323	362	561286.78	4181722.044
1324	400	561287.75	4181721.576
1325	386	561288.97	4181721.473
1326	389	561290.19	4181721.496
1327	399	561291.57	4181721.78
1328	380	561292.08	4181722.84
1329	355	561287.40	4181733.173
1330	375	561287.37	4181732.178
1331	385	561287.34	4181731.187
1332	383	561287.32	4181730.195
1333	368	561287.30	4181729.201
1334	375	561287.28	4181728.199
1335	372	561287.26	4181727.192
1336	391	561287.24	4181726.18
1337	373	561287.22	4181725.204
1338	378	561287.00	4181724.217
1339	378	561287.27	4181723.363
1340	378	561287.39	4181722.447
1341	401	561287.97	4181721.843
1342	390	561288.61	4181721.172
1343	382	561289.53	4181720.775
1344	383	561290.70	4181720.711
1345	380	561291.81	4181720.641
1346	375	561292.89	4181720.61
1347	378	561293.98	4181720.583
1348	386	561295.07	4181720.609
1349	370	561296.14	4181720.608
1350	370	561297.17	4181720.544
1351	363	561298.15	4181720.754
1352	357	561299.05	4181720.922
1353	390	561299.97	4181721.291
1354	374	561300.30	4181722.031
1355	364	561300.75	4181722.769
1356	362	561300.86	4181723.631
1357	384	561300.99	4181724.588
1358	369	561301.03	4181725.572
1359	367	561301.06	4181726.559
1360	384	561301.11	4181727.497
1361	383	561301.09	4181728.386
1362	383	561301.07	4181729.284
1363	376	561301.13	4181730.184
1364	376	561301.15	4181731.091
1365	385	561301.17	4181732.014
1366	372	561301.18	4181732.953
1367	389	561301.19	4181733.926
1368	371	561301.22	4181734.907
1369	371	561301.27	4181735.901
1370	396	561301.31	4181736.9
1371	379	561301.36	4181737.903
1372	370	561301.40	4181738.897
1373	387	561301.43	4181739.888
1374	383	561301.48	4181740.874
1375	376	561301.52	4181741.84
1376	371	561301.56	4181742.786
1377	410	561301.60	4181743.727
1378	375	561301.64	4181744.666
1379	392	561301.67	4181745.606
1380	374	561301.71	4181746.554
1381	381	561301.74	4181747.513
1382	379	561301.77	4181748.48
1383	404	561301.81	4181749.449
1384	384	561301.86	4181750.425
1385	399	561301.90	4181751.394
1386	396	561301.95	4181752.355

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1387	396	561301.99	4181753.278
1388	394	561302.20	4181754.264
1389	402	561301.78	4181755.13
1390	383	561301.51	4181756.088
1391	383	561300.76	4181756.596
1392	400	561300.03	4181757.12
1393	384	561299.15	4181757.336
1394	380	561298.20	4181757.415
1395	374	561297.24	4181757.516
1396	365	561296.26	4181757.532
1397	384	561295.26	4181757.548
1398	395	561294.25	4181757.49
1399	381	561293.27	4181757.519
1400	383	561292.26	4181757.624
1401	367	561291.25	4181757.375
1402	392	561290.23	4181757.066
1403	391	561289.16	4181756.525
1404	392	561288.88	4181755.63
1405	380	561288.53	4181754.775
1406	372	561288.47	4181753.891
1407	378	561288.41	4181752.993
1408	390	561288.39	4181752.086
1409	381	561288.36	4181751.159
1410	377	561288.34	4181750.241
1411	373	561288.31	4181749.332
1412	381	561288.29	4181748.42
1413	383	561288.28	4181747.508
1414	384	561288.27	4181746.599
1415	395	561288.26	4181745.689
1416	376	561288.24	4181744.776
1417	346	561288.23	4181743.864
1418	375	561288.20	4181742.947
1419	371	561288.18	4181742.009
1420	342	561288.16	4181741.064
1421	358	561288.14	4181740.114
1422	365	561288.12	4181739.172
1423	389	561288.12	4181738.231
1424	366	561288.09	4181737.291
1425	388	561288.06	4181736.352
1426	375	561288.03	4181735.417
1427	366	561287.99	4181734.482
1428	371	561287.97	4181733.545
1429	353	561287.95	4181732.601
1430	389	561287.95	4181731.653
1431	378	561287.91	4181730.703
1432	353	561287.88	4181729.742
1433	351	561287.84	4181728.779
1434	364	561287.82	4181727.817
1435	361	561287.80	4181726.857
1436	385	561287.75	4181725.901
1437	369	561287.69	4181724.987
1438	379	561287.52	4181724.037
1439	371	561287.86	4181723.276
1440	389	561288.12	4181722.361
1441	382	561288.88	4181721.763
1442	390	561289.96	4181721.162
1443	371	561291.27	4181721.119
1444	380	561292.42	4181721.119
1445	382	561293.54	4181721.114
1446	360	561294.65	4181721.131
1447	360	561295.65	4181721.145
1448	355	561296.63	4181720.979
1449	384	561297.51	4181721.198
1450	369	561298.43	4181721.268

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1451	363	561299.10	4181721.794
1452	373	561299.81	4181722.3
1453	366	561300.30	4181723.079
1454	367	561300.40	4181724.064
1455	386	561300.52	4181725.091
1456	357	561300.54	4181726.167
1457	369	561300.57	4181727.187
1458	374	561300.60	4181728.187
1459	375	561300.61	4181729.143
1460	384	561300.63	4181730.081
1461	377	561300.65	4181731
1462	363	561300.67	4181731.889
1463	355	561300.66	4181732.774
1464	373	561300.68	4181733.665
1465	388	561300.69	4181734.566
1466	371	561300.71	4181735.477
1467	386	561300.73	4181736.402
1468	380	561300.75	4181737.33
1469	365	561300.78	4181738.259
1470	394	561300.80	4181739.16
1471	381	561300.83	4181740.034
1472	368	561300.86	4181740.93
1473	390	561300.90	4181741.826
1474	372	561300.96	4181742.696
1475	390	561301.02	4181743.562
1476	400	561301.05	4181744.426
1477	375	561301.08	4181745.286
1478	378	561301.11	4181746.148
1479	396	561301.14	4181747.023
1480	386	561301.17	4181747.914
1481	379	561301.19	4181748.821
1482	394	561301.22	4181749.736
1483	363	561301.23	4181750.649
1484	372	561301.28	4181751.535
1485	380	561301.37	4181752.436
1486	393	561301.33	4181753.354
1487	368	561301.31	4181754.236
1488	374	561301.19	4181755.221
1489	378	561300.49	4181755.771
1490	356	561299.87	4181756.464
1491	382	561299.02	4181756.64
1492	385	561298.14	4181756.827
1493	357	561297.24	4181756.988
1494	408	561296.29	4181756.975
1495	375	561295.34	4181756.961
1496	400	561294.38	4181756.953
1497	389	561293.31	4181756.943
1498	389	561292.17	4181757.15
1499	389	561291.22	4181756.722
1500	390	561290.18	4181756.487
1501	374	561289.74	4181755.713
1502	364	561289.28	4181754.989
1503	364	561289.04	4181754.174
1504	378	561288.98	4181753.33
1505	397	561288.91	4181752.471
1506	392	561288.89	4181751.593
1507	379	561288.87	4181750.728
1508	383	561288.87	4181749.864
1509	396	561288.86	4181748.989
1510	394	561288.84	4181748.118
1511	384	561288.84	4181747.25
1512	397	561288.84	4181746.392
1513	385	561288.82	4181745.534
1514	364	561288.81	4181744.666

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1515	359	561288.79	4181743.794
1516	371	561288.77	4181742.918
1517	365	561288.76	4181742.016
1518	346	561288.74	4181741.109
1519	357	561288.71	4181740.206
1520	386	561288.69	4181739.313
1521	386	561288.67	4181738.429
1522	376	561288.64	4181737.548
1523	380	561288.61	4181736.667
1524	359	561288.60	4181735.785
1525	371	561288.60	4181734.904
1526	383	561288.57	4181734.027
1527	357	561288.53	4181733.147
1528	351	561288.52	4181732.266
1529	369	561288.49	4181731.384
1530	371	561288.46	4181730.501
1531	360	561288.43	4181729.617
1532	387	561288.40	4181728.732
1533	384	561288.38	4181727.844
1534	374	561288.35	4181726.949
1535	384	561288.28	4181726.069
1536	375	561288.31	4181725.203
1537	371	561288.33	4181724.267
1538	378	561288.46	4181723.211
1539	376	561289.18	4181722.664
1540	384	561289.83	4181721.96
1541	370	561290.74	4181721.806
1542	400	561291.75	4181721.645
1543	380	561292.79	4181721.58
1544	383	561293.88	4181721.583
1545	367	561294.95	4181721.585
1546	372	561296.01	4181721.597
1547	362	561297.04	4181721.625
1548	384	561298.18	4181721.68
1549	373	561298.81	4181722.387
1550	374	561299.59	4181722.955
1551	362	561299.74	4181723.765
1552	388	561299.91	4181724.612
1553	373	561300.04	4181725.478
1554	378	561300.05	4181726.359
1555	369	561300.06	4181727.228
1556	363	561300.08	4181728.086
1557	378	561300.11	4181728.932
1558	387	561300.11	4181729.775
1559	390	561300.12	4181730.608
1560	357	561300.14	4181731.444
1561	354	561300.14	4181732.285
1562	375	561300.13	4181733.151
1563	355	561300.15	4181734.025
1564	383	561300.15	4181734.92
1565	378	561300.16	4181735.827
1566	364	561300.17	4181736.745
1567	374	561300.19	4181737.663
1568	345	561300.20	4181738.582
1569	366	561300.23	4181739.505
1570	359	561300.26	4181740.422
1571	381	561300.30	4181741.333
1572	365	561300.33	4181742.224
1573	378	561300.37	4181743.105
1574	372	561300.41	4181743.965
1575	366	561300.45	4181744.823
1576	394	561300.47	4181745.679
1577	357	561300.50	4181746.541
1578	363	561300.52	4181747.408

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1579	385	561300.56	4181748.297
1580	384	561300.60	4181749.192
1581	373	561300.64	4181750.096
1582	377	561300.67	4181751
1583	386	561300.72	4181751.906
1584	380	561300.76	4181752.815
1585	374	561300.83	4181753.685
1586	374	561300.82	4181754.518
1587	371	561300.83	4181755.401
1588	386	561300.77	4181756.406
1589	398	561300.11	4181756.992
1590	384	561299.47	4181757.741
1591	397	561298.49	4181758.006
1592	364	561297.45	4181758.26
1593	375	561296.31	4181758.263
1594	369	561294.83	4181758.293
1595	382	561293.33	4181758.341
1596	393	561291.93	4181757.825
1597	375	561290.83	4181757.282
1598	379	561289.98	4181756.37
1599	385	561289.86	4181755.462
1600	383	561289.72	4181754.561
1601	350	561289.65	4181753.657
1602	379	561289.58	4181752.726
1603	377	561289.55	4181751.787
1604	390	561289.53	4181750.849
1605	378	561289.50	4181749.908
1606	396	561289.48	4181748.964
1607	350	561289.47	4181748.039
1608	392	561289.45	4181747.119
1609	371	561289.43	4181746.206
1610	378	561289.41	4181745.288
1611	378	561289.37	4181744.363
1612	366	561289.34	4181743.435
1613	353	561289.32	4181742.502
1614	360	561289.30	4181741.549
1615	358	561289.28	4181740.599
1616	357	561289.26	4181739.652
1617	380	561289.24	4181738.708
1618	377	561289.21	4181737.768
1619	376	561289.18	4181736.844
1620	380	561289.14	4181735.919
1621	388	561289.13	4181734.99
1622	368	561289.11	4181734.057
1623	362	561289.09	4181733.124
1624	372	561289.06	4181732.19
1625	369	561289.03	4181731.26
1626	361	561289.01	4181730.333
1627	365	561288.99	4181729.415
1628	371	561288.95	4181728.497
1629	378	561288.93	4181727.568
1630	401	561288.91	4181726.64
1631	382	561288.88	4181725.712
1632	371	561288.84	4181724.788
1633	391	561288.84	4181723.696
1634	378	561289.67	4181722.943
1635	381	561290.74	4181722.017
1636	384	561292.41	4181721.608
1637	406	561293.89	4181721.307
1638	381	561295.33	4181720.96
1639	374	561296.58	4181721.264
1640	345	561297.82	4181721.417
1641	381	561298.53	4181722.282
1642	380	561299.16	4181723.093

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1643	369	561299.33	4181724.079
1644	366	561299.39	4181724.982
1645	373	561299.47	4181725.883
1646	375	561299.49	4181726.786
1647	371	561299.51	4181727.681
1648	361	561299.52	4181728.576
1649	385	561299.53	4181729.476
1650	385	561299.54	4181730.376
1651	378	561299.54	4181731.277
1652	388	561299.53	4181732.175
1653	386	561299.53	4181733.072
1654	390	561299.53	4181733.97
1655	364	561299.54	4181734.867
1656	387	561299.56	4181735.763
1657	373	561299.57	4181736.667
1658	372	561299.59	4181737.574
1659	374	561299.61	4181738.487
1660	346	561299.63	4181739.41
1661	361	561299.67	4181740.342
1662	358	561299.70	4181741.274
1663	371	561299.73	4181742.202
1664	374	561299.77	4181743.108
1665	377	561299.81	4181744.006
1666	369	561299.85	4181744.897
1667	391	561299.90	4181745.781
1668	374	561299.94	4181746.666
1669	387	561299.99	4181747.561
1670	380	561300.03	4181748.463
1671	378	561300.08	4181749.372
1672	371	561300.12	4181750.315
1673	395	561300.18	4181751.265
1674	361	561300.20	4181752.207
1675	366	561300.23	4181753.163
1676	363	561300.25	4181754.134
1677	363	561300.26	4181755.143
1678	396	561300.27	4181756.268
1679	375	561299.63	4181756.931
1680	387	561299.09	4181757.758
1681	407	561298.19	4181757.974
1682	385	561297.18	4181758.209
1683	387	561296.08	4181758.397
1684	368	561294.75	4181758.495
1685	395	561293.35	4181758.635
1686	399	561292.04	4181758.001
1687	371	561291.09	4181757.512
1688	390	561290.40	4181756.72
1689	387	561290.30	4181755.886
1690	394	561290.17	4181755.034
1691	401	561290.12	4181754.155
1692	384	561290.06	4181753.271
1693	377	561290.04	4181752.383
1694	410	561290.03	4181751.483
1695	393	561290.02	4181750.596
1696	379	561290.01	4181749.721
1697	387	561290.00	4181748.855
1698	372	561289.97	4181747.993
1699	412	561289.96	4181747.135
1700	376	561289.96	4181746.275
1701	363	561289.93	4181745.412
1702	372	561289.90	4181744.545
1703	358	561289.89	4181743.679
1704	358	561289.88	4181742.816
1705	369	561289.86	4181741.939
1706	360	561289.84	4181741.048

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1707	363	561289.82	4181740.162
1708	368	561289.81	4181739.276
1709	382	561289.78	4181738.382
1710	369	561289.76	4181737.499
1711	375	561289.73	4181736.627
1712	358	561289.71	4181735.742
1713	385	561289.70	4181734.857
1714	373	561289.67	4181733.98
1715	355	561289.64	4181733.103
1716	363	561289.62	4181732.226
1717	392	561289.60	4181731.342
1718	352	561289.59	4181730.458
1719	382	561289.56	4181729.575
1720	382	561289.53	4181728.691
1721	390	561289.51	4181727.805
1722	368	561289.48	4181726.914
1723	374	561289.47	4181726.018
1724	379	561289.43	4181725.109
1725	395	561289.35	4181724.185
1726	360	561289.41	4181723.247
1727	377	561289.52	4181722.202
1728	379	561289.80	4181720.944
1729	389	561290.94	4181720.461
1730	391	561292.25	4181719.908
1731	366	561293.84	4181719.745
1732	376	561295.41	4181719.786
1733	369	561297.13	4181719.869
1734	369	561297.73	4181720.834
1735	378	561298.39	4181721.669
1736	365	561298.55	4181722.591
1737	401	561298.71	4181723.493
1738	368	561298.79	4181724.404
1739	369	561298.82	4181725.329
1740	379	561298.85	4181726.246
1741	376	561298.86	4181727.155
1742	357	561298.86	4181728.06
1743	385	561298.89	4181728.962
1744	378	561298.90	4181729.855
1745	377	561298.91	4181730.741
1746	367	561298.92	4181731.618
1747	363	561298.93	4181732.459
1748	377	561298.94	4181733.287
1749	389	561298.95	4181734.089
1750	391	561298.97	4181734.894
1751	370	561298.98	4181735.7
1752	354	561298.99	4181736.52
1753	375	561299.02	4181737.344
1754	366	561299.04	4181738.18
1755	347	561299.06	4181739.026
1756	369	561299.11	4181739.879
1757	350	561299.15	4181740.74
1758	342	561299.16	4181741.6
1759	344	561299.21	4181742.446
1760	372	561299.25	4181743.282
1761	369	561299.30	4181744.107
1762	370	561299.35	4181744.928
1763	387	561299.39	4181745.75
1764	394	561299.43	4181746.571
1765	357	561299.48	4181747.414
1766	386	561299.52	4181748.28
1767	393	561299.56	4181749.159
1768	381	561299.60	4181750.045
1769	361	561299.63	4181750.951
1770	396	561299.65	4181751.868

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1771	358	561299.68	4181752.796
1772	389	561299.71	4181753.723
1773	386	561299.96	4181754.773
1774	356	561299.38	4181755.931
1775	377	561298.80	4181757.19
1776	382	561297.49	4181757.794
1777	378	561296.31	4181758.278
1778	358	561295.04	4181758.762
1779	401	561293.62	4181758.437
1780	397	561292.26	4181758.258
1781	388	561291.51	4181757.356
1782	385	561290.88	4181756.662
1783	405	561290.62	4181755.814
1784	378	561290.58	4181754.937
1785	371	561290.54	4181754.074
1786	373	561290.53	4181753.222
1787	381	561290.53	4181752.357
1788	411	561290.49	4181751.492
1789	397	561290.50	4181750.631
1790	384	561290.53	4181749.761
1791	391	561290.51	4181748.882
1792	395	561290.50	4181748.019
1793	390	561290.50	4181747.159
1794	393	561290.48	4181746.298
1795	403	561290.47	4181745.45
1796	380	561290.45	4181744.614
1797	375	561290.43	4181743.806
1798	365	561290.43	4181743.001
1799	362	561290.42	4181742.185
1800	372	561290.41	4181741.352
1801	370	561290.39	4181740.503
1802	384	561290.36	4181739.641
1803	383	561290.36	4181738.779
1804	381	561290.33	4181737.925
1805	375	561290.31	4181737.082
1806	373	561290.29	4181736.248
1807	360	561290.27	4181735.405
1808	377	561290.26	4181734.562
1809	388	561290.24	4181733.728
1810	384	561290.22	4181732.903
1811	402	561290.20	4181732.085
1812	377	561290.18	4181731.261
1813	387	561290.16	4181730.436
1814	363	561290.13	4181729.616
1815	367	561290.10	4181728.804
1816	375	561290.08	4181727.998
1817	356	561290.06	4181727.201
1818	384	561290.05	4181726.394
1819	391	561290.04	4181725.523
1820	365	561290.01	4181724.57
1821	383	561290.06	4181723.535
1822	387	561290.29	4181722.275
1823	394	561290.77	4181720.791
1824	362	561292.06	4181720.423
1825	379	561293.36	4181720.022
1826	375	561294.73	4181719.991
1827	370	561295.90	4181720.059
1828	368	561297.17	4181720.411
1829	375	561297.53	4181721.343
1830	371	561297.95	4181722.187
1831	347	561298.07	4181723.038
1832	359	561298.19	4181723.826
1833	378	561298.26	4181724.605
1834	365	561298.28	4181725.38

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1835	377	561298.30	4181726.159
1836	346	561298.31	4181726.942
1837	381	561298.33	4181727.711
1838	382	561298.36	4181728.47
1839	364	561298.38	4181729.194
1840	370	561298.40	4181729.92
1841	367	561298.41	4181730.648
1842	383	561298.42	4181731.358
1843	373	561298.44	4181732.07
1844	368	561298.46	4181732.812
1845	377	561298.48	4181733.575
1846	355	561298.51	4181734.358
1847	375	561298.53	4181735.148
1848	366	561298.55	4181735.939
1849	386	561298.57	4181736.732
1850	378	561298.60	4181737.533
1851	357	561298.62	4181738.344
1852	349	561298.64	4181739.179
1853	352	561298.67	4181740.02
1854	334	561298.70	4181740.863
1855	343	561298.72	4181741.702
1856	356	561298.75	4181742.537
1857	370	561298.78	4181743.349
1858	370	561298.81	4181744.152
1859	374	561298.85	4181744.932
1860	366	561298.88	4181745.716
1861	352	561298.92	4181746.505
1862	381	561298.95	4181747.309
1863	357	561299.00	4181748.117
1864	399	561299.03	4181748.927
1865	381	561299.06	4181749.757
1866	371	561299.10	4181750.606
1867	374	561299.14	4181751.461
1868	375	561299.20	4181752.321
1869	371	561299.18	4181753.199
1870	351	561299.25	4181754.156
1871	380	561298.92	4181755.104
1872	378	561298.50	4181756.11
1873	381	561297.78	4181757.048
1874	381	561296.74	4181757.44
1875	377	561295.71	4181757.908
1876	386	561294.59	4181757.958
1877	374	561293.51	4181757.953
1878	388	561292.29	4181757.72
1879	384	561291.89	4181756.85
1880	406	561291.42	4181756.073
1881	388	561291.29	4181755.264
1882	370	561291.15	4181754.445
1883	375	561291.09	4181753.616
1884	405	561291.06	4181752.784
1885	385	561291.00	4181751.942
1886	392	561291.00	4181751.089
1887	394	561291.00	4181750.246
1888	415	561290.99	4181749.405
1889	388	561290.99	4181748.566
1890	392	561290.98	4181747.729
1891	391	561290.97	4181746.893
1892	381	561290.97	4181746.058
1893	377	561290.96	4181745.224
1894	355	561290.95	4181744.39
1895	364	561290.94	4181743.549
1896	375	561290.94	4181742.703
1897	384	561290.93	4181741.848
1898	364	561290.90	4181740.993

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1899	362	561290.89	4181740.142
1900	400	561290.87	4181739.286
1901	355	561290.85	4181738.427
1902	385	561290.83	4181737.583
1903	370	561290.82	4181736.743
1904	372	561290.79	4181735.907
1905	375	561290.76	4181735.067
1906	364	561290.74	4181734.224
1907	369	561290.73	4181733.422
1908	358	561290.71	4181732.621
1909	379	561290.69	4181731.789
1910	373	561290.68	4181730.95
1911	368	561290.66	4181730.106
1912	391	561290.64	4181729.281
1913	379	561290.63	4181728.456
1914	383	561290.61	4181727.617
1915	386	561290.60	4181726.767
1916	361	561290.57	4181725.904
1917	386	561290.56	4181724.816
1918	375	561290.46	4181723.474
1919	406	561291.54	4181722.454
1920	388	561293.13	4181721.311
1921	375	561295.65	4181720.858
1922	364	561297.72	4181721.318
1923	379	561299.77	4181722.581
1924	355	561300.16	4181724.886
1925	366	561300.48	4181726.974
1926	375	561300.53	4181728.868
1927	396	561300.57	4181730.524
1928	375	561300.62	4181732.1
1929	353	561300.63	4181733.513
1930	368	561300.64	4181734.898
1931	368	561300.67	4181736.256
1932	369	561300.69	4181737.537
1933	373	561300.70	4181738.801
1934	373	561300.75	4181740.049
1935	362	561300.81	4181741.26
1936	382	561300.86	4181742.434
1937	370	561300.91	4181743.595
1938	386	561300.96	4181744.752
1939	382	561300.99	4181745.907
1940	378	561301.03	4181747.048
1941	386	561301.06	4181748.175
1942	386	561301.09	4181749.302
1943	365	561301.12	4181750.464
1944	391	561301.18	4181751.807
1945	381	561301.23	4181753.281
1946	366	561301.13	4181754.885
1947	377	561300.66	4181756.371
1948	394	561299.62	4181757.797
1949	373	561297.96	4181758.261
1950	384	561296.22	4181758.687
1951	387	561294.37	4181758.413
1952	385	561293.02	4181757.882
1953	389	561291.99	4181756.8
1954	385	561291.84	4181755.786
1955	382	561291.68	4181754.79
1956	384	561291.62	4181753.799
1957	380	561291.56	4181752.854
1958	399	561291.53	4181751.92
1959	411	561291.53	4181751.001
1960	387	561291.52	4181750.091
1961	378	561291.52	4181749.191
1962	401	561291.52	4181748.3

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1963	389	561291.53	4181747.41
1964	374	561291.52	4181746.518
1965	381	561291.51	4181745.625
1966	376	561291.50	4181744.731
1967	380	561291.49	4181743.835
1968	394	561291.51	4181742.936
1969	367	561291.48	4181742.028
1970	370	561291.46	4181741.115
1971	386	561291.45	4181740.197
1972	383	561291.43	4181739.276
1973	379	561291.43	4181738.356
1974	373	561291.39	4181737.44
1975	378	561291.36	4181736.527
1976	378	561291.33	4181735.616
1977	380	561291.29	4181734.699
1978	372	561291.26	4181733.78
1979	382	561291.23	4181732.857
1980	390	561291.20	4181731.929
1981	383	561291.18	4181730.997
1982	402	561291.16	4181730.069
1983	378	561291.14	4181729.143
1984	370	561291.12	4181728.226
1985	399	561291.11	4181727.303
1986	374	561291.08	4181726.376
1987	384	561291.04	4181725.381
1988	395	561290.83	4181724.293
1989	376	561291.17	4181722.944
1990	402	561291.65	4181721.428
1991	388	561293.31	4181720.548
1992	369	561295.86	4181720.092
1993	406	561298.78	4181719.88
1994	363	561300.10	4181721.714
1995	369	561301.24	4181723.443
1996	373	561301.46	4181725.358
1997	370	561301.62	4181727.273
1998	398	561301.72	4181729.153
1999	389	561301.74	4181730.834
2000	387	561301.77	4181732.525
2001	370	561301.79	4181734.227
2002	384	561301.82	4181735.984
2003	360	561301.86	4181737.724
2004	379	561301.94	4181739.314
2005	381	561302.01	4181740.796
2006	373	561302.08	4181742.17
2007	380	561302.15	4181743.454
2008	389	561302.20	4181744.754
2009	371	561302.29	4181746.221
2010	375	561302.38	4181747.785
2011	385	561302.41	4181749.446
2012	406	561302.43	4181751.063
2013	391	561302.49	4181752.683
2014	387	561302.30	4181754.324
2015	411	561302.13	4181755.904
2016	389	561301.06	4181756.952
2017	390	561299.76	4181757.871
2018	393	561298.21	4181758.538
2019	377	561296.48	4181758.653
2020	384	561294.89	4181758.805
2021	390	561293.68	4181758
2022	376	561292.79	4181757.333
2023	384	561292.38	4181756.347
2024	390	561292.29	4181755.397
2025	403	561292.18	4181754.458
2026	391	561292.14	4181753.523

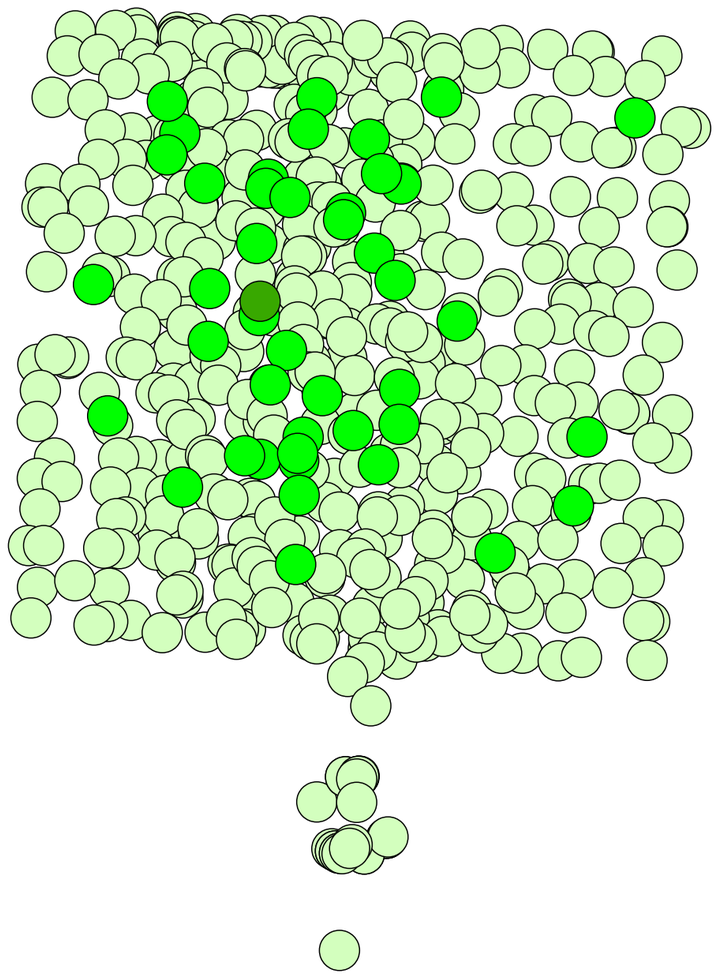
Count #	Reading	Easting	Northing	Sigma

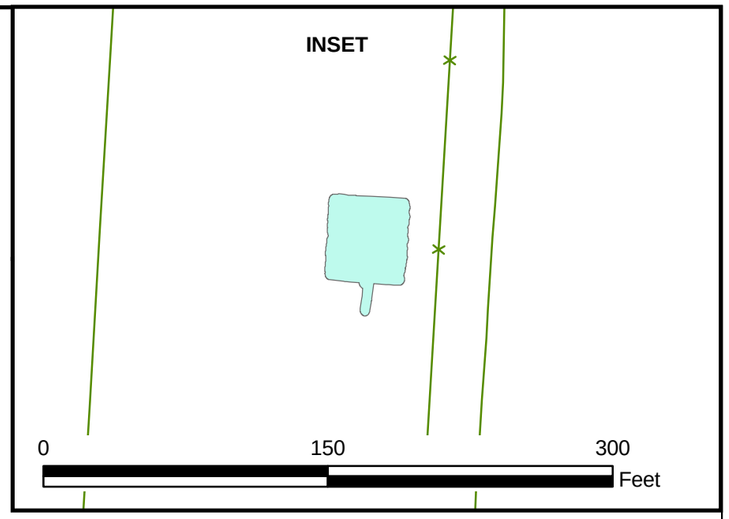
Count #	Reading	Easting	Northing
2027	397	561292.11	4181752.597
2028	390	561292.11	4181751.673
2029	363	561292.11	4181750.76
2030	400	561292.10	4181749.85
2031	408	561292.10	4181748.943
2032	382	561292.09	4181748.053
2033	380	561292.12	4181747.165
2034	385	561292.11	4181746.277
2035	391	561292.09	4181745.392
2036	370	561292.10	4181744.51
2037	356	561292.10	4181743.623
2038	377	561292.09	4181742.733
2039	363	561292.07	4181741.831
2040	380	561292.05	4181740.927
2041	380	561292.03	4181740.018
2042	384	561292.01	4181739.102
2043	382	561291.99	4181738.186
2044	352	561291.97	4181737.282
2045	389	561291.95	4181736.38
2046	359	561291.92	4181735.48
2047	387	561291.89	4181734.568
2048	398	561291.86	4181733.652
2049	372	561291.83	4181732.731
2050	387	561291.79	4181731.807
2051	387	561291.75	4181730.882
2052	366	561291.70	4181729.957
2053	380	561291.68	4181729.03
2054	393	561291.65	4181728.1
2055	368	561291.62	4181727.166
2056	388	561291.59	4181726.229
2057	382	561291.56	4181725.274
2058	387	561291.50	4181724.316
2059	380	561291.51	4181723.349

2059	Total Counts
377.78	Average
13.56	Std Dev
421.00	Max
490.75	3 sigma

Investigation Level Exceeded

Count #	Reading	Easting	Northing	Sigma





LEGEND

Sigma

- < 1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- > 6
- SCREENING PAD

0 2 4 8 12 16 Feet

Scale: 1 " = 10 '

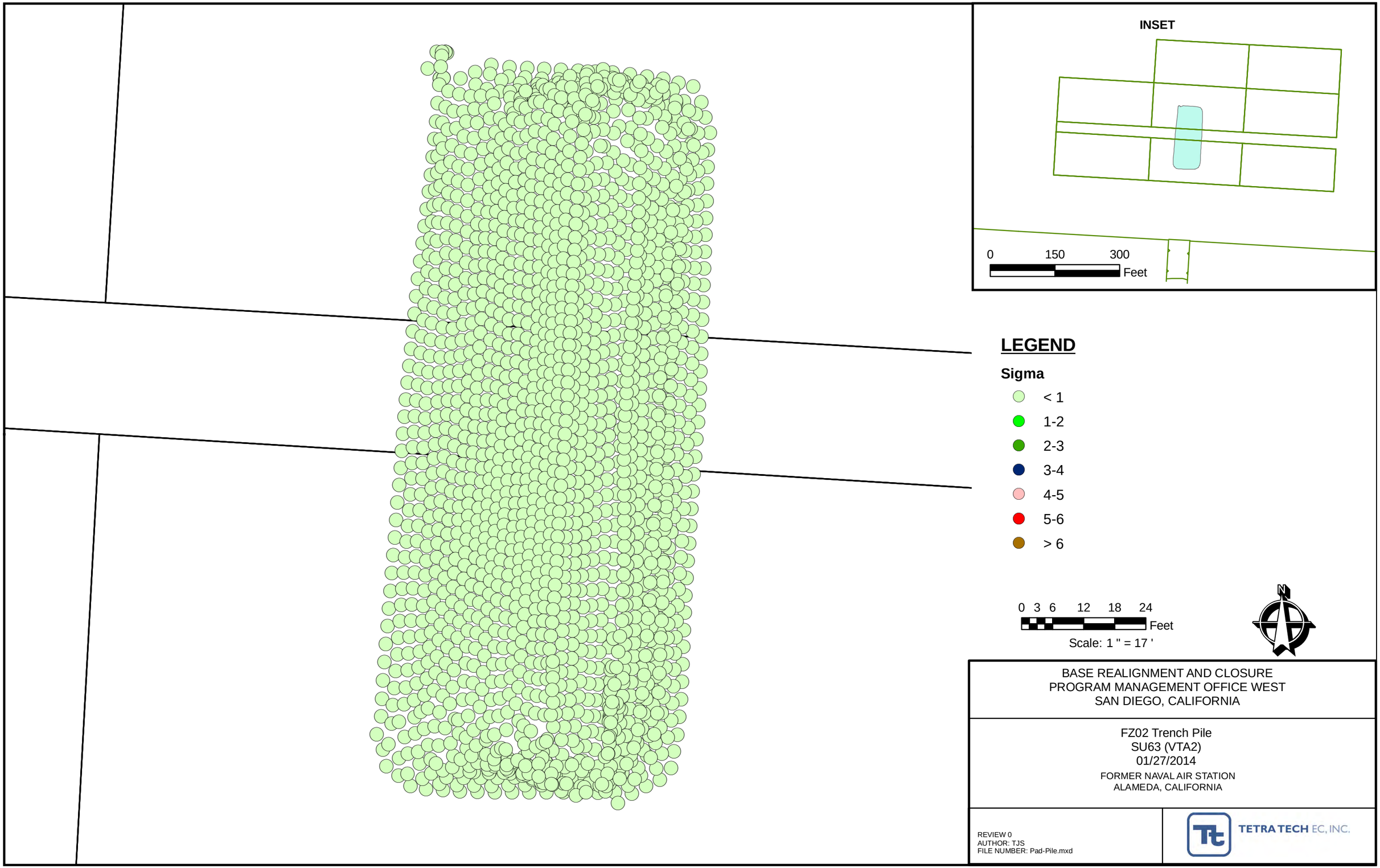
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FZ02 Trench Pile
Background Pad (VTA2)
01/27/2014

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

FZ02 Trench Pile
SU63 (VTA2)
01/27/2014

FORMER NAVAL AIR STATION
ALAMEDA, CALIFORNIA

REVIEW 0
AUTHOR: TJS
FILE NUMBER: Pad-Pile.mxd

TETRA TECH EC, INC.

TETRA TECH EC, INC.
Former Naval Air Station Alameda
Alameda, CA

CTO 05, FZ02

Vehicle Towed Array Decimated Data

Survey Unit: FZ02-SU-063 **VTA #:** 2
Date: 1/27/2014 **Serial #:** 020

Radioisotopes of Concern (ROCs): Cs137 Ra226 Sr90

Survey Unit FZ02-SU-063 Data

Gamma Total CPS	
1884	Total Counts
342.92	Average
24.62	Std Dev
442.00	Max
488.74	3 sigma

Sigma	Total Points
< 3 sigma	1884
≥ 3 sigma	0

Investigation Level Exceeded

01/27/2014 Background Data

Gamma Total CPS	
516	Total Counts
418.67	Average
23.36	Std Dev
468.00	Max
488.74	3 sigma

Sigma	Total Points
<1	476
1	43
2	1
3	0
4	0
5	0
>6	0

Count #	Reading	Easting	Northing
1	438	561256.85	4181765.07
2	426	561256.42	4181763.562
3	411	561256.42	4181763.563
4	430	561256.23	4181765.121
5	403	561256.64	4181763.576
6	419	561256.64	4181763.579
7	441	561256.76	4181765.113
8	424	561256.76	4181765.111
9	412	561255.71	4181764.128
10	407	561256.56	4181765.12
11	410	561256.54	4181764.891
12	405	561256.47	4181764.248
13	429	561256.38	4181763.189
14	400	561256.29	4181762.108
15	317	561256.20	4181761.027
16	325	561256.10	4181759.969
17	335	561256.00	4181758.92
18	363	561255.89	4181757.88
19	351	561255.78	4181756.864
20	382	561255.64	4181755.861
21	387	561255.52	4181754.865
22	389	561255.40	4181753.843
23	376	561255.26	4181752.798
24	384	561255.13	4181751.759
25	388	561255.04	4181750.716
26	390	561254.93	4181749.673
27	374	561254.83	4181748.641
28	356	561254.73	4181747.619
29	343	561254.63	4181746.626
30	382	561254.52	4181745.635
31	375	561254.43	4181744.624
32	395	561254.33	4181743.622
33	349	561254.26	4181742.626
34	366	561254.18	4181741.617
35	358	561254.12	4181740.603
36	344	561254.02	4181739.59
37	331	561253.92	4181738.568
38	352	561253.85	4181737.531
39	373	561253.78	4181736.494
40	356	561253.68	4181735.457
41	346	561253.60	4181734.412
42	351	561253.51	4181733.37

Count #	Reading	Easting	Northing	Sigma
1	329	560854.0652	4181349.608	< 1
2	362	560854.6055	4181351.068	< 1
3	331	560855.162	4181349.814	< 1
4	336	560855.1606	4181349.815	< 1
5	327	560854.1351	4181349.564	< 1
6	330	560854.1356	4181349.565	< 1
7	344	560853.7557	4181350.552	< 1
8	334	560854.7091	4181349.5	< 1
9	330	560854.7085	4181349.503	< 1
10	346	560854.3388	4181351.059	< 1
11	324	560854.3394	4181351.056	< 1
12	331	560855.1863	4181349.853	< 1
13	335	560854.6041	4181351.069	< 1
14	341	560854.6038	4181351.067	< 1
15	340	560854.2152	4181349.526	< 1
16	329	560854.2153	4181349.527	< 1
17	312	560854.2626	4181349.512	< 1
18	342	560854.4641	4181349.698	< 1
19	339	560854.5596	4181351.016	< 1
20	409	560854.7922	4181353.643	< 1
21	438	560855.2191	4181357.573	< 1
22	398	560854.4768	4181361.426	< 1
23	400	560853.6785	4181365.137	< 1
24	404	560853.0417	4181365.32	< 1
25	435	560851.6868	4181365.746	< 1
26	419	560852.6233	4181365.347	< 1
27	435	560853.507	4181364.968	< 1
28	418	560852.7472	4181365.385	< 1
29	425	560852.6672	4181365.388	< 1
30	435	560852.0343	4181365.364	< 1
31	417	560853.996	4181364.852	< 1
32	426	560856.3023	4181364.901	< 1
33	408	560858.4049	4181365.704	< 1
34	423	560859.3332	4181365.651	< 1
35	409	560860.698	4181365.571	< 1
36	418	560859.306	4181365.674	< 1
37	414	560857.5034	4181365.786	< 1
38	412	560855.6378	4181365.873	< 1
39	417	560853.8741	4181365.944	< 1
40	430	560852.8844	4181365.982	< 1
41	427	560852.6689	4181365.991	< 1
42	398	560852.163	4181366.009	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
43	379	561253.43	4181732.334	43	407	560853.6388	4181365.98	< 1
44	349	561253.34	4181731.288	44	432	560855.668	4181365.649	< 1
45	350	561253.23	4181730.239	45	431	560857.6408	4181365.339	< 1
46	360	561253.15	4181729.165	46	409	560859.5715	4181365.164	< 1
47	374	561253.08	4181728.093	47	433	560860.3614	4181365.082	< 1
48	348	561253.02	4181727.021	48	413	560858.9222	4181365.189	< 1
49	369	561252.97	4181725.986	49	434	560857.0416	4181365.235	< 1
50	349	561252.69	4181724.919	50	421	560855.2112	4181365.281	< 1
51	366	561253.06	4181724.008	51	414	560853.4312	4181365.342	< 1
52	393	561253.28	4181723.026	52	424	560852.888	4181365.339	< 1
53	366	561253.99	4181722.466	53	423	560851.2949	4181365.457	< 1
54	410	561254.70	4181721.883	54	418	560852.7798	4181365.347	< 1
55	389	561255.61	4181721.69	55	430	560854.4523	4181365.199	< 1
56	395	561256.61	4181721.623	56	444	560856.2657	4181364.729	1
57	384	561257.61	4181721.543	57	416	560858.1352	4181364.401	< 1
58	388	561258.63	4181721.519	58	425	560861.2809	4181364.128	< 1
59	386	561259.65	4181721.496	59	412	560861.0825	4181364.161	< 1
60	374	561260.67	4181721.49	60	447	560860.1572	4181364.311	1
61	393	561261.69	4181721.493	61	432	560858.484	4181364.37	< 1
62	404	561262.70	4181721.496	62	440	560856.6216	4181364.444	< 1
63	398	561263.71	4181721.498	63	410	560854.7895	4181364.514	< 1
64	384	561264.72	4181721.501	64	412	560853.3021	4181364.613	< 1
65	366	561265.74	4181721.464	65	433	560851.2946	4181364.714	< 1
66	397	561266.74	4181721.515	66	422	560851.9636	4181364.715	< 1
67	391	561267.74	4181721.428	67	425	560853.7596	4181364.486	< 1
68	392	561268.57	4181721.864	68	427	560855.7234	4181363.86	< 1
69	352	561269.38	4181722.243	69	392	560857.7084	4181363.824	< 1
70	369	561270.03	4181722.935	70	415	560859.0639	4181363.858	< 1
71	346	561270.21	4181723.896	71	394	560859.7716	4181363.749	< 1
72	352	561270.41	4181724.895	72	418	560860.7173	4181363.605	< 1
73	346	561270.52	4181725.948	73	425	560859.6906	4181363.738	< 1
74	361	561270.63	4181726.977	74	425	560858.0656	4181363.784	< 1
75	356	561270.67	4181728.006	75	425	560856.5261	4181363.826	< 1
76	351	561270.72	4181729.04	76	428	560855.0736	4181363.899	< 1
77	367	561270.77	4181730.057	77	435	560853.6697	4181363.964	< 1
78	377	561270.81	4181731.058	78	445	560851.0019	4181363.997	1
79	346	561270.85	4181732.074	79	423	560851.5604	4181364.025	< 1
80	336	561270.89	4181733.092	80	440	560852.5496	4181364.098	< 1
81	346	561270.96	4181734.106	81	433	560853.934	4181363.793	< 1
82	344	561271.03	4181735.13	82	398	560855.4664	4181363.418	< 1
83	338	561271.10	4181736.163	83	435	560857.0283	4181362.835	< 1
84	336	561271.17	4181737.188	84	432	560858.8609	4181362.764	< 1
85	335	561271.25	4181738.21	85	404	560860.8525	4181362.682	< 1
86	341	561271.32	4181739.22	86	412	560859.807	4181362.742	< 1
87	341	561271.38	4181740.239	87	435	560857.7065	4181362.86	< 1
88	364	561271.46	4181741.267	88	453	560855.45	4181362.975	1
89	378	561271.53	4181742.287	89	434	560853.4756	4181363.127	< 1
90	356	561271.63	4181743.301	90	442	560851.2569	4181363.256	< 1
91	347	561271.68	4181744.304	91	441	560851.989	4181363.269	< 1
92	361	561271.73	4181745.307	92	438	560853.8504	4181363.003	< 1
93	361	561271.77	4181746.312	93	422	560855.8943	4181362.276	< 1
94	346	561271.81	4181747.323	94	425	560858.1234	4181362.201	< 1
95	387	561271.84	4181748.338	95	408	560860.8235	4181362.165	< 1
96	392	561271.88	4181749.361	96	427	560860.7965	4181362.164	< 1
97	381	561271.91	4181750.372	97	427	560859.4337	4181362.153	< 1
98	396	561271.95	4181751.373	98	419	560857.7817	4181362.191	< 1
99	387	561271.98	4181752.354	99	416	560856.0261	4181362.299	< 1
100	395	561272.02	4181753.334	100	444	560854.3345	4181362.403	1
101	391	561272.06	4181754.328	101	433	560852.7086	4181362.53	< 1
102	380	561272.11	4181755.328	102	430	560851.3644	4181362.608	< 1
103	381	561272.13	4181756.336	103	438	560852.2493	4181362.759	< 1
104	385	561272.16	4181757.342	104	429	560854.2252	4181362.188	< 1
105	395	561272.19	4181758.346	105	421	560856.2677	4181361.658	< 1
106	382	561272.21	4181759.352	106	412	560858.4349	4181361.49	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
107	391	561272.32	4181760.344	107	431	560859.2076	4181361.433	< 1
108	381	561272.05	4181761.255	108	419	560861.0035	4181361.303	< 1
109	372	561271.81	4181762.136	109	424	560859.734	4181361.361	< 1
110	379	561271.35	4181763.08	110	441	560858.2971	4181361.425	< 1
111	383	561270.49	4181763.276	111	428	560856.6942	4181361.524	< 1
112	401	561269.58	4181763.507	112	435	560855.0976	4181361.635	< 1
113	380	561268.61	4181763.644	113	423	560853.6301	4181361.78	< 1
114	375	561267.61	4181763.782	114	435	560852.7833	4181361.831	< 1
115	388	561266.60	4181763.885	115	438	560851.0803	4181361.903	< 1
116	358	561265.58	4181763.941	116	423	560851.7181	4181361.906	< 1
117	360	561264.57	4181763.997	117	414	560853.4838	4181361.714	< 1
118	377	561263.56	4181764.049	118	439	560855.4519	4181361.232	< 1
119	365	561262.56	4181764.101	119	426	560857.4907	4181360.931	< 1
120	414	561261.56	4181764.178	120	410	560858.8138	4181360.723	< 1
121	419	561260.51	4181764.202	121	433	560859.4269	4181360.649	< 1
122	422	561259.45	4181764.35	122	412	560860.1154	4181360.559	< 1
123	418	561258.51	4181763.924	123	422	560858.8663	4181360.654	< 1
124	406	561257.64	4181763.541	124	432	560857.4082	4181360.782	< 1
125	416	561256.93	4181762.823	125	414	560855.9352	4181360.912	< 1
126	387	561256.75	4181761.873	126	409	560854.4484	4181361.055	< 1
127	301	561256.57	4181760.918	127	418	560853.3367	4181361.158	< 1
128	310	561256.43	4181759.951	128	394	560850.9377	4181361.16	< 1
129	304	561256.29	4181758.98	129	428	560851.331	4181361.189	< 1
130	330	561256.26	4181757.998	130	428	560852.5147	4181361.221	< 1
131	324	561256.16	4181757.029	131	427	560854.4599	4181360.82	< 1
132	339	561256.04	4181756.068	132	417	560856.6549	4181360.448	< 1
133	371	561255.96	4181755.11	133	395	560858.6543	4181360.223	< 1
134	352	561255.87	4181754.126	134	397	560859.3265	4181360.097	< 1
135	372	561255.78	4181753.139	135	409	560860.7056	4181359.857	< 1
136	361	561255.70	4181752.16	136	402	560859.63	4181359.984	< 1
137	365	561255.61	4181751.196	137	414	560858.1343	4181360.129	< 1
138	357	561255.53	4181750.248	138	452	560856.5859	4181360.227	1
139	349	561255.45	4181749.299	139	414	560855.2158	4181360.284	< 1
140	361	561255.36	4181748.349	140	427	560853.9785	4181360.333	< 1
141	354	561255.28	4181747.394	141	424	560852.8754	4181360.395	< 1
142	357	561255.23	4181746.446	142	441	560852.4786	4181360.46	< 1
143	353	561255.13	4181745.509	143	428	560850.9439	4181360.493	< 1
144	327	561255.03	4181744.573	144	447	560852.5986	4181360.339	1
145	339	561254.95	4181743.64	145	416	560854.3614	4181360.156	< 1
146	360	561254.89	4181742.724	146	409	560856.1971	4181359.726	< 1
147	330	561254.83	4181741.813	147	426	560857.9512	4181359.411	< 1
148	332	561254.79	4181740.907	148	412	560860.043	4181358.425	< 1
149	335	561254.74	4181739.986	149	409	560860.0449	4181358.434	< 1
150	346	561254.68	4181739.06	150	425	560860.3236	4181359.212	< 1
151	312	561254.61	4181738.122	151	419	560858.9407	4181359.31	< 1
152	347	561254.54	4181737.187	152	406	560857.4538	4181359.402	< 1
153	346	561254.45	4181736.256	153	429	560855.9328	4181359.452	< 1
154	338	561254.37	4181735.341	154	441	560854.3589	4181359.556	< 1
155	350	561254.28	4181734.425	155	459	560853.1433	4181359.641	1
156	350	561254.21	4181733.484	156	441	560852.2845	4181359.686	< 1
157	319	561254.14	4181732.53	157	419	560850.8791	4181359.729	< 1
158	333	561254.05	4181731.564	158	453	560851.57	4181359.816	1
159	336	561253.97	4181730.596	159	419	560853.6365	4181359.486	< 1
160	335	561253.91	4181729.622	160	411	560855.8218	4181359.142	< 1
161	352	561253.82	4181728.64	161	411	560858.1288	4181358.801	< 1
162	324	561253.72	4181727.645	162	422	560859.0083	4181358.673	< 1
163	349	561253.64	4181726.635	163	410	560860.9093	4181358.413	< 1
164	338	561253.57	4181725.545	164	437	560859.8301	4181358.522	< 1
165	363	561253.38	4181724.328	165	412	560858.5528	4181358.653	< 1
166	377	561254.01	4181723.513	166	410	560857.0725	4181358.748	< 1
167	388	561254.50	4181722.573	167	452	560855.4263	4181358.852	1
168	384	561255.40	4181722.291	168	432	560853.8506	4181358.96	< 1
169	369	561256.38	4181722	169	423	560852.7897	4181359.013	< 1
170	378	561257.42	4181721.909	170	436	560850.8704	4181359.06	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
171	378	561258.44	4181721.903	171	432	560851.2898	4181359.074	< 1
172	372	561259.45	4181721.889	172	445	560852.8259	4181358.94	1
173	388	561260.45	4181721.907	173	384	560854.5416	4181358.476	< 1
174	384	561261.44	4181721.924	174	413	560856.2553	4181358.226	< 1
175	395	561262.42	4181721.939	175	434	560857.8007	4181357.992	< 1
176	383	561263.42	4181721.972	176	448	560859.1911	4181357.9	1
177	394	561264.42	4181722.017	177	417	560860.8856	4181357.653	< 1
178	373	561265.42	4181722.006	178	434	560860.519	4181357.861	< 1
179	388	561266.40	4181721.998	179	431	560858.8094	4181357.958	< 1
180	404	561267.49	4181721.892	180	430	560857.1071	4181358.054	< 1
181	395	561268.26	4181722.47	181	446	560855.4122	4181358.149	1
182	371	561269.16	4181722.92	182	432	560853.8275	4181358.232	< 1
183	344	561269.49	4181723.771	183	430	560852.4939	4181358.271	< 1
184	340	561269.84	4181724.728	184	416	560852.3143	4181358.283	< 1
185	352	561270.05	4181725.748	185	433	560851.3107	4181358.346	< 1
186	341	561270.11	4181726.747	186	425	560852.6783	4181358.287	< 1
187	350	561270.17	4181727.737	187	438	560854.3912	4181358.044	< 1
188	338	561270.22	4181728.718	188	418	560856.1477	4181357.443	< 1
189	365	561270.27	4181729.679	189	414	560858.1329	4181357.253	< 1
190	358	561270.30	4181730.632	190	408	560859.2285	4181357.038	< 1
191	380	561270.35	4181731.561	191	421	560859.4389	4181357.051	< 1
192	366	561270.41	4181732.497	192	441	560859.8583	4181357.116	< 1
193	355	561270.47	4181733.441	193	422	560858.3592	4181357.148	< 1
194	365	561270.54	4181734.39	194	424	560856.653	4181357.244	< 1
195	358	561270.60	4181735.341	195	456	560854.9982	4181357.336	1
196	322	561270.66	4181736.3	196	447	560853.3944	4181357.418	1
197	327	561270.73	4181737.251	197	448	560852.6147	4181357.456	1
198	323	561270.78	4181738.195	198	426	560850.5924	4181357.529	< 1
199	321	561270.83	4181739.15	199	429	560851.1216	4181357.533	< 1
200	342	561270.89	4181740.106	200	444	560852.3062	4181357.519	1
201	340	561270.94	4181741.061	201	441	560854.1156	4181357.158	< 1
202	335	561270.98	4181742.015	202	406	560856.1822	4181356.83	< 1
203	344	561271.05	4181742.964	203	442	560858.0953	4181356.612	< 1
204	321	561271.12	4181743.901	204	443	560858.9225	4181356.518	1
205	338	561271.17	4181744.841	205	423	560860.7245	4181356.324	< 1
206	354	561271.22	4181745.797	206	434	560860.3186	4181356.363	< 1
207	336	561271.27	4181746.748	207	439	560858.865	4181356.468	< 1
208	361	561271.28	4181747.694	208	408	560857.1956	4181356.534	< 1
209	365	561271.29	4181748.644	209	415	560855.5121	4181356.61	< 1
210	389	561271.31	4181749.593	210	411	560853.9176	4181356.682	< 1
211	373	561271.34	4181750.529	211	431	560852.4126	4181356.762	< 1
212	377	561271.37	4181751.46	212	437	560850.6829	4181356.806	< 1
213	391	561271.41	4181752.383	213	444	560851.0526	4181356.889	1
214	366	561271.44	4181753.299	214	437	560852.5156	4181356.709	< 1
215	352	561271.46	4181754.216	215	429	560854.2062	4181356.489	< 1
216	373	561271.51	4181755.142	216	415	560856.1073	4181356.12	< 1
217	385	561271.57	4181756.088	217	438	560857.8313	4181355.893	< 1
218	359	561271.59	4181757.056	218	422	560860.7125	4181355.809	< 1
219	371	561271.62	4181758.104	219	396	560859.8783	4181355.856	< 1
220	381	561271.88	4181759.196	220	416	560858.6	4181355.925	< 1
221	365	561271.61	4181760.318	221	418	560856.875	4181355.928	< 1
222	390	561271.49	4181761.447	222	413	560855.0698	4181355.955	< 1
223	369	561270.79	4181762.187	223	429	560853.4016	4181356.012	< 1
224	383	561270.14	4181762.885	224	432	560852.4969	4181356.046	< 1
225	376	561269.24	4181763.167	225	433	560850.5641	4181356.064	< 1
226	376	561268.28	4181763.25	226	421	560850.8008	4181356.074	< 1
227	366	561267.32	4181763.346	227	438	560852.3694	4181356.001	< 1
228	375	561266.34	4181763.388	228	421	560854.2105	4181355.733	< 1
229	400	561265.36	4181763.429	229	401	560856.123	4181355.431	< 1
230	358	561264.39	4181763.462	230	404	560857.6919	4181355.159	< 1
231	394	561263.41	4181763.496	231	407	560858.9364	4181355.138	< 1
232	376	561262.42	4181763.517	232	399	560860.3368	4181355.177	< 1
233	420	561261.44	4181763.596	233	402	560859.7122	4181354.972	< 1
234	442	561260.46	4181763.671	234	421	560858.317	4181355.055	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
235	413	561259.36	4181763.813	235	402	560856.7244	4181355.149	< 1
236	384	561258.52	4181763.175	236	413	560854.9339	4181355.249	< 1
237	397	561257.55	4181762.622	237	450	560853.3276	4181355.341	1
238	363	561257.21	4181761.607	238	432	560852.013	4181355.449	< 1
239	312	561256.87	4181760.533	239	432	560851.9648	4181355.45	< 1
240	291	561256.59	4181759.43	240	421	560850.9099	4181355.479	< 1
241	316	561256.52	4181758.325	241	426	560852.0459	4181355.426	< 1
242	318	561256.45	4181757.226	242	417	560853.9216	4181355.185	< 1
243	334	561256.39	4181756.134	243	402	560855.9095	4181354.679	< 1
244	356	561256.32	4181755.049	244	387	560857.9251	4181354.54	< 1
245	356	561256.23	4181753.978	245	403	560860.4571	4181354.303	< 1
246	349	561256.19	4181752.964	246	392	560860.3282	4181354.323	< 1
247	353	561256.15	4181751.977	247	434	560858.7652	4181354.472	< 1
248	334	561256.10	4181751.02	248	398	560856.8792	4181354.524	< 1
249	336	561256.05	4181750.064	249	422	560854.8692	4181354.617	< 1
250	349	561255.95	4181749.111	250	419	560853.3007	4181354.689	< 1
251	321	561255.88	4181748.144	251	401	560852.1735	4181354.74	< 1
252	328	561255.82	4181747.188	252	405	560851.0612	4181354.777	< 1
253	335	561255.75	4181746.242	253	410	560852.0864	4181354.983	< 1
254	326	561255.67	4181745.31	254	411	560854.0174	4181354.431	< 1
255	354	561255.60	4181744.393	255	366	560855.937	4181353.913	< 1
256	343	561255.55	4181743.53	256	402	560857.8945	4181353.67	< 1
257	339	561255.52	4181742.664	257	377	560858.6167	4181353.516	< 1
258	332	561255.46	4181741.797	258	379	560860.3976	4181353.531	< 1
259	335	561255.40	4181740.886	259	407	560859.082	4181353.593	< 1
260	335	561255.39	4181739.963	260	376	560857.4751	4181353.675	< 1
261	312	561255.31	4181739.041	261	384	560855.5813	4181353.845	< 1
262	318	561255.23	4181738.12	262	371	560853.8057	4181353.983	< 1
263	330	561255.15	4181737.199	263	393	560852.3211	4181354.162	< 1
264	338	561255.07	4181736.288	264	410	560852.1843	4181354.153	< 1
265	342	561255.02	4181735.373	265	380	560851.5064	4181354.096	< 1
266	338	561254.93	4181734.449	266	406	560853.484	4181354.033	< 1
267	346	561254.82	4181733.517	267	386	560854.8073	4181353.975	< 1
268	337	561254.76	4181732.571	268	409	560853.6279	4181353.933	< 1
269	330	561254.70	4181731.618	269	426	560851.38	4181355.982	< 1
270	329	561254.63	4181730.66	270	408	560849.6525	4181358.25	< 1
271	326	561254.56	4181729.678	271	428	560849.6005	4181361.259	< 1
272	340	561254.50	4181728.684	272	432	560850.9219	4181363.579	< 1
273	342	561254.40	4181727.68	273	432	560853.0517	4181365.529	< 1
274	331	561254.31	4181726.685	274	406	560854.9048	4181365.666	< 1
275	333	561253.99	4181725.652	275	413	560857.0392	4181365.848	< 1
276	352	561254.34	4181724.747	276	427	560856.2734	4181365.744	< 1
277	347	561254.53	4181723.773	277	410	560855.2594	4181365.623	< 1
278	358	561255.22	4181723.201	278	424	560854.0671	4181365.582	< 1
279	375	561255.90	4181722.602	279	423	560852.3523	4181365.902	< 1
280	384	561256.80	4181722.372	280	416	560851.3214	4181366.146	< 1
281	383	561257.80	4181722.361	281	411	560850.9554	4181366.183	< 1
282	396	561258.81	4181722.341	282	409	560850.1287	4181366.266	< 1
283	402	561259.82	4181722.356	283	436	560850.9446	4181366.085	< 1
284	382	561260.83	4181722.37	284	428	560850.9587	4181366.084	< 1
285	368	561261.88	4181722.239	285	430	560852.4599	4181365.992	< 1
286	397	561262.96	4181722.495	286	414	560852.2568	4181365.994	< 1
287	389	561264.08	4181722.616	287	409	560851.274	4181366.006	< 1
288	386	561264.84	4181723.332	288	402	560853.3164	4181365.979	< 1
289	356	561265.56	4181724.012	289	420	560852.0697	4181366.032	< 1
290	347	561265.87	4181724.944	290	408	560851.0174	4181366.066	< 1
291	302	561265.97	4181725.904	291	426	560850.1625	4181366.13	< 1
292	326	561266.07	4181726.91	292	400	560848.9027	4181366.214	< 1
293	335	561266.17	4181727.96	293	409	560849.713	4181366.218	< 1
294	345	561266.27	4181729.001	294	422	560851.6608	4181365.964	< 1
295	332	561266.35	4181730.042	295	417	560853.5158	4181365.729	< 1
296	333	561266.41	4181731.085	296	431	560855.2888	4181365.628	< 1
297	341	561266.48	4181732.128	297	428	560856.3131	4181365.569	< 1
298	334	561266.53	4181733.172	298	424	560855.1805	4181365.667	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
299	346	561266.59	4181734.212	299	416	560853.5952	4181365.619	< 1
300	351	561266.65	4181735.247	300	421	560851.9455	4181365.573	< 1
301	333	561266.70	4181736.266	301	437	560850.2323	4181365.653	< 1
302	338	561266.74	4181737.241	302	405	560848.737	4181365.71	< 1
303	338	561266.79	4181738.172	303	434	560849.375	4181365.746	< 1
304	321	561266.84	4181739.088	304	414	560850.8453	4181365.601	< 1
305	311	561266.90	4181740.006	305	433	560852.3058	4181365.457	< 1
306	318	561266.95	4181740.947	306	430	560853.7579	4181365.329	< 1
307	314	561267.00	4181741.894	307	434	560854.6803	4181366.028	< 1
308	321	561267.04	4181742.848	308	418	560855.3645	4181365.188	< 1
309	338	561267.07	4181743.8	309	417	560853.9838	4181365.302	< 1
310	319	561267.10	4181744.753	310	436	560852.323	4181365.418	< 1
311	327	561267.13	4181745.718	311	422	560850.3774	4181365.355	< 1
312	340	561267.15	4181746.659	312	405	560849.7698	4181365.258	< 1
313	334	561267.19	4181747.575	313	431	560851.4668	4181365.077	< 1
314	334	561267.22	4181748.503	314	454	560853.7598	4181364.728	1
315	336	561267.26	4181749.446	315	437	560855.5091	4181364.445	< 1
316	345	561267.30	4181750.454	316	432	560853.5357	4181364.567	< 1
317	332	561267.33	4181751.471	317	427	560851.5596	4181364.689	< 1
318	339	561267.37	4181752.497	318	415	560848.4349	4181364.885	< 1
319	346	561267.40	4181753.475	319	409	560849.1497	4181364.837	< 1
320	345	561267.45	4181754.437	320	448	560850.7463	4181364.652	1
321	348	561267.47	4181755.377	321	438	560853.1825	4181364.058	< 1
322	327	561267.46	4181756.354	322	441	560854.9039	4181363.611	< 1
323	338	561267.55	4181757.361	323	435	560854.3167	4181363.875	< 1
324	328	561267.66	4181758.473	324	424	560851.9882	4181364.04	< 1
325	324	561267.99	4181759.621	325	427	560850.5571	4181364.125	< 1
326	344	561267.67	4181760.632	326	436	560850.0273	4181364.178	< 1
327	364	561267.51	4181761.697	327	418	560849.4946	4181364.24	< 1
328	364	561266.77	4181762.313	328	439	560850.8765	4181364.126	< 1
329	378	561266.00	4181762.931	329	425	560852.2777	4181364.047	< 1
330	374	561265.02	4181763.072	330	426	560853.3155	4181363.994	< 1
331	395	561264.07	4181763.111	331	425	560853.9884	4181363.947	< 1
332	381	561263.12	4181763.144	332	447	560854.8089	4181363.892	1
333	393	561262.16	4181763.203	333	451	560853.5801	4181364.1	1
334	404	561261.14	4181763.256	334	405	560851.5366	4181363.863	< 1
335	403	561260.02	4181763.437	335	426	560850.3212	4181363.634	< 1
336	404	561259.19	4181762.919	336	406	560849.9241	4181363.646	< 1
337	382	561258.21	4181762.501	337	421	560849.367	4181363.652	< 1
338	349	561257.79	4181761.576	338	445	560850.7378	4181363.582	1
339	330	561257.36	4181760.624	339	418	560852.3087	4181363.434	< 1
340	314	561257.12	4181759.612	340	424	560853.7474	4181363.295	< 1
341	322	561257.02	4181758.621	341	445	560855.0564	4181363.199	1
342	303	561256.91	4181757.69	342	426	560855.4584	4181363.169	< 1
343	320	561256.89	4181756.812	343	431	560857.0732	4181363.032	< 1
344	319	561256.87	4181755.926	344	428	560856.0963	4181363.134	< 1
345	322	561256.85	4181755.038	345	402	560854.6651	4181363.255	< 1
346	329	561256.82	4181754.147	346	448	560852.7769	4181363.093	1
347	337	561256.79	4181753.253	347	427	560851.1258	4181363.028	< 1
348	335	561256.76	4181752.356	348	419	560848.3034	4181363.163	< 1
349	338	561256.74	4181751.498	349	417	560848.989	4181363.148	< 1
350	333	561256.69	4181750.645	350	423	560850.0567	4181363.129	< 1
351	335	561256.63	4181749.766	351	446	560851.5012	4181363.007	1
352	327	561256.57	4181748.888	352	446	560852.7341	4181362.907	1
353	327	561256.50	4181748.011	353	437	560853.7739	4181362.799	< 1
354	327	561256.44	4181747.115	354	416	560854.0594	4181362.798	< 1
355	317	561256.37	4181746.221	355	421	560854.9398	4181362.796	< 1
356	311	561256.32	4181745.354	356	443	560853.2164	4181362.723	1
357	338	561256.27	4181744.494	357	439	560851.3671	4181362.685	< 1
358	335	561256.22	4181743.641	358	429	560848.2248	4181362.692	< 1
359	336	561256.17	4181742.816	359	421	560848.3456	4181362.694	< 1
360	340	561256.12	4181741.991	360	429	560849.1588	4181362.718	< 1
361	332	561256.05	4181741.148	361	433	560850.6554	4181362.557	< 1
362	330	561255.98	4181740.288	362	432	560852.1319	4181362.419	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
363	307	561255.92	4181739.411	363	406	560853.4684	4181362.338	< 1
364	279	561255.86	4181738.559	364	414	560854.1061	4181362.301	< 1
365	307	561255.79	4181737.713	365	412	560855.4454	4181362.224	< 1
366	319	561255.72	4181736.863	366	444	560854.2911	4181362.28	1
367	330	561255.65	4181736.008	367	429	560852.5222	4181362.278	< 1
368	356	561255.60	4181735.146	368	421	560850.8287	4181362.109	< 1
369	338	561255.56	4181734.274	369	435	560850.1148	4181362.127	< 1
370	341	561255.48	4181733.398	370	425	560848.6735	4181362.175	< 1
371	338	561255.43	4181732.491	371	428	560849.7012	4181362.111	< 1
372	308	561255.39	4181731.589	372	426	560851.1271	4181361.996	< 1
373	324	561255.31	4181730.698	373	447	560852.5424	4181361.799	1
374	320	561255.22	4181729.781	374	429	560853.551	4181361.717	< 1
375	311	561255.15	4181728.852	375	452	560854.9188	4181361.606	1
376	329	561255.04	4181727.903	376	436	560853.4561	4181361.723	< 1
377	338	561254.88	4181726.932	377	413	560851.4698	4181361.692	< 1
378	350	561254.91	4181725.926	378	422	560848.3206	4181361.409	< 1
379	348	561254.94	4181724.957	379	435	560849.4245	4181361.37	< 1
380	369	561255.12	4181723.872	380	438	560851.0884	4181361.298	< 1
381	386	561255.86	4181723.423	381	412	560853.3083	4181361.122	< 1
382	371	561256.57	4181722.803	382	429	560853.8682	4181361.017	< 1
383	379	561257.49	4181722.752	383	452	560855.3299	4181361.058	1
384	374	561258.41	4181722.698	384	429	560853.3525	4181360.975	< 1
385	365	561259.34	4181722.697	385	457	560851.6042	4181360.899	1
386	380	561260.28	4181722.72	386	422	560850.0848	4181360.957	< 1
387	398	561261.32	4181722.725	387	450	560849.2654	4181360.973	1
388	383	561262.44	4181722.855	388	440	560850.6277	4181360.841	< 1
389	387	561263.47	4181722.996	389	468	560852.6208	4181360.619	2
390	374	561264.62	4181723.316	390	426	560854.0677	4181360.458	< 1
391	362	561264.95	4181724.237	391	425	560854.9684	4181360.356	< 1
392	355	561265.34	4181725.107	392	424	560855.2301	4181360.28	< 1
393	340	561265.46	4181726.008	393	426	560853.3763	4181360.395	< 1
394	314	561265.59	4181726.934	394	433	560851.1455	4181360.337	< 1
395	313	561265.70	4181727.868	395	426	560848.747	4181359.67	< 1
396	338	561265.75	4181728.809	396	416	560848.7658	4181359.694	< 1
397	329	561265.80	4181729.754	397	423	560850.2145	4181360.296	< 1
398	335	561265.86	4181730.704	398	408	560852.3096	4181360.242	< 1
399	347	561265.91	4181731.633	399	429	560854.3572	4181360.101	< 1
400	331	561265.94	4181732.56	400	420	560855.5477	4181360.013	< 1
401	340	561265.98	4181733.498	401	431	560855.8822	4181359.993	< 1
402	346	561266.03	4181734.426	402	434	560856.7318	4181359.943	< 1
403	347	561266.06	4181735.346	403	423	560855.5859	4181360.203	< 1
404	341	561266.08	4181736.275	404	435	560853.4932	4181359.952	< 1
405	347	561266.13	4181737.202	405	431	560851.6099	4181359.73	< 1
406	342	561266.17	4181738.114	406	421	560849.9247	4181359.7	< 1
407	344	561266.22	4181739.026	407	425	560848.1426	4181359.555	< 1
408	335	561266.25	4181739.938	408	433	560848.4903	4181359.743	< 1
409	313	561266.27	4181740.812	409	435	560850.125	4181359.643	< 1
410	326	561266.31	4181741.676	410	423	560851.8222	4181359.539	< 1
411	332	561266.34	4181742.529	411	440	560853.58	4181359.401	< 1
412	322	561266.37	4181743.367	412	430	560854.5148	4181359.327	< 1
413	326	561266.41	4181744.192	413	430	560856.5473	4181359.169	< 1
414	330	561266.44	4181745.029	414	427	560855.3229	4181359.29	< 1
415	327	561266.48	4181745.87	415	438	560853.7297	4181359.405	< 1
416	339	561266.53	4181746.718	416	418	560851.7745	4181359.138	< 1
417	331	561266.57	4181747.569	417	417	560850.5289	4181358.987	< 1
418	324	561266.62	4181748.422	418	432	560848.1998	4181359.034	< 1
419	349	561266.67	4181749.321	419	422	560849.3842	4181358.994	< 1
420	344	561266.73	4181750.23	420	424	560850.7737	4181358.947	< 1
421	340	561266.77	4181751.142	421	439	560852.3665	4181358.85	< 1
422	345	561266.83	4181752.054	422	444	560853.8657	4181358.74	1
423	338	561266.87	4181752.967	423	437	560856.6151	4181358.384	< 1
424	349	561266.91	4181753.838	424	442	560856.2467	4181358.459	< 1
425	332	561266.97	4181754.708	425	422	560854.9701	4181358.639	< 1
426	336	561267.00	4181755.621	426	442	560852.7555	4181358.525	< 1

Count #	Reading	Easting	Northing	Count #	Reading	Easting	Northing	Sigma
427	327	561267.01	4181756.601	427	415	560850.9406	4181358.447	< 1
428	347	561267.11	4181757.643	428	417	560848.1316	4181358.416	< 1
429	337	561267.20	4181758.719	429	444	560849.5481	4181358.338	1
430	328	561267.44	4181759.872	430	437	560851.1347	4181358.251	< 1
431	363	561266.95	4181760.711	431	410	560852.8905	4181358.141	< 1
432	347	561266.62	4181761.632	432	449	560854.4923	4181358.041	1
433	380	561265.88	4181762.082	433	411	560855.819	4181357.977	< 1
434	368	561265.10	4181762.57	434	433	560855.9148	4181357.969	< 1
435	380	561264.17	4181762.664	435	431	560856.8553	4181357.888	< 1
436	365	561263.20	4181762.769	436	432	560855.448	4181357.937	< 1
437	407	561262.14	4181762.92	437	451	560853.4831	4181357.905	1
438	396	561260.98	4181762.858	438	438	560851.5239	4181357.734	< 1
439	374	561259.94	4181762.776	439	390	560850.1291	4181357.711	< 1
440	375	561258.81	4181762.515	440	405	560848.4795	4181357.686	< 1
441	356	561258.43	4181761.743	441	431	560849.7749	4181357.685	< 1
442	332	561257.95	4181760.998	442	435	560851.576	4181357.65	< 1
443	326	561257.81	4181760.137	443	448	560853.3698	4181357.579	1
444	305	561257.66	4181759.259	444	441	560854.6228	4181357.506	< 1
445	307	561257.51	4181758.38	445	429	560856.3756	4181357.386	< 1
446	320	561257.46	4181757.502	446	414	560855.4405	4181357.489	< 1
447	308	561257.41	4181756.617	447	422	560853.6016	4181357.439	< 1
448	341	561257.39	4181755.725	448	415	560851.6889	4181356.965	< 1
449	329	561257.36	4181754.86	449	426	560850.2142	4181357.086	< 1
450	347	561257.34	4181753.999	450	420	560848.1341	4181357.273	< 1
451	335	561257.34	4181753.13	451	430	560848.6334	4181357.218	< 1
452	330	561257.35	4181752.267	452	417	560849.6143	4181357.108	< 1
453	348	561257.30	4181751.412	453	439	560850.7157	4181356.943	< 1
454	314	561257.26	4181750.549	454	408	560851.9691	4181356.847	< 1
455	316	561257.22	4181749.685	455	443	560853.3963	4181356.737	1
456	317	561257.16	4181748.831	456	408	560854.9965	4181356.604	< 1
457	327	561257.10	4181747.978	457	439	560855.4284	4181356.538	< 1
458	329	561257.04	4181747.125	458	441	560856.8785	4181356.505	< 1
459	311	561256.99	4181746.268	459	437	560854.9781	4181356.502	< 1
460	316	561256.94	4181745.415	460	407	560852.9111	4181356.503	< 1
461	333	561256.89	4181744.593	461	423	560850.6775	4181356.525	< 1
462	334	561256.83	4181743.768	462	394	560849.9148	4181356.504	< 1
463	338	561256.77	4181742.941	463	393	560848.1914	4181356.665	< 1
464	332	561256.70	4181742.114	464	434	560849.7271	4181356.477	< 1
465	326	561256.64	4181741.28	465	424	560851.3674	4181356.276	< 1
466	331	561256.59	4181740.407	466	428	560853.1112	4181356.054	< 1
467	314	561256.53	4181739.536	467	433	560854.7443	4181355.868	< 1
468	290	561256.46	4181738.669	468	420	560857.6218	4181355.518	< 1
469	297	561256.39	4181737.827	469	443	560857.3421	4181355.58	1
470	315	561256.32	4181736.995	470	403	560856.3322	4181355.778	< 1
471	331	561256.27	4181736.183	471	433	560854.5569	4181355.681	< 1
472	328	561256.21	4181735.353	472	437	560852.4581	4181355.692	< 1
473	329	561256.16	4181734.505	473	395	560850.5316	4181355.844	< 1
474	339	561256.11	4181733.631	474	404	560849.778	4181355.879	< 1
475	354	561256.03	4181732.749	475	394	560847.9535	4181355.941	< 1
476	320	561255.95	4181731.837	476	408	560848.2562	4181355.937	< 1
477	333	561255.87	4181730.938	477	426	560849.4694	4181355.881	< 1
478	332	561255.78	4181730.055	478	413	560850.9013	4181355.694	< 1
479	329	561255.68	4181729.144	479	396	560852.5621	4181355.525	< 1
480	338	561255.62	4181728.213	480	421	560853.9419	4181355.376	< 1
481	316	561255.49	4181727.24	481	429	560855.0451	4181355.298	< 1
482	351	561255.26	4181726.246	482	400	560855.9912	4181355.233	< 1
483	325	561255.48	4181725.255	483	427	560854.8233	4181355.462	< 1
484	365	561255.71	4181724.285	484	423	560852.805	4181355.233	< 1
485	365	561256.17	4181723.21	485	400	560851.061	4181355.026	< 1
486	367	561257.13	4181722.995	486	423	560849.5825	4181355.085	< 1
487	375	561258.16	4181722.722	487	411	560848.1403	4181355.104	< 1
488	378	561259.30	4181722.667	488	397	560848.8903	4181355.232	< 1
489	375	561260.56	4181722.619	489	409	560850.9406	4181354.955	< 1
490	395	561261.88	4181722.343	490	397	560852.8521	4181354.698	< 1

Count #	Reading	Easting	Northing
491	368	561262.92	4181722.858
492	363	561264.03	4181723.219
493	347	561264.49	4181724.156
494	349	561264.91	4181725.035
495	321	561265.05	4181725.991
496	308	561265.12	4181726.96
497	316	561265.20	4181727.918
498	331	561265.22	4181728.869
499	314	561265.25	4181729.796
500	333	561265.27	4181730.715
501	322	561265.30	4181731.618
502	336	561265.32	4181732.519
503	317	561265.36	4181733.416
504	364	561265.40	4181734.317
505	346	561265.42	4181735.22
506	360	561265.45	4181736.127
507	349	561265.49	4181737.027
508	337	561265.53	4181737.919
509	341	561265.58	4181738.803
510	342	561265.58	4181739.685
511	330	561265.65	4181740.552
512	319	561265.71	4181741.422
513	310	561265.76	4181742.296
514	301	561265.80	4181743.145
515	327	561265.84	4181743.992
516	324	561265.88	4181744.856
517	340	561265.92	4181745.714
518	349	561265.96	4181746.567
519	320	561266.01	4181747.431
520	345	561266.03	4181748.31
521	332	561266.08	4181749.243
522	355	561266.13	4181750.204
523	359	561266.19	4181751.194
524	366	561266.24	4181752.198
525	342	561266.31	4181753.197
526	337	561266.37	4181754.157
527	342	561266.45	4181755.113
528	314	561266.49	4181756.069
529	346	561266.54	4181757.058
530	347	561266.73	4181758.075
531	337	561266.62	4181759.189
532	352	561266.63	4181760.331
533	342	561265.99	4181761.202
534	375	561265.45	4181761.982
535	372	561264.58	4181762.385
536	372	561263.53	4181762.588
537	357	561262.50	4181762.86
538	402	561261.45	4181762.793
539	377	561260.52	4181762.76
540	378	561259.49	4181762.542
541	356	561259.08	4181761.725
542	318	561258.58	4181760.938
543	323	561258.41	4181760.042
544	338	561258.23	4181759.134
545	340	561258.07	4181758.215
546	304	561258.05	4181757.284
547	313	561258.02	4181756.359
548	329	561258.01	4181755.441
549	339	561258.00	4181754.53
550	328	561257.97	4181753.618
551	319	561257.94	4181752.699
552	318	561257.93	4181751.788
553	339	561257.86	4181750.889
554	332	561257.79	4181749.972

Count #	Reading	Easting	Northing	Sigma
491	391	560854.628	4181354.486	< 1
492	416	560856.1962	4181354.246	< 1
493	413	560855.6127	4181354.499	< 1
494	416	560853.8002	4181354.483	< 1
495	404	560851.9351	4181354.467	< 1
496	416	560850.0175	4181354.443	< 1
497	394	560849.5448	4181354.427	< 1
498	432	560848.0081	4181354.496	< 1
499	400	560849.276	4181354.354	< 1
500	395	560850.6515	4181354.197	< 1
501	385	560852.1387	4181354.068	< 1
502	392	560853.7598	4181353.971	< 1
503	385	560855.3709	4181353.675	< 1
504	426	560856.2959	4181354.125	< 1
505	403	560857.0224	4181354.201	< 1
506	414	560857.1897	4181354.385	< 1
507	376	560857.7465	4181355.002	< 1
508	401	560856.8401	4181354.551	< 1
509	373	560855.7581	4181354.015	< 1
510	341	560854.9599	4181353.826	< 1
511	344	560854.7162	4181353.596	< 1
512	387	560854.3769	4181353.328	< 1
513	414	560855.5365	4181354.198	< 1
514	397	560855.7471	4181354.936	< 1
515	408	560856.0825	4181356.096	< 1
516	391	560855.4326	4181354.688	< 1

516	Total Counts
418.67	Average
23.36	Std Dev
468.00	Max
488.74	3 sigma

Count #	Reading	Easting	Northing
555	313	561257.75	4181749.051
556	332	561257.68	4181748.141
557	310	561257.61	4181747.231
558	314	561257.55	4181746.319
559	329	561257.48	4181745.42
560	340	561257.44	4181744.524
561	353	561257.37	4181743.636
562	340	561257.31	4181742.762
563	342	561257.25	4181741.902
564	320	561257.19	4181741.016
565	308	561257.13	4181740.127
566	301	561257.06	4181739.244
567	316	561256.99	4181738.385
568	327	561256.92	4181737.55
569	332	561256.84	4181736.711
570	324	561256.83	4181735.863
571	333	561256.75	4181734.998
572	364	561256.68	4181734.126
573	362	561256.61	4181733.248
574	337	561256.53	4181732.323
575	322	561256.43	4181731.391
576	309	561256.33	4181730.462
577	323	561256.22	4181729.509
578	334	561256.13	4181728.53
579	318	561256.04	4181727.523
580	320	561255.69	4181726.456
581	358	561256.08	4181725.382
582	350	561256.32	4181724.247
583	363	561257.19	4181723.641
584	387	561258.13	4181723.065
585	388	561259.26	4181722.865
586	370	561260.47	4181722.85
587	387	561261.66	4181722.73
588	353	561262.69	4181723.231
589	356	561263.59	4181723.706
590	368	561264.20	4181724.539
591	355	561264.33	4181725.393
592	330	561264.49	4181726.259
593	322	561264.56	4181727.153
594	334	561264.63	4181728.054
595	292	561264.69	4181728.957
596	331	561264.71	4181729.858
597	323	561264.72	4181730.694
598	339	561264.77	4181731.461
599	332	561264.83	4181732.406
600	340	561264.67	4181733.374
601	348	561264.76	4181734.255
602	339	561264.86	4181735.107
603	343	561264.90	4181735.936
604	345	561264.93	4181736.755
605	350	561264.99	4181737.573
606	332	561265.02	4181738.401
607	297	561265.05	4181739.231
608	349	561265.10	4181740.062
609	320	561265.15	4181740.881
610	337	561265.20	4181741.69
611	314	561265.22	4181742.465
612	318	561265.24	4181743.246
613	319	561265.28	4181744.031
614	313	561265.31	4181744.817
615	327	561265.35	4181745.602
616	335	561265.39	4181746.388
617	322	561265.44	4181747.175
618	323	561265.47	4181747.967

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
619	351	561265.50	4181748.791
620	350	561265.55	4181749.63
621	337	561265.60	4181750.516
622	351	561265.65	4181751.405
623	360	561265.70	4181752.297
624	346	561265.76	4181753.182
625	323	561265.80	4181754.062
626	335	561265.88	4181754.915
627	320	561265.99	4181755.773
628	327	561265.99	4181756.642
629	334	561266.00	4181757.598
630	322	561266.23	4181758.581
631	340	561266.04	4181759.545
632	342	561266.02	4181760.547
633	361	561265.44	4181761.26
634	376	561264.93	4181761.968
635	350	561264.15	4181762.411
636	354	561263.16	4181762.55
637	362	561262.21	4181762.823
638	393	561261.34	4181762.584
639	350	561260.53	4181762.423
640	339	561259.59	4181762.096
641	337	561259.34	4181761.189
642	326	561259.05	4181760.311
643	328	561258.93	4181759.421
644	314	561258.80	4181758.523
645	306	561258.71	4181757.623
646	332	561258.67	4181756.741
647	311	561258.63	4181755.864
648	327	561258.59	4181754.993
649	328	561258.55	4181754.167
650	342	561258.53	4181753.344
651	323	561258.49	4181752.5
652	322	561258.46	4181751.664
653	332	561258.40	4181750.84
654	312	561258.33	4181749.994
655	304	561258.29	4181749.14
656	311	561258.23	4181748.276
657	305	561258.18	4181747.412
658	331	561258.12	4181746.548
659	340	561258.07	4181745.697
660	322	561258.02	4181744.853
661	336	561257.97	4181744.034
662	335	561257.91	4181743.228
663	322	561257.86	4181742.437
664	346	561257.80	4181741.632
665	329	561257.75	4181740.816
666	313	561257.67	4181739.967
667	277	561257.57	4181739.14
668	302	561257.53	4181738.331
669	316	561257.49	4181737.549
670	307	561257.44	4181736.776
671	340	561257.37	4181736.025
672	336	561257.31	4181735.245
673	362	561257.24	4181734.437
674	364	561257.16	4181733.594
675	370	561257.12	4181732.734
676	300	561257.02	4181731.844
677	330	561256.92	4181730.949
678	329	561256.82	4181730.048
679	337	561256.73	4181729.118
680	316	561256.61	4181728.177
681	326	561256.55	4181727.205
682	327	561256.37	4181726.218

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
683	339	561256.68	4181725.302
684	348	561257.01	4181724.38
685	355	561257.62	4181723.441
686	351	561258.60	4181723.274
687	369	561259.59	4181723.051
688	385	561260.63	4181723.07
689	386	561261.59	4181723.08
690	360	561262.60	4181723.322
691	364	561263.01	4181723.99
692	347	561263.55	4181724.599
693	324	561263.71	4181725.352
694	346	561263.90	4181726.141
695	344	561264.03	4181726.951
696	339	561264.08	4181727.771
697	325	561264.13	4181728.587
698	320	561264.16	4181729.401
699	332	561264.19	4181730.221
700	326	561264.19	4181731.041
701	333	561264.22	4181731.848
702	355	561264.26	4181732.646
703	347	561264.27	4181733.435
704	369	561264.28	4181734.21
705	333	561264.33	4181734.986
706	353	561264.35	4181735.787
707	343	561264.35	4181736.582
708	336	561264.40	4181737.368
709	324	561264.46	4181738.162
710	332	561264.48	4181738.96
711	333	561264.52	4181739.767
712	327	561264.56	4181740.565
713	322	561264.60	4181741.355
714	319	561264.64	4181742.112
715	328	561264.69	4181742.859
716	314	561264.71	4181743.596
717	301	561264.74	4181744.354
718	340	561264.76	4181745.134
719	310	561264.79	4181745.889
720	330	561264.80	4181746.644
721	330	561264.84	4181747.426
722	322	561264.87	4181748.211
723	332	561264.91	4181748.999
724	344	561264.94	4181749.826
725	341	561264.98	4181750.67
726	349	561265.04	4181751.559
727	342	561265.08	4181752.435
728	341	561265.14	4181753.299
729	328	561265.20	4181754.165
730	336	561265.25	4181755.028
731	308	561265.33	4181755.868
732	318	561265.40	4181756.726
733	313	561265.49	4181757.599
734	336	561265.59	4181758.563
735	326	561265.83	4181759.606
736	351	561265.42	4181760.424
737	326	561265.15	4181761.34
738	368	561264.43	4181761.848
739	368	561263.69	4181762.389
740	350	561262.76	4181762.848
741	363	561262.01	4181762.556
742	350	561261.15	4181762.394
743	331	561260.57	4181761.803
744	311	561259.93	4181761.217
745	318	561259.65	4181760.4
746	319	561259.55	4181759.567

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
747	303	561259.42	4181758.748
748	318	561259.36	4181757.934
749	322	561259.30	4181757.161
750	329	561259.30	4181756.398
751	305	561259.21	4181755.674
752	325	561259.07	4181754.928
753	324	561259.06	4181754.148
754	347	561259.05	4181753.371
755	327	561259.04	4181752.594
756	313	561258.99	4181751.814
757	322	561258.93	4181751.024
758	327	561258.88	4181750.22
759	318	561258.84	4181749.409
760	316	561258.78	4181748.592
761	307	561258.72	4181747.75
762	296	561258.66	4181746.925
763	316	561258.62	4181746.118
764	332	561258.57	4181745.341
765	334	561258.54	4181744.572
766	356	561258.48	4181743.813
767	322	561258.43	4181743.049
768	330	561258.38	4181742.281
769	320	561258.33	4181741.519
770	331	561258.29	4181740.756
771	302	561258.22	4181739.989
772	307	561258.12	4181739.237
773	324	561258.09	4181738.495
774	307	561258.06	4181737.798
775	318	561258.03	4181737.104
776	328	561257.97	4181736.376
777	331	561257.89	4181735.638
778	318	561257.84	4181734.889
779	338	561257.80	4181734.097
780	343	561257.70	4181733.292
781	342	561257.62	4181732.433
782	315	561257.54	4181731.544
783	315	561257.43	4181730.627
784	342	561257.32	4181729.671
785	327	561257.21	4181728.701
786	353	561257.15	4181727.709
787	349	561256.98	4181726.729
788	330	561257.27	4181725.835
789	321	561257.50	4181724.983
790	355	561257.96	4181724.123
791	362	561258.77	4181723.874
792	343	561259.56	4181723.49
793	372	561260.41	4181723.548
794	372	561261.35	4181723.611
795	344	561262.45	4181723.882
796	353	561262.73	4181724.649
797	336	561263.06	4181725.39
798	336	561263.22	4181726.172
799	318	561263.39	4181726.979
800	327	561263.48	4181727.804
801	318	561263.51	4181728.621
802	330	561263.55	4181729.434
803	329	561263.57	4181730.243
804	344	561263.60	4181731.04
805	345	561263.66	4181731.832
806	310	561263.68	4181732.624
807	353	561263.70	4181733.415
808	341	561263.71	4181734.206
809	337	561263.72	4181734.994
810	341	561263.75	4181735.78

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
811	345	561263.80	4181736.563
812	347	561263.84	4181737.362
813	328	561263.90	4181738.175
814	328	561263.96	4181739.005
815	290	561264.00	4181739.837
816	326	561264.04	4181740.656
817	321	561264.06	4181741.468
818	320	561264.11	4181742.273
819	323	561264.16	4181743.068
820	320	561264.23	4181743.859
821	333	561264.23	4181744.636
822	321	561264.23	4181745.415
823	335	561264.26	4181746.195
824	334	561264.29	4181746.991
825	309	561264.31	4181747.795
826	323	561264.36	4181748.619
827	314	561264.41	4181749.46
828	327	561264.47	4181750.317
829	338	561264.52	4181751.212
830	338	561264.56	4181752.113
831	336	561264.63	4181753.003
832	336	561264.70	4181753.878
833	331	561264.76	4181754.739
834	313	561264.81	4181755.595
835	319	561264.91	4181756.453
836	337	561264.98	4181757.351
837	336	561265.10	4181758.293
838	331	561265.01	4181759.28
839	313	561264.96	4181760.183
840	349	561264.80	4181761.076
841	343	561264.44	4181761.364
842	349	561264.22	4181761.586
843	333	561264.08	4181761.685
844	354	561263.52	4181762.166
845	362	561262.63	4181762.635
846	349	561261.95	4181762.289
847	367	561261.15	4181762.111
848	326	561260.74	4181761.513
849	302	561260.23	4181760.848
850	332	561260.03	4181760.019
851	341	561259.95	4181759.138
852	335	561259.86	4181758.265
853	304	561259.81	4181757.398
854	330	561259.76	4181756.56
855	308	561259.71	4181755.733
856	333	561259.67	4181754.933
857	333	561259.62	4181754.127
858	330	561259.59	4181753.315
859	308	561259.56	4181752.48
860	336	561259.54	4181751.637
861	329	561259.50	4181750.785
862	336	561259.45	4181749.929
863	316	561259.41	4181749.067
864	327	561259.37	4181748.167
865	303	561259.34	4181747.26
866	313	561259.28	4181746.364
867	338	561259.23	4181745.483
868	321	561259.16	4181744.621
869	300	561259.10	4181743.783
870	325	561259.00	4181742.962
871	321	561258.96	4181742.187
872	300	561258.93	4181741.399
873	320	561258.88	4181740.599
874	304	561258.82	4181739.807

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
875	320	561258.73	4181739.027
876	341	561258.68	4181738.27
877	326	561258.62	4181737.535
878	323	561258.57	4181736.821
879	326	561258.53	4181736.088
880	333	561258.48	4181735.34
881	344	561258.39	4181734.54
882	344	561258.27	4181733.719
883	336	561258.21	4181732.873
884	321	561258.14	4181731.961
885	313	561258.03	4181731.038
886	319	561257.97	4181730.104
887	322	561257.91	4181729.114
888	335	561257.83	4181728.069
889	323	561257.75	4181726.956
890	337	561257.47	4181725.775
891	359	561257.93	4181724.764
892	366	561258.24	4181723.662
893	407	561259.17	4181723.167
894	371	561260.16	4181722.691
895	383	561261.27	4181722.513
896	412	561262.36	4181722.497
897	405	561263.40	4181722.485
898	398	561264.38	4181722.462
899	363	561265.31	4181722.438
900	379	561266.31	4181722.239
901	375	561267.14	4181722.662
902	355	561268.07	4181722.947
903	350	561268.57	4181723.695
904	348	561269.10	4181724.445
905	337	561269.37	4181725.321
906	351	561269.46	4181726.221
907	352	561269.55	4181727.114
908	333	561269.62	4181728.002
909	308	561269.69	4181728.873
910	345	561269.76	4181729.737
911	340	561269.80	4181730.591
912	364	561269.83	4181731.421
913	358	561269.87	4181732.226
914	343	561269.91	4181733.162
915	370	561269.80	4181734.113
916	331	561269.85	4181735.011
917	343	561269.87	4181735.922
918	337	561270.02	4181736.83
919	346	561270.17	4181737.741
920	322	561270.21	4181738.664
921	307	561270.27	4181739.585
922	329	561270.33	4181740.512
923	330	561270.36	4181741.446
924	333	561270.39	4181742.387
925	322	561270.44	4181743.329
926	327	561270.47	4181744.267
927	335	561270.51	4181745.209
928	344	561270.54	4181746.154
929	335	561270.57	4181747.08
930	343	561270.62	4181747.999
931	372	561270.64	4181748.907
932	374	561270.65	4181749.812
933	367	561270.69	4181750.713
934	372	561270.72	4181751.612
935	368	561270.76	4181752.509
936	361	561270.81	4181753.393
937	367	561270.86	4181754.285
938	355	561270.92	4181755.185

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
939	362	561270.97	4181756.075
940	353	561271.01	4181756.967
941	347	561271.10	4181757.867
942	394	561271.25	4181758.785
943	380	561271.19	4181759.726
944	344	561271.16	4181760.623
945	385	561271.04	4181761.66
946	371	561270.29	4181762.117
947	367	561269.55	4181762.697
948	375	561268.62	4181762.885
949	399	561267.64	4181763.08
950	369	561266.62	4181763.236
951	386	561265.54	4181763.33
952	387	561264.46	4181763.488
953	368	561263.38	4181763.312
954	376	561262.44	4181763.178
955	370	561261.43	4181762.842
956	349	561261.10	4181762.008
957	330	561260.70	4181761.188
958	304	561260.56	4181760.291
959	315	561260.41	4181759.443
960	341	561260.34	4181758.601
961	322	561260.29	4181757.787
962	325	561260.25	4181756.985
963	329	561260.21	4181756.195
964	338	561260.18	4181755.403
965	323	561260.14	4181754.61
966	320	561260.11	4181753.815
967	337	561260.08	4181753.001
968	308	561260.04	4181752.169
969	319	561260.00	4181751.349
970	339	561259.98	4181750.525
971	344	561259.95	4181749.676
972	314	561259.92	4181748.808
973	311	561259.88	4181747.921
974	333	561259.84	4181747.071
975	337	561259.81	4181746.229
976	331	561259.75	4181745.394
977	318	561259.68	4181744.588
978	304	561259.63	4181743.812
979	311	561259.57	4181743.043
980	323	561259.51	4181742.272
981	322	561259.44	4181741.476
982	325	561259.38	4181740.701
983	326	561259.32	4181739.946
984	333	561259.26	4181739.186
985	342	561259.22	4181738.439
986	334	561259.17	4181737.765
987	310	561259.13	4181737.103
988	320	561259.07	4181736.455
989	330	561259.01	4181735.781
990	348	561258.93	4181735.09
991	345	561258.85	4181734.326
992	348	561258.76	4181733.528
993	335	561258.70	4181732.694
994	301	561258.64	4181731.811
995	298	561258.55	4181730.913
996	315	561258.47	4181729.97
997	352	561258.39	4181728.987
998	338	561258.33	4181727.961
999	332	561258.28	4181727.006
1000	333	561258.04	4181726.025
1001	320	561258.37	4181725.171
1002	354	561258.52	4181724.271

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1003	354	561259.11	4181723.74
1004	396	561259.66	4181723.153
1005	397	561260.41	4181722.807
1006	393	561261.29	4181722.741
1007	383	561262.18	4181722.661
1008	386	561263.09	4181722.63
1009	405	561263.99	4181722.599
1010	386	561264.93	4181722.372
1011	367	561265.88	4181722.607
1012	379	561266.91	4181722.713
1013	370	561267.64	4181723.379
1014	341	561268.35	4181724.002
1015	358	561268.72	4181724.87
1016	346	561268.83	4181725.781
1017	345	561268.96	4181726.655
1018	346	561269.05	4181727.498
1019	359	561269.14	4181728.355
1020	347	561269.19	4181729.216
1021	334	561269.24	4181730.063
1022	347	561269.30	4181730.903
1023	340	561269.34	4181731.739
1024	320	561269.37	4181732.591
1025	346	561269.42	4181733.449
1026	351	561269.46	4181734.315
1027	346	561269.51	4181735.199
1028	354	561269.55	4181736.103
1029	333	561269.58	4181737.004
1030	314	561269.64	4181737.896
1031	317	561269.67	4181738.751
1032	339	561269.70	4181739.598
1033	330	561269.72	4181740.437
1034	311	561269.74	4181741.249
1035	332	561269.77	4181742.059
1036	323	561269.79	4181742.89
1037	342	561269.80	4181743.737
1038	335	561269.83	4181744.6
1039	338	561269.86	4181745.446
1040	338	561269.89	4181746.291
1041	334	561269.94	4181747.14
1042	338	561269.99	4181747.973
1043	347	561270.03	4181748.791
1044	364	561270.07	4181749.609
1045	377	561270.12	4181750.417
1046	346	561270.16	4181751.186
1047	370	561270.20	4181751.957
1048	357	561270.23	4181752.731
1049	338	561270.26	4181753.492
1050	362	561270.31	4181754.254
1051	350	561270.36	4181755.038
1052	357	561270.40	4181755.858
1053	334	561270.47	4181756.712
1054	355	561270.54	4181757.61
1055	373	561270.80	4181758.521
1056	346	561270.68	4181759.453
1057	338	561270.71	4181760.413
1058	381	561270.23	4181761.161
1059	360	561269.82	4181761.917
1060	360	561269.11	4181762.464
1061	374	561268.21	4181762.605
1062	384	561267.29	4181762.758
1063	362	561266.36	4181762.874
1064	372	561265.32	4181762.997
1065	382	561264.26	4181763.316
1066	372	561263.47	4181763.023

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1067	354	561262.63	4181762.891
1068	355	561262.08	4181762.366
1069	353	561261.44	4181761.821
1070	324	561261.15	4181761.003
1071	324	561261.04	4181760.047
1072	320	561260.92	4181759.135
1073	317	561260.87	4181758.258
1074	332	561260.82	4181757.444
1075	335	561260.69	4181756.656
1076	318	561260.72	4181755.92
1077	328	561260.80	4181755.177
1078	343	561260.74	4181754.429
1079	353	561260.68	4181753.567
1080	316	561260.54	4181752.698
1081	327	561260.52	4181751.878
1082	318	561260.51	4181751.052
1083	351	561260.48	4181750.221
1084	325	561260.45	4181749.376
1085	323	561260.45	4181748.527
1086	330	561260.40	4181747.686
1087	332	561260.35	4181746.832
1088	316	561260.29	4181745.968
1089	340	561260.22	4181745.116
1090	322	561260.16	4181744.272
1091	331	561260.10	4181743.458
1092	318	561260.05	4181742.665
1093	320	561259.98	4181741.899
1094	307	561259.90	4181741.147
1095	321	561259.81	4181740.4
1096	341	561259.78	4181739.661
1097	325	561259.79	4181738.932
1098	346	561259.72	4181738.219
1099	336	561259.64	4181737.552
1100	327	561259.62	4181736.883
1101	327	561259.56	4181736.183
1102	340	561259.50	4181735.47
1103	346	561259.42	4181734.748
1104	342	561259.33	4181733.978
1105	358	561259.28	4181733.179
1106	349	561259.20	4181732.307
1107	313	561259.10	4181731.426
1108	314	561259.05	4181730.532
1109	315	561259.00	4181729.568
1110	320	561258.93	4181728.584
1111	334	561258.86	4181727.569
1112	340	561258.73	4181726.556
1113	339	561258.90	4181725.566
1114	336	561259.09	4181724.588
1115	355	561259.57	4181723.487
1116	400	561260.62	4181723.283
1117	374	561261.67	4181723.034
1118	384	561262.75	4181723.016
1119	384	561263.74	4181723
1120	376	561264.74	4181722.771
1121	390	561265.66	4181723.038
1122	371	561266.65	4181723.157
1123	344	561267.31	4181723.801
1124	348	561267.98	4181724.429
1125	367	561268.28	4181725.291
1126	334	561268.40	4181726.158
1127	358	561268.52	4181727.023
1128	368	561268.61	4181727.892
1129	346	561268.70	4181728.751
1130	345	561268.75	4181729.607

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1131	343	561268.79	4181730.444
1132	346	561268.83	4181731.279
1133	329	561268.87	4181732.113
1134	343	561268.92	4181732.987
1135	312	561268.94	4181733.873
1136	354	561268.98	4181734.77
1137	348	561269.02	4181735.673
1138	338	561269.04	4181736.583
1139	329	561269.06	4181737.487
1140	309	561269.12	4181738.388
1141	337	561269.15	4181739.296
1142	305	561269.18	4181740.204
1143	304	561269.21	4181741.112
1144	305	561269.24	4181742.035
1145	312	561269.26	4181742.957
1146	307	561269.30	4181743.859
1147	333	561269.33	4181744.768
1148	310	561269.37	4181745.683
1149	327	561269.42	4181746.584
1150	313	561269.47	4181747.48
1151	348	561269.51	4181748.369
1152	333	561269.54	4181749.253
1153	334	561269.59	4181750.131
1154	350	561269.64	4181750.989
1155	342	561269.67	4181751.841
1156	334	561269.71	4181752.681
1157	349	561269.76	4181753.52
1158	344	561269.81	4181754.359
1159	346	561269.86	4181755.181
1160	329	561269.89	4181756.014
1161	354	561269.97	4181756.903
1162	353	561270.07	4181757.797
1163	351	561270.11	4181758.701
1164	355	561270.17	4181759.598
1165	339	561270.19	4181760.584
1166	334	561269.65	4181761.195
1167	353	561269.23	4181761.969
1168	379	561268.48	4181762.23
1169	398	561267.61	4181762.536
1170	367	561266.64	4181762.712
1171	416	561265.56	4181762.799
1172	375	561264.55	4181763.008
1173	360	561263.69	4181762.742
1174	349	561262.89	4181762.558
1175	347	561261.96	4181762.173
1176	307	561261.74	4181761.182
1177	325	561261.48	4181760.223
1178	331	561261.42	4181759.264
1179	313	561261.36	4181758.42
1180	333	561261.36	4181757.601
1181	329	561261.31	4181756.804
1182	318	561261.27	4181756.003
1183	324	561261.22	4181755.198
1184	329	561261.17	4181754.368
1185	341	561261.17	4181753.528
1186	335	561261.13	4181752.676
1187	310	561261.09	4181751.826
1188	332	561261.07	4181750.977
1189	334	561261.04	4181750.146
1190	347	561261.02	4181749.321
1191	329	561260.98	4181748.504
1192	354	561260.94	4181747.692
1193	310	561260.89	4181746.885
1194	317	561260.84	4181746.062

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1195	329	561260.81	4181745.24
1196	332	561260.75	4181744.446
1197	325	561260.70	4181743.652
1198	328	561260.63	4181742.858
1199	329	561260.57	4181742.081
1200	306	561260.49	4181741.318
1201	306	561260.43	4181740.594
1202	310	561260.36	4181739.878
1203	315	561260.31	4181739.17
1204	348	561260.26	4181738.514
1205	318	561260.18	4181737.878
1206	338	561260.15	4181737.274
1207	317	561260.17	4181736.625
1208	341	561260.07	4181735.946
1209	335	561259.96	4181735.212
1210	338	561259.84	4181734.461
1211	339	561259.80	4181733.679
1212	365	561259.76	4181732.849
1213	342	561259.69	4181731.973
1214	307	561259.63	4181731.046
1215	311	561259.58	4181730.093
1216	301	561259.52	4181729.068
1217	330	561259.45	4181728.031
1218	333	561259.38	4181726.983
1219	343	561259.32	4181725.959
1220	350	561259.14	4181724.831
1221	374	561259.74	4181723.952
1222	372	561260.30	4181722.911
1223	372	561261.45	4181722.564
1224	393	561262.73	4181722.22
1225	388	561264.04	4181721.742
1226	398	561265.15	4181722.036
1227	403	561266.30	4181722.182
1228	376	561266.98	4181722.992
1229	358	561267.61	4181723.724
1230	348	561267.84	4181724.634
1231	355	561267.95	4181725.519
1232	352	561268.07	4181726.371
1233	331	561268.13	4181727.2
1234	350	561268.19	4181728.021
1235	323	561268.24	4181728.838
1236	341	561268.27	4181729.642
1237	336	561268.28	4181730.452
1238	310	561268.32	4181731.266
1239	326	561268.36	4181732.084
1240	351	561268.40	4181732.907
1241	344	561268.42	4181733.752
1242	355	561268.45	4181734.601
1243	363	561268.46	4181735.454
1244	348	561268.47	4181736.331
1245	326	561268.50	4181737.209
1246	319	561268.53	4181738.071
1247	323	561268.56	4181738.932
1248	307	561268.60	4181739.791
1249	295	561268.63	4181740.627
1250	316	561268.66	4181741.46
1251	307	561268.70	4181742.302
1252	311	561268.73	4181743.153
1253	330	561268.77	4181744.013
1254	304	561268.82	4181744.879
1255	328	561268.86	4181745.746
1256	321	561268.89	4181746.602
1257	337	561268.91	4181747.447
1258	321	561268.95	4181748.281

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1259	351	561268.98	4181749.13
1260	361	561269.03	4181749.981
1261	332	561269.08	4181750.822
1262	341	561269.12	4181751.653
1263	331	561269.18	4181752.474
1264	351	561269.23	4181753.261
1265	342	561269.27	4181754.044
1266	328	561269.32	4181754.833
1267	314	561269.36	4181755.635
1268	349	561269.43	4181756.448
1269	334	561269.50	4181757.33
1270	342	561269.59	4181758.244
1271	350	561269.70	4181759.256
1272	333	561269.92	4181760.305
1273	347	561269.61	4181761.329
1274	362	561269.10	4181762.406
1275	370	561268.06	4181763.295
1276	369	561266.54	4181763.611
1277	385	561265.08	4181763.97
1278	373	561263.78	4181763.38
1279	354	561262.85	4181762.97
1280	333	561262.28	4181762.187
1281	330	561262.15	4181761.331
1282	341	561261.98	4181760.488
1283	321	561261.92	4181759.64
1284	314	561261.85	4181758.836
1285	327	561261.80	4181758.042
1286	330	561261.78	4181757.261
1287	332	561261.75	4181756.473
1288	319	561261.73	4181755.679
1289	323	561261.71	4181754.878
1290	328	561261.70	4181754.074
1291	322	561261.68	4181753.27
1292	338	561261.66	4181752.461
1293	336	561261.63	4181751.647
1294	346	561261.59	4181750.823
1295	344	561261.56	4181749.993
1296	348	561261.53	4181749.145
1297	335	561261.50	4181748.289
1298	329	561261.46	4181747.426
1299	317	561261.42	4181746.572
1300	315	561261.40	4181745.718
1301	322	561261.34	4181744.867
1302	312	561261.27	4181744.016
1303	322	561261.21	4181743.164
1304	316	561261.16	4181742.327
1305	310	561261.08	4181741.505
1306	310	561261.01	4181740.727
1307	326	561260.95	4181739.97
1308	336	561260.88	4181739.236
1309	308	561260.81	4181738.522
1310	342	561260.77	4181737.815
1311	317	561260.71	4181737.14
1312	335	561260.64	4181736.452
1313	346	561260.59	4181735.75
1314	341	561260.53	4181735.024
1315	325	561260.40	4181734.294
1316	346	561260.35	4181733.52
1317	324	561260.31	4181732.698
1318	329	561260.25	4181731.827
1319	339	561260.18	4181730.93
1320	302	561260.12	4181730.018
1321	320	561260.05	4181729.057
1322	318	561259.99	4181728.069

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1323	329	561259.91	4181727.055
1324	338	561259.83	4181726.017
1325	344	561259.56	4181724.921
1326	376	561259.98	4181724.113
1327	371	561260.31	4181723.129
1328	375	561261.23	4181722.638
1329	385	561262.32	4181722.13
1330	405	561263.52	4181721.6
1331	393	561264.65	4181721.871
1332	420	561265.78	4181721.937
1333	381	561266.38	4181722.656
1334	363	561266.96	4181723.278
1335	343	561267.21	4181724.061
1336	345	561267.32	4181724.857
1337	350	561267.46	4181725.644
1338	345	561267.53	4181726.43
1339	350	561267.62	4181727.218
1340	326	561267.65	4181728.008
1341	337	561267.71	4181728.785
1342	340	561267.79	4181729.552
1343	347	561267.81	4181730.315
1344	343	561267.83	4181731.078
1345	334	561267.89	4181731.847
1346	326	561267.90	4181732.651
1347	346	561267.91	4181733.463
1348	342	561267.94	4181734.284
1349	358	561267.96	4181735.119
1350	344	561267.97	4181735.959
1351	334	561268.00	4181736.806
1352	329	561268.03	4181737.641
1353	318	561268.06	4181738.461
1354	316	561268.09	4181739.274
1355	313	561268.15	4181740.081
1356	329	561268.17	4181740.878
1357	315	561268.19	4181741.675
1358	320	561268.22	4181742.473
1359	326	561268.24	4181743.252
1360	325	561268.27	4181744.03
1361	316	561268.29	4181744.816
1362	327	561268.30	4181745.613
1363	318	561268.33	4181746.422
1364	322	561268.35	4181747.233
1365	344	561268.38	4181748.048
1366	330	561268.42	4181748.88
1367	345	561268.46	4181749.704
1368	353	561268.50	4181750.519
1369	339	561268.54	4181751.317
1370	351	561268.59	4181752.108
1371	350	561268.63	4181752.881
1372	343	561268.69	4181753.655
1373	351	561268.73	4181754.431
1374	338	561268.77	4181755.184
1375	340	561268.86	4181755.944
1376	322	561268.91	4181756.783
1377	330	561268.96	4181757.66
1378	332	561269.06	4181758.568
1379	320	561269.16	4181759.596
1380	362	561269.45	4181760.698
1381	372	561269.04	4181761.526
1382	377	561268.77	4181762.486
1383	395	561267.96	4181762.973
1384	384	561267.04	4181763.495
1385	380	561265.98	4181764.108
1386	392	561265.01	4181763.776

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1387	378	561264.03	4181763.701
1388	369	561263.60	4181763.111
1389	328	561263.11	4181762.588
1390	332	561262.86	4181761.93
1391	307	561262.72	4181761.169
1392	321	561262.55	4181760.373
1393	337	561262.48	4181759.524
1394	327	561262.42	4181758.713
1395	329	561262.36	4181757.909
1396	307	561262.33	4181757.105
1397	321	561262.32	4181756.32
1398	338	561262.28	4181755.554
1399	339	561262.24	4181754.786
1400	332	561262.27	4181754.019
1401	330	561262.24	4181753.262
1402	309	561262.22	4181752.492
1403	337	561262.20	4181751.708
1404	352	561262.18	4181750.989
1405	312	561262.18	4181750.276
1406	342	561262.14	4181749.534
1407	327	561262.11	4181748.805
1408	334	561262.07	4181748.09
1409	322	561262.02	4181747.404
1410	338	561261.98	4181746.72
1411	306	561261.94	4181746.018
1412	323	561261.90	4181745.324
1413	324	561261.85	4181744.64
1414	331	561261.80	4181743.938
1415	338	561261.74	4181743.237
1416	324	561261.68	4181742.557
1417	331	561261.64	4181741.882
1418	313	561261.57	4181741.215
1419	311	561261.51	4181740.563
1420	330	561261.48	4181739.909
1421	329	561261.42	4181739.247
1422	333	561261.34	4181738.567
1423	328	561261.29	4181737.866
1424	314	561261.24	4181737.211
1425	329	561261.15	4181736.562
1426	333	561261.11	4181735.874
1427	314	561261.06	4181735.202
1428	337	561261.03	4181734.546
1429	330	561261.01	4181733.858
1430	326	561260.92	4181733.161
1431	333	561260.86	4181732.416
1432	327	561260.79	4181731.649
1433	308	561260.75	4181730.859
1434	329	561260.70	4181730.03
1435	321	561260.63	4181729.183
1436	323	561260.54	4181728.279
1437	321	561260.45	4181727.298
1438	354	561260.36	4181726.239
1439	355	561260.29	4181725.204
1440	354	561260.25	4181724.033
1441	390	561260.94	4181723.401
1442	389	561261.61	4181722.626
1443	394	561262.60	4181722.321
1444	404	561263.64	4181722.049
1445	409	561264.87	4181721.817
1446	369	561265.59	4181722.508
1447	357	561266.43	4181723.07
1448	336	561266.66	4181723.936
1449	330	561266.90	4181724.768
1450	347	561266.98	4181725.61

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1451	315	561267.04	4181726.399
1452	349	561267.12	4181727.189
1453	335	561267.16	4181727.983
1454	327	561267.20	4181728.732
1455	340	561267.27	4181729.475
1456	327	561267.29	4181730.238
1457	341	561267.31	4181730.999
1458	318	561267.33	4181731.759
1459	341	561267.34	4181732.55
1460	332	561267.35	4181733.345
1461	351	561267.37	4181734.128
1462	354	561267.40	4181734.929
1463	359	561267.43	4181735.749
1464	330	561267.45	4181736.57
1465	322	561267.47	4181737.391
1466	322	561267.50	4181738.202
1467	312	561267.53	4181739.003
1468	332	561267.56	4181739.793
1469	328	561267.58	4181740.551
1470	314	561267.61	4181741.306
1471	311	561267.62	4181742.083
1472	318	561267.64	4181742.855
1473	320	561267.66	4181743.623
1474	302	561267.68	4181744.409
1475	311	561267.70	4181745.197
1476	344	561267.73	4181745.973
1477	328	561267.75	4181746.758
1478	360	561267.80	4181747.552
1479	339	561267.85	4181748.363
1480	343	561267.88	4181749.178
1481	334	561267.94	4181749.988
1482	345	561267.99	4181750.801
1483	350	561268.04	4181751.617
1484	341	561268.09	4181752.393
1485	339	561268.15	4181753.161
1486	349	561268.20	4181753.934
1487	346	561268.25	4181754.691
1488	330	561268.31	4181755.429
1489	342	561268.38	4181756.217
1490	315	561268.45	4181757.025
1491	334	561268.50	4181757.882
1492	333	561268.57	4181758.88
1493	329	561268.61	4181760.021
1494	373	561268.56	4181761.21
1495	369	561268.34	4181762.654
1496	377	561267.16	4181763.086
1497	407	561266.04	4181763.655
1498	405	561264.97	4181763.275
1499	364	561264.11	4181763.055
1500	326	561263.52	4181762.436
1501	338	561263.34	4181761.669
1502	331	561263.11	4181760.883
1503	340	561263.04	4181760.044
1504	326	561262.97	4181759.218
1505	322	561262.92	4181758.395
1506	336	561262.89	4181757.579
1507	326	561262.87	4181756.784
1508	315	561262.84	4181756.011
1509	332	561262.81	4181755.24
1510	354	561262.79	4181754.469
1511	329	561262.77	4181753.698
1512	337	561262.76	4181752.934
1513	334	561262.72	4181752.181
1514	319	561262.68	4181751.441

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1515	343	561262.66	4181750.709
1516	317	561262.63	4181750.006
1517	335	561262.60	4181749.277
1518	319	561262.57	4181748.522
1519	346	561262.55	4181747.783
1520	326	561262.52	4181747.042
1521	330	561262.48	4181746.278
1522	322	561262.46	4181745.524
1523	313	561262.39	4181744.784
1524	326	561262.32	4181744.018
1525	333	561262.27	4181743.244
1526	326	561262.21	4181742.472
1527	343	561262.14	4181741.699
1528	326	561262.08	4181740.925
1529	327	561262.02	4181740.195
1530	313	561261.97	4181739.474
1531	309	561261.92	4181738.763
1532	338	561261.89	4181738.077
1533	339	561261.81	4181737.423
1534	338	561261.72	4181736.759
1535	336	561261.66	4181736.094
1536	340	561261.61	4181735.444
1537	327	561261.57	4181734.796
1538	339	561261.53	4181734.148
1539	321	561261.49	4181733.469
1540	328	561261.42	4181732.774
1541	329	561261.35	4181732.012
1542	340	561261.28	4181731.224
1543	346	561261.21	4181730.409
1544	311	561261.14	4181729.54
1545	321	561261.06	4181728.653
1546	341	561260.99	4181727.718
1547	339	561260.83	4181726.741
1548	355	561261.02	4181725.741
1549	358	561261.16	4181724.83
1550	378	561261.57	4181723.912
1551	371	561262.40	4181723.573
1552	363	561263.23	4181723.07
1553	383	561264.15	4181723.159
1554	362	561265.08	4181723.236
1555	378	561266.09	4181723.616
1556	361	561266.35	4181724.43
1557	366	561266.67	4181725.215
1558	319	561266.79	4181726.031
1559	341	561266.89	4181726.538
1560	333	561267.14	4181728.244
1561	367	561266.78	4181726.774
1562	365	561266.38	4181726
1563	342	561266.38	4181725.879
1564	358	561266.42	4181725.052
1565	335	561266.45	4181725.854
1566	340	561266.46	4181725.908
1567	321	561266.52	4181726.621
1568	365	561266.37	4181724.804
1569	384	561266.28	4181723.81
1570	384	561266.12	4181721.575
1571	388	561266.15	4181721.89
1572	373	561266.24	4181722.627
1573	359	561266.26	4181723.792
1574	337	561266.29	4181724.767
1575	343	561266.33	4181725.687
1576	325	561266.35	4181726.52
1577	340	561266.37	4181727.318
1578	320	561266.41	4181728.082

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1579	328	561266.43	4181728.729
1580	315	561266.59	4181730.569
1581	322	561266.51	4181728.935
1582	400	561266.43	4181727.544
1583	346	561266.42	4181726.395
1584	336	561266.43	4181725.637
1585	321	561266.52	4181726.845
1586	345	561266.65	4181727.89
1587	332	561266.77	4181728.879
1588	329	561266.87	4181729.814
1589	339	561266.97	4181730.729
1590	328	561267.08	4181731.639
1591	325	561267.11	4181732.545
1592	332	561267.15	4181733.453
1593	367	561267.17	4181734.364
1594	353	561267.20	4181735.203
1595	360	561267.23	4181736.022
1596	331	561267.23	4181736.806
1597	346	561267.23	4181737.564
1598	335	561267.22	4181738.295
1599	323	561267.23	4181739.026
1600	305	561267.21	4181739.752
1601	338	561267.21	4181740.46
1602	330	561267.20	4181741.15
1603	322	561267.22	4181741.822
1604	313	561267.24	4181742.469
1605	325	561267.25	4181743.111
1606	329	561267.28	4181743.745
1607	305	561267.33	4181744.398
1608	319	561267.36	4181745.072
1609	328	561267.39	4181745.74
1610	318	561267.41	4181746.411
1611	343	561267.48	4181747.091
1612	351	561267.57	4181747.78
1613	365	561267.62	4181748.482
1614	333	561267.68	4181749.204
1615	332	561267.72	4181749.932
1616	336	561267.78	4181750.662
1617	349	561267.83	4181751.383
1618	340	561267.88	4181752.095
1619	342	561267.94	4181752.775
1620	323	561267.99	4181753.459
1621	355	561268.02	4181754.189
1622	325	561268.07	4181754.945
1623	332	561268.08	4181755.727
1624	331	561268.09	4181756.547
1625	339	561268.11	4181757.393
1626	349	561268.15	4181758.335
1627	344	561268.23	4181759.311
1628	337	561268.17	4181760.318
1629	352	561268.12	4181761.266
1630	378	561268.06	4181762.329
1631	379	561267.58	4181762.629
1632	380	561265.93	4181763.215
1633	393	561266.07	4181763.213
1634	398	561266.80	4181763.19
1635	400	561265.57	4181763.513
1636	357	561265.02	4181762.931
1637	349	561264.29	4181762.395
1638	327	561264.03	4181761.527
1639	327	561263.77	4181760.614
1640	333	561263.64	4181759.688
1641	346	561263.56	4181758.878
1642	313	561263.49	4181758.09

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1643	312	561263.42	4181757.323
1644	329	561263.36	4181756.54
1645	327	561263.27	4181755.759
1646	338	561263.25	4181754.998
1647	333	561263.23	4181754.24
1648	330	561263.18	4181753.487
1649	332	561263.13	4181752.752
1650	329	561263.10	4181752.023
1651	326	561263.07	4181751.308
1652	319	561263.05	4181750.589
1653	327	561263.03	4181749.864
1654	321	561263.00	4181749.134
1655	328	561262.96	4181748.404
1656	320	561262.94	4181747.679
1657	319	561262.93	4181746.933
1658	315	561262.88	4181746.169
1659	325	561262.84	4181745.401
1660	332	561262.82	4181744.629
1661	323	561262.77	4181743.85
1662	342	561262.71	4181743.079
1663	325	561262.67	4181742.313
1664	346	561262.63	4181741.536
1665	329	561262.60	4181740.764
1666	322	561262.54	4181740.029
1667	322	561262.50	4181739.29
1668	343	561262.44	4181738.549
1669	338	561262.38	4181737.856
1670	330	561262.34	4181737.171
1671	351	561262.29	4181736.485
1672	357	561262.24	4181735.8
1673	343	561262.19	4181735.116
1674	343	561262.13	4181734.426
1675	350	561262.12	4181733.729
1676	321	561262.06	4181733.025
1677	330	561262.00	4181732.31
1678	314	561261.94	4181731.585
1679	335	561261.88	4181730.819
1680	342	561261.83	4181730.031
1681	330	561261.75	4181729.182
1682	327	561261.67	4181728.296
1683	326	561261.58	4181727.374
1684	358	561261.50	4181726.428
1685	350	561261.28	4181725.462
1686	370	561261.36	4181724.396
1687	393	561261.41	4181723.107
1688	375	561262.47	4181722.078
1689	379	561264.38	4181721.341
1690	384	561266.85	4181720.9
1691	376	561267.84	4181722.312
1692	370	561268.78	4181723.572
1693	342	561268.99	4181724.951
1694	349	561269.17	4181726.207
1695	342	561269.24	4181727.427
1696	359	561269.29	4181728.541
1697	358	561269.32	4181729.614
1698	363	561269.38	4181730.644
1699	337	561269.43	4181731.656
1700	322	561269.47	4181732.697
1701	339	561269.51	4181733.902
1702	350	561269.55	4181735.079
1703	343	561269.60	4181736.228
1704	317	561269.66	4181737.296
1705	301	561269.72	4181738.34
1706	326	561269.75	4181739.351

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1707	336	561269.77	4181740.353
1708	318	561269.81	4181741.346
1709	318	561269.85	4181742.372
1710	320	561269.85	4181743.406
1711	338	561269.90	4181744.435
1712	325	561269.95	4181745.45
1713	331	561270.01	4181746.45
1714	344	561270.06	4181747.436
1715	343	561270.17	4181748.418
1716	350	561270.23	4181749.414
1717	350	561270.28	4181750.43
1718	364	561270.36	4181751.465
1719	359	561270.43	4181752.503
1720	347	561270.49	4181753.55
1721	337	561270.59	4181754.635
1722	365	561270.68	4181755.751
1723	355	561270.79	4181756.895
1724	375	561270.91	4181758.228
1725	360	561271.30	4181759.651
1726	374	561270.73	4181760.949
1727	369	561270.28	4181762.264
1728	363	561269.11	4181762.752
1729	410	561267.95	4181763.15
1730	380	561266.65	4181763.556
1731	391	561265.85	4181763.008
1732	348	561264.95	4181762.62
1733	323	561264.57	4181761.855
1734	312	561264.17	4181761.052
1735	327	561264.03	4181760.159
1736	337	561263.98	4181759.289
1737	324	561263.93	4181758.442
1738	329	561263.89	4181757.619
1739	324	561263.86	4181756.806
1740	330	561263.80	4181756.007
1741	343	561263.76	4181755.252
1742	338	561263.73	4181754.492
1743	349	561263.69	4181753.726
1744	331	561263.64	4181752.966
1745	334	561263.63	4181752.213
1746	325	561263.60	4181751.498
1747	324	561263.57	4181750.783
1748	343	561263.56	4181750.068
1749	328	561263.55	4181749.375
1750	337	561263.50	4181748.678
1751	319	561263.48	4181747.939
1752	328	561263.47	4181747.199
1753	318	561263.43	4181746.46
1754	333	561263.39	4181745.72
1755	332	561263.33	4181744.98
1756	337	561263.30	4181744.234
1757	320	561263.27	4181743.485
1758	319	561263.22	4181742.733
1759	354	561263.17	4181741.96
1760	332	561263.14	4181741.189
1761	290	561263.09	4181740.453
1762	318	561263.05	4181739.697
1763	327	561263.00	4181738.923
1764	343	561262.95	4181738.184
1765	325	561262.92	4181737.453
1766	343	561262.86	4181736.735
1767	346	561262.81	4181736.02
1768	328	561262.75	4181735.311
1769	333	561262.69	4181734.622
1770	349	561262.62	4181733.93

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1771	322	561262.57	4181733.19
1772	353	561262.52	4181732.432
1773	332	561262.47	4181731.656
1774	342	561262.41	4181730.838
1775	352	561262.37	4181730.002
1776	323	561262.27	4181729.127
1777	322	561262.17	4181728.199
1778	330	561262.08	4181727.212
1779	337	561262.00	4181726.198
1780	368	561261.72	4181725.149
1781	402	561262.03	4181724.218
1782	376	561262.18	4181723.195
1783	385	561262.93	4181722.629
1784	372	561263.82	4181722.036
1785	373	561264.97	4181721.548
1786	391	561265.91	4181722.017
1787	372	561266.96	4181722.322
1788	356	561267.36	4181723.198
1789	350	561267.78	4181724.169
1790	337	561268.05	4181725.218
1791	334	561268.17	4181726.28
1792	335	561268.29	4181727.353
1793	328	561268.39	4181728.439
1794	349	561268.49	4181729.592
1795	342	561268.56	4181730.74
1796	330	561268.63	4181731.781
1797	333	561268.71	4181732.834
1798	340	561268.76	4181733.902
1799	362	561268.80	4181735.023
1800	342	561268.86	4181736.162
1801	330	561268.94	4181737.346
1802	315	561269.01	4181738.466
1803	309	561269.06	4181739.521
1804	333	561269.12	4181740.568
1805	339	561269.18	4181741.617
1806	331	561269.21	4181742.695
1807	312	561269.23	4181743.781
1808	331	561269.28	4181744.875
1809	325	561269.34	4181745.972
1810	357	561269.40	4181747.088
1811	340	561269.49	4181748.296
1812	361	561269.59	4181749.525
1813	336	561269.68	4181750.775
1814	348	561269.77	4181752.019
1815	344	561269.86	4181753.263
1816	351	561269.97	4181754.508
1817	334	561270.09	4181755.837
1818	341	561270.29	4181757.243
1819	381	561270.50	4181758.874
1820	368	561271.01	4181760.605
1821	372	561270.21	4181761.844
1822	374	561269.48	4181763.117
1823	386	561268.12	4181763.385
1824	380	561266.93	4181763.474
1825	388	561265.65	4181763.105
1826	368	561265.34	4181762.287
1827	326	561264.95	4181761.477
1828	312	561264.83	4181760.586
1829	336	561264.72	4181759.757
1830	330	561264.64	4181758.942
1831	313	561264.58	4181758.157
1832	327	561264.50	4181757.365
1833	343	561264.46	4181756.563
1834	328	561264.41	4181755.78

Count #	Reading	Easting	Northing	Sigma

Count #	Reading	Easting	Northing
1835	324	561264.38	4181755.003
1836	336	561264.33	4181754.232
1837	326	561264.29	4181753.485
1838	339	561264.25	4181752.759
1839	331	561264.21	4181752.059
1840	346	561264.16	4181751.363
1841	336	561264.13	4181750.661
1842	335	561264.12	4181749.968
1843	328	561264.08	4181749.286
1844	312	561264.03	4181748.572
1845	334	561263.99	4181747.854
1846	315	561263.96	4181747.144
1847	323	561263.92	4181746.418
1848	323	561263.90	4181745.677
1849	307	561263.88	4181744.922
1850	340	561263.85	4181744.162
1851	327	561263.79	4181743.396
1852	341	561263.74	4181742.634
1853	332	561263.69	4181741.875
1854	331	561263.64	4181741.117
1855	318	561263.54	4181740.361
1856	320	561263.50	4181739.593
1857	337	561263.46	4181738.824
1858	345	561263.41	4181738.055
1859	348	561263.38	4181737.328
1860	331	561263.32	4181736.606
1861	346	561263.28	4181735.852
1862	336	561263.26	4181735.138
1863	349	561263.21	4181734.465
1864	328	561263.15	4181733.741
1865	336	561263.11	4181733.009
1866	351	561263.05	4181732.291
1867	313	561262.99	4181731.535
1868	350	561262.91	4181730.742
1869	326	561262.84	4181729.945
1870	334	561262.72	4181729.13
1871	328	561262.67	4181728.2
1872	357	561262.62	4181727.18
1873	352	561262.54	4181726.074
1874	349	561262.41	4181724.429
1875	364	561263.00	4181722.006
1876	387	561262.95	4181722.017
1877	365	561262.20	4181722.454
1878	332	561262.64	4181724.548
1879	337	561262.91	4181726.081
1880	353	561263.03	4181728.798
1881	336	561263.03	4181728.301
1882	323	561263.04	4181726.826
1883	320	561262.99	4181727.568
1884	328	561263.03	4181729.225

1884	Total Counts
342.92	Average
24.62	Std Dev
442.00	Max
488.74	3 sigma

Investigation Level Exceeded

Count #	Reading	Easting	Northing	Sigma

Waste Characterization Data for the Excavated Soil from Survey Units 7, 12, 27, and 63

OU-2C Alameda
Waste Characterization Piles
Validated Analytical Results

		Method	EPA 901.1 MOD	EPA 901.1 MOD
		Analyte	Cesium-137	Radium-226
		Units	PCI/G	PCI/G
		Screening Criteria	0.113	1 above background *
Sample Id	**Location Id**	**Collection Date**		
FZ02-WC-SU07-01-01	SU07 PILE 01	1/29/2014	-0.0153 U	0.372
FZ02-WC-SU07-01-02	SU07 PILE 01	1/29/2014	0.0176 U	0.349
FZ02-WC-SU07-02-01	SU07 PILE 02	1/29/2014	0.00237 U	0.587
FZ02-WC-SU07-02-02	SU07 PILE 02	1/29/2014	-0.00990 U	0.493
FZ02-WC-SU12-01-01	SU12 PILE 01	1/29/2014	0.0203 U	0.343
FZ02-WC-SU12-01-02	SU12 PILE 01	1/29/2014	-0.00295 U	0.144
FZ02-WC-SU12-02-01	SU12 PILE 02	1/29/2014	-0.0165 U	0.555
FZ02-WC-SU12-02-02	SU12 PILE 02	1/29/2014	-0.0175 U	0.390
FZ02-WC-SU12-03-01	SU12 PILE 03	1/29/2014	0.0346	0.353
FZ02-WC-SU12-03-02	SU12 PILE 03	1/29/2014	0.000 U	0.452
FZ02-WC-SU27-01-01	SU27 PILE 01	1/29/2014	-0.0108 U	0.446
FZ02-WC-SU27-01-02	SU27 PILE 01	1/29/2014	-0.0128 U	0.497
FZ02-WC-SU27-02-01	SU27 PILE 02	1/29/2014	-0.0178 U	0.597
FZ02-WC-SU27-02-02	SU27 PILE 02	1/29/2014	0.0104 U	0.539
FZ02-WC-SU27-03-01	SU27 PILE 03	1/29/2014	0.0204 U	0.414
FZ02-WC-SU27-03-02	SU27 PILE 03	1/29/2014	0.000277 U	0.561
FZ02-WC-SU27-04-01	SU27 PILE 04	1/29/2014	-0.00995 U	0.497
FZ02-WC-SU27-04-02	SU27 PILE 04	1/29/2014	-0.00129 U	0.479
FZ02-WC-SU27-05-01	SU27 PILE 05	1/29/2014	-0.000939 U	0.501
FZ02-WC-SU27-05-02	SU27 PILE 05	1/29/2014	0.000474 U	0.300
FZ02-WC-SU27-06-01	SU27 PILE 06	1/29/2014	0.000 U	0.585
FZ02-WC-SU27-06-02	SU27 PILE 06	1/29/2014	0.00159 U	0.476
FZ02-WC-SU63-01-01	SU63 PILE 01	1/29/2014	-0.00464 U	0.427
FZ02-WC-SU63-01-02	SU63 PILE 01	1/29/2014	-0.0109 U	0.534
FZ02-WC-SU63-02-01	SU63 PILE 02	1/29/2014	0.0126 U	0.448
FZ02-WC-SU63-02-02	SU63 PILE 02	1/29/2014	0.000 U	0.519
FZ02-WC-SU63-03-01	SU63 PILE 03	1/29/2014	-0.00848 U	0.402
FZ02-WC-SU63-03-02	SU63 PILE 03	1/29/2014	-0.00304 U	0.573
FZ02-WC-SU63-04-01	SU63 PILE 04	1/29/2014	-0.00712 U	0.515
FZ02-WC-SU63-04-02	SU63 PILE 04	1/29/2014	-0.000554 U	0.686
FZ02-WC-SU63-05-01	SU63 PILE 05	1/29/2014	0.0215 U	0.447
FZ02-WC-SU63-05-02	SU63 PILE 05	1/29/2014	0.000199 U	0.429
FZ02-WC-SU63-06-01	SU63 PILE 06	1/29/2014	-0.0480 U	0.466
FZ02-WC-SU63-06-02	SU63 PILE 06	1/29/2014	0.00115 U	0.446

NOTES:

Results are not above listed screening criteria.

All samples results above based on 21 day ingrowth except as noted below. Samples results have been third-party validated.

* Limit is 1 pCi/g above background per agreement with EPA (TtEC 2006). Radium-226 background for samples is 0.5602 pCi/g.

pCi/g - picoCuries per gram

U - not detected above the stated limit

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5593-1
TestAmerica Sample Delivery Group: 160-5593
Client Project/Site: Alameda OU2C Storm Drain

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
2/28/2014 3:33:37 PM

Erika Gish, Project Manager II
(314)298-8566
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LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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QC Association Summary 24

Job ID: 160-5593-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda OU2C Storm Drain

Report Number: 160-5593-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-5593-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 2/19/2014 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 20.6º C.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples FZ02-WC-SU63-01-01 (160-5593-1), FZ02-WC-SU63-01-02 (160-5593-2), FZ02-WC-SU63-02-01 (160-5593-3), FZ02-WC-SU63-02-02 (160-5593-4), FZ02-WC-SU63-02-02 DUP (160-5593-5), FZ02-WC-SU63-03-01 (160-5593-6), FZ02-WC-SU63-03-02 (160-5593-7), FZ02-WC-SU63-04-01 (160-5593-8), FZ02-WC-SU63-04-02 (160-5593-9), FZ02-WC-SU63-05-01 (160-5593-10), FZ02-WC-SU63-05-02 (160-5593-11), FZ02-WC-SU63-06-01 (160-5593-12) and FZ02-WC-SU63-06-02 (160-5593-13) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA Method 901.1. The samples were prepared on 02/21/2014 and analyzed on 02/21/2014 and 02/23/2014.

Samples were received sealed in tuna cans. Sealed date was used as prep date and used to calculate ingrowth period.

Count Time: All samples and QC were counted for 30 mins.

No other difficulties were encountered during the Radium 226 by gamma analysis.

All other quality control parameters were within the acceptance limits.

TETRA TECH EC, INC.

Chain-of Custody Record

252698

NUMBER: FZ02-0009

1160-5593

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: T. Wells	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T, Berkeley Lab

Laboratory ID:

	Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
1	FZ02-WC-SU63-01-01	1/29/2014	1046	1	3	S	3	X								SU63 Pile 01	0"	6"	N
2	FZ02-WC-SU63-01-02	1/29/2014	1050	1	3	S	3	X								SU63 Pile 01	0"	6"	N
3	FZ02-WC-SU63-02-01	1/29/2014	1053	1	3	S	3	X								SU63 Pile 02	0"	6"	N
4	FZ02-WC-SU63-02-02	1/29/2014	1056	1	3	S	3	X								SU63 Pile 02	0"	6"	N
5	FZ02-WC-SU63-03-01	1/29/2014	1059	1	3	S	3	X								SU63 Pile 03	0"	6"	N
6	FZ02-WC-SU63-03-02	1/29/2014	1103	1	3	S	3	X								SU63 Pile 03	0"	6"	N
7	FZ02-WC-SU63-04-01	1/29/2014	1106	1	3	S	3	X								SU63 Pile 04	0"	6"	N
8	FZ02-WC-SU63-04-02	1/29/2014	1110	1	3	S	3	X								SU63 Pile 04	0"	6"	N
9	FZ02-WC-SU63-05-01	1/29/2014	1114	1	3	S	3	X								SU63 Pile 05	0"	6"	N
10	FZ02-WC-SU63-05-02	1/29/2014	1119	1	3	S	3	X								SU63 Pile 05	0"	6"	N
11	FZ02-WC-SU63-06-01	1/29/2014	1122	1	3	S	3	X								SU63 Pile 06	0"	6"	N
12	FZ02-WC-SU63-06-02	1/29/2014	1126	1	3	S	3	X								SU63 Pile 06	0"	6"	N

Relinquished by: (signature)	Date:	Received by (signature)	Laboratory Instructions/Comments:	Sampling Comments:
for Tobin wells	1-29-14		Screening (via 186 pk) full isotopes only	Trench samples
Company: RSRS	Time: 1500	Company: RSRS		
Relinquished by: (signature)	Date: 1-30-14	Received by (signature)	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis	
Company: RSRS	Time: 0930	Company: C&T		
Relinquished by: (signature)	Date: 2/13/14	Received by (signature) 2.19.14	Sample Condition Upon Receipt (for Laboratory)	
Company: C&T	Time: 1445	Company: TA STL 0915	Temperature: Sample Condition: Cooler Seal:	FZ02-0009

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5593-1
SDG Number: 160-5593

Login Number: 5593
List Number: 1
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5593-1	FZ02-WC-SU63-01-01	Solid	01/29/14 10:46	02/19/14 09:15
160-5593-2	FZ02-WC-SU63-01-02	Solid	01/29/14 10:50	02/19/14 09:15
160-5593-3	FZ02-WC-SU63-02-01	Solid	01/29/14 10:53	02/19/14 09:15
160-5593-4	FZ02-WC-SU63-02-02	Solid	01/29/14 10:56	02/19/14 09:15
160-5593-5	FZ02-WC-SU63-02-02 DUP	Solid	01/29/14 10:56	02/19/14 09:15
160-5593-6	FZ02-WC-SU63-03-01	Solid	01/29/14 10:59	02/19/14 09:15
160-5593-7	FZ02-WC-SU63-03-02	Solid	01/29/14 11:03	02/19/14 09:15
160-5593-8	FZ02-WC-SU63-04-01	Solid	01/29/14 11:06	02/19/14 09:15
160-5593-9	FZ02-WC-SU63-04-02	Solid	01/29/14 11:10	02/19/14 09:15
160-5593-10	FZ02-WC-SU63-05-01	Solid	01/29/14 11:14	02/19/14 09:15
160-5593-11	FZ02-WC-SU63-05-02	Solid	01/29/14 11:19	02/19/14 09:15
160-5593-12	FZ02-WC-SU63-06-01	Solid	01/29/14 11:22	02/19/14 09:15
160-5593-13	FZ02-WC-SU63-06-02	Solid	01/29/14 11:26	02/19/14 09:15

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-01-01
Date Collected: 01/29/14 10:46
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-1
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.427**		0.106	0.115	0.700	0.0423	pCi/g	02/21/14 10:07	02/21/14 15:43	1
Cesium-137	-0.00464	U	0.0334	0.0334	0.0700	0.0268	pCi/g	02/21/14 10:07	02/21/14 15:43	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-01-02
Date Collected: 01/29/14 10:50
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.534**		0.147	0.157	0.700	0.0636	pCi/g	02/21/14 10:07	02/21/14 15:44	1
Cesium-137	-0.0109	U	0.0521	0.0522	0.0700	0.0416	pCi/g	02/21/14 10:07	02/21/14 15:44	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-02-01
Date Collected: 01/29/14 10:53
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-3
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.448**		0.138	0.146	0.700	0.0675	pCi/g	02/21/14 10:07	02/21/14 15:45	1
Cesium-137	0.0126	U	0.0416	0.0416	0.0700	0.0324	pCi/g	02/21/14 10:07	02/21/14 15:45	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-02-02
Date Collected: 01/29/14 10:56
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-4
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.519**		0.127	0.138	0.700	0.0536	pCi/g	02/21/14 10:07	02/21/14 15:46	1
Cesium-137	0.000	U	0.0333	0.0333	0.0700	0.0518	pCi/g	02/21/14 10:07	02/21/14 15:46	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-02-02 DUP
Date Collected: 01/29/14 10:56
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-5
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.240**		0.116	0.119	0.700	0.0746	pCi/g	02/21/14 10:07	02/21/14 15:46	1
Cesium-137	-0.0116	U	0.0447	0.0447	0.0700	0.0351	pCi/g	02/21/14 10:07	02/21/14 15:46	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-03-01
Date Collected: 01/29/14 10:59
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-6
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.402**		0.129	0.136	0.700	0.0561	pCi/g	02/21/14 10:07	02/21/14 15:47	1
Cesium-137	-0.00848	U	0.0550	0.0550	0.0700	0.0441	pCi/g	02/21/14 10:07	02/21/14 15:47	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-03-02
Date Collected: 01/29/14 11:03
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-7
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.573**		0.138	0.150	0.700	0.0509	pCi/g	02/21/14 10:07	02/21/14 15:48	1
Cesium-137	-0.00304	U	0.0455	0.0455	0.0700	0.0371	pCi/g	02/21/14 10:07	02/21/14 15:48	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-04-01
Date Collected: 01/29/14 11:06
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-8
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.515**		0.137	0.148	0.700	0.0653	pCi/g	02/21/14 10:07	02/21/14 15:49	1
Cesium-137	-0.00712	U	0.0451	0.0451	0.0700	0.0361	pCi/g	02/21/14 10:07	02/21/14 15:49	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-04-02
Date Collected: 01/29/14 11:10
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-9
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.686**		0.230	0.241	0.700	0.0633	pCi/g	02/21/14 10:07	02/21/14 15:50	1
Cesium-137	-0.000554	U	0.0372	0.0372	0.0700	0.0304	pCi/g	02/21/14 10:07	02/21/14 15:50	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-05-01
Date Collected: 01/29/14 11:14
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-10
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.447**		0.136	0.144	0.700	0.0591	pCi/g	02/21/14 10:07	02/21/14 15:51	1
Cesium-137	0.0215	U	0.0608	0.0609	0.0700	0.0512	pCi/g	02/21/14 10:07	02/21/14 15:51	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-05-02
Date Collected: 01/29/14 11:19
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-11
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.429**		0.138	0.145	0.700	0.0532	pCi/g	02/21/14 10:07	02/21/14 15:52	1
Cesium-137	0.000199	U	0.0336	0.0336	0.0700	0.0277	pCi/g	02/21/14 10:07	02/21/14 15:52	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-06-01
Date Collected: 01/29/14 11:22
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-12
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.466**		0.172	0.178	0.700	0.0794	pCi/g	02/21/14 10:07	02/23/14 19:10	1
Cesium-137	-0.0480	U	0.326	0.326	0.0700	0.0601	pCi/g	02/21/14 10:07	02/23/14 19:10	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU63-06-02
Date Collected: 01/29/14 11:26
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5593-13
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.446**		0.126	0.135	0.700	0.0473	pCi/g	02/21/14 10:07	02/23/14 19:11	1
Cesium-137	0.00115	U	0.0412	0.0412	0.0700	0.0337	pCi/g	02/21/14 10:07	02/23/14 19:11	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-106658/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106974 — **Prep Batch: 106658**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01965	U	0.106	0.106	0.700	0.0772	pCi/g	02/21/14 10:07	02/21/14 14:58	1
Cesium-137	-0.009288	U	0.101	0.101	0.0700	0.0549	pCi/g	02/21/14 10:07	02/21/14 14:58	1

Lab Sample ID: LCS 160-106658/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106975 — **Prep Batch: 106658**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	94.65		9.92		0.487	pCi/g	97	87 - 116
Cesium-137	31.3	29.98		3.19	0.0700	0.118	pCi/g	96	94 - 118
Cobalt-60	23.2	21.67		2.24		0.0721	pCi/g	94	87 - 115

Lab Sample ID: 160-5593-1 DU — **Client Sample ID: FZ02-WC-SU63-01-01**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106980 — **Prep Batch: 106658**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.427		0.4319		0.135	0.700	0.0658	pCi/g	0.02	1
Cesium-137	-0.00464	U	-0.01115	U	0.0463	0.0700	0.0368	pCi/g	0.08	1

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5593-1
SDG: 160-5593

Rad

Prep Batch: 106658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5593-1	FZ02-WC-SU63-01-01	Total/NA	Solid	Fill_Geo-21	
160-5593-1 DU	FZ02-WC-SU63-01-01	Total/NA	Solid	Fill_Geo-21	
160-5593-2	FZ02-WC-SU63-01-02	Total/NA	Solid	Fill_Geo-21	
160-5593-3	FZ02-WC-SU63-02-01	Total/NA	Solid	Fill_Geo-21	
160-5593-4	FZ02-WC-SU63-02-02	Total/NA	Solid	Fill_Geo-21	
160-5593-5	FZ02-WC-SU63-02-02 DUP	Total/NA	Solid	Fill_Geo-21	
160-5593-6	FZ02-WC-SU63-03-01	Total/NA	Solid	Fill_Geo-21	
160-5593-7	FZ02-WC-SU63-03-02	Total/NA	Solid	Fill_Geo-21	
160-5593-8	FZ02-WC-SU63-04-01	Total/NA	Solid	Fill_Geo-21	
160-5593-9	FZ02-WC-SU63-04-02	Total/NA	Solid	Fill_Geo-21	
160-5593-10	FZ02-WC-SU63-05-01	Total/NA	Solid	Fill_Geo-21	
160-5593-11	FZ02-WC-SU63-05-02	Total/NA	Solid	Fill_Geo-21	
160-5593-12	FZ02-WC-SU63-06-01	Total/NA	Solid	Fill_Geo-21	
160-5593-13	FZ02-WC-SU63-06-02	Total/NA	Solid	Fill_Geo-21	
LCS 160-106658/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-106658/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5594-1
TestAmerica Sample Delivery Group: 160-5594
Client Project/Site: Alameda OU2C Storm Drain

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
2/28/2014 3:36:29 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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Have a Question? Ask The Expert

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5594-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda OU2C Storm Drain

Report Number: 160-5594-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-5594-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 2/19/2014 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 20.6º C.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples FZ02-WC-SU27-01-01 (160-5594-1), FZ02-WC-SU27-01-02 (160-5594-2), FZ02-WC-SU27-02-01 (160-5594-3), FZ02-WC-SU27-02-02 (160-5594-4), FZ02-WC-SU27-03-01 (160-5594-5), FZ02-WC-SU27-03-02 (160-5594-6), FZ02-WC-SU27-04-01 (160-5594-7), FZ02-WC-SU27-04-02 (160-5594-8), FZ02-WC-SU27-05-01 (160-5594-9), FZ02-WC-SU27-05-02 (160-5594-10), FZ02-WC-SU27-06-01 (160-5594-11) and FZ02-WC-SU27-06-02 (160-5594-12) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA Method 901.1. The samples were prepared on 02/21/2014 and analyzed on 02/21/2014 and 02/23/2014.

Samples were received sealed in tuna cans. Sealed date was used as prep date and used to calculate ingrowth period.

Count Time: All samples and QC were counted for 30 mins.

No other difficulties were encountered during the Radium 226 by gamma analysis.

All other quality control parameters were within the acceptance limits.

TETRA TECH EC, INC.

Chain-of Custody Record

252696

NUMBER: FZ02-0010

160-5594

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: T. Wells	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T, Berkeley Lab

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
FZ02-WC-SU27-01-01	1/29/2014	0942	1	3	S	3	X								SU27 Pile 01	0"	6"	N
FZ02-WC-SU27-01-02	1/29/2014	0945	1	3	S	3	X								SU27 Pile 01	0"	6"	N
FZ02-WC-SU27-02-01	1/29/2014	0949	1	3	S	3	X								SU27 Pile 02	0"	6"	N
FZ02-WC-SU27-02-02	1/29/2014	0952	1	3	S	3	X								SU27 Pile 02	0"	6"	N
FZ02-WC-SU27-03-01	1/29/2014	0955	1	3	S	3	X								SU27 Pile 03	0"	6"	N
FZ02-WC-SU27-03-02	1/29/2014	0959	1	3	S	3	X								SU27 Pile 03	0"	6"	N
FZ02-WC-SU27-04-01	1/29/2014	1003	1	3	S	3	X								SU27 Pile 04	0"	6"	N
FZ02-WC-SU27-04-02	1/29/2014	1007	1	3	S	3	X								SU27 Pile 04	0"	6"	N
FZ02-WC-SU27-05-01	1/29/2014	1012	1	3	S	3	X								SU27 Pile 05	0"	6"	N
FZ02-WC-SU27-05-02	1/29/2014	1015	1	3	S	3	X								SU27 Pile 05	0"	6"	N
FZ02-WC-SU27-06-01	1/29/2014	1018	1	3	S	3	X								SU27 Pile 06	0"	6"	N
FZ02-WC-SU27-06-02	1/29/2014	1022	1	3	S	3	X								SU27 Pile 06	0"	6"	N

Relinquished by: (signature)	Date:	Received by (signature)	Laboratory Instructions/Comments:
Matt for Tobin Wells	1-29-14	[signature]	Screening (via 186 pk) full isotopes only
Company: RSRS	Time: 1500	Company: RSRS	
Relinquished by: (signature) [signature]	Date: 1-30-14	Received by (signature) Pat Hamp	Composite Discription:
Company: RSRS	Time: 0930	Company: C & T	21 day ingrowth will sub to TA - ST. Louis
Relinquished by: (signature) [signature]	Date: 2/18/14	Received by (signature) [signature] 2.19.14	Sample Condition Upon Receipt (for Laboratory)
Company: C+T	Time: 1445	Company: TA SR 0915	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: Trench samples

FZ02-0010

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5594-1
SDG Number: 160-5594

Login Number: 5594
List Number: 1
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5594-1	FZ02-WC-SU27-01-01	Solid	01/29/14 09:42	02/19/14 09:15
160-5594-2	FZ02-WC-SU27-01-02	Solid	01/29/14 09:45	02/19/14 09:15
160-5594-3	FZ02-WC-SU27-02-01	Solid	01/29/14 09:49	02/19/14 09:15
160-5594-4	FZ02-WC-SU27-02-02	Solid	01/29/14 09:52	02/19/14 09:15
160-5594-5	FZ02-WC-SU27-03-01	Solid	01/29/14 09:55	02/19/14 09:15
160-5594-6	FZ02-WC-SU27-03-02	Solid	01/29/14 09:59	02/19/14 09:15
160-5594-7	FZ02-WC-SU27-04-01	Solid	01/29/14 10:03	02/19/14 09:15
160-5594-8	FZ02-WC-SU27-04-02	Solid	01/29/14 10:07	02/19/14 09:15
160-5594-9	FZ02-WC-SU27-05-01	Solid	01/29/14 10:12	02/19/14 09:15
160-5594-10	FZ02-WC-SU27-05-02	Solid	01/29/14 10:15	02/19/14 09:15
160-5594-11	FZ02-WC-SU27-06-01	Solid	01/29/14 10:18	02/19/14 09:15
160-5594-12	FZ02-WC-SU27-06-02	Solid	01/29/14 10:22	02/19/14 09:15

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-01-01
Date Collected: 01/29/14 09:42
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-1
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.446**		0.102	0.112	0.700	0.0367	pCi/g	02/21/14 10:07	02/23/14 19:13	1
Cesium-137	-0.0108	U	0.0397	0.0397	0.0700	0.0314	pCi/g	02/21/14 10:07	02/23/14 19:13	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-01-02
Date Collected: 01/29/14 09:45
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.497**		0.150	0.158	0.700	0.0687	pCi/g	02/21/14 10:07	02/23/14 19:13	1
Cesium-137	-0.0128	U	0.0560	0.0561	0.0700	0.0447	pCi/g	02/21/14 10:07	02/23/14 19:13	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-02-01
Date Collected: 01/29/14 09:49
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-3
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.597**		0.152	0.164	0.700	0.0672	pCi/g	02/21/14 10:07	02/23/14 19:14	1
Cesium-137	-0.0178	U	0.0572	0.0573	0.0700	0.0453	pCi/g	02/21/14 10:07	02/23/14 19:14	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-02-02
Date Collected: 01/29/14 09:52
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-4
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.539**		0.153	0.163	0.700	0.0702	pCi/g	02/21/14 10:07	02/23/14 19:14	1
Cesium-137	0.0104	U	0.0457	0.0457	0.0700	0.0363	pCi/g	02/21/14 10:07	02/23/14 19:14	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-03-01
Date Collected: 01/29/14 09:55
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-5
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.414**		0.130	0.137	0.700	0.0578	pCi/g	02/21/14 10:07	02/23/14 19:15	1
Cesium-137	0.0204	U	0.0480	0.0480	0.0700	0.0365	pCi/g	02/21/14 10:07	02/23/14 19:15	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-03-02
Date Collected: 01/29/14 09:59
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-6
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.561**		0.162	0.172	0.700	0.0634	pCi/g	02/21/14 10:07	02/23/14 19:16	1
Cesium-137	0.000277	U	0.0539	0.0539	0.0700	0.0443	pCi/g	02/21/14 10:07	02/23/14 19:16	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-04-01
Date Collected: 01/29/14 10:03
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-7
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.497**		0.130	0.140	0.700	0.0498	pCi/g	02/21/14 10:07	02/23/14 19:17	1
Cesium-137	-0.00995	U	0.0525	0.0525	0.0700	0.0420	pCi/g	02/21/14 10:07	02/23/14 19:17	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-04-02
Date Collected: 01/29/14 10:07
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-8
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.479**		0.119	0.129	0.700	0.0532	pCi/g	02/21/14 10:22	02/21/14 14:07	1
Cesium-137	-0.00129	U	0.0315	0.0315	0.0700	0.0257	pCi/g	02/21/14 10:22	02/21/14 14:07	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-05-01
Date Collected: 01/29/14 10:12
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-9
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.501**		0.147	0.156	0.700	0.0664	pCi/g	02/21/14 10:22	02/21/14 14:08	1
Cesium-137	-0.000939	U	0.0424	0.0424	0.0700	0.0348	pCi/g	02/21/14 10:22	02/21/14 14:08	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-05-02
Date Collected: 01/29/14 10:15
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-10
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.300**		0.130	0.134	0.700	0.0812	pCi/g	02/21/14 10:22	02/21/14 14:09	1
Cesium-137	0.000474	U	0.0392	0.0392	0.0700	0.0322	pCi/g	02/21/14 10:22	02/21/14 14:09	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-06-01
Date Collected: 01/29/14 10:18
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-11
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.585**		0.143	0.156	0.700	0.0487	pCi/g	02/21/14 10:22	02/21/14 14:10	1
Cesium-137	0.000	U	0.0131	0.0131	0.0700	0.0108	pCi/g	02/21/14 10:22	02/21/14 14:10	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU27-06-02
Date Collected: 01/29/14 10:22
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5594-12
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.476**		0.156	0.163	0.700	0.0664	pCi/g	02/21/14 10:22	02/21/14 14:10	1
Cesium-137	0.00159	U	0.0367	0.0367	0.0700	0.0299	pCi/g	02/21/14 10:22	02/21/14 14:10	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-106658/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106974 — **Prep Batch: 106658**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.01965	U	0.106	0.106	0.700	0.0772	pCi/g	02/21/14 10:07	02/21/14 14:58	1
Cesium-137	-0.009288	U	0.101	0.101	0.0700	0.0549	pCi/g	02/21/14 10:07	02/21/14 14:58	1

Lab Sample ID: LCS 160-106658/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106975 — **Prep Batch: 106658**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	94.65		9.92		0.487	pCi/g	97	87 - 116
Cesium-137	31.3	29.98		3.19	0.0700	0.118	pCi/g	96	94 - 118
Cobalt-60	23.2	21.67		2.24		0.0721	pCi/g	94	87 - 115

Lab Sample ID: 160-5593-A-1-B DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 106980 — **Prep Batch: 106658**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.427		0.4319		0.135	0.700	0.0658	pCi/g	0.02	1
Cesium-137	-0.00464	U	-0.01115	U	0.0463	0.0700	0.0368	pCi/g	0.08	1

Lab Sample ID: MB 160-106660/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107608 — **Prep Batch: 106660**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02581	U	0.170	0.170	0.700	0.0639	pCi/g	02/21/14 10:22	02/21/14 14:06	1
Cesium-137	-0.004216	U	0.0299	0.0299	0.0700	0.0238	pCi/g	02/21/14 10:22	02/21/14 14:06	1

Lab Sample ID: LCS 160-106660/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107605 — **Prep Batch: 106660**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits
Americium-241	97.5	96.08		10.1		0.624	pCi/g	99	87 - 116
Cesium-137	31.3	30.55		3.26	0.0700	0.123	pCi/g	98	94 - 118
Cobalt-60	23.2	22.46		2.31		0.0550	pCi/g	97	87 - 115

Lab Sample ID: 160-5594-8 DU — **Client Sample ID: FZ02-WC-SU27-04-02**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107608 — **Prep Batch: 106660**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	RER	RER Limit
Radium-226	0.479		0.5420		0.130	0.700	0.0433	pCi/g	0.24	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: 160-5594-8 DU
Matrix: Solid
Analysis Batch: 107608

Client Sample ID: FZ02-WC-SU27-04-02
Prep Type: Total/NA
Prep Batch: 106660

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit			RER	RER Limit
Cesium-137	-0.00129	U		-0.00008332	U	0.0321	0.0700	0.0265	pCi/g			0.02	1

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5594-1
SDG: 160-5594

Rad

Prep Batch: 106658

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5593-A-1-B DU	Duplicate	Total/NA	Solid	Fill_Geo-21	
160-5594-1	FZ02-WC-SU27-01-01	Total/NA	Solid	Fill_Geo-21	
160-5594-2	FZ02-WC-SU27-01-02	Total/NA	Solid	Fill_Geo-21	
160-5594-3	FZ02-WC-SU27-02-01	Total/NA	Solid	Fill_Geo-21	
160-5594-4	FZ02-WC-SU27-02-02	Total/NA	Solid	Fill_Geo-21	
160-5594-5	FZ02-WC-SU27-03-01	Total/NA	Solid	Fill_Geo-21	
160-5594-6	FZ02-WC-SU27-03-02	Total/NA	Solid	Fill_Geo-21	
160-5594-7	FZ02-WC-SU27-04-01	Total/NA	Solid	Fill_Geo-21	
LCS 160-106658/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-106658/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 106660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5594-8	FZ02-WC-SU27-04-02	Total/NA	Solid	Fill_Geo-21	
160-5594-8 DU	FZ02-WC-SU27-04-02	Total/NA	Solid	Fill_Geo-21	
160-5594-9	FZ02-WC-SU27-05-01	Total/NA	Solid	Fill_Geo-21	
160-5594-10	FZ02-WC-SU27-05-02	Total/NA	Solid	Fill_Geo-21	
160-5594-11	FZ02-WC-SU27-06-01	Total/NA	Solid	Fill_Geo-21	
160-5594-12	FZ02-WC-SU27-06-02	Total/NA	Solid	Fill_Geo-21	
LCS 160-106660/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-106660/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5596-1
TestAmerica Sample Delivery Group: 160-5596
Client Project/Site: Alameda OU2C Storm Drain

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
2/28/2014 3:38:06 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5596-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda OU2C Storm Drain

Report Number: 160-5596-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-5596-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 2/19/2014 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 20.6º C.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples FZ02-WC-SU07-01-01 (160-5596-1), FZ02-WC-SU07-01-02 (160-5596-2), FZ02-WC-SU07-02-01 (160-5596-3), FZ02-WC-SU07-02-02 (160-5596-4), FZ02-WC-SU12-01-01 (160-5596-5), FZ02-WC-SU12-01-02 (160-5596-6), FZ02-WC-SU12-02-01 (160-5596-7), FZ02-WC-SU12-02-02 (160-5596-8), FZ02-WC-SU12-03-01 (160-5596-9) and FZ02-WC-SU12-03-02 (160-5596-10) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA Method 901.1. The samples were prepared on 02/21/2014 and analyzed on 02/21/2014 and 02/26/2014.

Samples were received sealed in tuna cans. Sealed date was used as prep date and used to calculate ingrowth period.

Count Time: All samples and QC were counted for 30 mins.

No other difficulties were encountered during the Radium 226 by gamma analysis.

All other quality control parameters were within the acceptance limits.

TETRA TECH EC, INC

Chain-of Custody Record

252647

NUMBER: FZ02-0011

160-5596

Project Name: Alameda OU2C Storm Drain	PO Number: 1100927
Project Location: Alameda	Project Number: 4659FZ02
Sampler Name: T. Wells	Airbill Number: -
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED: GAMMA SPEC

Laboratory Name: C & T Berkeley Lab

Laboratory ID: -

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	GAMMA SPEC							COMMENTS	LOCATION	Depth START	Depth END	QC
FZ02-WC-SU07-01-01	1/29/2014	1030	1	3	S	3	X								SU07 Pile 01	0"	6"	N
FZ02-WC-SU07-01-02	1/29/2014	1033	1	3	S	3	X								SU07 Pile 01	0"	6"	N
FZ02-WC-SU07-02-01	1/29/2014	1037	1	3	S	3	X								SU07 Pile 02	0"	6"	N
FZ02-WC-SU07-02-02	1/29/2014	1041	1	3	S	3	X								SU07 Pile 02	0"	6"	N
FZ02-WC-SU12-01-01	1/29/2014	0916	1	3	S	3	X								SU12 Pile 01	0"	6"	N
FZ02-WC-SU12-01-02	1/29/2014	0921	1	3	S	3	X								SU12 Pile 01	0"	6"	N
FZ02-WC-SU12-02-01	1/29/2014	0925	1	3	S	3	X								SU12 Pile 02	0"	6"	N
FZ02-WC-SU12-02-02	1/29/2014	0929	1	3	S	3	X								SU12 Pile 02	0"	6"	N
FZ02-WC-SU12-03-01	1/29/2014	0933	1	3	S	3	X								SU12 Pile 03	0"	6"	N
FZ02-WC-SU12-03-02	1/29/2014	0936	1	3	S	3	X								SU12 Pile 03	0"	6"	N

Relinquished by: (signature)	Date:	Received by (signature)	Laboratory Instructions/Comments:	Sampling Comments:
Tobin Wells	1-29-14	[signature]	Screening (via 186 pk) full isotopes only	Trench samples
Company: RSRS	Time: 1500	Company: RSRS		
Relinquished by: (signature) [signature]	Date: 1-30-14	Received by (signature) Pat [signature]	Composite Discription: 21 day ingrowth will sub to TA - ST. Louis	
Company: RSRS	Time: 0930	Company: C&T		
Relinquished by: (signature) [signature]	Date: 2/18/14	Received by (signature) Jeff Clarke 2.19.14	Sample Condition Upon Receipt (for Laboratory)	
Company: C+T	Time: 1445	Company: TASTL 0915	Temperature: Sample Condition: Cooler Seal:	FZ02-0011

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5596-1
SDG Number: 160-5596

Login Number: 5596
List Number: 1
Creator: Clarke, Jill C

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Qualifiers

Rad

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5596-1	FZ02-WC-SU07-01-01	Solid	01/29/14 10:30	02/19/14 09:15
160-5596-2	FZ02-WC-SU07-01-02	Solid	01/29/14 10:33	02/19/14 09:15
160-5596-3	FZ02-WC-SU07-02-01	Solid	01/29/14 10:37	02/19/14 09:15
160-5596-4	FZ02-WC-SU07-02-02	Solid	01/29/14 10:41	02/19/14 09:15
160-5596-5	FZ02-WC-SU12-01-01	Solid	01/29/14 09:16	02/19/14 09:15
160-5596-6	FZ02-WC-SU12-01-02	Solid	01/29/14 09:21	02/19/14 09:15
160-5596-7	FZ02-WC-SU12-02-01	Solid	01/29/14 09:25	02/19/14 09:15
160-5596-8	FZ02-WC-SU12-02-02	Solid	01/29/14 09:29	02/19/14 09:15
160-5596-9	FZ02-WC-SU12-03-01	Solid	01/29/14 09:33	02/19/14 09:15
160-5596-10	FZ02-WC-SU12-03-02	Solid	01/29/14 09:36	02/19/14 09:15

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU07-01-01
Date Collected: 01/29/14 10:30
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5596-1
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.372**		0.178	0.182	0.700	0.0930	pCi/g	02/21/14 10:22	02/21/14 14:14	1
Cesium-137	-0.0153	U	0.166	0.166	0.0700	0.0535	pCi/g	02/21/14 10:22	02/21/14 14:14	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU07-01-02
Date Collected: 01/29/14 10:33
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5596-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.349**		0.112	0.118	0.700	0.0467	pCi/g	02/21/14 10:22	02/21/14 14:14	1
Cesium-137	0.0176	U	0.0414	0.0415	0.0700	0.0316	pCi/g	02/21/14 10:22	02/21/14 14:14	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU07-02-01
Date Collected: 01/29/14 10:37
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5596-3
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.587**		0.147	0.159	0.700	0.0607	pCi/g	02/21/14 10:22	02/21/14 14:51	1
Cesium-137	0.00237	U	0.0466	0.0466	0.0700	0.0381	pCi/g	02/21/14 10:22	02/21/14 14:51	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU07-02-02
Date Collected: 01/29/14 10:41
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5596-4
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.493**		0.132	0.141	0.700	0.0598	pCi/g	02/21/14 10:22	02/21/14 14:52	1
Cesium-137	-0.00990	U	0.0443	0.0443	0.0700	0.0351	pCi/g	02/21/14 10:22	02/21/14 14:52	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU12-01-01
Date Collected: 01/29/14 09:16
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5596-5
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.343**		0.115	0.120	0.700	0.0586	pCi/g	02/21/14 10:22	02/21/14 14:52	1
Cesium-137	0.0203	U	0.0457	0.0457	0.0700	0.0347	pCi/g	02/21/14 10:22	02/21/14 14:52	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU12-01-02
Date Collected: 01/29/14 09:21
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5596-6
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.144**		0.126	0.127	0.700	0.0905	pCi/g	02/21/14 10:22	02/21/14 14:53	1
Cesium-137	-0.00295	U	0.0373	0.0373	0.0700	0.0302	pCi/g	02/21/14 10:22	02/21/14 14:53	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU12-02-01
Date Collected: 01/29/14 09:25
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5596-7
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.555**		0.141	0.152	0.700	0.0496	pCi/g	02/21/14 10:22	02/21/14 14:54	1
Cesium-137	-0.0165	U	0.0422	0.0422	0.0700	0.0316	pCi/g	02/21/14 10:22	02/21/14 14:54	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU12-02-02
Date Collected: 01/29/14 09:29
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5596-8
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.390**		0.123	0.130	0.700	0.0554	pCi/g	02/21/14 10:22	02/21/14 14:54	1
Cesium-137	-0.0175	U	0.0530	0.0531	0.0700	0.0417	pCi/g	02/21/14 10:22	02/21/14 14:54	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU12-03-01
Date Collected: 01/29/14 09:33
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5596-9
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.353		0.126	0.131	0.700	0.0751	pCi/g	02/21/14 10:22	02/21/14 14:55	1
Cesium-137	0.0346		0.0441	0.0443	0.0700	0.0314	pCi/g	02/21/14 10:22	02/21/14 14:55	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: FZ02-WC-SU12-03-02
Date Collected: 01/29/14 09:36
Date Received: 02/19/14 09:15

Lab Sample ID: 160-5596-10
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.452**		0.118	0.127	0.700	0.0471	pCi/g	02/21/14 10:22	02/26/14 21:21	1
Cesium-137	0.000	U	0.0251	0.0251	0.0700	0.0383	pCi/g	02/21/14 10:22	02/26/14 21:21	1

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-106660/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107608 — **Prep Batch: 106660**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	DLC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02581	U	0.170	0.170	0.700	0.0639	pCi/g	02/21/14 10:22	02/21/14 14:06	1
Cesium-137	-0.004216	U	0.0299	0.0299	0.0700	0.0238	pCi/g	02/21/14 10:22	02/21/14 14:06	1

Lab Sample ID: LCS 160-106660/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107605 — **Prep Batch: 106660**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit	%Rec	%Rec. Limits		
Americium-241			97.5	96.08		10.1		0.624	pCi/g	99	87 - 116		
Cesium-137			31.3	30.55		3.26	0.0700	0.123	pCi/g	98	94 - 118		
Cobalt-60			23.2	22.46		2.31		0.0550	pCi/g	97	87 - 115		

Lab Sample ID: 160-5594-A-8-B DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 107608 — **Prep Batch: 106660**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	DLC	Unit			RER	RER Limit
Radium-226	0.479			0.5420		0.130	0.700	0.0433	pCi/g			0.24	1
Cesium-137	-0.00129	U		-0.00008332	U	0.0321	0.0700	0.0265	pCi/g			0.02	1

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda OU2C Storm Drain

TestAmerica Job ID: 160-5596-1
SDG: 160-5596

Rad

Prep Batch: 106660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5594-A-8-B DU	Duplicate	Total/NA	Solid	Fill_Geo-21	
160-5596-1	FZ02-WC-SU07-01-01	Total/NA	Solid	Fill_Geo-21	
160-5596-2	FZ02-WC-SU07-01-02	Total/NA	Solid	Fill_Geo-21	
160-5596-3	FZ02-WC-SU07-02-01	Total/NA	Solid	Fill_Geo-21	
160-5596-4	FZ02-WC-SU07-02-02	Total/NA	Solid	Fill_Geo-21	
160-5596-5	FZ02-WC-SU12-01-01	Total/NA	Solid	Fill_Geo-21	
160-5596-6	FZ02-WC-SU12-01-02	Total/NA	Solid	Fill_Geo-21	
160-5596-7	FZ02-WC-SU12-02-01	Total/NA	Solid	Fill_Geo-21	
160-5596-8	FZ02-WC-SU12-02-02	Total/NA	Solid	Fill_Geo-21	
160-5596-9	FZ02-WC-SU12-03-01	Total/NA	Solid	Fill_Geo-21	
160-5596-10	FZ02-WC-SU12-03-02	Total/NA	Solid	Fill_Geo-21	
LCS 160-106660/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-106660/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

OU-2C Alameda
Waste Characterization Piles
Validated Analytical Results

		Sample Id	05-007	05-008	05-009	05-010
		Location Id	Reach 07	Reach 12	Reach 27	Reach 63
		Collection Date	1/29/2014	1/29/2014	1/29/2014	1/29/2014
Method	**Analyte**	**Units**				
DOE SR-03-RC MOD	Strontium-90	PCI/G	0.250	0.0672 U	0.169 U	0.160 U
DOE A-01-R U MOD	Uranium-238	PCI/G	0.350	0.246	0.321	0.253
6020A	Antimony	MG/KG	2.33 UJ	2.88 J	2.48 UJ	2.32 UJ
6020A	Arsenic	MG/KG	2.73 J	2.25 J	2.69 J	2.74 J
6020A	Barium	MG/KG	55.1	48.1	55.7	73.4
6020A	Beryllium	MG/KG	0.202 J	0.222 J	0.213 J	0.220 J
6020A	Cadmium	MG/KG	0.194 J	0.136 J	0.0982 J	0.130 J
6020A	Chromium	MG/KG	33.9	41.5	41.2	43.4
6020A	Cobalt	MG/KG	6.18	7.99	6.98	8.47
6020A	Copper	MG/KG	11.0	11.4	10	14.3
6020A	Lead	MG/KG	8.10	4.66	16.8	13.5
6020A	Molybdenum	MG/KG	2.33 U	2.63 U	2.48 U	2.32 U
6020A	Nickel	MG/KG	36.1	45.4	37.2	42.2
6020A	Selenium	MG/KG	1.29 J	0.974 J	2.48 U	2.32 U
6020A	Silver	MG/KG	0.536 J	0.556 J	0.251 U	0.927 U
6020A	Thallium	MG/KG	2.10 U	2.36 U	2.23 U	2.09 U
6020A	Vanadium	MG/KG	19.8	29.5	28.4	34.0
6020A	Zinc	MG/KG	31.1	29.2	28.4	34.3
7470B	Mercury	MG/KG	0.0284 J	0.0157 J	0.0219 J	0.0248 J
8015B	Gasoline Range Organics	MG/KG	0.0094 U	0.0273 J	0.0999 U	0.234
8015B	Diesel Range Organics	MG/KG	25.9 U	107 U	26.4 U	497
8015B	Motor Oils	MG/KG	22.4 J	66.7 J	15.4 J	93.5
8081B	Aldrin	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	alpha-BHC	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	beta-BHC	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	delta-BHC	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	gamma-BHC	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Chlordane (technical)	UG/KG	17.8 U	18.1 U	18.0 U	17.3 UJ
8081B	4,4'-DDD	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	4,4'-DDE	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	4,4'-DDT	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Dieldrin	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Endrin	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Endosulfan I	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Endosulfan II	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Endosulfan sulfate	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Endrin aldehyde	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Endrin ketone	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Heptachlor	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Heptachlor epoxide	UG/KG	1.78 U	1.81 U	1.80 U	1.73 UJ
8081B	Methoxychlor	UG/KG	3.45 U	3.52 U	3.49 U	3.36 UJ
8081B	Toxaphene	UG/KG	70.0 U	71.4 U	70.9 U	68.2 UJ
8082A	Aroclor 1016	UG/KG	34.5 U	35.1 U	35.0 U	33.5 U
8082A	Aroclor 1221	UG/KG	34.5 U	35.1 U	35.0 U	33.5 U
8082A	Aroclor 1232	UG/KG	34.5 U	35.1 U	35.0 U	33.5 U

OU-2C Alameda
Waste Characterization Piles
Validated Analytical Results

		Sample Id	05-007	05-008	05-009	05-010
		Location Id	Reach 07	Reach 12	Reach 27	Reach 63
		Collection Date	1/29/2014	1/29/2014	1/29/2014	1/29/2014
Method	**Analyte**	**Units**				
8082A	Aroclor 1242	UG/KG	34.5 U	35.1 U	35.0 U	33.5 U
8082A	Aroclor 1248	UG/KG	34.5 U	35.1 U	35.0 U	33.5 U
8082A	Aroclor 1254	UG/KG	34.5 U	35.1 U	35.0 U	33.5 U
8082A	Aroclor 1260	UG/KG	34.5 U	35.1 U	35.0 U	9.13 J
8260C	1,1,1-Trichloroethane	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	1,1,2,2-Tetrachloroethane	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	1,1,2-Trichloroethane	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	1,1-Dichloroethane	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	1,1-Dichloroethene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	1,2-Dichloroethane	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	1,2-Dichloropropane	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	2-Butanone	UG/KG	19.4 U	18.9 U	19.9 U	19.8 U
8260C	2-Hexanone	UG/KG	19.4 U	18.9 U	19.9 U	19.8 U
8260C	4-methyl-2-pentanone	UG/KG	19.4 U	18.9 U	19.9 U	19.8 U
8260C	Acetone	UG/KG	19.4 U	18.9 U	19.9 U	19.8 U
8260C	Benzene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Bromodichloromethane	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Bromoform	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Bromomethane	UG/KG	9.71 U	9.46 U	9.95 U	9.91 U
8260C	Carbon tetrachloride	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Chlorobenzene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Chloroethane	UG/KG	9.71 U	9.46 U	9.95 U	9.91 U
8260C	Chloroform	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Chloromethane	UG/KG	9.71 U	9.46 U	9.95 U	9.91 U
8260C	cis-1,2-Dichloroethene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	cis-1,3-Dichloropropene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Dibromochloromethane	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Ethylbenzene	UG/KG	4.86 U	0.387 J	4.98 U	4.96 U
8260C	Methylene chloride	UG/KG	9.71 U	9.46 U	9.95 U	9.91 U
8260C	MTBE	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Styrene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Tetrachloroethene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Toluene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	trans-1,2-Dichloroethene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	trans-1,3-Dichloropropene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Trichloroethene	UG/KG	4.86 U	4.73 U	4.98 U	4.96 U
8260C	Vinyl chloride	UG/KG	9.71 U	9.46 U	9.95 U	9.91 U
8260C	Xylenes (total)	UG/KG	9.71 U	1.37 J	9.95 U	9.91 U
8270D	1,2,4-Trichlorobenzene	UG/KG	345 U	352 U	349 U	337 U
8270D	1,2-Dichlorobenzene	UG/KG	345 U	352 U	349 U	337 U
8270D	1,3-Dichlorobenzene	UG/KG	345 U	352 U	349 U	337 U
8270D	1,4-Dichlorobenzene	UG/KG	345 U	352 U	349 U	337 U
8270D	2,4,5-Trichlorophenol	UG/KG	345 U	352 U	349 U	337 U
8270D	2,4,6-Trichlorophenol	UG/KG	345 U	352 U	349 U	337 U
8270D	2,4-Dichlorophenol	UG/KG	345 U	352 U	349 U	337 U

OU-2C Alameda
Waste Characterization Piles
Validated Analytical Results

		Sample Id	05-007	05-008	05-009	05-010
		Location Id	Reach 07	Reach 12	Reach 27	Reach 63
		Collection Date	1/29/2014	1/29/2014	1/29/2014	1/29/2014
Method	**Analyte**	**Units**				
8270D	2,4-Dimethylphenol	UG/KG	345 U	352 U	349 U	337 U
8270D	2,4-Dinitrophenol	UG/KG	1670 U	1710 U	1690 U	1640 U
8270D	2,4-Dinitrotoluene	UG/KG	345 U	352 U	349 U	337 U
8270D	2,6-Dinitrotoluene	UG/KG	345 U	352 U	349 U	337 U
8270D	2-Chloronaphthalene	UG/KG	345 U	352 U	349 U	337 U
8270D	2-Chlorophenol	UG/KG	345 U	352 U	349 U	337 U
8270D	2-Methylphenol	UG/KG	345 U	352 U	349 U	337 U
8270D	2-Nitroaniline	UG/KG	1670 U	1710 U	1690 U	1640 U
8270D	2-Nitrophenol	UG/KG	345 U	352 U	349 U	337 U
8270D	3,3'-Dichlorobenzidine	UG/KG	1670 U	1710 U	1690 U	1640 U
8270D	3/4-Methylphenol	UG/KG	690 U	703 U	698 U	675 U
8270D	3-Nitroaniline	UG/KG	1670 U	1710 U	1690 U	1640 U
8270D	methylphenol	UG/KG	1670 U	1710 U	1690 U	1640 U
8270D	Phenylether	UG/KG	345 U	352 U	349 U	337 U
8270D	4-Chloro-3-methylphenol	UG/KG	345 U	352 U	349 U	337 U
8270D	4-Chloroaniline	UG/KG	345 U	352 U	349 U	337 U
8270D	Phenylether	UG/KG	345 U	352 U	349 U	337 U
8270D	4-Nitroaniline	UG/KG	1670 U	1710 U	1690 U	1640 U
8270D	4-Nitrophenol	UG/KG	1670 U	1710 U	1690 U	1640 U
8270D	Acenaphthene	UG/KG	345 U	352 U	349 U	337 U
8270D	Acenaphthylene	UG/KG	345 U	352 U	349 U	337 U
8270D	Anthracene	UG/KG	345 U	352 U	349 U	337 U
8270D	Benzo(a)anthracene	UG/KG	345 U	352 U	349 U	337 U
8270D	Benzo(a)pyrene	UG/KG	345 U	352 U	349 U	337 U
8270D	Benzo(b)fluoranthene	UG/KG	345 U	352 U	349 U	337 U
8270D	Benzo(k)fluoranthene	UG/KG	345 U	352 U	349 U	337 U
8270D	Benzo(g,h,i)perylene	UG/KG	345 U	352 U	349 U	337 U
8270D	bis(2-Chloroethyl) ether	UG/KG	345 U	352 U	349 U	337 U
8270D	Chloroethoxy)methane	UG/KG	345 U	352 U	349 U	337 U
8270D	ether	UG/KG	345 UJ	352 UJ	349 UJ	337 UJ
8270D	phthalate	UG/KG	345 U	352 U	349 U	337 U
8270D	Butylbenzyl phthalate	UG/KG	345 U	352 U	349 U	337 U
8270D	Chrysene	UG/KG	345 U	352 U	349 U	337 U
8270D	Di-n-butyl phthalate	UG/KG	345 U	352 U	349 U	337 U
8270D	Di-n-octyl phthalate	UG/KG	345 U	352 U	349 U	337 U
8270D	Dibenz(a,h)anthracene	UG/KG	345 U	352 U	349 U	337 U
8270D	Dibenzofuran	UG/KG	345 U	352 U	349 U	337 U
8270D	Diethyl phthalate	UG/KG	345 U	352 U	349 U	337 U
8270D	Dimethyl phthalate	UG/KG	345 U	352 U	349 U	337 U
8270D	Fluoranthene	UG/KG	345 U	352 U	349 U	337 U
8270D	Fluorene	UG/KG	345 U	352 U	349 U	337 U
8270D	Hexachlorobenzene	UG/KG	345 U	352 U	349 U	337 U
8270D	Hexachlorobutadiene	UG/KG	345 U	352 U	349 U	337 U
8270D	e	UG/KG	1670 U	1710 U	1690 U	1640 U
8270D	Hexachloroethane	UG/KG	345 U	352 U	349 U	337 U

OU-2C Alameda
Waste Characterization Piles
Validated Analytical Results

		Sample Id	05-007	05-008	05-009	05-010
		Location Id	Reach 07	Reach 12	Reach 27	Reach 63
		Collection Date	1/29/2014	1/29/2014	1/29/2014	1/29/2014
Method	**Analyte**	**Units**				
8270D	Indeno(1,2,3-cd)pyrene	UG/KG	345 U	352 U	349 U	337 U
8270D	propylamine	UG/KG	345 U	352 U	349 U	337 U
8270D	N-Nitrosodiphenylamine	UG/KG	345 U	352 U	349 U	112 J
8270D	Naphthalene	UG/KG	345 U	352 U	349 U	337 U
8270D	Nitrobenzene	UG/KG	345 U	352 U	349 U	337 U
8270D	Pentachlorophenol	UG/KG	690 U	703 U	698 U	675 U
8270D	Phenanthrene	UG/KG	345 U	352 U	349 U	337 U
8270D	Phenol	UG/KG	345 U	352 U	349 U	337 U
8270D	Pyrene	UG/KG	345 U	352 U	349 U	337 U
8270D	Pyridine	UG/KG	690 U	703 U	698 U	675 U

NOTES:
Results are third-party validated.
UG/KG - micrograms per kilogram
MG/KG - milligrams per kilogram
PCI/G - picoCuries per gram
U - not detected above the stated limit
J - estimated result

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
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Earth City, MO 63045
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TestAmerica Job ID: 160-5347-2
TestAmerica Sample Delivery Group: 160-5347-2
Client Project/Site: Alameda Site 17 CTO05

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
2/18/2014 4:48:36 PM

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LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5347-2

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda Site 17 CTO05

Report Number: 160-5347-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-5347-2 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 1/30/2014 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

ISOTOPIC URANIUM (ALPHA SPECTROMETRY)

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for Isotopic Uranium (Alpha Spectrometry) in accordance with DOE. The samples were leached on 01/31/2014, prepared on 02/04/2014 and analyzed on 02/10/2014.

Count Time: All samples and QC were counted for 400 mins.

The samples contain rocks and are not homogeneous: (160-5347-1 DU), 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3), 05-010 (160-5347-4).

No other difficulties were encountered during the Isotopic Uranium analysis.

All other quality control parameters were within the acceptance limits.

STRONTIUM-90 (GFPC)

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for Strontium-90 (GFPC) in accordance with SR-03-RC. The samples were leached on 01/31/2014, prepared on 02/04/2014 and analyzed on 02/14/2014.

Count Time: All samples and QC were counted for 400 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

All other quality control parameters were within the acceptance limits.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50008

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-~~14~~ 22
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: W. Solorzano / M. O'Hare	Airbill Number: 7977 5820 0780
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 905 MOD-Sr90	DOE A-01-R-MOD-U238						COMMENTS	LOCATION	Depth START	Depth END	QC
05-007	1/29/2014	0850	1	3	S	15 dy	X	X							Reach 07	/	/	N
05-008	1/29/2014	0900	1	3	S	15 dy	X	X							Reach 12	/	/	N
05-009	1/29/2014	0910	1	3	S	15 dy	X	X							Reach 27	/	/	N
05-010	1/29/2014	0915	1	3	S	15 dy	X	X							Reach 63	/	/	N

Relinquished by: (signature)	Date: 1/29/14	Received by (signature)	Laboratory Instructions/Comments:
TETRA TECH / FEDEX	Time: 1300	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company: TASHOMA	Temperature: Sample Condition: Cooler Seal:

1.30.14
0930

Sampling Comments:

Cur 243

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50007

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-1422
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: W. Solorzano / M. O'Hare	Airbill Number: 7977 5820 0780
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 8260 C (VOCs)	EPA 8270D (SVOCs)	EPA 8081 B (PEST)	EPA 8015B (TPH PURGE)	EPA 8015 B(TPH EXT)	EPA 8082 A (PCBs)	EPA 6020 A/7471B METALS	COMMENTS	LOCATION	Depth START	Depth END	QC
05-007	1/29/2014	0850	9	3	S	5 dy	X	X	X	X	X	X	X		Reach 07	/	/	N
05-008	1/29/2014	0900	9	3	S	5 dy	X	X	X	X	X	X	X		Reach 12	/	/	N
05-009	1/29/2014	0910	9	3	S	5 dy	X	X	X	X	X	X	X		Reach 27	/	/	N
05-010	1/29/2014	0915	9	3	S	5 dy	X	X	X	X	X	X	X		Reach 63	/	/	N

Relinquished by: (signature)	Date: 1/29/14	Received by (signature)	Laboratory Instructions/Comments:
TETRA TECH / FEDEX	Time: 1300	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

1-30-14
0930

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5347-2
SDG Number: 160-5347-2

Login Number: 5347
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method	Method Description	Protocol	Laboratory
A-01-R	Isotopic Uranium (Alpha Spectrometry)	DOE	TAL SL
SR-03-RC	Strontium-90 (GFPC)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5347-1	05-007	Solid	01/29/14 08:50	01/30/14 09:30
160-5347-2	05-008	Solid	01/29/14 09:00	01/30/14 09:30
160-5347-3	05-009	Solid	01/29/14 09:10	01/30/14 09:30
160-5347-4	05-010	Solid	01/29/14 09:15	01/30/14 09:30

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Uranium-238	0.350		0.0592	0.0662	0.300	0.00541	pCi/g	02/04/14 09:57	02/10/14 20:17	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*79.4*		*30 - 110*	*02/04/14 09:57*	*02/10/14 20:17*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Uranium-238	0.246		0.0524	0.0564	0.300	0.00493	pCi/g	02/04/14 09:57	02/10/14 20:17	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*74.7*		*30 - 110*	*02/04/14 09:57*	*02/10/14 20:17*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Uranium-238	0.321		0.0566	0.0627	0.300	0.00538	pCi/g	02/04/14 09:57	02/10/14 20:17	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*79.3*		*30 - 110*	*02/04/14 09:57*	*02/10/14 20:17*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Uranium-238	0.253		0.0491	0.0535	0.300	0.00514	pCi/g	02/04/14 09:57	02/10/14 20:17	1

Tracer	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*88.8*		*30 - 110*	*02/04/14 09:57*	*02/10/14 20:17*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.250		0.137	0.139	0.320	0.211	pCi/g	02/04/14 09:18	02/14/14 14:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*80.4*		*40 - 110*	*02/04/14 09:18*	*02/14/14 14:28*	*1*
Y Carrier	*92.8*		*40 - 110*	*02/04/14 09:18*	*02/14/14 14:28*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0672	U	0.132	0.132	0.320	0.222	pCi/g	02/04/14 09:18	02/14/14 14:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*82.4*		*40 - 110*	*02/04/14 09:18*	*02/14/14 14:28*	*1*
Y Carrier	*94.4*		*40 - 110*	*02/04/14 09:18*	*02/14/14 14:28*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.169	U	0.136	0.137	0.320	0.218	pCi/g	02/04/14 09:18	02/14/14 14:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*76.7*		*40 - 110*	*02/04/14 09:18*	*02/14/14 14:28*	*1*
Y Carrier	*90.0*		*40 - 110*	*02/04/14 09:18*	*02/14/14 14:28*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.160	U	0.130	0.130	0.320	0.208	pCi/g	02/04/14 09:18	02/14/14 14:28	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*83.0*		*40 - 110*	*02/04/14 09:18*	*02/14/14 14:28*	*1*
Y Carrier	*95.2*		*40 - 110*	*02/04/14 09:18*	*02/14/14 14:28*	*1*

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Lab Sample ID: MB 160-103137/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104145 — **Prep Batch: 103137**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Uranium-238	0.004912		0.00830	0.00831	0.300	0.00405	pCi/g	02/04/14 09:57	02/10/14 20:17	1

Tracer	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Uranium-232	*90.5*		*30 - 110*	*02/04/14 09:57*	*02/10/14 20:17*	*1*

Lab Sample ID: LCS 160-103137/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104596 — **Prep Batch: 103137**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit	%Rec	%Rec. Limits		
Uranium-238			1.63	1.554		0.179	0.300	0.00432	pCi/g	96	70 - 130		

Tracer	*LCS %Yield*	*LCS Qualifier*	*Limits*
Uranium-232	*88.0*		*30 - 110*

Lab Sample ID: 160-5347-1 DU — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104597 — **Prep Batch: 103137**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit			RER	RER Limit
Uranium-238	0.350			0.3415		0.0668	0.300	0.00576	pCi/g			0.07	1

Tracer	*DU %Yield*	*DU Qualifier*	*Limits*
Uranium-232	*80.4*		*30 - 110*

Method: SR-03-RC - Strontium-90 (GFPC)

Lab Sample ID: MB 160-103125/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 105399 — **Prep Batch: 103125**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.1285	U	0.125	0.126	0.320	0.204	pCi/g	02/04/14 09:18	02/14/14 14:27	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*86.0*		*40 - 110*	*02/04/14 09:18*	*02/14/14 14:27*	*1*
Y Carrier	*91.6*		*40 - 110*	*02/04/14 09:18*	*02/14/14 14:27*	*1*

Method: SR-03-RC - Strontium-90 (GFPC) (Continued)

Lab Sample ID: LCS 160-103125/2-A
Matrix: Solid
Analysis Batch: 105399

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 103125

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit	%Rec	%Rec. Limits		
Strontium-90			9.14	9.556		0.887	0.320	0.224	pCi/g	105	88 - 136		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*86.6*		*40 - 110*
Y Carrier	*90.8*		*40 - 110*

Lab Sample ID: 160-5347-1 DU
Matrix: Solid
Analysis Batch: 105399

Client Sample ID: 05-007
Prep Type: Total/NA
Prep Batch: 103125

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit			RER	RER Limit
Strontium-90	0.250			0.1996	U	0.152	0.320	0.242	pCi/g			0.18	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Sr Carrier	*82.9*		*40 - 110*
Y Carrier	*92.4*		*40 - 110*

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Rad

Leach Batch: 102646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	Dry and Grind	
160-5347-1 DU	05-007	Total/NA	Solid	Dry and Grind	
160-5347-2	05-008	Total/NA	Solid	Dry and Grind	
160-5347-3	05-009	Total/NA	Solid	Dry and Grind	
160-5347-4	05-010	Total/NA	Solid	Dry and Grind	

Prep Batch: 103125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	DPS-7	102646
160-5347-1 DU	05-007	Total/NA	Solid	DPS-7	102646
160-5347-2	05-008	Total/NA	Solid	DPS-7	102646
160-5347-3	05-009	Total/NA	Solid	DPS-7	102646
160-5347-4	05-010	Total/NA	Solid	DPS-7	102646
LCS 160-103125/2-A	Lab Control Sample	Total/NA	Solid	DPS-7	
MB 160-103125/1-A	Method Blank	Total/NA	Solid	DPS-7	

Prep Batch: 103137

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	ExtChrom	102646
160-5347-1 DU	05-007	Total/NA	Solid	ExtChrom	102646
160-5347-2	05-008	Total/NA	Solid	ExtChrom	102646
160-5347-3	05-009	Total/NA	Solid	ExtChrom	102646
160-5347-4	05-010	Total/NA	Solid	ExtChrom	102646
LCS 160-103137/2-A	Lab Control Sample	Total/NA	Solid	ExtChrom	
MB 160-103137/1-A	Method Blank	Total/NA	Solid	ExtChrom	

Tracer/Carrier Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-2
SDG: 160-5347-2

Method: A-01-R - Isotopic Uranium (Alpha Spectrometry)

Matrix: Solid **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)								
Lab Sample ID	Client Sample ID	U-232 (30-110)								
160-5347-1	05-007	79.4								
160-5347-1 DU	05-007	80.4								
160-5347-2	05-008	74.7								
160-5347-3	05-009	79.3								
160-5347-4	05-010	88.8								
LCS 160-103137/2-A	Lab Control Sample	88.0								
MB 160-103137/1-A	Method Blank	90.5								

Tracer/Carrier Legend

U-232 = Uranium-232

Method: SR-03-RC - Strontium-90 (GFPC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)								
Lab Sample ID	Client Sample ID	Sr (C) (40-110)	Y (40-110)							
160-5347-1	05-007	80.4	92.8							
160-5347-1 DU	05-007	82.9	92.4							
160-5347-2	05-008	82.4	94.4							
160-5347-3	05-009	76.7	90.0							
160-5347-4	05-010	83.0	95.2							
LCS 160-103125/2-A	Lab Control Sample	86.6	90.8							
MB 160-103125/1-A	Method Blank	86.0	91.6							

Tracer/Carrier Legend

Sr (C) = Sr Carrier

Y = Y Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5347-1
TestAmerica Sample Delivery Group: 160-5347-1
Client Project/Site: Alameda Site 17 CTO05

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
2/14/2014 1:57:20 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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Have a Question? Ask The Expert

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5347-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda Site 17 CTO05

Report Number: 160-5347-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-5347-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 1/30/2014 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for volatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8260B DoD. The samples were prepared on 01/30/2014 and analyzed on 01/31/2014.

Analytical Batch 102675

In batch 102675, the surrogate recovery for 4-Bromofluorobenzene in the following samples were outside the upper control limit: 05-007 (160-5347-1), 05-008 (160-5347-2), 05-010 (160-5347-4). The samples did not contain any target analytes associated with the failed surrogate detected above the reporting limits; therefore, re-extraction and/or re-analysis was not performed.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for semivolatile organic compounds (GC-MS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 02/03/2014 and analyzed on 02/04/2014.

Analytical Batch 103317

Bis (2-chloroisopropyl) ether recovered high in the ICV giving this compound a potential high bias in the samples associated with this ICV. The samples are ND for this compound, therefore this excursion does not adversely affect the data: (160-5347-1 MS), (160-5347-1 MSD), (LCS 160-102694/2-A), (MB 160-102694/1-A), 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3), 05-010 (160-5347-4).

The laboratory control sample (LCS) recovered outside control limits for bis (2-chloroisopropyl) ether. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

DIESEL RANGE ORGANICS (DRO) (GC)

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for Diesel Range Organics (DRO) (GC) in accordance with SW-846 Method 8015 DRO DOD. The samples were prepared on 02/03/2014 and analyzed on 02/07/2014, 02/10/2014 and 02/11/2014.

Analytical Batch 103875

The samples were analyzed at a dilution due to high concentration of target analytes: (160-5347-2 MS), (160-5347-2 MSD), 05-008 (160-5347-2) The samples extracts were brown which analyzed undiluted has historically caused instrumentation problems. The reporting limit has been adjusted for the dilutions since no analysis at a lesser dilution was performed.

Analytical Batch 103911

The sample was analyzed at a dilution due to high concentration of Diesel:05-010 (160-5347-4) The sample was originally analyzed undiluted, but was not reportable for Diesel. The reporting limit has been adjusted for Diesel only.

The sample exhibited hydrocarbon peaks in the Diesel Chromatography range: 05-010 (160-5347-4). The sample pattern does not match Diesel which may be indicative of the presence of an unknown hydrocarbon.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GASOLINE RANGE ORGANICS (GRO)

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for gasoline range organics (GRO) in accordance with EPA SW-846 Method 8015B - GRO DoD. The samples were prepared on 01/30/2014 and analyzed on 02/08/2014.

Job ID: 160-5347-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

The following samples in batch 103873 contained peaks which were within the Gasoline Range Organics (GRO) retention time window: 05-008 (160-5347-2), 05-010 (160-5347-4). These peaks were large enough that there is a reportable concentration; however, there is no resemblance between the reportable peak and the pattern of GRO.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

ORGANOCHLORINE PESTICIDES (GC)

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for Organochlorine Pesticides (GC) in accordance with EPA SW-846 Method 8081B DOD. The samples were prepared on 02/03/2014 and analyzed on 02/05/2014.

Analytical Batch 103300

Tetrachloro-m-xylene recovery for the following samples was outside control limits: (160-5347-4 MSD), 05-010 (160-5347-4). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed. Matrix interference in confirmed by the MS and MSD. Although the MS passes, it is lower than other samples in the batch.

The DCB surrogate and Toxaphene %D for the following samples was outside acceptance limits (low biased) on the confirmation column: (CCV 160-103300/40), (CCV 160-103300/47). The recovery is within acceptance limits on the other column. No sample data is reported from the confirmation column.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

POLYCHLORINATED BIPHENYLS (PCBS) BY GAS CHROMATOGRAPHY

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for Polychlorinated Biphenyls (PCBs) by Gas Chromatography in accordance with SW-846 Method 8082 DOD. The samples were prepared on 02/03/2014 and analyzed on 02/04/2014.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TOTAL METALS (ICPMS)

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for total metals (ICPMS) in accordance with EPA SW-846 Method 6020 DoD. The samples were prepared on 02/03/2014 and analyzed on 02/07/2014.

ICB, CCB, and ICSA samples are evaluated using the lowest LOD and DL criteria in LIMS. Using this criteria, an individual element may occasionally be flagged as out of control. If the element has a higher LOD or DL, the data is evaluated to the higher limit and determined to be acceptable.

Analytical Batch 103756

The following samples were diluted due to the nature of the sample matrix. The samples were high in salts, which cause internal standard and QC failures when the samples are run at a lesser dilution: (160-5347-1 MS), (160-5347-1 MSD), (160-5347-1 PDS), (160-5347-1 SD), 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3), 05-010 (160-5347-4). Elevated reporting limits (RLs) are provided.

Silver was detected in method blank MB 160-102688/1-A at a level that was above the method detection limit but below the reporting limit.

Due to LDR failures, the linear range for beryllium has been lowered to the concentration of the highest calibration standard (200ppb). The LCS was above the LDR, but was within acceptable limits.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for antimony were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Analytical Batch 103863

The following samples were diluted due to the nature of the sample matrix. The samples were high in salts, which cause internal standard and QC failures when the samples are run at a lesser dilution: (160-5347-1 MS), (160-5347-1 MSD), (160-5347-1 PDS), (160-5347-1 SD), 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3), 05-010 (160-5347-4). Elevated reporting limits (RLs)

Job ID: 160-5347-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

are provided.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

MERCURY

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for Mercury in accordance with SW-846 Method 7471A_DOD. The samples were prepared and analyzed on 02/03/2014.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

PERCENT SOLIDS

Samples 05-007 (160-5347-1), 05-008 (160-5347-2), 05-009 (160-5347-3) and 05-010 (160-5347-4) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 01/31/2014.

No other analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50008

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-~~14~~ 22
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: W. Solorzano / M. O'Hare	Airbill Number: 7977 5820 0780
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 905 MOD-Sr90	DOE A-01-R-MOD-U238						COMMENTS	LOCATION	Depth START	Depth END	QC
05-007	1/29/2014	0850	1	3	S	15 dy	X	X							Reach 07	/	/	N
05-008	1/29/2014	0900	1	3	S	15 dy	X	X							Reach 12	/	/	N
05-009	1/29/2014	0910	1	3	S	15 dy	X	X							Reach 27	/	/	N
05-010	1/29/2014	0915	1	3	S	15 dy	X	X							Reach 63	/	/	N

Relinquished by: (signature)	Date: 1/29/14	Received by (signature)	Laboratory Instructions/Comments:
TETRA TECH / FEDEX	Time: 1300	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company: TASHOMA	Temperature: Sample Condition: Cooler Seal:

1.30.14
0930

Sampling Comments:

Cwr 243

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: 50007

Project Name: Alameda Site 17, CTO 05	PO Number: 1036773-1422
Project Location: Alameda, CA	Project Number: 106-4044-0005
Sampler Name: W. Solorzano / M. O'Hare	Airbill Number: 7977 5820 0780
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 8260 C (VOCs)	EPA 8270D (SVOCs)	EPA 8081 B (PEST)	EPA 8015B (TPH PURGE)	EPA 8015 B(TPH EXT)	EPA 8082 A (PCBs)	EPA 6020 A/7471B METALS	COMMENTS	LOCATION	Depth START	Depth END	QC
05-007	1/29/2014	0850	9	3	S	5 dy	X	X	X	X	X	X	X		Reach 07	/	/	N
05-008	1/29/2014	0900	9	3	S	5 dy	X	X	X	X	X	X	X		Reach 12	/	/	N
05-009	1/29/2014	0910	9	3	S	5 dy	X	X	X	X	X	X	X		Reach 27	/	/	N
05-010	1/29/2014	0915	9	3	S	5 dy	X	X	X	X	X	X	X		Reach 63	/	/	N

Relinquished by: (signature)	Date: 1/29/14	Received by (signature)	Laboratory Instructions/Comments:
TETRA TECH / FEDEX	Time: 1300	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

1-30-14
0930

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5347-1
SDG Number: 160-5347-1

Login Number: 5347
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery exceeds the control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL SL
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL SL
8015B GRO	Gasoline Range Organics (GRO)	SW846	TAL SL
8015B DRO	Diesel Range Organics (DRO) (GC)	SW846	TAL SL
8081B	Organochlorine Pesticides (GC)	SW846	TAL SL
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL SL
6020A	Metals (ICP/MS)	SW846	TAL SL
7471B	Mercury (CVAA)	SW846	TAL SL
Moisture	Percent Moisture	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5347-1	05-007	Solid	01/29/14 08:50	01/30/14 09:30
160-5347-2	05-008	Solid	01/29/14 09:00	01/30/14 09:30
160-5347-3	05-009	Solid	01/29/14 09:10	01/30/14 09:30
160-5347-4	05-010	Solid	01/29/14 09:15	01/30/14 09:30

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Client Sample ID: 05-007 — Lab Sample ID: 160-5347-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Oil Range Organics (C28-C40)	22.4	J	25.9	0.661	mg/Kg	1	☼	8015B DRO	Total/NA
Silver	0.536	J B	0.933	0.112	mg/Kg	10	☼	6020A	Total/NA
Arsenic	2.73	J	4.66	1.21	mg/Kg	10	☼	6020A	Total/NA
Barium	55.1		9.33	0.438	mg/Kg	10	☼	6020A	Total/NA
Beryllium	0.202	J	0.466	0.121	mg/Kg	10	☼	6020A	Total/NA
Cadmium	0.194	J	0.280	0.0746	mg/Kg	10	☼	6020A	Total/NA
Cobalt	6.18		0.933	0.201	mg/Kg	10	☼	6020A	Total/NA
Chromium	33.9		8.86	2.10	mg/Kg	10	☼	6020A	Total/NA
Copper	11.0		4.66	0.471	mg/Kg	10	☼	6020A	Total/NA
Lead	8.10		1.40	0.466	mg/Kg	10	☼	6020A	Total/NA
Nickel	36.1		2.33	0.499	mg/Kg	10	☼	6020A	Total/NA
Selenium	1.29	J	2.33	0.737	mg/Kg	10	☼	6020A	Total/NA
Vanadium	19.8		4.66	3.43	mg/Kg	10	☼	6020A	Total/NA
Zinc	31.1		23.3	6.20	mg/Kg	10	☼	6020A	Total/NA
Mercury	0.0284	J	0.0388	0.0107	mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: 05-008 — Lab Sample ID: 160-5347-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.387	J	4.73	0.283	ug/Kg	1	☼	8260C	Total/NA
Xylenes, Total	1.37	J	9.46	0.808	ug/Kg	1	☼	8260C	Total/NA
Gasoline Range Organics (C6-C12)	0.0273	J	0.0907	0.00907	mg/Kg	1	☼	8015B GRO	Total/NA
Oil Range Organics (C28-C40) - DL	66.7	J	107	2.72	mg/Kg	4	☼	8015B DRO	Total/NA
Silver	0.556	J B	1.05	0.126	mg/Kg	10	☼	6020A	Total/NA
Arsenic	2.25	J	5.26	1.37	mg/Kg	10	☼	6020A	Total/NA
Barium	48.1		10.5	0.494	mg/Kg	10	☼	6020A	Total/NA
Beryllium	0.222	J	0.526	0.137	mg/Kg	10	☼	6020A	Total/NA
Cadmium	0.136	J	0.315	0.0841	mg/Kg	10	☼	6020A	Total/NA
Cobalt	7.99		1.05	0.226	mg/Kg	10	☼	6020A	Total/NA
Chromium	41.5		9.99	2.36	mg/Kg	10	☼	6020A	Total/NA
Copper	11.4		5.26	0.531	mg/Kg	10	☼	6020A	Total/NA
Lead	4.66		1.58	0.526	mg/Kg	10	☼	6020A	Total/NA
Antimony	2.88		2.63	0.862	mg/Kg	10	☼	6020A	Total/NA
Nickel	45.4		2.63	0.562	mg/Kg	10	☼	6020A	Total/NA
Selenium	0.974	J	2.63	0.830	mg/Kg	10	☼	6020A	Total/NA
Vanadium	29.5		5.26	3.86	mg/Kg	10	☼	6020A	Total/NA
Zinc	29.2		26.3	6.99	mg/Kg	10	☼	6020A	Total/NA
Mercury	0.0157	J	0.0382	0.0105	mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: 05-009 — Lab Sample ID: 160-5347-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Oil Range Organics (C28-C40)	15.4	J	26.4	0.673	mg/Kg	1	☼	8015B DRO	Total/NA
Silver	0.251	J B	0.992	0.119	mg/Kg	10	☼	6020A	Total/NA
Arsenic	2.69	J	4.96	1.29	mg/Kg	10	☼	6020A	Total/NA
Barium	55.7		9.92	0.466	mg/Kg	10	☼	6020A	Total/NA
Beryllium	0.213	J	0.496	0.129	mg/Kg	10	☼	6020A	Total/NA
Cadmium	0.0982	J	0.297	0.0793	mg/Kg	10	☼	6020A	Total/NA
Cobalt	6.98		0.992	0.213	mg/Kg	10	☼	6020A	Total/NA
Chromium	41.2		9.42	2.23	mg/Kg	10	☼	6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Client Sample ID: 05-009 (Continued) — Lab Sample ID: 160-5347-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	10.0		4.96	0.501	mg/Kg	10	☼	6020A	Total/NA
Lead	16.8		1.49	0.496	mg/Kg	10	☼	6020A	Total/NA
Nickel	37.2		2.48	0.530	mg/Kg	10	☼	6020A	Total/NA
Vanadium	28.4		4.96	3.64	mg/Kg	10	☼	6020A	Total/NA
Zinc	28.4		24.8	6.59	mg/Kg	10	☼	6020A	Total/NA
Mercury	0.0219	J	0.0403	0.0111	mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: 05-010 — Lab Sample ID: 160-5347-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
N-Nitrosodiphenylamine	112	J	337	34.1	ug/Kg	1	☼	8270D	Total/NA
Gasoline Range Organics (C6-C12)	0.234		0.101	0.0101	mg/Kg	1	☼	8015B GRO	Total/NA
Oil Range Organics (C28-C40)	93.5		25.6	0.651	mg/Kg	1	☼	8015B DRO	Total/NA
Diesel (C10-C28) - DL	497		128	1.70	mg/Kg	5	☼	8015B DRO	Total/NA
Aroclor 1260	9.13	J	33.5	5.58	ug/Kg	1	☼	8082A	Total/NA
Arsenic	2.74	J	4.63	1.20	mg/Kg	10	☼	6020A	Total/NA
Barium	73.4		9.27	0.436	mg/Kg	10	☼	6020A	Total/NA
Beryllium	0.220	J	0.463	0.120	mg/Kg	10	☼	6020A	Total/NA
Cadmium	0.130	J	0.278	0.0741	mg/Kg	10	☼	6020A	Total/NA
Cobalt	8.47		0.927	0.199	mg/Kg	10	☼	6020A	Total/NA
Chromium	43.4		8.80	2.09	mg/Kg	10	☼	6020A	Total/NA
Copper	14.3		4.63	0.468	mg/Kg	10	☼	6020A	Total/NA
Lead	13.5		1.39	0.463	mg/Kg	10	☼	6020A	Total/NA
Nickel	42.2		2.32	0.496	mg/Kg	10	☼	6020A	Total/NA
Vanadium	34.0		4.63	3.41	mg/Kg	10	☼	6020A	Total/NA
Zinc	34.3		23.2	6.16	mg/Kg	10	☼	6020A	Total/NA
Mercury	0.0248	J	0.0362	0.00995	mg/Kg	1	☼	7471B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid
Percent Solids: 95.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		4.86	0.419	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
1,1,2,2-Tetrachloroethane	ND		4.86	0.390	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
1,1,2-Trichloroethane	ND		4.86	0.557	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
1,1-Dichloroethane	ND		4.86	0.381	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
1,1-Dichloroethene	ND		4.86	1.56	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
1,2-Dichloroethane	ND		4.86	0.842	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
1,2-Dichloropropane	ND		4.86	0.372	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
2-Butanone (MEK)	ND		19.4	1.86	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
2-Hexanone	ND		19.4	1.72	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
4-Methyl-2-pentanone	ND		19.4	0.711	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Acetone	ND		19.4	6.28	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Benzene	ND		4.86	0.246	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Bromoform	ND		4.86	0.356	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Bromomethane	ND		9.71	1.07	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Carbon tetrachloride	ND		4.86	0.498	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Chlorobenzene	ND		4.86	0.371	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Dibromochloromethane	ND		4.86	0.394	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Chloroethane	ND		9.71	0.501	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Chloroform	ND		4.86	0.365	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Chloromethane	ND		9.71	0.631	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
cis-1,2-Dichloroethene	ND		4.86	0.580	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
cis-1,3-Dichloropropene	ND		4.86	0.578	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Bromodichloromethane	ND		4.86	0.247	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Ethylbenzene	ND		4.86	0.290	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Methyl-tert-butyl Ether (MTBE)	ND		4.86	0.462	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Methylene Chloride	ND		9.71	1.53	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Styrene	ND		4.86	0.337	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Tetrachloroethene	ND		4.86	0.313	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Toluene	ND		4.86	0.680	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
trans-1,2-Dichloroethene	ND		4.86	0.916	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
trans-1,3-Dichloropropene	ND		4.86	0.339	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Trichloroethene	ND		4.86	0.374	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Vinyl chloride	ND		9.71	0.416	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1
Xylenes, Total	ND		9.71	0.830	ug/Kg	☼	01/30/14 12:38	01/31/14 14:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*131*	*X*	*85 - 120*	*01/30/14 12:38*	*01/31/14 14:19*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*71 - 128*	*01/30/14 12:38*	*01/31/14 14:19*	*1*
Toluene-d8 (Surr)	*113*		*85 - 115*	*01/30/14 12:38*	*01/31/14 14:19*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		4.73	0.408	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
1,1,2,2-Tetrachloroethane	ND		4.73	0.379	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
1,1,2-Trichloroethane	ND		4.73	0.542	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
1,1-Dichloroethane	ND		4.73	0.371	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
1,1-Dichloroethene	ND		4.73	1.52	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
1,2-Dichloroethane	ND		4.73	0.820	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
1,2-Dichloropropane	ND		4.73	0.362	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
2-Butanone (MEK)	ND		18.9	1.82	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
2-Hexanone	ND		18.9	1.67	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
4-Methyl-2-pentanone	ND		18.9	0.692	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Acetone	ND		18.9	6.12	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Benzene	ND		4.73	0.239	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Bromoform	ND		4.73	0.346	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Bromomethane	ND		9.46	1.04	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Carbon tetrachloride	ND		4.73	0.485	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Chlorobenzene	ND		4.73	0.361	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Dibromochloromethane	ND		4.73	0.384	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Chloroethane	ND		9.46	0.488	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Chloroform	ND		4.73	0.356	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Chloromethane	ND		9.46	0.615	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
cis-1,2-Dichloroethene	ND		4.73	0.565	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
cis-1,3-Dichloropropene	ND		4.73	0.563	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Bromodichloromethane	ND		4.73	0.240	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Ethylbenzene	**0.387**	**J**	4.73	0.283	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Methyl-tert-butyl Ether (MTBE)	ND		4.73	0.450	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Methylene Chloride	ND		9.46	1.49	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Styrene	ND		4.73	0.328	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Tetrachloroethene	ND		4.73	0.305	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Toluene	ND		4.73	0.662	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
trans-1,2-Dichloroethene	ND		4.73	0.892	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
trans-1,3-Dichloropropene	ND		4.73	0.330	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Trichloroethene	ND		4.73	0.364	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Vinyl chloride	ND		9.46	0.405	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1
Xylenes, Total	**1.37**	**J**	9.46	0.808	ug/Kg	☼	01/30/14 12:38	01/31/14 13:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*128*	*X*	*85 - 120*	*01/30/14 12:38*	*01/31/14 13:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*71 - 128*	*01/30/14 12:38*	*01/31/14 13:04*	*1*
Toluene-d8 (Surr)	*111*		*85 - 115*	*01/30/14 12:38*	*01/31/14 13:04*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid
Percent Solids: 94.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		4.98	0.429	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
1,1,2,2-Tetrachloroethane	ND		4.98	0.399	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
1,1,2-Trichloroethane	ND		4.98	0.570	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
1,1-Dichloroethane	ND		4.98	0.390	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
1,1-Dichloroethene	ND		4.98	1.60	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
1,2-Dichloroethane	ND		4.98	0.863	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
1,2-Dichloropropane	ND		4.98	0.381	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
2-Butanone (MEK)	ND		19.9	1.91	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
2-Hexanone	ND		19.9	1.76	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
4-Methyl-2-pentanone	ND		19.9	0.728	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Acetone	ND		19.9	6.44	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Benzene	ND		4.98	0.252	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Bromoform	ND		4.98	0.364	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Bromomethane	ND		9.95	1.09	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Carbon tetrachloride	ND		4.98	0.510	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Chlorobenzene	ND		4.98	0.380	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Dibromochloromethane	ND		4.98	0.404	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Chloroethane	ND		9.95	0.513	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Chloroform	ND		4.98	0.374	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Chloromethane	ND		9.95	0.647	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
cis-1,2-Dichloroethene	ND		4.98	0.594	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
cis-1,3-Dichloropropene	ND		4.98	0.592	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Bromodichloromethane	ND		4.98	0.253	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Ethylbenzene	ND		4.98	0.298	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Methyl-tert-butyl Ether (MTBE)	ND		4.98	0.474	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Methylene Chloride	ND		9.95	1.57	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Styrene	ND		4.98	0.345	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Tetrachloroethene	ND		4.98	0.320	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Toluene	ND		4.98	0.697	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
trans-1,2-Dichloroethene	ND		4.98	0.938	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
trans-1,3-Dichloropropene	ND		4.98	0.347	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Trichloroethene	ND		4.98	0.383	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Vinyl chloride	ND		9.95	0.426	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1
Xylenes, Total	ND		9.95	0.850	ug/Kg	☼	01/30/14 12:38	01/31/14 13:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*85 - 120*	*01/30/14 12:38*	*01/31/14 13:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*71 - 128*	*01/30/14 12:38*	*01/31/14 13:29*	*1*
Toluene-d8 (Surr)	*106*		*85 - 115*	*01/30/14 12:38*	*01/31/14 13:29*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid
Percent Solids: 97.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		4.96	0.427	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
1,1,2,2-Tetrachloroethane	ND		4.96	0.398	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
1,1,2-Trichloroethane	ND		4.96	0.568	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
1,1-Dichloroethane	ND		4.96	0.389	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
1,1-Dichloroethene	ND		4.96	1.60	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
1,2-Dichloroethane	ND		4.96	0.860	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
1,2-Dichloropropane	ND		4.96	0.380	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
2-Butanone (MEK)	ND		19.8	1.90	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
2-Hexanone	ND		19.8	1.75	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
4-Methyl-2-pentanone	ND		19.8	0.726	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Acetone	ND		19.8	6.41	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Benzene	ND		4.96	0.251	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Bromoform	ND		4.96	0.363	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Bromomethane	ND		9.91	1.09	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Carbon tetrachloride	ND		4.96	0.509	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Chlorobenzene	ND		4.96	0.379	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Dibromochloromethane	ND		4.96	0.403	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Chloroethane	ND		9.91	0.512	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Chloroform	ND		4.96	0.373	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Chloromethane	ND		9.91	0.644	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
cis-1,2-Dichloroethene	ND		4.96	0.592	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
cis-1,3-Dichloropropene	ND		4.96	0.590	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Bromodichloromethane	ND		4.96	0.252	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Ethylbenzene	ND		4.96	0.296	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Methyl-tert-butyl Ether (MTBE)	ND		4.96	0.472	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Methylene Chloride	ND		9.91	1.57	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Styrene	ND		4.96	0.344	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Tetrachloroethene	ND		4.96	0.319	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Toluene	ND		4.96	0.694	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
trans-1,2-Dichloroethene	ND		4.96	0.935	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
trans-1,3-Dichloropropene	ND		4.96	0.346	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Trichloroethene	ND		4.96	0.382	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Vinyl chloride	ND		9.91	0.424	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1
Xylenes, Total	ND		9.91	0.847	ug/Kg	☼	01/30/14 12:38	01/31/14 13:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*127*	*X*	*85 - 120*	*01/30/14 12:38*	*01/31/14 13:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*71 - 128*	*01/30/14 12:38*	*01/31/14 13:54*	*1*
Toluene-d8 (Surr)	*105*		*85 - 115*	*01/30/14 12:38*	*01/31/14 13:54*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid
Percent Solids: 95.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Acenaphthylene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Anthracene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Benzo[a]anthracene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Benzo[b]fluoranthene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Benzo[k]fluoranthene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Benzo[g,h,i]perylene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Benzo[a]pyrene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Bis(2-chloroethoxy)methane	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Bis(2-chloroethyl)ether	ND		345	34.9	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Bis(2-ethylhexyl) phthalate	ND		345	47.4	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
4-Bromophenyl phenyl ether	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Butyl benzyl phthalate	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
4-Chloroaniline	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
4-Chloro-3-methylphenol	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2-Chloronaphthalene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2-Chlorophenol	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
4-Chlorophenyl phenyl ether	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Chrysene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Dibenz(a,h)anthracene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Dibenzofuran	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Di-n-butyl phthalate	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
1,2-Dichlorobenzene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
1,3-Dichlorobenzene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
1,4-Dichlorobenzene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
3,3'-Dichlorobenzidine	ND		1670	345	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2,4-Dichlorophenol	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Diethyl phthalate	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2,4-Dimethylphenol	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Dimethyl phthalate	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
4,6-Dinitro-2-methylphenol	ND		1670	345	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2,4-Dinitrophenol	ND		1670	345	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2,4-Dinitrotoluene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2,6-Dinitrotoluene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Di-n-octyl phthalate	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Fluoranthene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Fluorene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Hexachlorobenzene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Hexachlorobutadiene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Hexachlorocyclopentadiene	ND		1670	345	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Hexachloroethane	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Indeno[1,2,3-cd]pyrene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2-Methylphenol	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
3 & 4 Methylphenol	ND		690	69.7	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Naphthalene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2-Nitroaniline	ND		1670	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
3-Nitroaniline	ND		1670	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
4-Nitroaniline	ND		1670	345	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Nitrobenzene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid
Percent Solids: 95.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Nitrophenol	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
4-Nitrophenol	ND		1670	345	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
N-Nitrosodiphenylamine	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
N-Nitrosodi-n-propylamine	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
bis (2-chloroisopropyl) ether	ND	*	345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Pentachlorophenol	ND		690	345	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Phenanthrene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Phenol	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Pyrene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
1,2,4-Trichlorobenzene	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2,4,5-Trichlorophenol	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
2,4,6-Trichlorophenol	ND		345	34.8	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1
Pyridine	ND		690	69.7	ug/Kg	☼	02/03/14 10:01	02/04/14 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*84*		*35 - 105*	*02/03/14 10:01*	*02/04/14 17:44*	*1*
2,4,6-Tribromophenol (Surr)	*81*		*35 - 125*	*02/03/14 10:01*	*02/04/14 17:44*	*1*
Nitrobenzene-d5 (Surr)	*85*		*35 - 100*	*02/03/14 10:01*	*02/04/14 17:44*	*1*
Phenol-d5 (Surr)	*82*		*40 - 100*	*02/03/14 10:01*	*02/04/14 17:44*	*1*
Terphenyl-d14 (Surr)	*58*		*30 - 125*	*02/03/14 10:01*	*02/04/14 17:44*	*1*
2-Fluorobiphenyl (Surr)	*86*		*45 - 105*	*02/03/14 10:01*	*02/04/14 17:44*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Acenaphthylene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Anthracene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Benzo[a]anthracene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Benzo[b]fluoranthene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Benzo[k]fluoranthene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Benzo[g,h,i]perylene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Benzo[a]pyrene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Bis(2-chloroethoxy)methane	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Bis(2-chloroethyl)ether	ND		352	35.6	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Bis(2-ethylhexyl) phthalate	ND		352	48.3	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
4-Bromophenyl phenyl ether	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Butyl benzyl phthalate	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
4-Chloroaniline	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
4-Chloro-3-methylphenol	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2-Chloronaphthalene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2-Chlorophenol	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
4-Chlorophenyl phenyl ether	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Chrysene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Dibenz(a,h)anthracene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Dibenzofuran	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Di-n-butyl phthalate	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
1,2-Dichlorobenzene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
1,3-Dichlorobenzene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
1,4-Dichlorobenzene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
3,3'-Dichlorobenzidine	ND		1710	352	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2,4-Dichlorophenol	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Diethyl phthalate	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2,4-Dimethylphenol	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Dimethyl phthalate	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
4,6-Dinitro-2-methylphenol	ND		1710	352	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2,4-Dinitrophenol	ND		1710	352	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2,4-Dinitrotoluene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2,6-Dinitrotoluene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Di-n-octyl phthalate	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Fluoranthene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Fluorene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Hexachlorobenzene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Hexachlorobutadiene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Hexachlorocyclopentadiene	ND		1710	352	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Hexachloroethane	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Indeno[1,2,3-cd]pyrene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2-Methylphenol	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
3 & 4 Methylphenol	ND		703	71.0	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Naphthalene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2-Nitroaniline	ND		1710	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
3-Nitroaniline	ND		1710	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
4-Nitroaniline	ND		1710	352	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Nitrobenzene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Nitrophenol	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
4-Nitrophenol	ND		1710	352	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
N-Nitrosodiphenylamine	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
N-Nitrosodi-n-propylamine	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
bis (2-chloroisopropyl) ether	ND	*	352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Pentachlorophenol	ND		703	352	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Phenanthrene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Phenol	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Pyrene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
1,2,4-Trichlorobenzene	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2,4,5-Trichlorophenol	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
2,4,6-Trichlorophenol	ND		352	35.5	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1
Pyridine	ND		703	71.0	ug/Kg	☼	02/03/14 10:01	02/04/14 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*80*		*35 - 105*	*02/03/14 10:01*	*02/04/14 19:21*	*1*
2,4,6-Tribromophenol (Surr)	*72*		*35 - 125*	*02/03/14 10:01*	*02/04/14 19:21*	*1*
Nitrobenzene-d5 (Surr)	*79*		*35 - 100*	*02/03/14 10:01*	*02/04/14 19:21*	*1*
Phenol-d5 (Surr)	*79*		*40 - 100*	*02/03/14 10:01*	*02/04/14 19:21*	*1*
Terphenyl-d14 (Surr)	*67*		*30 - 125*	*02/03/14 10:01*	*02/04/14 19:21*	*1*
2-Fluorobiphenyl (Surr)	*86*		*45 - 105*	*02/03/14 10:01*	*02/04/14 19:21*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid
Percent Solids: 94.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Acenaphthylene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Anthracene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Benzo[a]anthracene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Benzo[b]fluoranthene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Benzo[k]fluoranthene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Benzo[g,h,i]perylene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Benzo[a]pyrene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Bis(2-chloroethoxy)methane	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Bis(2-chloroethyl)ether	ND		349	35.3	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Bis(2-ethylhexyl) phthalate	ND		349	47.9	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
4-Bromophenyl phenyl ether	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Butyl benzyl phthalate	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
4-Chloroaniline	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
4-Chloro-3-methylphenol	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2-Chloronaphthalene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2-Chlorophenol	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
4-Chlorophenyl phenyl ether	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Chrysene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Dibenz(a,h)anthracene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Dibenzofuran	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Di-n-butyl phthalate	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
1,2-Dichlorobenzene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
1,3-Dichlorobenzene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
1,4-Dichlorobenzene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
3,3'-Dichlorobenzidine	ND		1690	349	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2,4-Dichlorophenol	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Diethyl phthalate	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2,4-Dimethylphenol	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Dimethyl phthalate	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
4,6-Dinitro-2-methylphenol	ND		1690	349	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2,4-Dinitrophenol	ND		1690	349	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2,4-Dinitrotoluene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2,6-Dinitrotoluene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Di-n-octyl phthalate	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Fluoranthene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Fluorene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Hexachlorobenzene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Hexachlorobutadiene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Hexachlorocyclopentadiene	ND		1690	349	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Hexachloroethane	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Indeno[1,2,3-cd]pyrene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2-Methylphenol	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
3 & 4 Methylphenol	ND		698	70.4	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Naphthalene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2-Nitroaniline	ND		1690	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
3-Nitroaniline	ND		1690	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
4-Nitroaniline	ND		1690	349	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Nitrobenzene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid
Percent Solids: 94.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Nitrophenol	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
4-Nitrophenol	ND		1690	349	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
N-Nitrosodiphenylamine	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
N-Nitrosodi-n-propylamine	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
bis (2-chloroisopropyl) ether	ND	*	349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Pentachlorophenol	ND		698	349	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Phenanthrene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Phenol	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Pyrene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
1,2,4-Trichlorobenzene	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2,4,5-Trichlorophenol	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
2,4,6-Trichlorophenol	ND		349	35.2	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1
Pyridine	ND		698	70.4	ug/Kg	☼	02/03/14 10:01	02/04/14 19:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*82*		*35 - 105*	*02/03/14 10:01*	*02/04/14 19:54*	*1*
2,4,6-Tribromophenol (Surr)	*78*		*35 - 125*	*02/03/14 10:01*	*02/04/14 19:54*	*1*
Nitrobenzene-d5 (Surr)	*85*		*35 - 100*	*02/03/14 10:01*	*02/04/14 19:54*	*1*
Phenol-d5 (Surr)	*81*		*40 - 100*	*02/03/14 10:01*	*02/04/14 19:54*	*1*
Terphenyl-d14 (Surr)	*74*		*30 - 125*	*02/03/14 10:01*	*02/04/14 19:54*	*1*
2-Fluorobiphenyl (Surr)	*88*		*45 - 105*	*02/03/14 10:01*	*02/04/14 19:54*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid
Percent Solids: 97.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Acenaphthylene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Anthracene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Benzo[a]anthracene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Benzo[b]fluoranthene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Benzo[k]fluoranthene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Benzo[g,h,i]perylene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Benzo[a]pyrene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Bis(2-chloroethoxy)methane	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Bis(2-chloroethyl)ether	ND		337	34.2	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Bis(2-ethylhexyl) phthalate	ND		337	46.3	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
4-Bromophenyl phenyl ether	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Butyl benzyl phthalate	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
4-Chloroaniline	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
4-Chloro-3-methylphenol	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2-Chloronaphthalene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2-Chlorophenol	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
4-Chlorophenyl phenyl ether	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Chrysene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Dibenz(a,h)anthracene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Dibenzofuran	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Di-n-butyl phthalate	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
1,2-Dichlorobenzene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
1,3-Dichlorobenzene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
1,4-Dichlorobenzene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
3,3'-Dichlorobenzidine	ND		1640	337	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2,4-Dichlorophenol	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Diethyl phthalate	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2,4-Dimethylphenol	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Dimethyl phthalate	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
4,6-Dinitro-2-methylphenol	ND		1640	337	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2,4-Dinitrophenol	ND		1640	337	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2,4-Dinitrotoluene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2,6-Dinitrotoluene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Di-n-octyl phthalate	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Fluoranthene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Fluorene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Hexachlorobenzene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Hexachlorobutadiene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Hexachlorocyclopentadiene	ND		1640	337	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Hexachloroethane	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Indeno[1,2,3-cd]pyrene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2-Methylphenol	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
3 & 4 Methylphenol	ND		675	68.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Naphthalene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2-Nitroaniline	ND		1640	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
3-Nitroaniline	ND		1640	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
4-Nitroaniline	ND		1640	337	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Nitrobenzene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid
Percent Solids: 97.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Nitrophenol	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
4-Nitrophenol	ND		1640	337	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
N-Nitrosodiphenylamine	**112**	**J**	337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
N-Nitrosodi-n-propylamine	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
bis (2-chloroisopropyl) ether	ND	*	337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Pentachlorophenol	ND		675	337	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Phenanthrene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Phenol	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Pyrene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
1,2,4-Trichlorobenzene	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2,4,5-Trichlorophenol	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
2,4,6-Trichlorophenol	ND		337	34.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1
Pyridine	ND		675	68.1	ug/Kg	☼	02/03/14 10:01	02/04/14 20:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*89*		*35 - 105*	*02/03/14 10:01*	*02/04/14 20:26*	*1*
2,4,6-Tribromophenol (Surr)	*78*		*35 - 125*	*02/03/14 10:01*	*02/04/14 20:26*	*1*
Nitrobenzene-d5 (Surr)	*90*		*35 - 100*	*02/03/14 10:01*	*02/04/14 20:26*	*1*
Phenol-d5 (Surr)	*88*		*40 - 100*	*02/03/14 10:01*	*02/04/14 20:26*	*1*
Terphenyl-d14 (Surr)	*79*		*30 - 125*	*02/03/14 10:01*	*02/04/14 20:26*	*1*
2-Fluorobiphenyl (Surr)	*89*		*45 - 105*	*02/03/14 10:01*	*02/04/14 20:26*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8015B GRO - Gasoline Range Organics (GRO)

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid
Percent Solids: 95.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	ND		0.0994	0.00994	mg/Kg	☼	01/30/14 12:52	02/08/14 18:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*90*		*44 - 147*	*01/30/14 12:52*	*02/08/14 18:05*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8015B GRO - Gasoline Range Organics (GRO)

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	0.0273	J	0.0907	0.00907	mg/Kg	☼	01/30/14 12:52	02/08/14 18:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*97*		*44 - 147*	*01/30/14 12:52*	*02/08/14 18:39*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8015B GRO - Gasoline Range Organics (GRO)

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid
Percent Solids: 94.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	ND		0.0999	0.00999	mg/Kg	☼	01/30/14 12:52	02/08/14 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*97*		*44 - 147*	*01/30/14 12:52*	*02/08/14 20:21*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8015B GRO - Gasoline Range Organics (GRO)

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid
Percent Solids: 97.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	0.234		0.101	0.0101	mg/Kg	☼	01/30/14 12:52	02/08/14 20:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*92*		*44 - 147*	*01/30/14 12:52*	*02/08/14 20:55*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8015B DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid
Percent Solids: 95.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel (C10-C28)	ND		25.9	0.346	mg/Kg	☼	02/03/14 10:29	02/07/14 17:05	1
Oil Range Organics (C28-C40)	**22.4**	**J**	25.9	0.661	mg/Kg	☼	02/03/14 10:29	02/11/14 13:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*88*		*49 - 133*	*02/03/14 10:29*	*02/07/14 17:05*	*1*
o-Terphenyl (Surr)	*84*		*49 - 133*	*02/03/14 10:29*	*02/11/14 13:21*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8015B DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid
Percent Solids: 94.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel (C10-C28)	ND		26.4	0.352	mg/Kg	☼	02/03/14 10:29	02/07/14 18:50	1
Oil Range Organics (C28-C40)	**15.4**	**J**	26.4	0.673	mg/Kg	☼	02/03/14 10:29	02/11/14 14:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*90*		*49 - 133*	*02/03/14 10:29*	*02/07/14 18:50*	*1*
o-Terphenyl (Surr)	*81*		*49 - 133*	*02/03/14 10:29*	*02/11/14 14:13*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8015B DRO - Diesel Range Organics (DRO) (GC)

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid
Percent Solids: 97.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil Range Organics (C28-C40)	93.5		25.6	0.651	mg/Kg	☼	02/03/14 10:29	02/11/14 14:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*92*		*49 - 133*	*02/03/14 10:29*	*02/11/14 14:40*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8015B DRO - Diesel Range Organics (DRO) (GC) - DL

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel (C10-C28)	ND		107	1.42	mg/Kg	☼	02/03/14 10:29	02/07/14 17:31	4
Oil Range Organics (C28-C40)	**66.7**	**J**	107	2.72	mg/Kg	☼	02/03/14 10:29	02/11/14 13:47	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*87*		*49 - 133*	*02/03/14 10:29*	*02/07/14 17:31*	*4*
o-Terphenyl (Surr)	*67*		*49 - 133*	*02/03/14 10:29*	*02/11/14 13:47*	*4*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8015B DRO - Diesel Range Organics (DRO) (GC) - DL

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid
Percent Solids: 97.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel (C10-C28)	497		128	1.70	mg/Kg	☼	02/03/14 10:29	02/10/14 12:00	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*96*		*49 - 133*	*02/03/14 10:29*	*02/10/14 12:00*	*5*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid
Percent Solids: 95.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.78	0.320	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
alpha-BHC	ND		1.78	0.193	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
beta-BHC	ND		1.78	0.313	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
delta-BHC	ND		1.78	0.253	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
gamma-BHC (Lindane)	ND		1.78	0.175	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
4,4'-DDD	ND		1.78	0.231	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
4,4'-DDE	ND		1.78	0.407	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
4,4'-DDT	ND		1.78	0.656	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Dieldrin	ND		1.78	0.224	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Endosulfan I	ND		1.78	0.595	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Endosulfan II	ND		1.78	0.245	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Endosulfan sulfate	ND		1.78	0.355	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Endrin	ND		1.78	0.165	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Endrin aldehyde	ND		1.78	0.406	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Endrin ketone	ND		1.78	0.435	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Heptachlor	ND		1.78	0.213	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Heptachlor epoxide	ND		1.78	0.448	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Methoxychlor	ND		3.45	0.751	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Toxaphene	ND		70.0	15.8	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1
Technical Chlordane	ND		17.8	3.89	ug/Kg	☼	02/03/14 11:31	02/05/14 18:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*81*		*55 - 130*	*02/03/14 11:31*	*02/05/14 18:42*	*1*
Tetrachloro-m-xylene	*94*		*70 - 125*	*02/03/14 11:31*	*02/05/14 18:42*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.81	0.326	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
alpha-BHC	ND		1.81	0.197	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
beta-BHC	ND		1.81	0.320	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
delta-BHC	ND		1.81	0.258	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
gamma-BHC (Lindane)	ND		1.81	0.179	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
4,4'-DDD	ND		1.81	0.236	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
4,4'-DDE	ND		1.81	0.416	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
4,4'-DDT	ND		1.81	0.669	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Dieldrin	ND		1.81	0.229	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Endosulfan I	ND		1.81	0.607	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Endosulfan II	ND		1.81	0.250	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Endosulfan sulfate	ND		1.81	0.362	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Endrin	ND		1.81	0.168	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Endrin aldehyde	ND		1.81	0.415	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Endrin ketone	ND		1.81	0.444	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Heptachlor	ND		1.81	0.217	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Heptachlor epoxide	ND		1.81	0.457	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Methoxychlor	ND		3.52	0.766	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Toxaphene	ND		71.4	16.2	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1
Technical Chlordane	ND		18.1	3.98	ug/Kg	☼	02/03/14 11:31	02/05/14 20:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*89*		*55 - 130*	*02/03/14 11:31*	*02/05/14 20:04*	*1*
Tetrachloro-m-xylene	*93*		*70 - 125*	*02/03/14 11:31*	*02/05/14 20:04*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid
Percent Solids: 94.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.80	0.324	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
alpha-BHC	ND		1.80	0.196	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
beta-BHC	ND		1.80	0.318	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
delta-BHC	ND		1.80	0.256	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
gamma-BHC (Lindane)	ND		1.80	0.178	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
4,4'-DDD	ND		1.80	0.234	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
4,4'-DDE	ND		1.80	0.413	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
4,4'-DDT	ND		1.80	0.665	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Dieldrin	ND		1.80	0.228	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Endosulfan I	ND		1.80	0.604	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Endosulfan II	ND		1.80	0.249	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Endosulfan sulfate	ND		1.80	0.360	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Endrin	ND		1.80	0.167	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Endrin aldehyde	ND		1.80	0.412	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Endrin ketone	ND		1.80	0.442	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Heptachlor	ND		1.80	0.216	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Heptachlor epoxide	ND		1.80	0.454	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Methoxychlor	ND		3.49	0.761	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Toxaphene	ND		70.9	16.1	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1
Technical Chlordane	ND		18.0	3.95	ug/Kg	☼	02/03/14 11:31	02/05/14 22:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*85*		*55 - 130*	*02/03/14 11:31*	*02/05/14 22:05*	*1*
Tetrachloro-m-xylene	*96*		*70 - 125*	*02/03/14 11:31*	*02/05/14 22:05*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid
Percent Solids: 97.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.73	0.312	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
alpha-BHC	ND		1.73	0.188	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
beta-BHC	ND		1.73	0.306	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
delta-BHC	ND		1.73	0.247	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
gamma-BHC (Lindane)	ND		1.73	0.171	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
4,4'-DDD	ND		1.73	0.225	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
4,4'-DDE	ND		1.73	0.397	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
4,4'-DDT	ND		1.73	0.640	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Dieldrin	ND		1.73	0.219	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Endosulfan I	ND		1.73	0.581	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Endosulfan II	ND		1.73	0.239	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Endosulfan sulfate	ND		1.73	0.346	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Endrin	ND		1.73	0.161	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Endrin aldehyde	ND		1.73	0.396	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Endrin ketone	ND		1.73	0.425	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Heptachlor	ND		1.73	0.208	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Heptachlor epoxide	ND		1.73	0.437	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Methoxychlor	ND		3.36	0.732	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Toxaphene	ND		68.2	15.4	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1
Technical Chlordane	ND		17.3	3.80	ug/Kg	☼	02/03/14 11:31	02/05/14 23:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*88*		*55 - 130*	*02/03/14 11:31*	*02/05/14 23:27*	*1*
Tetrachloro-m-xylene	*67*	*X*	*70 - 125*	*02/03/14 11:31*	*02/05/14 23:27*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid
Percent Solids: 95.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		34.5	9.11	ug/Kg	☼	02/03/14 11:01	02/04/14 14:32	1
Aroclor 1221	ND		34.5	9.11	ug/Kg	☼	02/03/14 11:01	02/04/14 14:32	1
Aroclor 1232	ND		34.5	9.11	ug/Kg	☼	02/03/14 11:01	02/04/14 14:32	1
Aroclor 1242	ND		34.5	9.11	ug/Kg	☼	02/03/14 11:01	02/04/14 14:32	1
Aroclor 1248	ND		34.5	9.11	ug/Kg	☼	02/03/14 11:01	02/04/14 14:32	1
Aroclor 1254	ND		34.5	5.75	ug/Kg	☼	02/03/14 11:01	02/04/14 14:32	1
Aroclor 1260	ND		34.5	5.75	ug/Kg	☼	02/03/14 11:01	02/04/14 14:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*105*		*60 - 125*	*02/03/14 11:01*	*02/04/14 14:32*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		35.1	9.28	ug/Kg	☼	02/03/14 11:01	02/04/14 14:48	1
Aroclor 1221	ND		35.1	9.28	ug/Kg	☼	02/03/14 11:01	02/04/14 14:48	1
Aroclor 1232	ND		35.1	9.28	ug/Kg	☼	02/03/14 11:01	02/04/14 14:48	1
Aroclor 1242	ND		35.1	9.28	ug/Kg	☼	02/03/14 11:01	02/04/14 14:48	1
Aroclor 1248	ND		35.1	9.28	ug/Kg	☼	02/03/14 11:01	02/04/14 14:48	1
Aroclor 1254	ND		35.1	5.85	ug/Kg	☼	02/03/14 11:01	02/04/14 14:48	1
Aroclor 1260	ND		35.1	5.85	ug/Kg	☼	02/03/14 11:01	02/04/14 14:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*100*		*60 - 125*	*02/03/14 11:01*	*02/04/14 14:48*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid
Percent Solids: 94.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		35.0	9.24	ug/Kg	☼	02/03/14 11:01	02/04/14 15:04	1
Aroclor 1221	ND		35.0	9.24	ug/Kg	☼	02/03/14 11:01	02/04/14 15:04	1
Aroclor 1232	ND		35.0	9.24	ug/Kg	☼	02/03/14 11:01	02/04/14 15:04	1
Aroclor 1242	ND		35.0	9.24	ug/Kg	☼	02/03/14 11:01	02/04/14 15:04	1
Aroclor 1248	ND		35.0	9.24	ug/Kg	☼	02/03/14 11:01	02/04/14 15:04	1
Aroclor 1254	ND		35.0	5.83	ug/Kg	☼	02/03/14 11:01	02/04/14 15:04	1
Aroclor 1260	ND		35.0	5.83	ug/Kg	☼	02/03/14 11:01	02/04/14 15:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*96*		*60 - 125*	*02/03/14 11:01*	*02/04/14 15:04*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid
Percent Solids: 97.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		33.5	8.85	ug/Kg	☼	02/03/14 11:01	02/04/14 15:51	1
Aroclor 1221	ND		33.5	8.85	ug/Kg	☼	02/03/14 11:01	02/04/14 15:51	1
Aroclor 1232	ND		33.5	8.85	ug/Kg	☼	02/03/14 11:01	02/04/14 15:51	1
Aroclor 1242	ND		33.5	8.85	ug/Kg	☼	02/03/14 11:01	02/04/14 15:51	1
Aroclor 1248	ND		33.5	8.85	ug/Kg	☼	02/03/14 11:01	02/04/14 15:51	1
Aroclor 1254	ND		33.5	5.58	ug/Kg	☼	02/03/14 11:01	02/04/14 15:51	1
Aroclor 1260	**9.13**	**J**	33.5	5.58	ug/Kg	☼	02/03/14 11:01	02/04/14 15:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*90*		*60 - 125*	*02/03/14 11:01*	*02/04/14 15:51*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid
Percent Solids: 95.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	0.536	J B	0.933	0.112	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Arsenic	2.73	J	4.66	1.21	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Barium	55.1		9.33	0.438	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Beryllium	0.202	J	0.466	0.121	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Cadmium	0.194	J	0.280	0.0746	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Cobalt	6.18		0.933	0.201	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Chromium	33.9		8.86	2.10	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Copper	11.0		4.66	0.471	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Lead	8.10		1.40	0.466	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Antimony	ND		2.33	0.765	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Molybdenum	ND		2.33	0.578	mg/Kg	☼	02/03/14 09:37	02/07/14 20:39	10
Nickel	36.1		2.33	0.499	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Selenium	1.29	J	2.33	0.737	mg/Kg	☼	02/03/14 09:37	02/07/14 20:39	10
Thallium	ND		2.10	0.709	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Vanadium	19.8		4.66	3.43	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10
Zinc	31.1		23.3	6.20	mg/Kg	☼	02/03/14 09:37	02/07/14 03:14	10

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	0.556	J B	1.05	0.126	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Arsenic	2.25	J	5.26	1.37	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Barium	48.1		10.5	0.494	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Beryllium	0.222	J	0.526	0.137	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Cadmium	0.136	J	0.315	0.0841	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Cobalt	7.99		1.05	0.226	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Chromium	41.5		9.99	2.36	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Copper	11.4		5.26	0.531	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Lead	4.66		1.58	0.526	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Antimony	2.88		2.63	0.862	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Molybdenum	ND		2.63	0.652	mg/Kg	☼	02/03/14 09:37	02/07/14 21:13	10
Nickel	45.4		2.63	0.562	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Selenium	0.974	J	2.63	0.830	mg/Kg	☼	02/03/14 09:37	02/07/14 21:13	10
Thallium	ND		2.36	0.799	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Vanadium	29.5		5.26	3.86	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10
Zinc	29.2		26.3	6.99	mg/Kg	☼	02/03/14 09:37	02/07/14 03:47	10

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid
Percent Solids: 94.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	**0.251**	**J B**	0.992	0.119	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Arsenic	**2.69**	**J**	4.96	1.29	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Barium	**55.7**		9.92	0.466	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Beryllium	**0.213**	**J**	0.496	0.129	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Cadmium	**0.0982**	**J**	0.297	0.0793	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Cobalt	**6.98**		0.992	0.213	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Chromium	**41.2**		9.42	2.23	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Copper	**10.0**		4.96	0.501	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Lead	**16.8**		1.49	0.496	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Antimony	ND		2.48	0.813	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Molybdenum	ND		2.48	0.615	mg/Kg	☼	02/03/14 09:37	02/07/14 21:20	10
Nickel	**37.2**		2.48	0.530	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Selenium	ND		2.48	0.783	mg/Kg	☼	02/03/14 09:37	02/07/14 21:20	10
Thallium	ND		2.23	0.754	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Vanadium	**28.4**		4.96	3.64	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10
Zinc	**28.4**		24.8	6.59	mg/Kg	☼	02/03/14 09:37	02/07/14 03:54	10

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 6020A - Metals (ICP/MS)

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid
Percent Solids: 97.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	ND		0.927	0.111	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Arsenic	**2.74**	**J**	4.63	1.20	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Barium	**73.4**		9.27	0.436	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Beryllium	**0.220**	**J**	0.463	0.120	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Cadmium	**0.130**	**J**	0.278	0.0741	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Cobalt	**8.47**		0.927	0.199	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Chromium	**43.4**		8.80	2.09	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Copper	**14.3**		4.63	0.468	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Lead	**13.5**		1.39	0.463	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Antimony	ND		2.32	0.760	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Molybdenum	ND		2.32	0.575	mg/Kg	☼	02/03/14 09:37	02/07/14 21:26	10
Nickel	**42.2**		2.32	0.496	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Selenium	ND		2.32	0.732	mg/Kg	☼	02/03/14 09:37	02/07/14 21:26	10
Thallium	ND		2.09	0.704	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Vanadium	**34.0**		4.63	3.41	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10
Zinc	**34.3**		23.2	6.16	mg/Kg	☼	02/03/14 09:37	02/07/14 04:01	10

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 7471B - Mercury (CVAA)

Client Sample ID: 05-007
Date Collected: 01/29/14 08:50
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-1
Matrix: Solid
Percent Solids: 95.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0284	J	0.0388	0.0107	mg/Kg	☼	02/03/14 08:36	02/03/14 16:01	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 7471B - Mercury (CVAA)

Client Sample ID: 05-008
Date Collected: 01/29/14 09:00
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0157	J	0.0382	0.0105	mg/Kg	☼	02/03/14 08:36	02/03/14 16:08	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 7471B - Mercury (CVAA)

Client Sample ID: 05-009
Date Collected: 01/29/14 09:10
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-3
Matrix: Solid
Percent Solids: 94.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0219	J	0.0403	0.0111	mg/Kg	☼	02/03/14 08:36	02/03/14 16:09	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 7471B - Mercury (CVAA)

Client Sample ID: 05-010
Date Collected: 01/29/14 09:15
Date Received: 01/30/14 09:30

Lab Sample ID: 160-5347-4
Matrix: Solid
Percent Solids: 97.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0248	J	0.0362	0.00995	mg/Kg	☼	02/03/14 08:36	02/03/14 16:11	1

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-102165/1-A
Matrix: Solid
Analysis Batch: 102675

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 102165

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		5.00	0.431	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
1,1,2,2-Tetrachloroethane	ND		5.00	0.401	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
1,1,2-Trichloroethane	ND		5.00	0.573	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
1,1-Dichloroethane	ND		5.00	0.392	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
1,1-Dichloroethene	ND		5.00	1.61	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
1,2-Dichloroethane	ND		5.00	0.867	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
1,2-Dichloropropane	ND		5.00	0.383	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
2-Butanone (MEK)	ND		20.0	1.92	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
2-Hexanone	ND		20.0	1.77	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
4-Methyl-2-pentanone	ND		20.0	0.732	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Acetone	ND		20.0	6.47	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Benzene	ND		5.00	0.253	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Bromoform	ND		5.00	0.366	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Bromomethane	ND		10.0	1.10	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Carbon tetrachloride	ND		5.00	0.513	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Chlorobenzene	ND		5.00	0.382	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Dibromochloromethane	ND		5.00	0.406	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Chloroethane	ND		10.0	0.516	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Chloroform	ND		5.00	0.376	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Chloromethane	ND		10.0	0.650	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
cis-1,2-Dichloroethene	ND		5.00	0.597	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
cis-1,3-Dichloropropene	ND		5.00	0.595	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Bromodichloromethane	ND		5.00	0.254	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Ethylbenzene	ND		5.00	0.299	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Methyl-tert-butyl Ether (MTBE)	ND		5.00	0.476	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Methylene Chloride	ND		10.0	1.58	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Styrene	ND		5.00	0.347	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Tetrachloroethene	ND		5.00	0.322	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Toluene	ND		5.00	0.700	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
trans-1,2-Dichloroethene	ND		5.00	0.943	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
trans-1,3-Dichloropropene	ND		5.00	0.349	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Trichloroethene	ND		5.00	0.385	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Vinyl chloride	ND		10.0	0.428	ug/Kg		01/30/14 12:38	01/31/14 12:13	1
Xylenes, Total	ND		10.0	0.854	ug/Kg		01/30/14 12:38	01/31/14 12:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*85 - 120*	*01/30/14 12:38*	*01/31/14 12:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 128*	*01/30/14 12:38*	*01/31/14 12:13*	*1*
Toluene-d8 (Surr)	*102*		*85 - 115*	*01/30/14 12:38*	*01/31/14 12:13*	*1*

Lab Sample ID: LCS 160-102165/2-A
Matrix: Solid
Analysis Batch: 102675

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 102165

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	50.0	52.69		ug/Kg		105	65 - 135
Benzene	50.0	51.77		ug/Kg		104	75 - 125
Chlorobenzene	50.0	49.92		ug/Kg		100	75 - 125

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-102165/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 102675 — **Prep Batch: 102165**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	50.0	51.11		ug/Kg		102	70 - 125
Trichloroethene	50.0	51.92		ug/Kg		104	75 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*85 - 120*
1,2-Dichloroethane-d4 (Surr)	*106*		*71 - 128*
Toluene-d8 (Surr)	*104*		*85 - 115*

Lab Sample ID: LCSD 160-102165/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 102675 — **Prep Batch: 102165**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	50.0	50.50		ug/Kg		101	65 - 135	4	30
Benzene	50.0	51.71		ug/Kg		103	75 - 125	0	30
Chlorobenzene	50.0	50.67		ug/Kg		101	75 - 125	1	30
Toluene	50.0	51.95		ug/Kg		104	70 - 125	2	30
Trichloroethene	50.0	51.35		ug/Kg		103	75 - 125	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*85 - 120*
1,2-Dichloroethane-d4 (Surr)	*108*		*71 - 128*
Toluene-d8 (Surr)	*106*		*85 - 115*

Lab Sample ID: 160-5347-1 MS — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 102675 — **Prep Batch: 102165**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethene	ND		54.4	55.64		ug/Kg	☼	102	65 - 135
Benzene	ND		54.4	55.23		ug/Kg	☼	102	75 - 125
Chlorobenzene	ND		54.4	55.08		ug/Kg	☼	101	75 - 125
Toluene	ND		54.4	56.91		ug/Kg	☼	105	70 - 125
Trichloroethene	ND		54.4	53.86		ug/Kg	☼	99	75 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*85 - 120*
1,2-Dichloroethane-d4 (Surr)	*106*		*71 - 128*
Toluene-d8 (Surr)	*105*		*85 - 115*

Lab Sample ID: 160-5347-1 MSD — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 102675 — **Prep Batch: 102165**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		52.5	55.50		ug/Kg	☼	106	65 - 135	0	30
Benzene	ND		52.5	57.49		ug/Kg	☼	110	75 - 125	4	30

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 160-5347-1 MSD — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 102675 — **Prep Batch: 102165**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chlorobenzene	ND		52.5	55.98		ug/Kg	☼	107	75 - 125	2	30
Toluene	ND		52.5	57.75		ug/Kg	☼	110	70 - 125	1	30
Trichloroethene	ND		52.5	55.95		ug/Kg	☼	107	75 - 125	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*114*		*85 - 120*
1,2-Dichloroethane-d4 (Surr)	*109*		*71 - 128*
Toluene-d8 (Surr)	*110*		*85 - 115*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 160-102694/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103317 — **Prep Batch: 102694**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Acenaphthylene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Anthracene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Benzo[a]anthracene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Benzo[b]fluoranthene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Benzo[k]fluoranthene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Benzo[g,h,i]perylene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Benzo[a]pyrene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Bis(2-chloroethoxy)methane	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Bis(2-chloroethyl)ether	ND		330	33.4	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Bis(2-ethylhexyl) phthalate	ND		330	45.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
4-Bromophenyl phenyl ether	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Butyl benzyl phthalate	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
4-Chloroaniline	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
4-Chloro-3-methylphenol	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2-Chloronaphthalene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2-Chlorophenol	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
4-Chlorophenyl phenyl ether	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Chrysene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Dibenz(a,h)anthracene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Dibenzofuran	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Di-n-butyl phthalate	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
1,2-Dichlorobenzene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
1,3-Dichlorobenzene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
1,4-Dichlorobenzene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
3,3'-Dichlorobenzidine	ND		1600	330	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2,4-Dichlorophenol	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Diethyl phthalate	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2,4-Dimethylphenol	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Dimethyl phthalate	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
4,6-Dinitro-2-methylphenol	ND		1600	330	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2,4-Dinitrophenol	ND		1600	330	ug/Kg		02/03/14 10:01	02/04/14 12:51	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 160-102694/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103317 — **Prep Batch: 102694**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2,6-Dinitrotoluene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Di-n-octyl phthalate	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Fluoranthene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Fluorene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Hexachlorobenzene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Hexachlorobutadiene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Hexachlorocyclopentadiene	ND		1600	330	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Hexachloroethane	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Indeno[1,2,3-cd]pyrene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2-Methylphenol	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
3 & 4 Methylphenol	ND		660	66.6	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Naphthalene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2-Nitroaniline	ND		1600	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
3-Nitroaniline	ND		1600	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
4-Nitroaniline	ND		1600	330	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Nitrobenzene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2-Nitrophenol	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
4-Nitrophenol	ND		1600	330	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
N-Nitrosodiphenylamine	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
N-Nitrosodi-n-propylamine	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
bis (2-chloroisopropyl) ether	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Pentachlorophenol	ND		660	330	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Phenanthrene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Phenol	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Pyrene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
1,2,4-Trichlorobenzene	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2,4,5-Trichlorophenol	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
2,4,6-Trichlorophenol	ND		330	33.3	ug/Kg		02/03/14 10:01	02/04/14 12:51	1
Pyridine	ND		660	66.6	ug/Kg		02/03/14 10:01	02/04/14 12:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*88*		*35 - 105*	*02/03/14 10:01*	*02/04/14 12:51*	*1*
2,4,6-Tribromophenol (Surr)	*80*		*35 - 125*	*02/03/14 10:01*	*02/04/14 12:51*	*1*
Nitrobenzene-d5 (Surr)	*87*		*35 - 100*	*02/03/14 10:01*	*02/04/14 12:51*	*1*
Phenol-d5 (Surr)	*87*		*40 - 100*	*02/03/14 10:01*	*02/04/14 12:51*	*1*
Terphenyl-d14 (Surr)	*69*		*30 - 125*	*02/03/14 10:01*	*02/04/14 12:51*	*1*
2-Fluorobiphenyl (Surr)	*88*		*45 - 105*	*02/03/14 10:01*	*02/04/14 12:51*	*1*

Lab Sample ID: LCS 160-102694/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103317 — **Prep Batch: 102694**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	3340	3020		ug/Kg		91	45 - 110
Acenaphthylene	3340	3041		ug/Kg		91	45 - 105
Anthracene	3340	2996		ug/Kg		90	55 - 105
Benzo[a]anthracene	3330	3174		ug/Kg		95	50 - 110

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-102694/2-A
Matrix: Solid
Analysis Batch: 103317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 102694

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzo[b]fluoranthene	3330	3065		ug/Kg		92	45 - 115
Benzo[k]fluoranthene	3340	2984		ug/Kg		89	45 - 125
Benzo[g,h,i]perylene	3340	3565		ug/Kg		107	40 - 125
Benzo[a]pyrene	3330	3115		ug/Kg		93	50 - 110
Bis(2-chloroethoxy)methane	3340	2816		ug/Kg		84	45 - 110
Bis(2-chloroethyl)ether	3330	2847		ug/Kg		85	40 - 105
Bis(2-ethylhexyl) phthalate	3340	3192		ug/Kg		96	45 - 125
4-Bromophenyl phenyl ether	3330	3278		ug/Kg		98	45 - 115
Butyl benzyl phthalate	3340	3295		ug/Kg		99	50 - 125
4-Chloroaniline	3330	1800		ug/Kg		54	28 - 80
4-Chloro-3-methylphenol	3340	2712		ug/Kg		81	45 - 115
2-Chloronaphthalene	3330	3075		ug/Kg		92	45 - 105
2-Chlorophenol	3330	2622		ug/Kg		79	45 - 105
4-Chlorophenyl phenyl ether	3340	2868		ug/Kg		86	45 - 110
Chrysene	3340	2944		ug/Kg		88	55 - 110
Dibenz(a,h)anthracene	3340	3395		ug/Kg		102	40 - 125
Dibenzofuran	3340	2723		ug/Kg		82	50 - 105
Di-n-butyl phthalate	3340	2947		ug/Kg		88	55 - 110
1,2-Dichlorobenzene	3330	2814		ug/Kg		84	45 - 95
1,3-Dichlorobenzene	3340	2700		ug/Kg		81	40 - 100
1,4-Dichlorobenzene	3340	2656		ug/Kg		80	35 - 105
3,3'-Dichlorobenzidine	3340	2261		ug/Kg		68	24 - 101
2,4-Dichlorophenol	3330	2622		ug/Kg		79	45 - 110
Diethyl phthalate	3330	2947		ug/Kg		88	50 - 115
2,4-Dimethylphenol	3330	2704		ug/Kg		81	30 - 105
Dimethyl phthalate	3340	2983		ug/Kg		89	50 - 110
4,6-Dinitro-2-methylphenol	3330	2637		ug/Kg		79	30 - 135
2,4-Dinitrophenol	3330	1558	J	ug/Kg		47	15 - 130
2,4-Dinitrotoluene	3340	3039		ug/Kg		91	50 - 115
2,6-Dinitrotoluene	3340	2984		ug/Kg		89	50 - 110
Di-n-octyl phthalate	3330	3032		ug/Kg		91	40 - 130
Fluoranthene	3330	2907		ug/Kg		87	55 - 115
Fluorene	3330	2907		ug/Kg		87	50 - 110
Hexachlorobenzene	3330	3271		ug/Kg		98	52 - 107
Hexachlorobutadiene	3330	2922		ug/Kg		88	40 - 115
Hexachlorocyclopentadiene	3340	3059		ug/Kg		92	38 - 107
Hexachloroethane	3330	2823		ug/Kg		85	35 - 110
Indeno[1,2,3-cd]pyrene	3330	3356		ug/Kg		101	40 - 120
2-Methylphenol	3340	2623		ug/Kg		79	40 - 105
3 & 4 Methylphenol	3330	3132		ug/Kg		94	40 - 105
Naphthalene	3340	2779		ug/Kg		83	40 - 105
2-Nitroaniline	3340	3023		ug/Kg		90	45 - 120
3-Nitroaniline	3330	2291		ug/Kg		69	25 - 110
4-Nitroaniline	3350	2472		ug/Kg		74	35 - 115
Nitrobenzene	3330	2962		ug/Kg		89	40 - 115
2-Nitrophenol	3340	2686		ug/Kg		80	40 - 110
4-Nitrophenol	3340	2682		ug/Kg		80	15 - 140
N-Nitrosodiphenylamine	3330	3780		ug/Kg		113	50 - 115

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 160-102694/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103317 — **Prep Batch: 102694**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
N-Nitrosodi-n-propylamine	3330	3046		ug/Kg		91	40 - 115
bis (2-chloroisopropyl) ether	3330	4024	*	ug/Kg		121	20 - 115
Pentachlorophenol	3340	2200		ug/Kg		66	25 - 120
Phenanthrene	3340	3106		ug/Kg		93	50 - 110
Phenol	3340	2603		ug/Kg		78	40 - 100
Pyrene	3330	3333		ug/Kg		100	45 - 125
1,2,4-Trichlorobenzene	3360	2838		ug/Kg		85	45 - 110
2,4,5-Trichlorophenol	3330	2734		ug/Kg		82	50 - 110
2,4,6-Trichlorophenol	3340	2727		ug/Kg		82	45 - 110

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*90*		*35 - 105*
2,4,6-Tribromophenol (Surr)	*85*		*35 - 125*
Nitrobenzene-d5 (Surr)	*90*		*35 - 100*
Phenol-d5 (Surr)	*86*		*40 - 100*
Terphenyl-d14 (Surr)	*87*		*30 - 125*
2-Fluorobiphenyl (Surr)	*92*		*45 - 105*

Lab Sample ID: 160-5347-1 MS — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103317 — **Prep Batch: 102694**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	ND		3490	3062		ug/Kg	☼	88	45 - 110
Acenaphthylene	ND		3490	3085		ug/Kg	☼	88	45 - 105
Anthracene	ND		3490	3055		ug/Kg	☼	87	55 - 105
Benzo[a]anthracene	ND		3490	3304		ug/Kg	☼	95	50 - 110
Benzo[b]fluoranthene	ND		3490	3061		ug/Kg	☼	88	45 - 115
Benzo[k]fluoranthene	ND		3490	2870		ug/Kg	☼	82	45 - 125
Benzo[g,h,i]perylene	ND		3490	3838		ug/Kg	☼	110	40 - 125
Benzo[a]pyrene	ND		3490	3163		ug/Kg	☼	91	50 - 110
Bis(2-chloroethoxy)methane	ND		3490	2752		ug/Kg	☼	79	45 - 110
Bis(2-chloroethyl)ether	ND		3490	2786		ug/Kg	☼	80	40 - 105
Bis(2-ethylhexyl) phthalate	ND		3490	3270		ug/Kg	☼	94	45 - 125
4-Bromophenyl phenyl ether	ND		3490	3393		ug/Kg	☼	97	45 - 115
Butyl benzyl phthalate	ND		3490	3364		ug/Kg	☼	96	50 - 125
4-Chloroaniline	ND		3490	1850		ug/Kg	☼	53	28 - 80
4-Chloro-3-methylphenol	ND		3490	2733		ug/Kg	☼	78	45 - 115
2-Chloronaphthalene	ND		3490	3107		ug/Kg	☼	89	45 - 105
2-Chlorophenol	ND		3490	2615		ug/Kg	☼	75	45 - 105
4-Chlorophenyl phenyl ether	ND		3490	2978		ug/Kg	☼	85	45 - 110
Chrysene	ND		3490	2985		ug/Kg	☼	86	55 - 110
Dibenz(a,h)anthracene	ND		3490	3713		ug/Kg	☼	106	40 - 125
Dibenzofuran	ND		3490	2795		ug/Kg	☼	80	50 - 105
Di-n-butyl phthalate	ND		3490	3008		ug/Kg	☼	86	55 - 110
1,2-Dichlorobenzene	ND		3490	2816		ug/Kg	☼	81	45 - 95
1,3-Dichlorobenzene	ND		3490	2668		ug/Kg	☼	76	40 - 100
1,4-Dichlorobenzene	ND		3490	2669		ug/Kg	☼	76	35 - 105

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 160-5347-1 MS
Matrix: Solid
Analysis Batch: 103317

Client Sample ID: 05-007
Prep Type: Total/NA
Prep Batch: 102694

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
3,3'-Dichlorobenzidine	ND		3490	2084		ug/Kg	☼	60	24 - 101
2,4-Dichlorophenol	ND		3490	2701		ug/Kg	☼	77	45 - 110
Diethyl phthalate	ND		3490	3056		ug/Kg	☼	88	50 - 115
2,4-Dimethylphenol	ND		3490	2721		ug/Kg	☼	78	30 - 105
Dimethyl phthalate	ND		3490	3092		ug/Kg	☼	89	50 - 110
4,6-Dinitro-2-methylphenol	ND		3490	2781		ug/Kg	☼	80	30 - 135
2,4-Dinitrophenol	ND		3490	1593	J	ug/Kg	☼	46	15 - 130
2,4-Dinitrotoluene	ND		3490	3110		ug/Kg	☼	89	50 - 115
2,6-Dinitrotoluene	ND		3490	3071		ug/Kg	☼	88	50 - 110
Di-n-octyl phthalate	ND		3490	3139		ug/Kg	☼	90	40 - 130
Fluoranthene	ND		3490	2988		ug/Kg	☼	86	55 - 115
Fluorene	ND		3490	2987		ug/Kg	☼	86	50 - 110
Hexachlorobenzene	ND		3490	3434		ug/Kg	☼	98	52 - 107
Hexachlorobutadiene	ND		3490	2983		ug/Kg	☼	86	40 - 115
Hexachlorocyclopentadiene	ND		3490	2847		ug/Kg	☼	82	38 - 107
Hexachloroethane	ND		3490	2741		ug/Kg	☼	79	35 - 110
Indeno[1,2,3-cd]pyrene	ND		3490	3625		ug/Kg	☼	104	40 - 120
2-Methylphenol	ND		3490	2596		ug/Kg	☼	74	40 - 105
3 & 4 Methylphenol	ND		3490	3093		ug/Kg	☼	89	40 - 105
Naphthalene	ND		3490	2802		ug/Kg	☼	80	40 - 105
2-Nitroaniline	ND		3500	2869		ug/Kg	☼	82	45 - 120
3-Nitroaniline	ND		3490	2452		ug/Kg	☼	70	25 - 110
4-Nitroaniline	ND		3500	2465		ug/Kg	☼	70	35 - 115
Nitrobenzene	ND		3490	2833		ug/Kg	☼	81	40 - 115
2-Nitrophenol	ND		3490	2672		ug/Kg	☼	76	40 - 110
4-Nitrophenol	ND		3490	2467		ug/Kg	☼	71	15 - 140
N-Nitrosodiphenylamine	ND		3490	3821		ug/Kg	☼	110	50 - 115
N-Nitrosodi-n-propylamine	ND		3490	2948		ug/Kg	☼	85	40 - 115
bis (2-chloroisopropyl) ether	ND	*	3490	3791		ug/Kg	☼	109	20 - 115
Pentachlorophenol	ND		3490	2280		ug/Kg	☼	65	25 - 120
Phenanthrene	ND		3490	3196		ug/Kg	☼	91	50 - 110
Phenol	ND		3490	2551		ug/Kg	☼	73	40 - 100
Pyrene	ND		3490	3474		ug/Kg	☼	100	45 - 125
1,2,4-Trichlorobenzene	ND		3510	2859		ug/Kg	☼	81	45 - 110
2,4,5-Trichlorophenol	ND		3490	2793		ug/Kg	☼	80	50 - 110
2,4,6-Trichlorophenol	ND		3490	2860		ug/Kg	☼	82	45 - 110

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*83*		*35 - 105*
2,4,6-Tribromophenol (Surr)	*87*		*35 - 125*
Nitrobenzene-d5 (Surr)	*84*		*35 - 100*
Phenol-d5 (Surr)	*80*		*40 - 100*
Terphenyl-d14 (Surr)	*67*		*30 - 125*
2-Fluorobiphenyl (Surr)	*90*		*45 - 105*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 160-5347-1 MSD
Matrix: Solid
Analysis Batch: 103317

Client Sample ID: 05-007
Prep Type: Total/NA
Prep Batch: 102694

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	ND		3480	2979		ug/Kg	☼	86	45 - 110	3	30
Acenaphthylene	ND		3480	3011		ug/Kg	☼	87	45 - 105	2	30
Anthracene	ND		3480	2911		ug/Kg	☼	84	55 - 105	5	30
Benzo[a]anthracene	ND		3480	3131		ug/Kg	☼	90	50 - 110	5	30
Benzo[b]fluoranthene	ND		3480	2906		ug/Kg	☼	84	45 - 115	5	30
Benzo[k]fluoranthene	ND		3480	2847		ug/Kg	☼	82	45 - 125	1	30
Benzo[g,h,i]perylene	ND		3480	3765		ug/Kg	☼	108	40 - 125	2	30
Benzo[a]pyrene	ND		3480	3039		ug/Kg	☼	87	50 - 110	4	30
Bis(2-chloroethoxy)methane	ND		3480	2732		ug/Kg	☼	78	45 - 110	1	30
Bis(2-chloroethyl)ether	ND		3480	2731		ug/Kg	☼	79	40 - 105	2	30
Bis(2-ethylhexyl) phthalate	ND		3480	3070		ug/Kg	☼	88	45 - 125	6	30
4-Bromophenyl phenyl ether	ND		3480	3330		ug/Kg	☼	96	45 - 115	2	30
Butyl benzyl phthalate	ND		3480	3149		ug/Kg	☼	91	50 - 125	7	30
4-Chloroaniline	ND		3480	1837		ug/Kg	☼	53	28 - 80	1	30
4-Chloro-3-methylphenol	ND		3480	2638		ug/Kg	☼	76	45 - 115	4	30
2-Chloronaphthalene	ND		3480	3011		ug/Kg	☼	87	45 - 105	3	30
2-Chlorophenol	ND		3480	2590		ug/Kg	☼	75	45 - 105	1	30
4-Chlorophenyl phenyl ether	ND		3480	2880		ug/Kg	☼	83	45 - 110	3	30
Chrysene	ND		3480	2866		ug/Kg	☼	82	55 - 110	4	30
Dibenz(a,h)anthracene	ND		3480	3665		ug/Kg	☼	105	40 - 125	1	30
Dibenzofuran	ND		3480	2722		ug/Kg	☼	78	50 - 105	3	30
Di-n-butyl phthalate	ND		3480	2842		ug/Kg	☼	82	55 - 110	6	30
1,2-Dichlorobenzene	ND		3480	2772		ug/Kg	☼	80	45 - 95	2	30
1,3-Dichlorobenzene	ND		3480	2651		ug/Kg	☼	76	40 - 100	1	30
1,4-Dichlorobenzene	ND		3480	2614		ug/Kg	☼	75	35 - 105	2	30
3,3'-Dichlorobenzidine	ND		3480	2023		ug/Kg	☼	58	24 - 101	3	30
2,4-Dichlorophenol	ND		3480	2683		ug/Kg	☼	77	45 - 110	1	30
Diethyl phthalate	ND		3480	2896		ug/Kg	☼	83	50 - 115	5	30
2,4-Dimethylphenol	ND		3480	2701		ug/Kg	☼	78	30 - 105	1	30
Dimethyl phthalate	ND		3480	2960		ug/Kg	☼	85	50 - 110	4	30
4,6-Dinitro-2-methylphenol	ND		3480	2580		ug/Kg	☼	74	30 - 135	7	30
2,4-Dinitrophenol	ND		3480	1837		ug/Kg	☼	53	15 - 130	14	30
2,4-Dinitrotoluene	ND		3480	2944		ug/Kg	☼	85	50 - 115	5	30
2,6-Dinitrotoluene	ND		3480	2963		ug/Kg	☼	85	50 - 110	4	30
Di-n-octyl phthalate	ND		3480	2974		ug/Kg	☼	86	40 - 130	5	30
Fluoranthene	ND		3480	2813		ug/Kg	☼	81	55 - 115	6	30
Fluorene	ND		3480	2892		ug/Kg	☼	83	50 - 110	3	30
Hexachlorobenzene	ND		3480	3328		ug/Kg	☼	96	52 - 107	3	30
Hexachlorobutadiene	ND		3480	2983		ug/Kg	☼	86	40 - 115	0	30
Hexachlorocyclopentadiene	ND		3480	2799		ug/Kg	☼	80	38 - 107	2	30
Hexachloroethane	ND		3480	2691		ug/Kg	☼	77	35 - 110	2	30
Indeno[1,2,3-cd]pyrene	ND		3480	3555		ug/Kg	☼	102	40 - 120	2	30
2-Methylphenol	ND		3480	2577		ug/Kg	☼	74	40 - 105	1	30
3 & 4 Methylphenol	ND		3480	3019		ug/Kg	☼	87	40 - 105	2	30
Naphthalene	ND		3480	2781		ug/Kg	☼	80	40 - 105	1	30
2-Nitroaniline	ND		3490	2713		ug/Kg	☼	78	45 - 120	6	30
3-Nitroaniline	ND		3480	2268		ug/Kg	☼	65	25 - 110	8	30
4-Nitroaniline	ND		3490	2310		ug/Kg	☼	66	35 - 115	6	30

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 160-5347-1 MSD — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103317 — **Prep Batch: 102694**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrobenzene	ND		3480	2806		ug/Kg	☼	81	40 - 115	1	30
2-Nitrophenol	ND		3480	2681		ug/Kg	☼	77	40 - 110	0	30
4-Nitrophenol	ND		3480	2166		ug/Kg	☼	62	15 - 140	13	30
N-Nitrosodiphenylamine	ND		3480	3710		ug/Kg	☼	107	50 - 115	3	30
N-Nitrosodi-n-propylamine	ND		3480	2879		ug/Kg	☼	83	40 - 115	2	30
bis (2-chloroisopropyl) ether	ND	*	3480	3650		ug/Kg	☼	105	20 - 115	4	30
Pentachlorophenol	ND		3480	2090		ug/Kg	☼	60	25 - 120	9	30
Phenanthrene	ND		3480	3045		ug/Kg	☼	87	50 - 110	5	30
Phenol	ND		3480	2498		ug/Kg	☼	72	40 - 100	2	30
Pyrene	ND		3480	3281		ug/Kg	☼	94	45 - 125	6	30
1,2,4-Trichlorobenzene	ND		3500	2847		ug/Kg	☼	81	45 - 110	0	30
2,4,5-Trichlorophenol	ND		3480	2614		ug/Kg	☼	75	50 - 110	7	30
2,4,6-Trichlorophenol	ND		3480	2740		ug/Kg	☼	79	45 - 110	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorophenol (Surr)	*82*		*35 - 105*
2,4,6-Tribromophenol (Surr)	*83*		*35 - 125*
Nitrobenzene-d5 (Surr)	*82*		*35 - 100*
Phenol-d5 (Surr)	*79*		*40 - 100*
Terphenyl-d14 (Surr)	*64*		*30 - 125*
2-Fluorobiphenyl (Surr)	*87*		*45 - 105*

Method: 8015B GRO - Gasoline Range Organics (GRO)

Lab Sample ID: MB 160-102175/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103873 — **Prep Batch: 102175**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	ND		0.100	0.0100	mg/Kg		01/30/14 12:52	02/08/14 16:57	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*105*		*44 - 147*	*01/30/14 12:52*	*02/08/14 16:57*	*1*

Lab Sample ID: LCS 160-102175/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103873 — **Prep Batch: 102175**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (C6-C12)	1.00	0.9959		mg/Kg		100	82 - 118

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*95*		*44 - 147*

Method: 8015B GRO - Gasoline Range Organics (GRO) (Continued)

Lab Sample ID: 160-5347-2 MS — **Client Sample ID: 05-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103873 — **Prep Batch: 102175**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (C6-C12)	0.0273	J	1.03	0.8580		mg/Kg	☼	81	22 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Trifluorotoluene (Surr)	*96*		*44 - 147*

Lab Sample ID: 160-5347-2 MSD — **Client Sample ID: 05-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103873 — **Prep Batch: 102175**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (C6-C12)	0.0273	J	0.917	0.6919		mg/Kg	☼	72	22 - 130	21	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Trifluorotoluene (Surr)	*95*		*44 - 147*

Method: 8015B DRO - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 160-102708/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103875 — **Prep Batch: 102708**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel (C10-C28)	ND		25.0	0.333	mg/Kg		02/03/14 10:29	02/07/14 16:13	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*75*		*49 - 133*	*02/03/14 10:29*	*02/07/14 16:13*	*1*

Lab Sample ID: MB 160-102708/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 104244 — **Prep Batch: 102708**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Oil Range Organics (C28-C40)	ND		25.0	0.637	mg/Kg		02/03/14 10:29	02/11/14 12:55	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*68*		*49 - 133*	*02/03/14 10:29*	*02/11/14 12:55*	*1*

Lab Sample ID: LCS 160-102708/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103875 — **Prep Batch: 102708**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel (C10-C28)	83.3	66.91		mg/Kg		80	57 - 105

Method: 8015B DRO - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 160-102708/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103875 — **Prep Batch: 102708**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl (Surr)	82		49 - 133

Method: 8015B DRO - Diesel Range Organics (DRO) (GC) - DL

Lab Sample ID: 160-5347-2 MS — **Client Sample ID: 05-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103875 — **Prep Batch: 102708**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel (C10-C28) - DL	ND		88.3	77.53	J	mg/Kg	☼	88	34 - 150

Surrogate	MS %Recovery	MS Qualifier	Limits
o-Terphenyl (Surr) - DL	85		49 - 133

Lab Sample ID: 160-5347-2 MSD — **Client Sample ID: 05-008**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103875 — **Prep Batch: 102708**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel (C10-C28) - DL	ND		89.0	75.81	J	mg/Kg	☼	85	34 - 150	2	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl (Surr) - DL	87		49 - 133

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 160-102819/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103300 — **Prep Batch: 102819**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	ND		1.70	0.306	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
alpha-BHC	ND		1.70	0.185	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
beta-BHC	ND		1.70	0.300	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
delta-BHC	ND		1.70	0.242	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
gamma-BHC (Lindane)	ND		1.70	0.168	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
4,4'-DDD	ND		1.70	0.221	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
4,4'-DDE	ND		1.70	0.390	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
4,4'-DDT	ND		1.70	0.628	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Dieldrin	ND		1.70	0.215	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Endosulfan I	ND		1.70	0.570	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Endosulfan II	ND		1.70	0.235	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Endosulfan sulfate	ND		1.70	0.340	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Endrin	ND		1.70	0.158	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Endrin aldehyde	ND		1.70	0.389	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Endrin ketone	ND		1.70	0.417	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Heptachlor	ND		1.70	0.204	ug/Kg		02/03/14 11:31	02/05/14 16:20	1

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 160-102819/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103300 — **Prep Batch: 102819**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Heptachlor epoxide	ND		1.70	0.429	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Methoxychlor	ND		3.30	0.719	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Toxaphene	ND		67.0	15.2	ug/Kg		02/03/14 11:31	02/05/14 16:20	1
Technical Chlordane	ND		17.0	3.73	ug/Kg		02/03/14 11:31	02/05/14 16:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*108*		*55 - 130*	*02/03/14 11:31*	*02/05/14 16:20*	*1*
Tetrachloro-m-xylene	*98*		*70 - 125*	*02/03/14 11:31*	*02/05/14 16:20*	*1*

Lab Sample ID: LCS 160-102819/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103300 — **Prep Batch: 102819**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	16.7	16.30		ug/Kg		98	45 - 140
alpha-BHC	16.7	16.22		ug/Kg		97	60 - 125
beta-BHC	16.7	15.65		ug/Kg		94	60 - 125
gamma-BHC (Lindane)	16.7	15.76		ug/Kg		94	60 - 125
4,4'-DDD	16.7	18.66		ug/Kg		112	30 - 135
4,4'-DDE	16.7	17.62		ug/Kg		106	70 - 125
4,4'-DDT	16.7	22.37		ug/Kg		134	45 - 140
Dieldrin	16.7	16.99		ug/Kg		102	65 - 125
Endosulfan I	16.7	12.55		ug/Kg		75	15 - 135
Endosulfan II	16.7	13.83		ug/Kg		83	35 - 140
Endosulfan sulfate	16.7	17.71		ug/Kg		106	60 - 135
Endrin	16.7	17.92		ug/Kg		107	60 - 135
Endrin aldehyde	16.7	16.02		ug/Kg		96	35 - 145
Endrin ketone	16.7	17.71		ug/Kg		106	65 - 135
Heptachlor	16.7	14.98		ug/Kg		90	50 - 140
Heptachlor epoxide	16.7	17.34		ug/Kg		104	65 - 130
Methoxychlor	16.7	21.92		ug/Kg		132	55 - 145

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*106*		*55 - 130*
Tetrachloro-m-xylene	*101*		*70 - 125*

Lab Sample ID: 160-5347-4 MS — **Client Sample ID: 05-010**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103300 — **Prep Batch: 102819**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	ND		16.9	15.16		ug/Kg	☼	90	45 - 140
alpha-BHC	ND		16.9	14.26		ug/Kg	☼	84	60 - 125
beta-BHC	ND		16.9	12.07		ug/Kg	☼	71	60 - 125
gamma-BHC (Lindane)	ND		17.0	13.75		ug/Kg	☼	81	60 - 125
4,4'-DDD	ND		16.9	16.08		ug/Kg	☼	95	30 - 135
4,4'-DDE	ND		17.0	14.92		ug/Kg	☼	88	70 - 125
4,4'-DDT	ND		16.9	19.22		ug/Kg	☼	113	45 - 140

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 160-5347-4 MS — **Client Sample ID: 05-010**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103300 — **Prep Batch: 102819**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dieldrin	ND		17.0	15.33		ug/Kg	☼	90	65 - 125
Endosulfan I	ND		16.9	10.54		ug/Kg	☼	62	15 - 135
Endosulfan II	ND		16.9	11.96		ug/Kg	☼	71	35 - 140
Endosulfan sulfate	ND		16.9	15.01		ug/Kg	☼	89	60 - 135
Endrin	ND		17.0	15.88		ug/Kg	☼	94	60 - 135
Endrin aldehyde	ND		16.9	13.46		ug/Kg	☼	79	35 - 145
Endrin ketone	ND		17.0	14.17		ug/Kg	☼	84	65 - 135
Heptachlor	ND		16.9	13.96		ug/Kg	☼	82	50 - 140
Heptachlor epoxide	ND		16.9	18.89		ug/Kg	☼	112	65 - 130
Methoxychlor	ND		16.9	17.75		ug/Kg	☼	105	55 - 145

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*81*		*55 - 130*
Tetrachloro-m-xylene	*72*		*70 - 125*

Lab Sample ID: 160-5347-4 MSD — **Client Sample ID: 05-010**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103300 — **Prep Batch: 102819**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	ND		17.0	14.96		ug/Kg	☼	88	45 - 140	1	30
alpha-BHC	ND		17.0	13.94		ug/Kg	☼	82	60 - 125	2	30
beta-BHC	ND		17.0	10.53		ug/Kg	☼	62	60 - 125	14	30
gamma-BHC (Lindane)	ND		17.0	13.98		ug/Kg	☼	82	60 - 125	2	30
4,4'-DDD	ND		17.0	16.22		ug/Kg	☼	95	30 - 135	1	30
4,4'-DDE	ND		17.0	15.01		ug/Kg	☼	88	70 - 125	1	30
4,4'-DDT	ND		17.0	20.02		ug/Kg	☼	118	45 - 140	4	30
Dieldrin	ND		17.0	15.46		ug/Kg	☼	91	65 - 125	1	30
Endosulfan I	ND		17.0	10.49		ug/Kg	☼	62	15 - 135	1	30
Endosulfan II	ND		17.0	11.73		ug/Kg	☼	69	35 - 140	2	30
Endosulfan sulfate	ND		17.0	15.59		ug/Kg	☼	92	60 - 135	4	30
Endrin	ND		17.0	15.97		ug/Kg	☼	94	60 - 135	1	30
Endrin aldehyde	ND		17.0	13.67		ug/Kg	☼	80	35 - 145	2	30
Endrin ketone	ND		17.1	14.91		ug/Kg	☼	87	65 - 135	5	30
Heptachlor	ND		17.0	13.72		ug/Kg	☼	81	50 - 140	2	30
Heptachlor epoxide	ND		17.0	18.09		ug/Kg	☼	106	65 - 130	4	30
Methoxychlor	ND		17.0	18.63		ug/Kg	☼	109	55 - 145	5	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*87*		*55 - 130*
Tetrachloro-m-xylene	*68*	*X*	*70 - 125*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 160-102721/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103129 — **Prep Batch: 102721**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	ND		33.0	8.72	ug/Kg		02/03/14 11:01	02/04/14 14:00	1
Aroclor 1221	ND		33.0	8.72	ug/Kg		02/03/14 11:01	02/04/14 14:00	1
Aroclor 1232	ND		33.0	8.72	ug/Kg		02/03/14 11:01	02/04/14 14:00	1
Aroclor 1242	ND		33.0	8.72	ug/Kg		02/03/14 11:01	02/04/14 14:00	1
Aroclor 1248	ND		33.0	8.72	ug/Kg		02/03/14 11:01	02/04/14 14:00	1
Aroclor 1254	ND		33.0	5.50	ug/Kg		02/03/14 11:01	02/04/14 14:00	1
Aroclor 1260	ND		33.0	5.50	ug/Kg		02/03/14 11:01	02/04/14 14:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*112*		*60 - 125*	*02/03/14 11:01*	*02/04/14 14:00*	*1*

Lab Sample ID: LCS 160-102721/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103129 — **Prep Batch: 102721**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor 1016			167	166.4		ug/Kg		100	40 - 140		
Aroclor 1260			167	179.2		ug/Kg		108	60 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*111*		*60 - 125*

Lab Sample ID: 160-5347-3 MS — **Client Sample ID: 05-009**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103129 — **Prep Batch: 102721**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor 1016	ND		177	162.5		ug/Kg	☼	92	40 - 140		
Aroclor 1260	ND		177	176.8		ug/Kg	☼	100	60 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*103*		*60 - 125*

Lab Sample ID: 160-5347-3 MSD — **Client Sample ID: 05-009**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103129 — **Prep Batch: 102721**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor 1016	ND		176	168.2		ug/Kg	☼	95	40 - 140	3	30
Aroclor 1260	ND		176	167.5		ug/Kg	☼	95	60 - 130	5	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*95*		*60 - 125*

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-102688/1-A
Matrix: Solid
Analysis Batch: 103756

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 102688

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	0.08763	J	0.194	0.0233	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Arsenic	ND		0.969	0.252	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Barium	ND		1.94	0.0911	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Beryllium	ND		0.0969	0.0252	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Cadmium	ND		0.0582	0.0155	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Cobalt	ND		0.194	0.0417	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Chromium	ND		1.84	0.436	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Copper	ND		0.969	0.0979	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Lead	ND		0.291	0.0969	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Antimony	ND		0.485	0.159	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Nickel	ND		0.485	0.104	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Thallium	ND		0.436	0.147	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Vanadium	ND		0.969	0.712	mg/Kg		02/03/14 09:37	02/07/14 03:00	2
Zinc	ND		4.85	1.29	mg/Kg		02/03/14 09:37	02/07/14 03:00	2

Lab Sample ID: MB 160-102688/1-A
Matrix: Solid
Analysis Batch: 103863

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 102688

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	ND		0.485	0.120	mg/Kg		02/03/14 09:37	02/07/14 20:26	2
Selenium	ND		0.485	0.153	mg/Kg		02/03/14 09:37	02/07/14 20:26	2

Lab Sample ID: LCS 160-102688/2-A
Matrix: Solid
Analysis Batch: 103756

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 102688

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	19.1	19.04		mg/Kg		100	80 - 120
Arsenic	95.4	90.82		mg/Kg		95	80 - 120
Barium	95.4	91.64		mg/Kg		96	80 - 120
Beryllium	95.4	102.3		mg/Kg		107	80 - 120
Cadmium	95.4	93.02		mg/Kg		97	80 - 120
Cobalt	95.4	93.83		mg/Kg		98	80 - 120
Chromium	95.4	93.64		mg/Kg		98	80 - 120
Copper	95.4	92.65		mg/Kg		97	80 - 120
Lead	95.4	94.50		mg/Kg		99	80 - 120
Antimony	47.7	46.81		mg/Kg		98	80 - 120
Nickel	95.4	94.63		mg/Kg		99	80 - 120
Thallium	19.1	19.11		mg/Kg		100	80 - 120
Vanadium	95.4	94.53		mg/Kg		99	80 - 120
Zinc	95.4	93.09		mg/Kg		98	80 - 120

Lab Sample ID: LCS 160-102688/2-A
Matrix: Solid
Analysis Batch: 103863

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 102688

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	47.7	50.06		mg/Kg		105	80 - 120

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 160-102688/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103863 — **Prep Batch: 102688**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	47.7	44.49		mg/Kg		93	80 - 120

Lab Sample ID: 160-5347-1 MS — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103756 — **Prep Batch: 102688**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	0.536	J B	19.0	18.86		mg/Kg	☼	97	80 - 120
Arsenic	2.73	J	94.9	101.1		mg/Kg	☼	104	80 - 120
Barium	55.1		94.9	161.5		mg/Kg	☼	112	80 - 120
Beryllium	0.202	J	94.9	94.99		mg/Kg	☼	100	80 - 120
Cadmium	0.194	J	94.9	94.51		mg/Kg	☼	99	80 - 120
Cobalt	6.18		94.9	108.2		mg/Kg	☼	107	80 - 120
Chromium	33.9		94.9	135.8		mg/Kg	☼	107	80 - 120
Copper	11.0		94.9	115.9		mg/Kg	☼	110	80 - 120
Lead	8.10		94.9	104.8		mg/Kg	☼	102	80 - 120
Antimony	ND		47.5	25.66	F1	mg/Kg	☼	54	80 - 120
Nickel	36.1		94.9	145.1		mg/Kg	☼	115	80 - 120
Thallium	ND		19.0	19.20		mg/Kg	☼	101	80 - 120
Vanadium	19.8		94.9	123.5		mg/Kg	☼	109	80 - 120
Zinc	31.1		94.9	136.9		mg/Kg	☼	111	80 - 120

Lab Sample ID: 160-5347-1 MS — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103863 — **Prep Batch: 102688**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	ND		47.5	48.66		mg/Kg	☼	102	80 - 120
Selenium	1.29	J	47.5	48.73		mg/Kg	☼	100	80 - 120

Lab Sample ID: 160-5347-1 MSD — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103756 — **Prep Batch: 102688**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Silver	0.536	J B	19.5	19.44		mg/Kg	☼	97	80 - 120	3	20
Arsenic	2.73	J	97.3	97.35		mg/Kg	☼	97	80 - 120	4	20
Barium	55.1		97.3	155.8		mg/Kg	☼	104	80 - 120	4	20
Beryllium	0.202	J	97.3	100.4		mg/Kg	☼	103	80 - 120	6	20
Cadmium	0.194	J	97.3	96.73		mg/Kg	☼	99	80 - 120	2	20
Cobalt	6.18		97.3	106.3		mg/Kg	☼	103	80 - 120	2	20
Chromium	33.9		97.3	134.7		mg/Kg	☼	104	80 - 120	1	20
Copper	11.0		97.3	114.1		mg/Kg	☼	106	80 - 120	2	20
Lead	8.10		97.3	106.0		mg/Kg	☼	101	80 - 120	1	20
Antimony	ND		48.6	27.08	F1	mg/Kg	☼	56	80 - 120	5	20
Nickel	36.1		97.3	143.0		mg/Kg	☼	110	80 - 120	2	20
Thallium	ND		19.5	19.62		mg/Kg	☼	101	80 - 120	2	20
Vanadium	19.8		97.3	119.8		mg/Kg	☼	103	80 - 120	3	20
Zinc	31.1		97.3	132.5		mg/Kg	☼	104	80 - 120	3	20

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: 160-5347-1 MSD — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103863 — **Prep Batch: 102688**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Molybdenum	ND		48.6	51.08		mg/Kg	☼	105	80 - 120	5	20
Selenium	1.29	J	48.6	49.86		mg/Kg	☼	100	80 - 120	2	20

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 160-102680/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103414 — **Prep Batch: 102680**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.0359	0.00988	mg/Kg		02/03/14 08:36	02/03/14 15:54	1

Lab Sample ID: LCS 160-102680/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103414 — **Prep Batch: 102680**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.761	0.7683		mg/Kg		101	80 - 120

Lab Sample ID: 160-5347-1 MS — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103414 — **Prep Batch: 102680**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.0284	J	0.829	0.8695		mg/Kg	☼	102	80 - 120

Lab Sample ID: 160-5347-1 MSD — **Client Sample ID: 05-007**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 103414 — **Prep Batch: 102680**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.0284	J	0.772	0.7857		mg/Kg	☼	98	80 - 120	10	20

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

GC/MS VOA

Prep Batch: 102165

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	5035	
160-5347-1 MS	05-007	Total/NA	Solid	5035	
160-5347-1 MSD	05-007	Total/NA	Solid	5035	
160-5347-2	05-008	Total/NA	Solid	5035	
160-5347-3	05-009	Total/NA	Solid	5035	
160-5347-4	05-010	Total/NA	Solid	5035	
LCS 160-102165/2-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 160-102165/3-A	Lab Control Sample Dup	Total/NA	Solid	5035	
MB 160-102165/1-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 102675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	8260C	102165
160-5347-1 MS	05-007	Total/NA	Solid	8260C	102165
160-5347-1 MSD	05-007	Total/NA	Solid	8260C	102165
160-5347-2	05-008	Total/NA	Solid	8260C	102165
160-5347-3	05-009	Total/NA	Solid	8260C	102165
160-5347-4	05-010	Total/NA	Solid	8260C	102165
LCS 160-102165/2-A	Lab Control Sample	Total/NA	Solid	8260C	102165
LCSD 160-102165/3-A	Lab Control Sample Dup	Total/NA	Solid	8260C	102165
MB 160-102165/1-A	Method Blank	Total/NA	Solid	8260C	102165

GC/MS Semi VOA

Prep Batch: 102694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	3550C	
160-5347-1 MS	05-007	Total/NA	Solid	3550C	
160-5347-1 MSD	05-007	Total/NA	Solid	3550C	
160-5347-2	05-008	Total/NA	Solid	3550C	
160-5347-3	05-009	Total/NA	Solid	3550C	
160-5347-4	05-010	Total/NA	Solid	3550C	
LCS 160-102694/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 160-102694/1-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 103317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	8270D	102694
160-5347-1 MS	05-007	Total/NA	Solid	8270D	102694
160-5347-1 MSD	05-007	Total/NA	Solid	8270D	102694
160-5347-2	05-008	Total/NA	Solid	8270D	102694
160-5347-3	05-009	Total/NA	Solid	8270D	102694
160-5347-4	05-010	Total/NA	Solid	8270D	102694
LCS 160-102694/2-A	Lab Control Sample	Total/NA	Solid	8270D	102694
MB 160-102694/1-A	Method Blank	Total/NA	Solid	8270D	102694

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

GC VOA

Prep Batch: 102175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	5035	
160-5347-2	05-008	Total/NA	Solid	5035	
160-5347-2 MS	05-008	Total/NA	Solid	5035	
160-5347-2 MSD	05-008	Total/NA	Solid	5035	
160-5347-3	05-009	Total/NA	Solid	5035	
160-5347-4	05-010	Total/NA	Solid	5035	
LCS 160-102175/2-A	Lab Control Sample	Total/NA	Solid	5035	
MB 160-102175/1-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 103873

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	8015B GRO	102175
160-5347-2	05-008	Total/NA	Solid	8015B GRO	102175
160-5347-2 MS	05-008	Total/NA	Solid	8015B GRO	102175
160-5347-2 MSD	05-008	Total/NA	Solid	8015B GRO	102175
160-5347-3	05-009	Total/NA	Solid	8015B GRO	102175
160-5347-4	05-010	Total/NA	Solid	8015B GRO	102175
LCS 160-102175/2-A	Lab Control Sample	Total/NA	Solid	8015B GRO	102175
MB 160-102175/1-A	Method Blank	Total/NA	Solid	8015B GRO	102175

GC Semi VOA

Prep Batch: 102708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	3550C	
160-5347-2 - DL	05-008	Total/NA	Solid	3550C	
160-5347-2 MS - DL	05-008	Total/NA	Solid	3550C	
160-5347-2 MSD - DL	05-008	Total/NA	Solid	3550C	
160-5347-3	05-009	Total/NA	Solid	3550C	
160-5347-4	05-010	Total/NA	Solid	3550C	
160-5347-4 - DL	05-010	Total/NA	Solid	3550C	
LCS 160-102708/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 160-102708/1-A	Method Blank	Total/NA	Solid	3550C	

Prep Batch: 102721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	3550C	
160-5347-2	05-008	Total/NA	Solid	3550C	
160-5347-3	05-009	Total/NA	Solid	3550C	
160-5347-3 MS	05-009	Total/NA	Solid	3550C	
160-5347-3 MSD	05-009	Total/NA	Solid	3550C	
160-5347-4	05-010	Total/NA	Solid	3550C	
LCS 160-102721/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 160-102721/1-A	Method Blank	Total/NA	Solid	3550C	

Prep Batch: 102819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	3550C	
160-5347-2	05-008	Total/NA	Solid	3550C	
160-5347-3	05-009	Total/NA	Solid	3550C	

GC Semi VOA (Continued)

Prep Batch: 102819 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-4	05-010	Total/NA	Solid	3550C	
160-5347-4 MS	05-010	Total/NA	Solid	3550C	
160-5347-4 MSD	05-010	Total/NA	Solid	3550C	
LCS 160-102819/2-A	Lab Control Sample	Total/NA	Solid	3550C	
MB 160-102819/1-A	Method Blank	Total/NA	Solid	3550C	

Analysis Batch: 103129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	8082A	102721
160-5347-2	05-008	Total/NA	Solid	8082A	102721
160-5347-3	05-009	Total/NA	Solid	8082A	102721
160-5347-3 MS	05-009	Total/NA	Solid	8082A	102721
160-5347-3 MSD	05-009	Total/NA	Solid	8082A	102721
160-5347-4	05-010	Total/NA	Solid	8082A	102721
LCS 160-102721/2-A	Lab Control Sample	Total/NA	Solid	8082A	102721
MB 160-102721/1-A	Method Blank	Total/NA	Solid	8082A	102721

Analysis Batch: 103300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	8081B	102819
160-5347-2	05-008	Total/NA	Solid	8081B	102819
160-5347-3	05-009	Total/NA	Solid	8081B	102819
160-5347-4	05-010	Total/NA	Solid	8081B	102819
160-5347-4 MS	05-010	Total/NA	Solid	8081B	102819
160-5347-4 MSD	05-010	Total/NA	Solid	8081B	102819
LCS 160-102819/2-A	Lab Control Sample	Total/NA	Solid	8081B	102819
MB 160-102819/1-A	Method Blank	Total/NA	Solid	8081B	102819

Analysis Batch: 103875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	8015B DRO	102708
160-5347-2 - DL	05-008	Total/NA	Solid	8015B DRO	102708
160-5347-2 MS - DL	05-008	Total/NA	Solid	8015B DRO	102708
160-5347-2 MSD - DL	05-008	Total/NA	Solid	8015B DRO	102708
160-5347-3	05-009	Total/NA	Solid	8015B DRO	102708
LCS 160-102708/2-A	Lab Control Sample	Total/NA	Solid	8015B DRO	102708
MB 160-102708/1-A	Method Blank	Total/NA	Solid	8015B DRO	102708

Analysis Batch: 103911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-4 - DL	05-010	Total/NA	Solid	8015B DRO	102708

Analysis Batch: 104244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	8015B DRO	102708
160-5347-2 - DL	05-008	Total/NA	Solid	8015B DRO	102708
160-5347-3	05-009	Total/NA	Solid	8015B DRO	102708
160-5347-4	05-010	Total/NA	Solid	8015B DRO	102708
MB 160-102708/1-A	Method Blank	Total/NA	Solid	8015B DRO	102708

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Metals

Prep Batch: 102680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	7471B	
160-5347-1 MS	05-007	Total/NA	Solid	7471B	
160-5347-1 MSD	05-007	Total/NA	Solid	7471B	
160-5347-2	05-008	Total/NA	Solid	7471B	
160-5347-3	05-009	Total/NA	Solid	7471B	
160-5347-4	05-010	Total/NA	Solid	7471B	
LCS 160-102680/2-A	Lab Control Sample	Total/NA	Solid	7471B	
MB 160-102680/1-A	Method Blank	Total/NA	Solid	7471B	

Prep Batch: 102688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	3050B	
160-5347-1 MS	05-007	Total/NA	Solid	3050B	
160-5347-1 MSD	05-007	Total/NA	Solid	3050B	
160-5347-2	05-008	Total/NA	Solid	3050B	
160-5347-3	05-009	Total/NA	Solid	3050B	
160-5347-4	05-010	Total/NA	Solid	3050B	
LCS 160-102688/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 160-102688/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 103414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	7471B	102680
160-5347-1 MS	05-007	Total/NA	Solid	7471B	102680
160-5347-1 MSD	05-007	Total/NA	Solid	7471B	102680
160-5347-2	05-008	Total/NA	Solid	7471B	102680
160-5347-3	05-009	Total/NA	Solid	7471B	102680
160-5347-4	05-010	Total/NA	Solid	7471B	102680
LCS 160-102680/2-A	Lab Control Sample	Total/NA	Solid	7471B	102680
MB 160-102680/1-A	Method Blank	Total/NA	Solid	7471B	102680

Analysis Batch: 103756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	6020A	102688
160-5347-1 MS	05-007	Total/NA	Solid	6020A	102688
160-5347-1 MSD	05-007	Total/NA	Solid	6020A	102688
160-5347-2	05-008	Total/NA	Solid	6020A	102688
160-5347-3	05-009	Total/NA	Solid	6020A	102688
160-5347-4	05-010	Total/NA	Solid	6020A	102688
LCS 160-102688/2-A	Lab Control Sample	Total/NA	Solid	6020A	102688
MB 160-102688/1-A	Method Blank	Total/NA	Solid	6020A	102688

Analysis Batch: 103863

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	6020A	102688
160-5347-1 MS	05-007	Total/NA	Solid	6020A	102688
160-5347-1 MSD	05-007	Total/NA	Solid	6020A	102688
160-5347-2	05-008	Total/NA	Solid	6020A	102688
160-5347-3	05-009	Total/NA	Solid	6020A	102688
160-5347-4	05-010	Total/NA	Solid	6020A	102688
LCS 160-102688/2-A	Lab Control Sample	Total/NA	Solid	6020A	102688

Metals (Continued)

Analysis Batch: 103863 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 160-102688/1-A	Method Blank	Total/NA	Solid	6020A	102688

General Chemistry

Analysis Batch: 102613

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5347-1	05-007	Total/NA	Solid	Moisture	
160-5347-2	05-008	Total/NA	Solid	Moisture	
160-5347-3	05-009	Total/NA	Solid	Moisture	
160-5347-4	05-010	Total/NA	Solid	Moisture	
160-5353-A-15 DU	Duplicate	Total/NA	Solid	Moisture	

Surrogate Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8260C - Volatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	12DCE	TOL
Lab Sample ID	Client Sample ID	(85-120)	(71-128)	(85-115)
160-5347-1	05-007	131 X	109	113
160-5347-1 MS	05-007	108	106	105
160-5347-1 MSD	05-007	114	109	110
160-5347-2	05-008	128 X	104	111
160-5347-3	05-009	115	105	106
160-5347-4	05-010	127 X	104	105
LCS 160-102165/2-A	Lab Control Sample	101	106	104
LCSD 160-102165/3-A	Lab Control Sample Dup	100	108	106
MB 160-102165/1-A	Method Blank	110	102	102

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		2FP	TBP	NBZ	PHL	TPH	FBP
Lab Sample ID	Client Sample ID	(35-105)	(35-125)	(35-100)	(40-100)	(30-125)	(45-105)
160-5347-1	05-007	84	81	85	82	58	86
160-5347-1 MS	05-007	83	87	84	80	67	90
160-5347-1 MSD	05-007	82	83	82	79	64	87
160-5347-2	05-008	80	72	79	79	67	86
160-5347-3	05-009	82	78	85	81	74	88
160-5347-4	05-010	89	78	90	88	79	89
LCS 160-102694/2-A	Lab Control Sample	90	85	90	86	87	92
MB 160-102694/1-A	Method Blank	88	80	87	87	69	88

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL = Phenol-d5 (Surr)
TPH = Terphenyl-d14 (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: 8015B GRO - Gasoline Range Organics (GRO)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT
Lab Sample ID	Client Sample ID	(44-147)
160-5347-1	05-007	90
160-5347-2	05-008	97
160-5347-2 MS	05-008	96
160-5347-2 MSD	05-008	95
160-5347-3	05-009	97
160-5347-4	05-010	92

Surrogate Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8015B GRO - Gasoline Range Organics (GRO) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	TFT (44-147)						
LCS 160-102175/2-A	Lab Control Sample	95						
MB 160-102175/1-A	Method Blank	105						

Surrogate Legend

TFT = Trifluorotoluene (Surr)

Method: 8015B DRO - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	OTPH1 (49-133)						
160-5347-1	05-007	88						
160-5347-1	05-007	84						
160-5347-2 - DL	05-008	87						
160-5347-2 - DL	05-008	67						
160-5347-2 MS - DL	05-008	85						
160-5347-2 MSD - DL	05-008	87						
160-5347-3	05-009	90						
160-5347-3	05-009	81						
160-5347-4 - DL	05-010	96						
160-5347-4	05-010	92						
LCS 160-102708/2-A	Lab Control Sample	82						
MB 160-102708/1-A	Method Blank	75						
MB 160-102708/1-A	Method Blank	68						

Surrogate Legend

OTPH = o-Terphenyl (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	DCB2 (55-130)	TCX2 (70-125)					
160-5347-1	05-007	81	94					
160-5347-2	05-008	89	93					
160-5347-3	05-009	85	96					
160-5347-4	05-010	88	67 X					
160-5347-4 MS	05-010	81	72					
160-5347-4 MSD	05-010	87	68 X					
LCS 160-102819/2-A	Lab Control Sample	106	101					
MB 160-102819/1-A	Method Blank	108	98					

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)
TCX = Tetrachloro-m-xylene

Surrogate Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda Site 17 CTO05

TestAmerica Job ID: 160-5347-1
SDG: 160-5347-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)							
		DCB1	DCB2						
Lab Sample ID	Client Sample ID	(60-125)	(60-125)						
160-5347-1	05-007	105							
160-5347-2	05-008	100							
160-5347-3	05-009	96	96						
160-5347-3 MS	05-009	103	103						
160-5347-3 MSD	05-009	95	99						
160-5347-4	05-010	90	95						
LCS 160-102721/2-A	Lab Control Sample	111	112						
MB 160-102721/1-A	Method Blank	112	112						

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

Waste Characterization Data for Water Accumulated from Survey Units 7, 12, 27, and 63

Table 1. Analytical Results for Routine Batch 11

Compound	Trigger/Effluent Limit (µg/L)	Analytical Result (µg/L) [a, b]
Trigger Compounds		
Antimony	4,300	5.00 U
Arsenic	36	2.65 J
Cadmium	2.2	1.43
Chromium (total)	11	10.0 U
Chromium (VI)	11	10.0 U
Copper	3.1	0.584 J
Lead	2.5	0.310 J
Mercury	0.025	0.180 U
Nickel	8.2	0.974 J
Selenium	5.0	5.00 U
Silver	1.9	0.945 J
Thallium	6.3	2.59
Zinc	81	14.3 B
Cyanide	1.0	5.00 U
Aldrin	0.00014	0.0488 U
alpha-BHC	0.013	0.0536 U
beta-BHC	0.046	0.0488 U
gamma-BHC	0.063	0.0488 U
Chlordane	0.00059	0.488 U
4,4'-DDT	0.00059	0.0488 U
4,4'-DDE	0.00059	0.0488 U
4,4'-DDD	0.00084	0.0488 U
Dieldrin	0.00014	0.0488 U
alpha-Endosulfan	0.0087	0.0488 U
beta-Endosulfan	0.0087	0.0488 U
Endrin	0.0023	0.0488 U
Endrin aldehyde	0.81	0.0488 U
Heptachlor	0.00021	0.0975 U
Heptachlor epoxide	0.00011	0.0488 U
PCBs	0.00017	0.974 U
Toxaphene	0.0002	1.95 U
Other Analytes [c]		
pH	6.5 – 8.5 (pH Units)	8.32 (pH Units)
Toxicity	90% / 70% [d] (survival)	100% (survival)
Turbidity	50 (NTU)	1.29 (NTU)
Total alpha radium	5 (pCi/L)	0.580 (pCi/L)
Ra-226	5 (pCi/L)	NA [e]
Total Strontium	8 (pCi/L)	0.101 (pCi/L)
Sr-90	8 (pCi/L)	NA [f]
Cs-137	119 (pCi/L)	0.00 U (pCi/L)

Notes:

(a) U = not detected; B = analyte was detected in the associated method blank; J = estimated result since result is between the method detection limit and reporting limit.

(b) As documented in the Water Board conditional approval, the analytical methods for some Trigger Compounds result in quantitation limits that are above the Trigger Limits.

(c) pH, toxicity, turbidity, and radionuclides are not defined as Trigger Compounds.

(d) Based on Rainbow Trout toxicity testing; survival thresholds are 90% as a three sample moving median or 70% for an individual test.

(e) Because the total alpha radium result was below half of the Ra-226 effluent limit, Ra-226 analysis was not required.

(f) Because the total strontium result was below the Sr-90 effluent limit and because the Sr-90 concentration cannot be higher than the total strontium concentration, Sr-90 analysis was not required.

Abbreviations and Acronyms:

NA – not analyzed; NTU – nephelometric turbidity unit; pCi/L – picocuries per liter; µg/L – micrograms per liter

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5864-1
TestAmerica Sample Delivery Group: 160-5864
Client Project/Site: Alameda

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
3/19/2014 4:55:24 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5864-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda

Report Number: 160-5864-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-5864-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The sample was received on 3/11/2014 9:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 19.0º C.

CESIUM 137 AND OTHER GAMMA EMITTERS (GS)

Sample 05-012 (160-5864-1) was analyzed for Cesium 137 and Other Gamma Emitters (GS) in accordance with USEPA Method 901.1. The samples were prepared and analyzed on 03/12/2014.

Count Time: All samples and QC were counted for 60 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TOTAL ALPHA RADIUM (GFPC)

Sample 05-012 (160-5864-1) was analyzed for Total Alpha Radium (GFPC) in accordance with EPA Method 903.0. The samples were prepared on 03/12/2014 and analyzed on 03/13/2014.

Count Time: All samples and QC were counted for 200 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

STRONTIUM-90 (GFPC)

Sample 05-012 (160-5864-1) was analyzed for Strontium-90 (GFPC) in accordance with EPA Method 905. The samples were prepared on 03/12/2014 and analyzed on 03/13/2014.

Count Time: All samples and QC were counted for 400 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TETRATECH
1230 Columbia Street, Suite 750
San Diego, CA 92101 (619) 234-8696

NUMBER 31001

CHAIN-OF-CUSTODY RECORD

PROJECT NAME	Alameda Site 17, GTO 05
PROJECT LOCATION	Alameda, CA
SAMPLER NAME	W. Solorzano
PROJECT CONTACT	S. Sudoku
PURCHASE ORDER NO.	106773-22 23 *
PROJECT NO.	106-4044-0005
AIRBILL NUMBER	7981 6966 6677
PROJECT CONTACT PHONE NUMBER	949 809-5022
LABORATORY NAME	Test America
LABORATORY ID (FOR LABORATORY)	160-5864-1 3-18

Project Information Section Do not submit to Laboratory

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	EPA 901.1 Cs137 only	EPA 905 Mod Tsr	DOE-SR-03-RL Mod Total Alpha	EPA 903 Mod. RA226	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
05-017	3-10-14	1420	5	X		W		X	X	X	X	X		Effluent CTO 5 WTP-BATCH#1	—	—	Reg

RELINQUISHED BY (Signature)	DATE 3-10-14	RECEIVED BY (Signature) FedEx	
COMPANY Tetra tech	TIME 1430	COMPANY FedEx	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	
COMPANY	TIME	COMPANY	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	
COMPANY	TIME	COMPANY	

LABORATORY INSTRUCTIONS/COMMENTS
If results are > 8 pCi/L provide with DOE-SR-03-RL
If results < 8 pCi/L no further action

COMPOSITE DESCRIPTION
Cs137 1.19 pCi/L reporter
Start ingrowth when receipt of samples.

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: _____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

SAMPLING COMMENT
CTO # 5
BATCH # 1
* Corrected PO # 3-19-14 Sudoku

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5864-1
SDG Number: 160-5864

Login Number: 5864
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method	Method Description	Protocol	Laboratory
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Total Alpha Radium (GFPC)	EPA	TAL SL
905.0	Total Beta Strontium (GFPC)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5864-1	05-012	Water	03/10/14 14:20	03/11/14 09:20

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5864-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.000	U	1.26	1.26	119	4.04	pCi/L	03/12/14 15:14	03/12/14 17:37	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method: 903.0 - Total Alpha Radium (GFPC)

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5864-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Total Alpha Radium	0.580		0.207	0.214	1.00	0.229	pCi/L	03/12/14 14:28	03/13/14 19:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.9*		*40 - 110*	*03/12/14 14:28*	*03/13/14 19:23*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method: 905.0 - Total Beta Strontium (GFPC)

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5864-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Total Beta Strontium	0.101		0.106	0.106	8.00	0.0818	pCi/L	03/12/14 14:29	03/13/14 15:19	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*86.1*		*40 - 110*	*03/12/14 14:29*	*03/13/14 15:19*	*1*

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-109985/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110268 — **Prep Batch: 109985**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-4.563	U	55.9	55.9	119	6.36	pCi/L	03/12/14 15:14	03/12/14 17:31	1

Lab Sample ID: LCS 160-109985/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110270 — **Prep Batch: 109985**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit	%Rec	%Rec. Limits
Americium-241	137000	135100		15600		235	pCi/L	99	90 - 111
Cesium-137	50300	51210		5090	119	72.6	pCi/L	102	90 - 111
Cobalt-60	58500	58000		5720		43.2	pCi/L	99	89 - 110

Lab Sample ID: 160-5864-1 DU — **Client Sample ID: 05-012**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110276 — **Prep Batch: 109985**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit	RER	RER Limit
Cesium-137	0.000	U	3.964	U	7.63	119	5.83	pCi/L	0.45	1

Method: 903.0 - Total Alpha Radium (GFPC)

Lab Sample ID: MB 160-109931/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110482 — **Prep Batch: 109931**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Total Alpha Radium	0.07783	U	0.103	0.103	1.00	0.172	pCi/L	03/12/14 09:37	03/13/14 19:18	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.0*		*40 - 110*	*03/12/14 09:37*	*03/13/14 19:18*	*1*

Lab Sample ID: LCS 160-109931/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110482 — **Prep Batch: 109931**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit	%Rec	%Rec. Limits
Total Alpha Radium	11.2	10.25		1.17	1.00	0.227	pCi/L	91	67 - 133

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*83.8*		*40 - 110*

Method: 903.0 - Total Alpha Radium (GFPC) (Continued)

Lab Sample ID: 180-30532-B-2-A DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 110482 — **Prep Batch: 109931**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit			RER	RER Limit
Total Alpha Radium	0.157	U		0.2192		0.131	1.00	0.163	pCi/L			0.24	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*86.7*		*40 - 110*

Method: 905.0 - Total Beta Strontium (GFPC)

Lab Sample ID: MB 160-109979/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110484 — **Prep Batch: 109979**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Total Beta Strontium	0.01170	U	0.0981	0.0981	8.00	0.0801	pCi/L	03/12/14 14:29	03/13/14 15:19	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*89.7*		*40 - 110*	*03/12/14 14:29*	*03/13/14 15:19*	*1*

Lab Sample ID: LCS 160-109979/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110484 — **Prep Batch: 109979**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit	%Rec	%Rec. Limits		
Total Beta Strontium			9.13	7.792		0.631	8.00	0.0826	pCi/L	85	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*89.1*		*40 - 110*

Lab Sample ID: 160-5864-1 DU — **Client Sample ID: 05-012**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110484 — **Prep Batch: 109979**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit			RER	RER Limit
Total Beta Strontium	0.101			0.2089		0.111	8.00	0.0806	pCi/L			0.50	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Sr Carrier	*87.7*		*40 - 110*

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Rad

Prep Batch: 109931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5864-1	05-012	Total/NA	Water	PrecSep_0	
180-30532-B-2-A DU	Duplicate	Dissolved	Water	PrecSep_0	
LCS 160-109931/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-109931/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 109979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5864-1	05-012	Total/NA	Water	PrecSep_0	
160-5864-1 DU	05-012	Total/NA	Water	PrecSep_0	
LCS 160-109979/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-109979/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 109985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5864-1	05-012	Total/NA	Water	Fill_Geo-0	
160-5864-1 DU	05-012	Total/NA	Water	Fill_Geo-0	
LCS 160-109985/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
MB 160-109985/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	

Tracer/Carrier Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method: 903.0 - Total Alpha Radium (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)							
160-5864-1	05-012	87.9							
LCS 160-109931/2-A	Lab Control Sample	83.8							
MB 160-109931/1-A	Method Blank	85.0							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 903.0 - Total Alpha Radium (GFPC)

Matrix: Water **Prep Type: Dissolved**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)							
180-30532-B-2-A DU	Duplicate	86.7							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 905.0 - Total Beta Strontium (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Sr (C) (40-110)							
160-5864-1	05-012	86.1							
160-5864-1 DU	05-012	87.7							
LCS 160-109979/2-A	Lab Control Sample	89.1							
MB 160-109979/1-A	Method Blank	89.7							

Tracer/Carrier Legend

Sr (C) = Sr Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5862-1
TestAmerica Sample Delivery Group: 160-5862
Client Project/Site: Alameda
Revision: 1

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
4/1/2014 3:00:45 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5862-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda

Report Number: 160-5862-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-5862-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Revision 1: Pesticide list was revised to remove 4 non-required analytes per client request.

RECEIPT

The sample was received on 3/11/2014 9:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9º C.

Organic Prep

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD/DUP) at 1000mL volume in PCB batch 110396. MS/MSD were performed using half volume. (160-5862-1 MS), (160-5862-1 MSD), 05-012 (160-5862-1)

ORGANOCHLORINE PESTICIDES (GC)

Sample 05-012 (160-5862-1) was analyzed for Organochlorine Pesticides (GC) in accordance with EPA SW-846 Method 8081B. The samples were prepared on 03/12/2014 and analyzed on 03/13/2014.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

POLYCHLORINATED BIPHENYLS (PCBS) BY GAS CHROMATOGRAPHY

Sample 05-012 (160-5862-1) was analyzed for Polychlorinated Biphenyls (PCBs) by Gas Chromatography in accordance with EPA SW-846 Method 8082A. The samples were prepared and analyzed on 03/13/2014.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TOTAL METALS (ICPMS)

Sample 05-012 (160-5862-1) was analyzed for total metals (ICPMS) in accordance with EPA SW-846 Method 6020A. The samples were prepared on 03/14/2014 and analyzed on 03/17/2014 and 03/18/2014.

ICB, CCB, and ICSA samples are evaluated using the lowest LOD and DL criteria in LIMS. Using this criteria, an individual element may occasionally be flagged as out of control. If the element has a higher LOD or DL, the data is evaluated to the higher limit and determined to be acceptable.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP). An LCSD was used in place of the MS/MSD:05-012 (160-5862-1).

Analytical Batch 111037

Zinc was detected in method blank MB 160-110512/1-A at a level that was above the method detection limit but below the reporting limit.

The post digestion spike % recovery for silver associated with batch 110512 was outside of control limits. This element is part of a multi-element spiking solution, and the other elements in this solution were within acceptable limits, indicating a possible matrix interference for this element. (160-5862-1 PDS)

No other difficulties were encountered during the metals analysis.

All other quality control parameters were within the acceptance limits.

HEXAVALENT CHROMIUM

Sample 05-012 (160-5862-1) was analyzed for hexavalent chromium in accordance with EPA SW-846 Method 7196A. The samples were analyzed on 03/11/2014.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TOTAL MERCURY

Sample 05-012 (160-5862-1) was analyzed for Total Mercury - DOD in accordance with EPA SW-846 Method 7470A. The samples were prepared on 03/11/2014 and analyzed on 03/12/2014.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job ID: 160-5862-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

TOTAL CYANIDE

Sample 05-012 (160-5862-1) was analyzed for total cyanide in accordance with EPA Method 335.4. The samples were prepared on 03/17/2014 and analyzed on 03/19/2014.

The method blank (MB) that was prepped with the following sample was above the client-requested RL of 5ppb: 05-012 (160-5862-1). Upon reanalysis of this sample in batch 111835, the result is non-detect (ND) for Cyanide, and thus the sample was not affected by the potential high bias of the MB with which it is associated.

No difficulties were encountered during the cyanide analysis.

All quality control parameters were within the acceptance limits.

TETRA TECH
1230 Columbia Street, Suite 750
San Diego, CA 92101 (619) 234-8696

NUMBER 30889

CHAIN-OF-CUSTODY RECORD

160-5862

PROJECT NAME: Alameda Site 17, GW 05	PURCHASE ORDER NO.: 1036773-22
PROJECT LOCATION: Alameda, CA	PROJECT NO.: 106-4044-0005
SAMPLER NAME: W. Solorzano	AIRBILL NUMBER: 7981 6966 6770
PROJECT CONTACT: S. Sudoko	PROJECT CONTACT PHONE NUMBER: 949 809 5022

LABORATORY NAME: Test America St Louis

LABORATORY ID (FOR LABORATORY):

ANALYSES REQUIRED

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	8081 Pesticides	8082 PCBs Aroclors	6020/7000 Metal/Mercury	7196 Hexavalen Chrom	335.4 Cyanide					COMMENTS
05-011	3-10-14	1420	7	X		W		X	X	X	X	X					
~~05-012~~	WS		2	X		W				X		X					

RELINQUISHED BY (Signature): [signature]	DATE: 3/10/14	RECEIVED BY (Signature): FEDEX	LABORATORY INSTRUCTIONS/COMMENTS
COMPANY: Tetra Tech	TIME: 1430	COMPANY: FEDEX	
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature): [signature] 3/11/14	COMPOSITE DESCRIPTION
COMPANY:	TIME:	COMPANY: TA 0920	
RELINQUISHED BY (Signature):	DATE:	RECEIVED BY (Signature):	SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
COMPANY:	TIME:	COMPANY:	TEMPERATURE: _____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN COOLER SEAL: ☐ INTACT ☐ BROKEN

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5862-1
SDG Number: 160-5862

Login Number: 5862
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Method	Method Description	Protocol	Laboratory
8081B	Organochlorine Pesticides (GC)	SW846	TAL SL
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL SL
6020A	Metals (ICP/MS)	SW846	TAL SL
7470A	Mercury (CVAA)	SW846	TAL SL
335.4	Cyanide, Total	MCAWW	TAL SL
7196A	Chromium, Hexavalent	SW846	TAL SL
Bioassay	General Sub Contract Method	NONE	Pacific

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NONE = NONE

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

Pacific = Pacific Ecorisk Inc, 2250 Cordelia Rd, Fairfield, CA 94534, TEL (707)207-7760

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5862-1	05-012	Water	03/10/14 14:20	03/11/14 09:20

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Client Sample ID: 05-012 — Lab Sample ID: 160-5862-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	2.65	J	10.0	1.18	ug/L	1		6020A	Total/NA
Cadmium	1.43		0.500	0.100	ug/L	1		6020A	Total/NA
Copper	0.584	J	1.00	0.451	ug/L	1		6020A	Total/NA
Lead	0.310	J	3.00	0.173	ug/L	1		6020A	Total/NA
Nickel	0.974	J	5.00	0.400	ug/L	1		6020A	Total/NA
Silver	0.945	J	2.00	0.770	ug/L	1		6020A	Total/NA
Thallium	2.59		2.00	0.550	ug/L	1		6020A	Total/NA
Zinc	14.3	B	10.0	8.29	ug/L	1		6020A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5862-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	0.0488	U	0.0488	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
alpha-BHC	0.0536	U	0.0536	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
beta-BHC	0.0488	U	0.0488	0.00127	ug/L		03/12/14 13:38	03/13/14 15:42	1
gamma-BHC (Lindane)	0.0488	U	0.0488	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
4,4'-DDD	0.0488	U	0.0488	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
4,4'-DDE	0.0488	U	0.0488	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
4,4'-DDT	0.0488	U	0.0488	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
Dieldrin	0.0488	U	0.0488	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
Endosulfan I	0.0488	U	0.0488	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
Endosulfan II	0.0488	U	0.0488	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
Endrin	0.0488	U	0.0488	0.00166	ug/L		03/12/14 13:38	03/13/14 15:42	1
Endrin aldehyde	0.0488	U	0.0488	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
Heptachlor	0.0975	U	0.0975	0.000975	ug/L		03/12/14 13:38	03/13/14 15:42	1
Heptachlor epoxide	0.0488	U	0.0488	0.00166	ug/L		03/12/14 13:38	03/13/14 15:42	1
Toxaphene	1.95	U	1.95	0.0262	ug/L		03/12/14 13:38	03/13/14 15:42	1
Technical Chlordane	0.488	U	0.488	0.00975	ug/L		03/12/14 13:38	03/13/14 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*63*		*30 - 135*	*03/12/14 13:38*	*03/13/14 15:42*	*1*
Tetrachloro-m-xylene	*66*		*25 - 140*	*03/12/14 13:38*	*03/13/14 15:42*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5862-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	0.974	U	0.974	0.235	ug/L		03/13/14 09:49	03/13/14 14:20	1
Aroclor 1221	0.974	U	0.974	0.235	ug/L		03/13/14 09:49	03/13/14 14:20	1
Aroclor 1232	0.974	U	0.974	0.235	ug/L		03/13/14 09:49	03/13/14 14:20	1
Aroclor 1242	0.974	U	0.974	0.235	ug/L		03/13/14 09:49	03/13/14 14:20	1
Aroclor 1248	0.974	U	0.974	0.235	ug/L		03/13/14 09:49	03/13/14 14:20	1
Aroclor 1254	0.974	U	0.974	0.162	ug/L		03/13/14 09:49	03/13/14 14:20	1
Aroclor 1260	0.974	U	0.974	0.162	ug/L		03/13/14 09:49	03/13/14 14:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*110*		*40 - 135*	*03/13/14 09:49*	*03/13/14 14:20*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Method: 6020A - Metals (ICP/MS)

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5862-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	5.00	U	5.00	1.67	ug/L		03/14/14 11:04	03/17/14 18:41	1
Arsenic	**2.65**	**J**	10.0	1.18	ug/L		03/14/14 11:04	03/17/14 18:41	1
Cadmium	**1.43**		0.500	0.100	ug/L		03/14/14 11:04	03/17/14 18:41	1
Chromium	10.0	U	10.0	3.26	ug/L		03/14/14 11:04	03/18/14 00:35	1
Copper	**0.584**	**J**	1.00	0.451	ug/L		03/14/14 11:04	03/17/14 18:41	1
Lead	**0.310**	**J**	3.00	0.173	ug/L		03/14/14 11:04	03/17/14 18:41	1
Nickel	**0.974**	**J**	5.00	0.400	ug/L		03/14/14 11:04	03/17/14 18:41	1
Selenium	5.00	U	5.00	1.59	ug/L		03/14/14 11:04	03/17/14 18:41	1
Silver	**0.945**	**J**	2.00	0.770	ug/L		03/14/14 11:04	03/17/14 18:41	1
Thallium	**2.59**		2.00	0.550	ug/L		03/14/14 11:04	03/17/14 18:41	1
Zinc	**14.3**	**B**	10.0	8.29	ug/L		03/14/14 11:04	03/17/14 18:41	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Method: 7470A - Mercury (CVAA)

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5862-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.180	U	0.180	0.0600	ug/L		03/11/14 10:56	03/12/14 13:38	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

General Chemistry

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5862-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	5.00	U	5.00	1.50	ug/L		03/17/14 14:50	03/19/14 16:25	1
Hexavalent chromium	10.0	U	10.0	2.59	ug/L			03/11/14 13:26	1

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 160-109976/1-A | **Client Sample ID: Method Blank**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 110424 | **Prep Batch: 109976**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aldrin	0.0500	U	0.0500	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
alpha-BHC	0.0550	U	0.0550	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
beta-BHC	0.0500	U	0.0500	0.00130	ug/L		03/12/14 13:38	03/13/14 15:01	1
gamma-BHC (Lindane)	0.0500	U	0.0500	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
4,4'-DDD	0.0500	U	0.0500	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
4,4'-DDE	0.0500	U	0.0500	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
4,4'-DDT	0.0500	U	0.0500	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
Dieldrin	0.0500	U	0.0500	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
Endosulfan I	0.0500	U	0.0500	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
Endosulfan II	0.0500	U	0.0500	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
Endrin	0.0500	U	0.0500	0.00170	ug/L		03/12/14 13:38	03/13/14 15:01	1
Endrin aldehyde	0.0500	U	0.0500	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
Heptachlor	0.100	U	0.100	0.00100	ug/L		03/12/14 13:38	03/13/14 15:01	1
Heptachlor epoxide	0.0500	U	0.0500	0.00170	ug/L		03/12/14 13:38	03/13/14 15:01	1
Toxaphene	2.00	U	2.00	0.0269	ug/L		03/12/14 13:38	03/13/14 15:01	1
Technical Chlordane	0.500	U	0.500	0.0100	ug/L		03/12/14 13:38	03/13/14 15:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*84*		*30 - 135*	*03/12/14 13:38*	*03/13/14 15:01*	*1*
Tetrachloro-m-xylene	*49*		*25 - 140*	*03/12/14 13:38*	*03/13/14 15:01*	*1*

Lab Sample ID: LCS 160-109976/2-A | **Client Sample ID: Lab Control Sample**
Matrix: Water | **Prep Type: Total/NA**
Analysis Batch: 110424 | **Prep Batch: 109976**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	0.500	0.3170		ug/L		63	25 - 140
alpha-BHC	0.500	0.4423		ug/L		88	60 - 130
beta-BHC	0.500	0.3920		ug/L		78	65 - 125
gamma-BHC (Lindane)	0.501	0.4282		ug/L		86	25 - 135
4,4'-DDD	0.500	0.4353		ug/L		87	25 - 150
4,4'-DDE	0.501	0.3745		ug/L		75	35 - 140
4,4'-DDT	0.500	0.4104		ug/L		82	45 - 140
Dieldrin	0.501	0.4094		ug/L		82	60 - 130
Endosulfan I	0.500	0.4014		ug/L		80	30 - 130
Endosulfan II	0.500	0.4088		ug/L		82	30 - 130
Endrin	0.501	0.4161		ug/L		83	55 - 135
Endrin aldehyde	0.500	0.4179		ug/L		84	55 - 135
Heptachlor	0.500	0.2529		ug/L		51	40 - 130
Heptachlor epoxide	0.500	0.3807		ug/L		76	60 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*84*		*30 - 135*
Tetrachloro-m-xylene	*48*		*25 - 140*

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 160-5862-1 MS
Matrix: Water
Analysis Batch: 110424

Client Sample ID: 05-012
Prep Type: Total/NA
Prep Batch: 109976

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aldrin	0.0488	U	0.969	0.6736		ug/L		69	25 - 140
alpha-BHC	0.0536	U	0.969	0.9035		ug/L		93	60 - 130
beta-BHC	0.0488	U	0.969	0.8064		ug/L		83	65 - 125
gamma-BHC (Lindane)	0.0488	U	0.970	0.8876		ug/L		91	25 - 135
4,4'-DDD	0.0488	U	0.969	0.8914		ug/L		92	25 - 150
4,4'-DDE	0.0488	U	0.970	0.7659		ug/L		79	35 - 140
4,4'-DDT	0.0488	U	0.969	0.8060		ug/L		83	45 - 140
Dieldrin	0.0488	U	0.970	0.8440		ug/L		87	60 - 130
Endosulfan I	0.0488	U	0.969	0.8049		ug/L		83	30 - 130
Endosulfan II	0.0488	U	0.969	0.8226		ug/L		85	30 - 130
Endrin	0.0488	U	0.970	0.8448		ug/L		87	55 - 135
Endrin aldehyde	0.0488	U	0.970	0.8261		ug/L		85	55 - 135
Heptachlor	0.0975	U	0.969	0.5630		ug/L		58	40 - 130
Heptachlor epoxide	0.0488	U	0.969	0.8388		ug/L		87	60 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*80*		*30 - 135*
Tetrachloro-m-xylene	*54*		*25 - 140*

Lab Sample ID: 160-5862-1 MSD
Matrix: Water
Analysis Batch: 110424

Client Sample ID: 05-012
Prep Type: Total/NA
Prep Batch: 109976

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aldrin	0.0488	U	0.982	0.6909		ug/L		70	25 - 140	3	30
alpha-BHC	0.0536	U	0.982	0.9091		ug/L		93	60 - 130	1	30
beta-BHC	0.0488	U	0.982	0.8102		ug/L		83	65 - 125	0	30
gamma-BHC (Lindane)	0.0488	U	0.983	0.8834		ug/L		90	25 - 135	0	30
4,4'-DDD	0.0488	U	0.982	0.8954		ug/L		91	25 - 150	0	30
4,4'-DDE	0.0488	U	0.983	0.7879		ug/L		80	35 - 140	3	30
4,4'-DDT	0.0488	U	0.982	0.8196		ug/L		84	45 - 140	2	30
Dieldrin	0.0488	U	0.983	0.8647		ug/L		88	60 - 130	2	30
Endosulfan I	0.0488	U	0.982	0.8208		ug/L		84	30 - 130	2	30
Endosulfan II	0.0488	U	0.982	0.8327		ug/L		85	30 - 130	1	30
Endrin	0.0488	U	0.983	0.8627		ug/L		88	55 - 135	2	30
Endrin aldehyde	0.0488	U	0.982	0.8267		ug/L		84	55 - 135	0	30
Heptachlor	0.0975	U	0.982	0.5666		ug/L		58	40 - 130	1	30
Heptachlor epoxide	0.0488	U	0.982	0.8510		ug/L		87	60 - 130	1	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*82*		*30 - 135*
Tetrachloro-m-xylene	*49*		*25 - 140*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 160-110396/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110428 — **Prep Batch: 110396**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor 1016	1.00	U	1.00	0.241	ug/L		03/13/14 09:49	03/13/14 13:48	1
Aroclor 1221	1.00	U	1.00	0.241	ug/L		03/13/14 09:49	03/13/14 13:48	1
Aroclor 1232	1.00	U	1.00	0.241	ug/L		03/13/14 09:49	03/13/14 13:48	1
Aroclor 1242	1.00	U	1.00	0.241	ug/L		03/13/14 09:49	03/13/14 13:48	1
Aroclor 1248	1.00	U	1.00	0.241	ug/L		03/13/14 09:49	03/13/14 13:48	1
Aroclor 1254	1.00	U	1.00	0.166	ug/L		03/13/14 09:49	03/13/14 13:48	1
Aroclor 1260	1.00	U	1.00	0.166	ug/L		03/13/14 09:49	03/13/14 13:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*120*		*40 - 135*	*03/13/14 09:49*	*03/13/14 13:48*	*1*

Lab Sample ID: LCS 160-110396/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110428 — **Prep Batch: 110396**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor 1016	5.00	3.849		ug/L		77	25 - 145
Aroclor 1260	5.00	4.771		ug/L		95	30 - 145

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*115*		*40 - 135*

Lab Sample ID: 160-5862-1 MS — **Client Sample ID: 05-012**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110428 — **Prep Batch: 110396**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor 1016	0.974	U	9.70	7.941		ug/L		82	25 - 145
Aroclor 1260	0.974	U	9.70	8.854		ug/L		91	30 - 145

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*108*		*40 - 135*

Lab Sample ID: 160-5862-1 MSD — **Client Sample ID: 05-012**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110428 — **Prep Batch: 110396**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor 1016	0.974	U	9.55	7.796		ug/L		82	25 - 145	2	30
Aroclor 1260	0.974	U	9.55	8.198		ug/L		86	30 - 145	8	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCB Decachlorobiphenyl (Surr)	*111*		*40 - 135*

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-110512/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111037 — **Prep Batch: 110512**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	5.00	U	5.00	1.67	ug/L		03/14/14 11:03	03/17/14 18:21	1
Arsenic	10.0	U	10.0	1.18	ug/L		03/14/14 11:03	03/17/14 18:21	1
Cadmium	0.500	U	0.500	0.100	ug/L		03/14/14 11:03	03/17/14 18:21	1
Copper	1.00	U	1.00	0.451	ug/L		03/14/14 11:03	03/17/14 18:21	1
Lead	3.00	U	3.00	0.173	ug/L		03/14/14 11:03	03/17/14 18:21	1
Nickel	5.00	U	5.00	0.400	ug/L		03/14/14 11:03	03/17/14 18:21	1
Selenium	5.00	U	5.00	1.59	ug/L		03/14/14 11:03	03/17/14 18:21	1
Silver	2.00	U	2.00	0.770	ug/L		03/14/14 11:03	03/17/14 18:21	1
Thallium	2.00	U	2.00	0.550	ug/L		03/14/14 11:03	03/17/14 18:21	1
Zinc	8.863	J	10.0	8.29	ug/L		03/14/14 11:03	03/17/14 18:21	1

Lab Sample ID: MB 160-110512/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111032 — **Prep Batch: 110512**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	10.0	U	10.0	3.26	ug/L		03/14/14 11:03	03/18/14 00:15	1

Lab Sample ID: LCS 160-110512/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111037 — **Prep Batch: 110512**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	500	492.7		ug/L		99	80 - 120
Arsenic	1000	989.3		ug/L		99	80 - 120
Cadmium	1000	981.9		ug/L		98	80 - 120
Copper	1000	977.3		ug/L		98	80 - 120
Lead	1000	990.0		ug/L		99	80 - 120
Nickel	1000	1010		ug/L		101	80 - 120
Selenium	500	488.3		ug/L		98	80 - 120
Silver	200	160.3		ug/L		80	80 - 120
Thallium	200	204.4		ug/L		102	80 - 120
Zinc	1000	994.6		ug/L		99	80 - 120

Lab Sample ID: LCS 160-110512/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111032 — **Prep Batch: 110512**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	1000	920.4		ug/L		92	80 - 120

Lab Sample ID: LCSD 160-110512/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111037 — **Prep Batch: 110512**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	500	498.0		ug/L		100	80 - 120	1	20
Arsenic	1000	990.7		ug/L		99	80 - 120	0	20
Cadmium	1000	989.9		ug/L		99	80 - 120	1	20

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCSD 160-110512/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111037 — **Prep Batch: 110512**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Copper	1000	968.9		ug/L		97	80 - 120	1	20
Lead	1000	1001		ug/L		100	80 - 120	1	20
Nickel	1000	1012		ug/L		101	80 - 120	0	20
Selenium	500	485.1		ug/L		97	80 - 120	1	20
Silver	200	163.2		ug/L		82	80 - 120	2	20
Thallium	200	208.5		ug/L		104	80 - 120	2	20
Zinc	1000	971.7		ug/L		97	80 - 120	2	20

Lab Sample ID: LCSD 160-110512/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111032 — **Prep Batch: 110512**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	1000	915.7		ug/L		92	80 - 120	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 160-109775/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 109983 — **Prep Batch: 109775**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.180	U	0.180	0.0600	ug/L		03/11/14 10:56	03/12/14 13:13	1

Lab Sample ID: LCS 160-109775/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 109983 — **Prep Batch: 109775**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.042		ug/L		101	80 - 120

Lab Sample ID: 160-5850-B-6-A MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 109983 — **Prep Batch: 109775**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.180	U	5.00	5.423		ug/L		108	80 - 120	2	20

Lab Sample ID: 160-5850-C-6-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 109983 — **Prep Batch: 109775**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.180	U	5.00	5.317		ug/L		106	80 - 120

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Method: 335.4 - Cyanide, Total

Lab Sample ID: MB 160-110955/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111546 — **Prep Batch: 110955**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	6.750		5.00	1.50	ug/L		03/17/14 14:50	03/18/14 17:26	1

Lab Sample ID: HLCS 160-110955/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111546 — **Prep Batch: 110955**

Analyte	Spike Added	HLCS Result	HLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	400	360.1		ug/L		90	90 - 110

Lab Sample ID: LCS 160-110955/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111546 — **Prep Batch: 110955**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	200	198.1		ug/L		99	90 - 110

Lab Sample ID: 160-5791-L-1-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111546 — **Prep Batch: 110955**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	6.75	B	200	182.1		ug/L		88	66 - 120

Lab Sample ID: 160-5791-L-1-B DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 111546 — **Prep Batch: 110955**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	6.75	B	6.750		ug/L		0	20

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 160-109801/8 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 109801

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexavalent chromium	10.0	U	10.0	2.59	ug/L			03/11/14 13:25	1

Lab Sample ID: LCS 160-109801/9 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 109801

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hexavalent chromium	50.0	50.17		ug/L		100	85 - 115

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: 160-5862-1 MS
Matrix: Water
Analysis Batch: 109801

Client Sample ID: 05-012
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Hexavalent chromium	10.0	U	50.0	48.99		ug/L		98	85 - 115		

Lab Sample ID: 160-5862-1 DU
Matrix: Water
Analysis Batch: 109801

Client Sample ID: 05-012
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Hexavalent chromium	10.0	U		10.0	U	ug/L				NC	20

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

GC Semi VOA

Prep Batch: 109976

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5862-1	05-012	Total/NA	Water	3510C	
160-5862-1 MS	05-012	Total/NA	Water	3510C	
160-5862-1 MSD	05-012	Total/NA	Water	3510C	
LCS 160-109976/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 160-109976/1-A	Method Blank	Total/NA	Water	3510C	

Prep Batch: 110396

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5862-1	05-012	Total/NA	Water	3510C	
160-5862-1 MS	05-012	Total/NA	Water	3510C	
160-5862-1 MSD	05-012	Total/NA	Water	3510C	
LCS 160-110396/2-A	Lab Control Sample	Total/NA	Water	3510C	
MB 160-110396/1-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 110424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5862-1	05-012	Total/NA	Water	8081B	109976
160-5862-1 MS	05-012	Total/NA	Water	8081B	109976
160-5862-1 MSD	05-012	Total/NA	Water	8081B	109976
LCS 160-109976/2-A	Lab Control Sample	Total/NA	Water	8081B	109976
MB 160-109976/1-A	Method Blank	Total/NA	Water	8081B	109976

Analysis Batch: 110428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5862-1	05-012	Total/NA	Water	8082A	110396
160-5862-1 MS	05-012	Total/NA	Water	8082A	110396
160-5862-1 MSD	05-012	Total/NA	Water	8082A	110396
LCS 160-110396/2-A	Lab Control Sample	Total/NA	Water	8082A	110396
MB 160-110396/1-A	Method Blank	Total/NA	Water	8082A	110396

Metals

Prep Batch: 109775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5850-B-6-A MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	
160-5850-C-6-B MS	Matrix Spike	Total/NA	Water	7470A	
160-5862-1	05-012	Total/NA	Water	7470A	
LCS 160-109775/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 160-109775/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 109983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5850-B-6-A MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	109775
160-5850-C-6-B MS	Matrix Spike	Total/NA	Water	7470A	109775
160-5862-1	05-012	Total/NA	Water	7470A	109775
LCS 160-109775/2-A	Lab Control Sample	Total/NA	Water	7470A	109775
MB 160-109775/1-A	Method Blank	Total/NA	Water	7470A	109775

Metals (Continued)

Prep Batch: 110512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5862-1	05-012	Total/NA	Water	3010A	
LCS 160-110512/2-A	Lab Control Sample	Total/NA	Water	3010A	
LCSD 160-110512/3-A	Lab Control Sample Dup	Total/NA	Water	3010A	
MB 160-110512/1-A	Method Blank	Total/NA	Water	3010A	

Analysis Batch: 111032

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5862-1	05-012	Total/NA	Water	6020A	110512
LCS 160-110512/2-A	Lab Control Sample	Total/NA	Water	6020A	110512
LCSD 160-110512/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	110512
MB 160-110512/1-A	Method Blank	Total/NA	Water	6020A	110512

Analysis Batch: 111037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5862-1	05-012	Total/NA	Water	6020A	110512
LCS 160-110512/2-A	Lab Control Sample	Total/NA	Water	6020A	110512
LCSD 160-110512/3-A	Lab Control Sample Dup	Total/NA	Water	6020A	110512
MB 160-110512/1-A	Method Blank	Total/NA	Water	6020A	110512

General Chemistry

Analysis Batch: 109801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5862-1	05-012	Total/NA	Water	7196A	
160-5862-1 DU	05-012	Total/NA	Water	7196A	
160-5862-1 MS	05-012	Total/NA	Water	7196A	
LCS 160-109801/9	Lab Control Sample	Total/NA	Water	7196A	
MB 160-109801/8	Method Blank	Total/NA	Water	7196A	

Prep Batch: 110955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5791-L-1-B DU	Duplicate	Total/NA	Water	Distill/CN	
160-5791-L-1-C MS	Matrix Spike	Total/NA	Water	Distill/CN	
160-5862-1	05-012	Total/NA	Water	Distill/CN	
HLCS 160-110955/3-A	Lab Control Sample	Total/NA	Water	Distill/CN	
LCS 160-110955/2-A	Lab Control Sample	Total/NA	Water	Distill/CN	
MB 160-110955/1-A	Method Blank	Total/NA	Water	Distill/CN	

Analysis Batch: 111546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5791-L-1-B DU	Duplicate	Total/NA	Water	335.4	110955
160-5791-L-1-C MS	Matrix Spike	Total/NA	Water	335.4	110955
HLCS 160-110955/3-A	Lab Control Sample	Total/NA	Water	335.4	110955
LCS 160-110955/2-A	Lab Control Sample	Total/NA	Water	335.4	110955
MB 160-110955/1-A	Method Blank	Total/NA	Water	335.4	110955

Analysis Batch: 111835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5862-1	05-012	Total/NA	Water	335.4	110955

Surrogate Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5862-1
SDG: 160-5862

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		DCB2	TCX2
Lab Sample ID	Client Sample ID	(30-135)	(25-140)
160-5862-1	05-012	63	66
160-5862-1 MS	05-012	80	54
160-5862-1 MSD	05-012	82	49
LCS 160-109976/2-A	Lab Control Sample	84	48
MB 160-109976/1-A	Method Blank	84	49

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

TCX = Tetrachloro-m-xylene

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DCB1
Lab Sample ID	Client Sample ID	(40-135)
160-5862-1	05-012	110
160-5862-1 MS	05-012	108
160-5862-1 MSD	05-012	111
LCS 160-110396/2-A	Lab Control Sample	115
MB 160-110396/1-A	Method Blank	120

Surrogate Legend

DCB = DCB Decachlorobiphenyl (Surr)

Erika Gish
TestAmerica
13715 Rider Trail North
Earth City, MO 63045

March 24, 2014

Erika:

I have enclosed our report "Acute Toxicity Testing of the Alameda Effluent" for testing performed on the sample collected on March 10, 2014. As you will recall, this effluent sample was tested for acute toxicity to rainbow trout (*Oncorhynchus mykiss*). The results of this testing follow:

> There was 100% survival in the effluent sample, indicating that the Alameda effluent was ***not*** acutely toxic to rainbow trout.

If you have any questions regarding the performance and interpretation of this test, please contact my colleague Dr. Scott Ogle or myself at (707) 207-7760.

Sincerely,

Digitally signed by Padrick Anderson
Date: 2014.03.25 15:55:01 -08'00'

Padrick Anderson
Senior Aquatic Ecotoxicologist

Pacific EcoRisk is accredited in accordance with NELAP (ORELAP ID 4043). Pacific EcoRisk certifies that the test results reported herein conform to the most current NELAP requirements for parameters for which accreditation is required and available. Any exceptions to NELAP requirements are noted, where applicable, in the body of the report. This report shall not be reproduced, except in full, without the written consent of Pacific EcoRisk. This testing was performed under Lab Order 22188.

Acute Toxicity Testing of the Alameda Effluent

Sample collected March 10, 2014

Prepared For:

TestAmerica
13715 Rider Trail North
Earth City, MO 63045

Prepared By:

Pacific EcoRisk
2250 Cordelia Rd.
Fairfield, CA 94534
(707) 207-7760

March 2014

PACIFIC ECORISK
ENVIRONMENTAL CONSULTING & TESTING

Acute Toxicity Testing of the Alameda Effluent

Sample collected March 10, 2014

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Appendices

Appendix A Chain-of-Custody Record for the Collection and Delivery of the Alameda Effluent Sample

Appendix B Test Data and Summary of Statistics for the Evaluation of the Acute Toxicity of Alameda Effluent to Rainbow Trout

1. INTRODUCTION

TestAmerica has contracted Pacific EcoRisk (PER) to perform an evaluation of the acute toxicity of an Alameda effluent sample that was collected on March 10, 2014. This evaluation consisted of performing the USEPA acute (96-hr) survival test with rainbow trout (*Oncorhynchus mykiss*). This report describes the performance and results of this test.

2. ACUTE TOXICITY TEST PROCEDURES

The methods used in conducting this toxicity testing followed the guidelines established by the EPA manual "Methods for Estimating the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition" (EPA-821-R-03-012).

2.1 Receipt and Handling of the Effluent Sample

On March 10, a sample of Alameda effluent was collected into appropriately cleaned sample containers; this sample was transported that same day, on ice and under chain-of-custody, to the PER testing laboratory in Fairfield. Upon receipt at the testing laboratory, aliquots of the sample were collected for analysis of initial water quality characteristics (Table 1), with the remaining sample being stored at 0-6˚C except when being used to prepare test solutions. The chain-of-custody record for the collection and delivery of the sample is provided in Appendix A.

Table 1. Initial water quality characteristics of Alameda's final effluent sample.

Sample Receipt Date	Sample ID	Temp (˚C)	pH	D.O (mg/L)	Alkalinity (mg/L)	Hardness (mg/L)	Conductivity (μS/cm)	Salinity (ppt)	Total Ammonia (mg/L N)
3/10/14	05-011	5.8	8.22	7.4	87	731	6980	3.8	<1.0

2.2 Acute Toxicity Testing with Rainbow Trout

The acute toxicity test with rainbow trout consists of exposing the fish to the effluent for ~96 hrs, after which effects on survival are evaluated. The specific procedures used in this test are described below.

The rainbow trout used in this test were obtained from a commercial supplier (Thomas Fish Company, Anderson, CA). These fish were maintained at 12°C in aerated aquaria containing EPA synthetic moderately-hard water prior to their use in this test. During this pre-test period, the fish were fed trout chow *ad libitum*.

The Lab Water Control medium for this test consisted of EPA synthetic "moderately hard" water, prepared by addition of reagent grade chemicals to Type 1 lab water (reverse-osmosis, de-ionized water). The effluent was tested at the 100% concentration only. Water quality characteristics (pH, dissolved oxygen [D.O.], and conductivity) were determined for each treatment test solution prior to the start of the test.

There were 2 replicates at each test treatment, each replicate consisting of 4-L of test solution in an 8-L HDPE beaker. The test was initiated by randomly allocating ten 15 day-old rainbow trout into each replicate. The replicate beakers were placed in a temperature-controlled room at 12°C under a 16L:8D photoperiod.

Each replicate was examined daily, and the number of live fish in each was recorded at this time. Routine water quality characteristics (pH, D.O., and conductivity) of the treatment waters were measured and recorded for one randomly selected replicate per treatment each day.

After ~48 hrs exposure, the number of live fish in each replicate was determined after which approximately 80% of the test media in each beaker was carefully poured out and replaced with fresh test solution. "Old" water quality characteristics (pH, D.O., and conductivity) were measured on the discarded test solution from one randomly-selected replicate beaker at each treatment.

After 96 (± 2) hrs, the test was terminated and the number of live fish in each replicate beaker was determined. The resulting survival data were analyzed to evaluate any impairment caused by the effluent; all statistical analyses were performed using the CETIS® statistical software (TidePool Scientific, McKinleyville, CA).

3. RESULTS

3.1 Acute Effects of Alameda Effluent on Rainbow Trout

The results of this test are summarized in Table 2. There was 100% survival in the effluent sample, indicating that the Alameda effluent was ***not*** acutely toxic to rainbow trout. The test data and summary of statistics for this test are presented in Appendix B.

Table 2. Acute effects of Alameda effluent on rainbow trout survival.

Test Treatment	Mean % Survival
Lab Control	100
100% Effluent	100

4. SUMMARY AND CONCLUSIONS

An evaluation of the acute toxicity of the Alameda effluent to rainbow trout (*Oncorhynchus mykiss*) was performed using an effluent sample that was collected on March 10, 2014. The results of this testing follow:

> There was 100% survival in the effluent sample, indicating that the Alameda effluent was ***not*** acutely toxic to rainbow trout.

4.1 QA/QC Summary

Test Conditions - Test conditions (pH, D.O., temperature, etc.) were all within acceptable limits for this test. All analyses were performed according the laboratory Standard Operating Procedures.

Negative Control - The test organism biological responses at the Lab Control treatment were within acceptable limits.

Appendix A

Chain-of-Custody Record for the Collection and Delivery of the Alameda Effluent Sample

Pacific EcoRisk
2250 Cordelia Rd., Fairfield, CA 94534
(707) 207-7760 FAX (707) 207-7916

CHAIN-OF-CUSTODY RECORD

Client Name:	Test America
Client Address:	13715 Rider Trail North Earth City, MO 63045
Phone:	314-298-8566 **FAX:** 314-298-8757
Project Manager:	Erika Gish **Email:** Erika.gish@testameri
Project Name:	Alameda
Project # / P.O. Number:	40440005 / 1036773-23

REQUESTED ANALYSIS

	Client Sample ID	Sample Date	Sample Time	Sample Matrix*	Container Number	Container Type	EPA 821-R-02-012 (Acute testing manual)
1	05-011	3/10/2014	0900	Effluent	2	5 gals. Cubi	x
2							
3							
4							
5							
6							
7							
8							
9							

Samples collected by:

Comments/Special Instruction:
Note - testing of 100% effluent using 2 replicates per treatment will be performed using rainbow trout for samples with a salinity < 10 ppt and with *Menidia beryllina* for

RELINQUISHED BY:		RECEIVED BY:	
Signature:		Signature:	
Print:		Print:	
Organization:	Tetra Tech EC	Organization:	PER
Date:	3/10/2014 Time: 1030	Date: 3/10/14	Time: 10.30
RELINQUISHED BY:		**RECEIVED BY:**	
Signature:		Signature:	
Print:		Print:	
Organization:		Organization:	
Date:	Time:	Date:	Time:

***Example Matrix Codes:** (**FW** = Freshwater); (**SW** = Saltwater); (**WW** = Wastewater); (**STRMW** = Stormwater); (**SED** = Sediment); or other

8/12

Appendix B

Test Data and Summary of Statistics for the Evaluation of the Acute Toxicity of Alameda Effluent to Rainbow Trout

CETIS Summary Report

Report Date: 25 Mar-14 08:08 (p 1 of 1)
Test Code: 55843 | 17-8136-8772

Acute Fish Survival Test — **Pacific EcoRisk**

Batch ID:	02-6727-0020	**Test Type:**	Survival (96h)	**Analyst:**	Padrick Anderson
Start Date:	11 Mar-14 13:30	**Protocol:**	EPA-821-R-02-012 (2002)	**Diluent:**	Not Applicable
Ending Date:	15 Mar-14 13:40	**Species:**	Oncorhynchus mykiss	**Brine:**	Not Applicable
Duration:	4d 0h	**Source:**	Thomas Fish Co.	**Age:**	15

Sample ID:	17-3284-3509	**Code:**	Effluent	**Client:**	TestAmerica
Sample Date:	10 Mar-14 09:00	**Material:**	Effluent	**Project:**	22188
Receive Date:	10 Mar-14 10:30	**Source:**	TestAmerica		
Sample Age:	28h (5.8 °C)	**Station:**	05-011		

Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
13-8815-2031	96h Survival Rate	100	>100	NA	NA	1	Fisher Exact Test

96h Survival Rate Summary

C-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Lab Water Contr	2	1	1	1	1	1	0	0	0.0%	0.0%
100		2	1	1	1	1	1	0	0	0.0%	0.0%

96h Survival Rate Detail

C-%	Control Type	Rep 1	Rep 2
0	Lab Water Contr	1	1
100		1	1

96h Survival Rate Binomials

C-%	Control Type	Rep 1	Rep 2
0	Lab Water Contr	10/10	10/10
100		10/10	10/10

CETIS Analytical Report

Report Date: 25 Mar-14 08:08 (p 1 of 1)
Test Code: 55843 | 17-8136-8772

Acute Fish Survival Test — **Pacific EcoRisk**

Analysis ID:	13-8815-2031	**Endpoint:**	96h Survival Rate	**CETIS Version:**	CETISv1.8.5
Analyzed:	25 Mar-14 8:07	**Analysis:**	Single 2x2 Contingency Table	**Official Results:**	Yes

Data Transform	Zeta	Alt Hyp	Trials	Seed	Test Result
Untransformed		C > T	NA	NA	Passes 96h survival rate

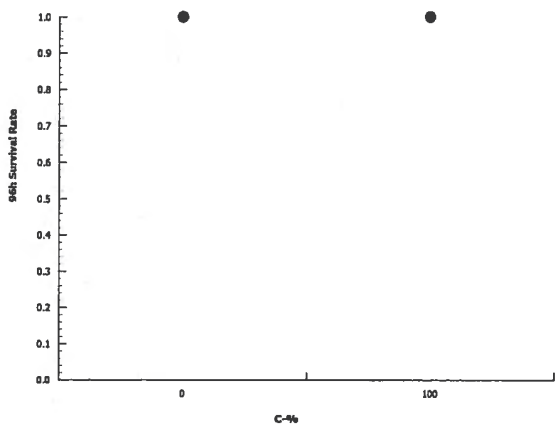
Fisher Exact Test

Control	vs	C-%	Test Stat	P-Value	P-Type	Decision(α:5%)
Lab Water Control		100	1	1.0000	Exact	Non-Significant Effect

Data Summary

C-%	Control Type	NR	R	NR + R	Prop NR	Prop R	%Effect
0	Lab Water Cont	20	0	20	1	0	0.0%
100		20	0	20	1	0	0.0%

Graphics



96 Hour Acute Rainbow Trout (*Oncorhynchus mykiss*) Toxicity Test

Client: TestAmerica
Test Material: Effluent
Test ID#: 55843 Project # 22188
Test Date: 3-11-14 Randomization: —

Organism Log #: 8025 Age: 15 days
Organism Supplier: Thomas Fish Company
Control/Diluent: EPAMH
Control Water Batch: 1668

Treatment	Temp (°C)	pH new	pH old	D.O. (mg/L) new	D.O. (mg/L) old	Conductivity (µS/cm) new	Conductivity (µS/cm) old	# Live Organisms Rep A	# Live Organisms Rep B	SIGN-OFF
Control	11.8	8.08		8.2		301		10	10	Date: 3-11-14 Sample ID: 34351 Test Solution Prep: [illegible]
100%	11.8	8.20		8.7		6920		10	10	New WQ: AS Initiation Time: 1330 Initiation Signoff: CP
Meter ID	29A	PH19		RD04		EC04				
Control	12.5		8.08		8.7		302	10	10	Date: 3/12/14 Count Time: 0930 Signoff: [illegible]
100%	12.5		7.76		8.8		6960	10	10	Old WQ: AAF
Meter ID	29A		PH19		RD07		EC09			
Control	12.4	8.31	8.20 ~~8.31~~ CP	8.4	8.5 ~~8.4~~ CP	300	305 ~~300~~ CP	10	10	Date: 3/13/14 Sample ID: 34351 Test Solution Prep: CD
100%	12.4	7.73	7.97 ~~7.73~~ CP	9.5	8.9 ~~9.5~~ CP	6980	6810 ~~6980~~ CP	10	10	New WQ: CP Renewal Time: 1130 Renewal Signoff: CP
Meter ID	29A	PH15	PH15	RD07	RD07	EC09	EC09			Old WQ: CP
Control	12.3		7.81		9.0		299	10	10	Date: 3/14/14 Count Time: 0835 Count Signoff: MK
100%	12.3		7.90		9.0		6990	10	10	Old WQ: D.M.S.
Meter ID	29A		pH21		RD04		EC06			
Control	12.6		7.78		8.4		302	10	10	Date: 3-15-14 Termination Time: 1340 Termination Signoff: DS
100%	12.6		7.50		8.6		7110	10	10	Old WQ: DS
Meter ID	29A		pH16		RD07		EC4			

TETRATECH
1230 Columbia Street, Suite 750
San Diego, CA 92101 (619) 234-8696

NUMBER 31001

CHAIN-OF-CUSTODY RECORD

E

PROJECT NAME	Alameda Site 17, CTO 05
PURCHASE ORDER NO.	106773-2223*
PROJECT LOCATION	Alameda, CA
PROJECT NO.	106-4044-0005
SAMPLER NAME	W.I. Solorzano
AIRBILL NUMBER	7981 6966 6677
PROJECT CONTACT	S. Sudoko
PROJECT CONTACT PHONE NUMBER	949 809-5022

LABORATORY NAME: Test America

LABORATORY ID (FOR LABORATORY): 160-5864-1 3-18

Project Information Section Do not submit to Laboratory

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	EPA 901.1 Cs137 only	EPA 905 Mod TSR	DOE-SR-03-RC Mod-90	Total Alpha	EPA 903 Mod. RA226	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
05-01h	3-10-14	1420	5	X		W		X	X	X	X	X		Effluent CTO 5 WTP-BATCH#1	—	—	Eq

RELINQUISHED BY (Signature)	DATE 3-10-14	RECEIVED BY (Signature) FedEx	
COMPANY Tetratech	TIME 1430	COMPANY FedEx	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature) 3/11/14	
COMPANY	TIME	COMPANY TA 0920	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	
COMPANY	TIME	COMPANY	

LABORATORY INSTRUCTIONS/COMMENTS
If results are > 8 pCi/L provide with DOE-SR-03-RC
If results < 8 pCi/L No Futher Action

COMPOSITE DESCRIPTION
Cs137 119 pCi/L requier
Start ingrowth when receipt of samples.

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: _____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

SAMPLING COMMENT:
CTO #5
BATCH #1
* Corrected PO # 3-19-14 Sudoko

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-5864-1
TestAmerica Sample Delivery Group: 160-5864
Client Project/Site: Alameda

For:
Tetra Tech, Inc.
17885 Von Karman Ave, Ste 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
3/19/2014 4:55:24 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-5864-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech, Inc.

Project: Alameda

Report Number: 160-5864-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-5864-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The sample was received on 3/11/2014 9:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 19.0º C.

CESIUM 137 AND OTHER GAMMA EMITTERS (GS)

Sample 05-012 (160-5864-1) was analyzed for Cesium 137 and Other Gamma Emitters (GS) in accordance with USEPA Method 901.1. The samples were prepared and analyzed on 03/12/2014.

Count Time: All samples and QC were counted for 60 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TOTAL ALPHA RADIUM (GFPC)

Sample 05-012 (160-5864-1) was analyzed for Total Alpha Radium (GFPC) in accordance with EPA Method 903.0. The samples were prepared on 03/12/2014 and analyzed on 03/13/2014.

Count Time: All samples and QC were counted for 200 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

STRONTIUM-90 (GFPC)

Sample 05-012 (160-5864-1) was analyzed for Strontium-90 (GFPC) in accordance with EPA Method 905. The samples were prepared on 03/12/2014 and analyzed on 03/13/2014.

Count Time: All samples and QC were counted for 400 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TETRATECH
1230 Columbia Street, Suite 750
San Diego, CA 92101 (619) 234-8696

NUMBER 31001

CHAIN-OF-CUSTODY RECORD

PROJECT NAME	Alameda Site 17, GTO 05
PROJECT LOCATION	Alameda, CA
SAMPLER NAME	W. Solorzano
PROJECT CONTACT	S. Sudoku
PURCHASE ORDER NO.	106773-22 23 *
PROJECT NO.	106-4044-0005
AIRBILL NUMBER	7981 6966 6677
PROJECT CONTACT PHONE NUMBER	949 809-5022
LABORATORY NAME	Test America
LABORATORY ID (FOR LABORATORY)	160-5864-1 3-18

Project Information Section Do not submit to Laboratory

SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL 3	LEVEL 4	TYPE	TAT	EPA 901.1 Cs137 only	EPA 905 Mod Tsr	DOE-SR-03-RL Mod Total Alpha	EPA 903 Mod. RA226	COMMENTS	LOCATION	DEPTH START	DEPTH END	QC
05-017	3-10-14	1420	5	X		W		X	X	X	X	X		Effluent CTO 5 WTP-BATCH#1	—	—	Reg

RELINQUISHED BY (Signature)	DATE 3-10-14	RECEIVED BY (Signature) FedEx	
COMPANY Tetra tech	TIME 1430	COMPANY FedEx	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	
COMPANY	TIME	COMPANY	
RELINQUISHED BY (Signature)	DATE	RECEIVED BY (Signature)	
COMPANY	TIME	COMPANY	

LABORATORY INSTRUCTIONS/COMMENTS
If results are > 8 pCi/L provide with DOE-SR-03-RL
If results < 8 pCi/L no further action

COMPOSITE DESCRIPTION
Cs137 1.19 pCi/L reporter
Start ingrowth when receipt of samples.

SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)
TEMPERATURE: _____ SAMPLE CONDITION: ☐ INTACT ☐ BROKEN
COOLER SEAL: ☐ INTACT ☐ BROKEN

SAMPLING COMMENT
CTO # 5
BATCH # 1
* Corrected PO # 3-19-14 Sudoku

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 160-5864-1
SDG Number: 160-5864

Login Number: 5864
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Thermal preservation not required.
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method	Method Description	Protocol	Laboratory
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Total Alpha Radium (GFPC)	EPA	TAL SL
905.0	Total Beta Strontium (GFPC)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-5864-1	05-012	Water	03/10/14 14:20	03/11/14 09:20

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5864-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.000	U	1.26	1.26	119	4.04	pCi/L	03/12/14 15:14	03/12/14 17:37	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method: 903.0 - Total Alpha Radium (GFPC)

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5864-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Total Alpha Radium	0.580		0.207	0.214	1.00	0.229	pCi/L	03/12/14 14:28	03/13/14 19:23	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.9*		*40 - 110*	*03/12/14 14:28*	*03/13/14 19:23*	*1*

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method: 905.0 - Total Beta Strontium (GFPC)

Client Sample ID: 05-012
Date Collected: 03/10/14 14:20
Date Received: 03/11/14 09:20

Lab Sample ID: 160-5864-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Total Beta Strontium	0.101		0.106	0.106	8.00	0.0818	pCi/L	03/12/14 14:29	03/13/14 15:19	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*86.1*		*40 - 110*	*03/12/14 14:29*	*03/13/14 15:19*	*1*

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-109985/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110268 — **Prep Batch: 109985**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-4.563	U	55.9	55.9	119	6.36	pCi/L	03/12/14 15:14	03/12/14 17:31	1

Lab Sample ID: LCS 160-109985/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110270 — **Prep Batch: 109985**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit	%Rec	%Rec. Limits
Americium-241	137000	135100		15600		235	pCi/L	99	90 - 111
Cesium-137	50300	51210		5090	119	72.6	pCi/L	102	90 - 111
Cobalt-60	58500	58000		5720		43.2	pCi/L	99	89 - 110

Lab Sample ID: 160-5864-1 DU — **Client Sample ID: 05-012**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110276 — **Prep Batch: 109985**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit	RER	RER Limit
Cesium-137	0.000	U	3.964	U	7.63	119	5.83	pCi/L	0.45	1

Method: 903.0 - Total Alpha Radium (GFPC)

Lab Sample ID: MB 160-109931/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110482 — **Prep Batch: 109931**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Total Alpha Radium	0.07783	U	0.103	0.103	1.00	0.172	pCi/L	03/12/14 09:37	03/13/14 19:18	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*85.0*		*40 - 110*	*03/12/14 09:37*	*03/13/14 19:18*	*1*

Lab Sample ID: LCS 160-109931/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110482 — **Prep Batch: 109931**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit	%Rec	%Rec. Limits
Total Alpha Radium	11.2	10.25		1.17	1.00	0.227	pCi/L	91	67 - 133

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*83.8*		*40 - 110*

Method: 903.0 - Total Alpha Radium (GFPC) (Continued)

Lab Sample ID: 180-30532-B-2-A DU — **Client Sample ID: Duplicate**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 110482 — **Prep Batch: 109931**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit			RER	RER Limit
Total Alpha Radium	0.157	U		0.2192		0.131	1.00	0.163	pCi/L			0.24	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*86.7*		*40 - 110*

Method: 905.0 - Total Beta Strontium (GFPC)

Lab Sample ID: MB 160-109979/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110484 — **Prep Batch: 109979**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDL	Unit	Prepared	Analyzed	Dil Fac
Total Beta Strontium	0.01170	U	0.0981	0.0981	8.00	0.0801	pCi/L	03/12/14 14:29	03/13/14 15:19	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*89.7*		*40 - 110*	*03/12/14 14:29*	*03/13/14 15:19*	*1*

Lab Sample ID: LCS 160-109979/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110484 — **Prep Batch: 109979**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit	%Rec	%Rec. Limits		
Total Beta Strontium			9.13	7.792		0.631	8.00	0.0826	pCi/L	85	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*89.1*		*40 - 110*

Lab Sample ID: 160-5864-1 DU — **Client Sample ID: 05-012**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 110484 — **Prep Batch: 109979**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDL	Unit			RER	RER Limit
Total Beta Strontium	0.101			0.2089		0.111	8.00	0.0806	pCi/L			0.50	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Sr Carrier	*87.7*		*40 - 110*

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Rad

Prep Batch: 109931

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5864-1	05-012	Total/NA	Water	PrecSep_0	
180-30532-B-2-A DU	Duplicate	Dissolved	Water	PrecSep_0	
LCS 160-109931/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-109931/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 109979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5864-1	05-012	Total/NA	Water	PrecSep_0	
160-5864-1 DU	05-012	Total/NA	Water	PrecSep_0	
LCS 160-109979/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
MB 160-109979/1-A	Method Blank	Total/NA	Water	PrecSep_0	

Prep Batch: 109985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-5864-1	05-012	Total/NA	Water	Fill_Geo-0	
160-5864-1 DU	05-012	Total/NA	Water	Fill_Geo-0	
LCS 160-109985/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
MB 160-109985/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	

Tracer/Carrier Summary

Client: Tetra Tech, Inc.
Project/Site: Alameda

TestAmerica Job ID: 160-5864-1
SDG: 160-5864

Method: 903.0 - Total Alpha Radium (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)							
160-5864-1	05-012	87.9							
LCS 160-109931/2-A	Lab Control Sample	83.8							
MB 160-109931/1-A	Method Blank	85.0							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 903.0 - Total Alpha Radium (GFPC)

Matrix: Water **Prep Type: Dissolved**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Ba (40-110)							
180-30532-B-2-A DU	Duplicate	86.7							

Tracer/Carrier Legend

Ba = Ba Carrier

Method: 905.0 - Total Beta Strontium (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Sr (C) (40-110)							
160-5864-1	05-012	86.1							
160-5864-1 DU	05-012	87.7							
LCS 160-109979/2-A	Lab Control Sample	89.1							
MB 160-109979/1-A	Method Blank	89.7							

Tracer/Carrier Legend

Sr (C) = Sr Carrier

APPENDIX D

INDUSTRIAL WASTE LINE SAMPLE DATA
(on CD)

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Subappendix D1

Chemical Constituent Results

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Table D-1
Industrial Waste Line Sediment and Soil
Chemical Validated Results

Method	Analyte	Sample ID / Units	IWL-BLDG29-SB1-01 8/18/2014	IWL-BLDG29-SB1-02 8/18/2014	IWL-BLDG29-SB2-01 8/18/2014	IWL-BLDG29-SB2-02 8/18/2014	IWL-BLDG29-SB3-01 8/18/2014	IWL-BLDG29-SB3-02 8/18/2014	IWL-MH1-1-01 7/29/2014	IWL-MH1-1-02 7/29/2014	IWL-MH1-2-01 7/29/2014
6020A	Antimony	mg/kg	2.38 UJ	2.31 UJ	2.45 UJ	2.50 UJ	2.54 UJ	2.34 UJ	3.13 J	2.66 J	10.5
6020A	Arsenic	mg/kg	3.91 J	6.39	3.60 J	3.16 J	5.89	3.92 J	25.3	9.66	18.4 J
6020A	Barium	mg/kg	21.6	24.4	45.6	21.1	21.6	14.3	315 J	245	524 J
6020A	Beryllium	mg/kg	0.237 J	0.170 J	0.205 J	0.150 J	0.176 J	0.164 J	0.421 J	0.467 J	0.505 J
6020A	Cadmium	mg/kg	0.137 J	1.18	0.245 U	0.156 J	0.254 U	0.234 U	111	111	332
6020A	Chromium	mg/kg	34.5	41.2	34.4	23.2	35.4	31.5	2810	2610	7120
6020A	Cobalt	mg/kg	9.24	8.77	9.79	5.8	7.46	7.67	10.9 J	11.2 J	14.5 J
6020A	Copper	mg/kg	5.73	7.9	6.59	5.49	5.71	4.81 J	223 J	244 J	554 J
6020A	Iron	mg/kg	16800	17000	17000	10900	14500	14700	22800 J	34200 J	32500 J
6020A	Lead	mg/kg	4.45	4.64	4.05	5.69	3.89	4.76	383 J	389 J	582 J
7471B	Mercury	mg/kg	0.0290 U	0.0291 U	0.0311 U	0.0125 J	0.0313 U	0.0332 U	0.575	0.555	0.914
6020A	Molybdenum	mg/kg	1.79 U	0.681 J	1.84 U	1.87 U	1.91 U	1.76 U	8.85 J	10.7 J	66.5 J
6020A	Nickel	mg/kg	48.7	43.1	45.2	28.6	45.6	35.1	118 J	123 J	419 J
6020A	Selenium	mg/kg	1.62 J	0.847 J	2.45 U	2.50 U	2.54 U	2.34 U	4.63 U	1.40 J	8.97 U
6020A	Silver	mg/kg	0.123 J	0.347 U	0.367 U	0.374 U	0.381 U	0.351 U	4.67 J	2.50 J	8.63 J
6020A	Thallium	mg/kg	0.992 U	0.963 U	1.02 U	1.04 U	1.06 U	0.975 U	1.93 U	1.66 U	3.74 U
6020A	Vanadium	mg/kg	27.2	29.7	30.8	20.9	24.9	25.5	34.8 J	31.6 J	37.3 J
6020A	Zinc	mg/kg	29.4	29.4	32.4	30.1	26.3 J	26.5	1600	1590	2310

Notes:
* Volatile and semivolatile analytical results are not tabulated but are included in the laboratory reports.

Abbreviations and Acronyms:
J – value is estimated
mg/kg – milligrams per kilogram
U – not detected above stated value

Table D-1
Industrial Waste Line Sediment and Soil
Chemical Validated Results

Method	Analyte	Sample ID	IWL-MH1-2-02	IWL-MH2-3-01	IWL-MH2-3-02	IWL-MH1-4-01	IWL-MH1-4-02	IWL-MH1-4-UP	IWL-MH1-5-01	IWL-MH1-5-02	IWL-MH1-5-UP-01
		Units	7/29/2014	7/29/2014	7/29/2014	7/30/2014	7/30/2014	7/30/2014	7/30/2014	7/30/2014	7/30/2014
6020A	Antimony	mg/kg	6.67 J	3.22 U	1.81 J	6.47	7.74	11.5	7.76	16.5	10.9
6020A	Arsenic	mg/kg	14.2 J	4.28 J	5.69 J	11.7 J	13.5	20	11.4	13.2 J	7.03 J
6020A	Barium	mg/kg	608 J	125 J	125 J	291 J	362 J	682 J	683 J	832 J	210 J
6020A	Beryllium	mg/kg	0.487 J	0.244 J	0.245 J	1.3	2.19	1.83	1.26	1.35 J	0.587 J
6020A	Cadmium	mg/kg	398	43.5	71.9	1280	1790	1370	1470	2380	1370
6020A	Chromium	mg/kg	10800	250	431	2560	2370	2000	7110	9410	1060
6020A	Cobalt	mg/kg	16 J	10.2 J	12.4 J	30.4 J	90.3 J	51.4 J	28.7 J	33.8 J	10 J
6020A	Copper	mg/kg	569 J	141 J	305 J	511 J	532 J	4700 J	1060 J	1350 J	1500 J
6020A	Iron	mg/kg	33700 J	19200 J	21500 J	21900 J	29800 J	32700 J	37800 J	30800 J	12400 J
6020A	Lead	mg/kg	1550 J	120 J	238 J	547 J	549 J	879 J	1620 J	1910 J	1290 J
7471B	Mercury	mg/kg	1.9	0.253	0.828	1.56 J	1.13 J	1.33 J	2.16 J	2.31 J	0.192 J
6020A	Molybdenum	mg/kg	41.9 J	2.01 J	5.24 J	48.3 J	63.9 J	47.7 J	62.4 J	103 J	29.9 J
6020A	Nickel	mg/kg	421 J	63.2 J	88.2 J	587 J	840 J	1170 J	648 J	716 J	253 J
6020A	Selenium	mg/kg	7.45 U	1.11 J	1.56 J	5.80 U	6.10 U	2.67 J	1.87 J	6.81 U	3.44 U
6020A	Silver	mg/kg	8.15 J	2.36 J J	4.96 J	27.8 J	27.0 J	28.4 J	34.8 J	60.5 J	10.7 J
6020A	Thallium	mg/kg	3.10 U	1.34 U	1.57 U	2.42 U	2.54 U	2.77 U	2.24 U	2.84 U	1.43 U
6020A	Vanadium	mg/kg	37.6 J	36.1 J	40.6 J	25.7 J	30.2 J	38.1 J	53.7 J	36.9 J	11.5 J
6020A	Zinc	mg/kg	2830	907	1610	2410	2600	3960	7560	3230	377

Notes:
* Volatile and semivolatile analytical results are not tabulated but are included in the laboratory reports.

Abbreviations and Acronyms:
J – value is estimated
mg/kg – milligrams per kilogram
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Table D-1
Industrial Waste Line Sediment and Soil
Chemical Validated Results

Method	Analyte	Sample ID	IWL-MH1-6-01	IWL-MH1-6-02	IWL-MH1-7-01	IWL-MH1-7-02	IWL-MH1-8-01	IWL-MH1-8-02	IWL-MH1-8-UP-01	IWL-MH1-8-ND-02	IWL-MH1-09-01
		Units	7/30/2014	7/30/2014	7/31/2014	7/31/2014	7/31/2014	7/31/2014	8/4/2014	8/4/2014	8/4/2014
6020A	Antimony	mg/kg	5.61	4.77	4.35	24.7	15.9	7.64	2.23 J	4.7 J	9.92 J
6020A	Arsenic	mg/kg	13.7	12.9	12.6	21.4	29.9	19.8	7.00 J	12.9	20.4
6020A	Barium	mg/kg	310 J	475 J	393 J	1300 J	645 J	346 J	149 J	294 J	713 J
6020A	Beryllium	mg/kg	0.874	1	4.16	3.23	2.36	0.895 J	0.555 J	0.951	1.68
6020A	Cadmium	mg/kg	2230	1660	1100	1450	1650	729	759 J	1330 J	878 J
6020A	Chromium	mg/kg	2040	2210	1570	2890	2740	1880	714 J	1730 J	1750 J
6020A	Cobalt	mg/kg	28.7 J	25.6 J	87.6 J	88.7 J	74.6 J	36.9 J	10.4	20.7	48
6020A	Copper	mg/kg	434 J	427 J	602 J	1250 J	1550 J	971 J	216 J	301 J	465 J
6020A	Iron	mg/kg	23200 J	32400 J	21600 J	32300 J	45700 J	61100 J	11100 J	31200 J	26300 J
6020A	Lead	mg/kg	436 J	494 J	434 J	944 J	1410 J	814 J	225 J	584 J	632 J
7471B	Mercury	mg/kg	0.717 J	0.864 J	1.61 J	1.43 J	3.08 J	1.98 J	0.951	0.884	1.34
6020A	Molybdenum	mg/kg	28.5 J	33.4 J	61.3 J	135 J	119 J	44.8 J	14.2	30.2	63.7
6020A	Nickel	mg/kg	634 J	702J	1210 J	3130 J	1130 J	533 J	233 J	355 J	1320 J
6020A	Selenium	mg/kg	4.00 U	4.29 U	2.95 J	1.63 J	6.15 U	2.47 J	3.68 U	4.46 U	7.11 U
6020A	Silver	mg/kg	28.4 J	21.4 J	31.0 J	113 J	46.6 J	27.7 J	9.48	14.4	43.6
6020A	Thallium	mg/kg	1.67 U	1.79 U	1.70 U	1.96 U	2.56 U	1.90 U	1.53 U	1.86 U	2.96 U
6020A	Vanadium	mg/kg	21.3 J	20.5 J	28.3 J	37.6 J	77.3 J	83.5 J	13.9	37.9	28.6
6020A	Zinc	mg/kg	1900	1490	3130	5080	5830	3900	1060 J	2370 J	3340 J

Notes:
* Volatile and semivolatile analytical results are not tabulated but are included in the laboratory reports.

Abbreviations and Acronyms:
J – value is estimated
mg/kg – milligrams per kilogram
U – not detected above stated value

Table D-1
Industrial Waste Line Sediment and Soil
Chemical Validated Results

Method	Analyte	Sample ID	IWL-MH1-09-02	IWL-MH1-10-01	IWL-MH1-10-02	IWL-MH1-11-01	IWL-MH1-11-02	IWL-MH1-12-01	IWL-MH1-12-02	IWL-MH1-13-01	IWL-MH1-13-02
		Units	8/4/2014	7/22/2014	7/22/2014	7/23/2014	7/23/2014	7/23/2014	7/23/2014	7/24/2014	7/24/2014
6020A	Antimony	mg/kg	18.5 J	5.18 J	2.24 J	11.9 J	6.98 J	36.3 J	9.69 J	11.5	14.5
6020A	Arsenic	mg/kg	21.4	5.61 J	7.51	6.12 J	9.42 J	16.8 J	21.7 J	24.6	49.2
6020A	Barium	mg/kg	1030 J	158 J	182 J	448 J	375 J	723 J	1390 J	584 J	817 J
6020A	Beryllium	mg/kg	2.68	0.203 J	0.544 U	0.736 J	0.308 J	0.454 J	0.572 J	0.823 J	0.943 J
6020A	Cadmium	mg/kg	1470 J	16.8 J	8.69 J	271 J	370 J	154 J	467 J	262 J	694 J
6020A	Chromium	mg/kg	2540 J	277	132	3780 J	4990 J	1780 J	7470 J	890 J	1870 J
6020A	Cobalt	mg/kg	56.2	6.37	9.69	93.4 J	52.9 J	53.3 J	124 J	33.6	59.9
6020A	Copper	mg/kg	597 J	175	163	489 J	571 J	646 J	1130 J	617 J	1110 J
6020A	Iron	mg/kg	32600 J	24100 J	45000 J	18100	16800	31500	47800	35500	81300
6020A	Lead	mg/kg	918 J	389 J	204 J	1030	1310	1870	3100	1030 J	2020 J
7471B	Mercury	mg/kg	2.47	1.62 J	1.43 J	3.28 J	2.77 J	12.9 J	18.2 J	3.21 J	3.29 J
6020A	Molybdenum	mg/kg	120	6.52 J	8.11 J	125 J	67.9 J	66.2 J	157 J	42.5	70.4
6020A	Nickel	mg/kg	1550 J	101	96.8	2720 J	2800 J	1070 J	3830 J	395 J	1020 J
6020A	Selenium	mg/kg	2.30 J	3.38 UJ	3.35 UJ	1.56 J	1.91 J	4.76 UJ	6.67 UJ	10.5 U	12.1 U
6020A	Silver	mg/kg	59.9 B	2.39 J	5.44 J	219J	350 J	86.0 J	371 J	30	41.8
6020A	Thallium	mg/kg	2.47 U	1.41 U	1.40 U	1.76 U	1.68 U	1.98 U	2.78 U	4.36 U	5.04 U
6020A	Vanadium	mg/kg	35.1	15	20.5	15.4 J	17.1 J	37.2 J	61.6 J	28.4	56.1
6020A	Zinc	mg/kg	4480 J	890 J	615 J	1390	1460	3110	4150	2640	4790

Notes:
* Volatile and semivolatile analytical results are not tabulated but are included in the laboratory reports.

Abbreviations and Acronyms:
J – value is estimated
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Table D-1
Industrial Waste Line Sediment and Soil
Chemical Validated Results

Method	Analyte	Sample ID	IWL-MH1-14-01	IWL-MH1-14-02	IWL-MH1-22-01	IWL-MH1-22-02	IWL-MH1-23-01	IWL-MH1-23-02	IWL-MH1-24-01	IWL-MH1-24-02	IWL-SB1-01
		Units	8/4/2014	8/4/2014	7/22/2014	7/22/2014	7/21/2014	7/21/2014	7/21/2014	7/21/2014	8/18/2014
6020A	Antimony	mg/kg	8.41 J	8.49 J	55.8 J	213 J	62.8 J	18 J	11.1 J	34.2 J	3.71 UJ
6020A	Arsenic	mg/kg	21.2	17.3	7.98 J	8.35	16.9	31.3	10.4	12.1	16.7
6020A	Barium	mg/kg	522 J	494 J	355 J	962 J	384 J	762 J	388 J	1130 J	73.9
6020A	Beryllium	mg/kg	1.07 J	1.73	0.895 J	1.05	0.420 J	0.697 J	0.386 J	0.535 J	0.772 J
6020A	Cadmium	mg/kg	1090 J	1890 J	395 J	454 J	96.1 J	263 J	113 J	90.9 J	0.484
6020A	Chromium	mg/kg	1830 J	3780 J	2870	2410	469	1870	1180	1550	103
6020A	Cobalt	mg/kg	18.1	24.6	62	34.4	22.9	107	29.7	37.7	19.7
6020A	Copper	mg/kg	652 J	1000 J	622	628	1280	1530	631	1240	66.6
6020A	Iron	mg/kg	28500 J	22800 J	23200 J	31900 J	58100 J	46800 J	37900 J	84300 J	48700
6020A	Lead	mg/kg	638 J	845 J	1060 J	907 J	784 J	1590 J	668 J	2150 J	40.2
7471B	Mercury	mg/kg	1.88	1.59	3.39 J	1.7 J	5.2 J	4.27 J	1.27 J	0.0490 UJ	0.351
6020A	Molybdenum	mg/kg	45	76.8	97 J	51.6 J	36.7 J	107 J	42.6 J	52.6 J	1.03 J
6020A	Nickel	mg/kg	477 J	586 J	2160	1460	654	1390	619	798	112
6020A	Selenium	mg/kg	6.00 U	6.84 U	5.37 UJ	66.2 J	3.34 UJ	2.54 J	4.23 UJ	3.71 UJ	2.40 J
6020A	Silver	mg/kg	29.1	42.5	185 J	91.9 J	19 J	59.2 J	64.6 J	88.8 J	0.199 J
6020A	Thallium	mg/kg	2.50 U	2.85 U	2.24 U	1.48 U	1.39 U	2.82 U	1.76 U	1.55 U	1.55 U
6020A	Vanadium	mg/kg	21.6	22.4	15.9	14.5	19.5	36.3	18.4	34.8	87.4
6020A	Zinc	mg/kg	2270 J	2480 J	1990 J	2250 J	4440 J	3350 J	2160 J	4790 J	155

Notes:
* Volatile and semivolatile analytical results are not tabulated but are included in the laboratory reports.

Abbreviations and Acronyms:
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Table D-1
Industrial Waste Line Sediment and Soil
Chemical Validated Results

Method	Analyte	Sample ID	IWL-SB1-02	IWL-SB2-01	IWL-SB2-02	IWL-PS1VAULT-01	IWL-PS1-VAULT-UP-01	IWL-PS1VAULT-02	IWL-PS2-VAULT-01	IWL-PS2-VAULT-02
		Units	8/18/2014	8/18/2014	8/18/2014	7/29/2014	8/26/2014	7/29/2014	7/24/2014	7/24/2014
6020A	Antimony	mg/kg	2.72 UJ	3.15 UJ	2.71 UJ	11.8	8.47	11.8	6.86 J	7.57
6020A	Arsenic	mg/kg	2.29 J	8.84	2.63 J	21.8	12.6	27.5	31.1	21.1
6020A	Barium	mg/kg	51.0	75.9	37.0	972 J	834 J	704 J	409 J	466 J
6020A	Beryllium	mg/kg	0.175 J	0.374 J	0.159 J	0.539 J	0.493	1.51 U	0.496 J	0.478 J
6020A	Cadmium	mg/kg	0.272 U	0.317 J	0.271 U	223	195	196	1360 J	879 J
6020A	Chromium	mg/kg	37.3	66.1	35.8	1860	1280 J	1600	3490 J	4160 J
6020A	Cobalt	mg/kg	5.26	13.7	5.82	23.4 J	14.8	19.3 J	71.7	62.4
6020A	Copper	mg/kg	7.47	30	7.34	802 J	609 J	733 J	1270 J	1050 J
6020A	Iron	mg/kg	11300	27300	11300	66200 J	27400	95300 J	67700	45300
6020A	Lead	mg/kg	3.1	14	2.54	1190 J	885	1140 J	944 J	828 J
7471B	Mercury	mg/kg	0.0324 U	0.0819	0.0318 U	1.02	1.97	1.12	4.07 J	2.37 J
6020A	Molybdenum	mg/kg	2.04 U	0.901 J	2.03 U	71.1 J	78	69.3 J	243	122
6020A	Nickel	mg/kg	34.7	72.3	38	174 J	103	125 J	1690 J	1630 J
6020A	Selenium	mg/kg	2.72 U	3.15 U	2.71 U	7.89 U	1.13 J	3.87 J	7.68 U	2.07 J
6020A	Silver	mg/kg	0.407 U	0.472 U	0.406 U	10.3 J	10.6	10.6 J	152	172
6020A	Thallium	mg/kg	1.13 U	1.31 U	1.13 U	3.29 U	0.656 U	3.86 U	3.20 U	2.58 U
6020A	Vanadium	mg/kg	23.6	51.8	23.5	53.5 J	34.9	50.6 J	35.5	31.9
6020A	Zinc	mg/kg	23.1 J	63.8	23.8 J	6390	2160	8580	2500	2050

Notes:
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Abbreviations and Acronyms:
J – value is estimated
mg/kg – milligrams per kilogram
U – not detected above stated value

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7559-1
TestAmerica Sample Delivery Group: 160-7559
Client Project/Site: Alameda IR Site 17
Revision: 1

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
8/14/2014 10:25:51 AM

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Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1000

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MH1-24-01	7/21/2014	1108	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-24	N/A	N/A	N
IWL-MH1-24-02	7/21/2014	1113	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-24	N/A	N/A	N
IWL-MH1-23-01	7/21/2014	1423	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-23	N/A	N/A	N
IWL-MH1-23-02	7/21/2014	1430	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-23	N/A	N/A	N

Relinquished by: (signature)	Date: 7/21/14	Received by (signature): FedEX
Company: Tetra tech EC	Time: 1530	Company: FedEX
Relinquished by: (signature)	Date: 7-22-14	Received by (signature): [illegible]
Company: Fed Ex	Time: 0915	Company: TASL
Relinquished by: (signature)	Date:	Received by (signature):
Company:	Time:	Company:

Laboratory Instructions/Comments:

Composite Discription:

Sample Condition Upon Receipt (for Laboratory)

Temperature: Sample Condition:

Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1000

160-7559 Chain of Custody

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-24-01
Date Collected: 07/21/14 11:08
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-1
Matrix: Solid
Percent Solids: 55.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	4510	U	36100	4510	3070	ug/Kg	☼	07/25/14 15:28	20
Benzene	1800	U	9020	1800	357	ug/Kg	☼	07/25/14 15:28	20
Bromodichloromethane	1800	U	9020	1800	389	ug/Kg	☼	07/25/14 15:28	20
Bromoform	1800	U	9020	1800	587	ug/Kg	☼	07/25/14 15:28	20
Bromomethane	1800	U	18000	1800	872	ug/Kg	☼	07/25/14 15:28	20
2-Butanone (MEK)	4510	U	18000	4510	2390	ug/Kg	☼	07/25/14 15:28	20
Carbon tetrachloride	1800	U	9020	1800	630	ug/Kg	☼	07/25/14 15:28	20
Chlorobenzene	1800	U	9020	1800	373	ug/Kg	☼	07/25/14 15:28	20
Dibromochloromethane	1800	U	9020	1800	365	ug/Kg	☼	07/25/14 15:28	20
Chloroethane	1800	U	18000	1800	483	ug/Kg	☼	07/25/14 15:28	20
Chloroform	1800	U	9020	1800	379	ug/Kg	☼	07/25/14 15:28	20
Chloromethane	1800	U	18000	1800	902	ug/Kg	☼	07/25/14 15:28	20
1,1-Dichloroethane	1800	U	9020	1800	365	ug/Kg	☼	07/25/14 15:28	20
1,2-Dichloroethane	1800	U	9020	1800	400	ug/Kg	☼	07/25/14 15:28	20
cis-1,2-Dichloroethene	1800	U	9020	1800	377	ug/Kg	☼	07/25/14 15:28	20
trans-1,2-Dichloroethene	1800	U	18000	1800	293	ug/Kg	☼	07/25/14 15:28	20
1,1-Dichloroethene	1800	U	9020	1800	874	ug/Kg	☼	07/25/14 15:28	20
1,2-Dichloropropane	1800	U	9020	1800	566	ug/Kg	☼	07/25/14 15:28	20
cis-1,3-Dichloropropene	1800	U	18000	1800	231	ug/Kg	☼	07/25/14 15:28	20
trans-1,3-Dichloropropene	1800	U	9020	1800	349	ug/Kg	☼	07/25/14 15:28	20
Ethylbenzene	1800	U	9020	1800	300	ug/Kg	☼	07/25/14 15:28	20
2-Hexanone	1800	U	36100	1800	454	ug/Kg	☼	07/25/14 15:28	20
Methylene Chloride	4510	U	9020	4510	1830	ug/Kg	☼	07/25/14 15:28	20
4-Methyl-2-pentanone (MIBK)	1800	U	36100	1800	735	ug/Kg	☼	07/25/14 15:28	20
Methyl tert-butyl ether	1800	U	9020	1800	357	ug/Kg	☼	07/25/14 15:28	20
Styrene	1800	U	9020	1800	519	ug/Kg	☼	07/25/14 15:28	20
1,1,2,2-Tetrachloroethane	1800	U	9020	1800	548	ug/Kg	☼	07/25/14 15:28	20
Tetrachloroethene	1800	U	9020	1800	724	ug/Kg	☼	07/25/14 15:28	20
Toluene	1800	U	9020	1800	461	ug/Kg	☼	07/25/14 15:28	20
1,1,1-Trichloroethane	1800	U	9020	1800	360	ug/Kg	☼	07/25/14 15:28	20
1,1,2-Trichloroethane	1800	U	9020	1800	1070	ug/Kg	☼	07/25/14 15:28	20
Trichloroethene	1800	U	9020	1800	635	ug/Kg	☼	07/25/14 15:28	20
Vinyl chloride	1800	U	18000	1800	996	ug/Kg	☼	07/25/14 15:28	20
Xylenes, Total	1800	U	27100	1800	1050	ug/Kg	☼	07/25/14 15:28	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*197*	*X*	*85 - 120*	*07/24/14 20:37*	*07/25/14 15:28*	*20*
1,2-Dichloroethane-d4 (Surr)	*75*		*71 - 128*	*07/24/14 20:37*	*07/25/14 15:28*	*20*
Toluene-d8 (Surr)	*74*	*X*	*85 - 115*	*07/24/14 20:37*	*07/25/14 15:28*	*20*
Dibromofluoromethane (Surr)	*76*		*76 - 126*	*07/24/14 20:37*	*07/25/14 15:28*	*20*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-24-02
Date Collected: 07/21/14 11:13
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-2
Matrix: Solid
Percent Solids: 61.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	2020	U	16100	2020	1370	ug/Kg	☼	07/25/14 15:53	10
Benzene	807	U	4040	807	160	ug/Kg	☼	07/25/14 15:53	10
Bromodichloromethane	807	U	4040	807	174	ug/Kg	☼	07/25/14 15:53	10
Bromoform	807	U	4040	807	262	ug/Kg	☼	07/25/14 15:53	10
Bromomethane	807	U	8070	807	390	ug/Kg	☼	07/25/14 15:53	10
2-Butanone (MEK)	2020	U	8070	2020	1070	ug/Kg	☼	07/25/14 15:53	10
Carbon tetrachloride	807	U	4040	807	282	ug/Kg	☼	07/25/14 15:53	10
Chlorobenzene	807	U	4040	807	167	ug/Kg	☼	07/25/14 15:53	10
Dibromochloromethane	807	U	4040	807	163	ug/Kg	☼	07/25/14 15:53	10
Chloroethane	807	U	8070	807	216	ug/Kg	☼	07/25/14 15:53	10
Chloroform	807	U	4040	807	170	ug/Kg	☼	07/25/14 15:53	10
Chloromethane	807	U	8070	807	404	ug/Kg	☼	07/25/14 15:53	10
1,1-Dichloroethane	807	U	4040	807	163	ug/Kg	☼	07/25/14 15:53	10
1,2-Dichloroethane	807	U	4040	807	179	ug/Kg	☼	07/25/14 15:53	10
cis-1,2-Dichloroethene	807	U	4040	807	168	ug/Kg	☼	07/25/14 15:53	10
trans-1,2-Dichloroethene	807	U	8070	807	131	ug/Kg	☼	07/25/14 15:53	10
1,1-Dichloroethene	807	U	4040	807	391	ug/Kg	☼	07/25/14 15:53	10
1,2-Dichloropropane	807	U	4040	807	253	ug/Kg	☼	07/25/14 15:53	10
cis-1,3-Dichloropropene	807	U	8070	807	103	ug/Kg	☼	07/25/14 15:53	10
trans-1,3-Dichloropropene	807	U	4040	807	156	ug/Kg	☼	07/25/14 15:53	10
Ethylbenzene	807	U	4040	807	134	ug/Kg	☼	07/25/14 15:53	10
2-Hexanone	807	U	16100	807	203	ug/Kg	☼	07/25/14 15:53	10
Methylene Chloride	2020	U	4040	2020	817	ug/Kg	☼	07/25/14 15:53	10
4-Methyl-2-pentanone (MIBK)	807	U	16100	807	329	ug/Kg	☼	07/25/14 15:53	10
Methyl tert-butyl ether	807	U	4040	807	159	ug/Kg	☼	07/25/14 15:53	10
Styrene	807	U	4040	807	232	ug/Kg	☼	07/25/14 15:53	10
1,1,2,2-Tetrachloroethane	807	U	4040	807	245	ug/Kg	☼	07/25/14 15:53	10
Tetrachloroethene	807	U	4040	807	324	ug/Kg	☼	07/25/14 15:53	10
Toluene	807	U	4040	807	206	ug/Kg	☼	07/25/14 15:53	10
1,1,1-Trichloroethane	807	U	4040	807	161	ug/Kg	☼	07/25/14 15:53	10
1,1,2-Trichloroethane	807	U	4040	807	480	ug/Kg	☼	07/25/14 15:53	10
Trichloroethene	807	U	4040	807	284	ug/Kg	☼	07/25/14 15:53	10
Vinyl chloride	807	U	8070	807	446	ug/Kg	☼	07/25/14 15:53	10
Xylenes, Total	807	U	12100	807	469	ug/Kg	☼	07/25/14 15:53	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*85 - 120*	*07/24/14 20:37*	*07/25/14 15:53*	*10*
1,2-Dichloroethane-d4 (Surr)	*71*		*71 - 128*	*07/24/14 20:37*	*07/25/14 15:53*	*10*
Toluene-d8 (Surr)	*67*	*X*	*85 - 115*	*07/24/14 20:37*	*07/25/14 15:53*	*10*
Dibromofluoromethane (Surr)	*72*	*X*	*76 - 126*	*07/24/14 20:37*	*07/25/14 15:53*	*10*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-23-01
Date Collected: 07/21/14 14:23
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-3
Matrix: Solid
Percent Solids: 66.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	186	U	1490	186	126	ug/Kg	☼	07/25/14 16:18	1
Benzene	74.3	U	371	74.3	14.7	ug/Kg	☼	07/25/14 16:18	1
Bromodichloromethane	74.3	U	371	74.3	16.0	ug/Kg	☼	07/25/14 16:18	1
Bromoform	74.3	U	371	74.3	24.1	ug/Kg	☼	07/25/14 16:18	1
Bromomethane	74.3	U	743	74.3	35.9	ug/Kg	☼	07/25/14 16:18	1
2-Butanone (MEK)	186	U	743	186	98.5	ug/Kg	☼	07/25/14 16:18	1
Carbon tetrachloride	74.3	U	371	74.3	25.9	ug/Kg	☼	07/25/14 16:18	1
Chlorobenzene	74.3	U	371	74.3	15.4	ug/Kg	☼	07/25/14 16:18	1
Dibromochloromethane	74.3	U	371	74.3	15.0	ug/Kg	☼	07/25/14 16:18	1
Chloroethane	74.3	U	743	74.3	19.9	ug/Kg	☼	07/25/14 16:18	1
Chloroform	74.3	U	371	74.3	15.6	ug/Kg	☼	07/25/14 16:18	1
Chloromethane	74.3	U	743	74.3	37.1	ug/Kg	☼	07/25/14 16:18	1
1,1-Dichloroethane	74.3	U	371	74.3	15.0	ug/Kg	☼	07/25/14 16:18	1
1,2-Dichloroethane	74.3	U	371	74.3	16.4	ug/Kg	☼	07/25/14 16:18	1
cis-1,2-Dichloroethene	74.3	U	371	74.3	15.5	ug/Kg	☼	07/25/14 16:18	1
trans-1,2-Dichloroethene	74.3	U	743	74.3	12.1	ug/Kg	☼	07/25/14 16:18	1
1,1-Dichloroethene	74.3	U	371	74.3	36.0	ug/Kg	☼	07/25/14 16:18	1
1,2-Dichloropropane	74.3	U	371	74.3	23.3	ug/Kg	☼	07/25/14 16:18	1
cis-1,3-Dichloropropene	74.3	U	743	74.3	9.50	ug/Kg	☼	07/25/14 16:18	1
trans-1,3-Dichloropropene	74.3	U	371	74.3	14.3	ug/Kg	☼	07/25/14 16:18	1
Ethylbenzene	74.3	U	371	74.3	12.3	ug/Kg	☼	07/25/14 16:18	1
2-Hexanone	74.3	U	1490	74.3	18.7	ug/Kg	☼	07/25/14 16:18	1
Methylene Chloride	186	U	371	186	75.1	ug/Kg	☼	07/25/14 16:18	1
4-Methyl-2-pentanone (MIBK)	74.3	U	1490	74.3	30.2	ug/Kg	☼	07/25/14 16:18	1
Methyl tert-butyl ether	74.3	U	371	74.3	14.7	ug/Kg	☼	07/25/14 16:18	1
Styrene	74.3	U	371	74.3	21.4	ug/Kg	☼	07/25/14 16:18	1
1,1,2,2-Tetrachloroethane	74.3	U	371	74.3	22.5	ug/Kg	☼	07/25/14 16:18	1
Tetrachloroethene	74.3	U	371	74.3	29.8	ug/Kg	☼	07/25/14 16:18	1
Toluene	74.3	U	371	74.3	19.0	ug/Kg	☼	07/25/14 16:18	1
1,1,1-Trichloroethane	74.3	U	371	74.3	14.8	ug/Kg	☼	07/25/14 16:18	1
1,1,2-Trichloroethane	74.3	U	371	74.3	44.2	ug/Kg	☼	07/25/14 16:18	1
Trichloroethene	74.3	U	371	74.3	26.1	ug/Kg	☼	07/25/14 16:18	1
Vinyl chloride	74.3	U	743	74.3	41.0	ug/Kg	☼	07/25/14 16:18	1
Xylenes, Total	74.3	U	1110	74.3	43.2	ug/Kg	☼	07/25/14 16:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*85*		*85 - 120*	*07/24/14 20:37*	*07/25/14 16:18*	*1*
1,2-Dichloroethane-d4 (Surr)	*75*		*71 - 128*	*07/24/14 20:37*	*07/25/14 16:18*	*1*
Toluene-d8 (Surr)	*81*	*X*	*85 - 115*	*07/24/14 20:37*	*07/25/14 16:18*	*1*
Dibromofluoromethane (Surr)	*81*		*76 - 126*	*07/24/14 20:37*	*07/25/14 16:18*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-23-02
Date Collected: 07/21/14 14:30
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-4
Matrix: Solid
Percent Solids: 31.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	395	U	3160	395	269	ug/Kg	☼	07/25/14 16:43	1
Benzene	**39.2**	**J**	791	158	31.3	ug/Kg	☼	07/25/14 16:43	1
Bromodichloromethane	158	U	791	158	34.1	ug/Kg	☼	07/25/14 16:43	1
Bromoform	158	U	791	158	51.4	ug/Kg	☼	07/25/14 16:43	1
Bromomethane	158	U	1580	158	76.4	ug/Kg	☼	07/25/14 16:43	1
2-Butanone (MEK)	395	U	1580	395	210	ug/Kg	☼	07/25/14 16:43	1
Carbon tetrachloride	158	U	791	158	55.2	ug/Kg	☼	07/25/14 16:43	1
Chlorobenzene	158	U	791	158	32.7	ug/Kg	☼	07/25/14 16:43	1
Dibromochloromethane	158	U	791	158	32.0	ug/Kg	☼	07/25/14 16:43	1
Chloroethane	158	U	1580	158	42.3	ug/Kg	☼	07/25/14 16:43	1
Chloroform	158	U	791	158	33.3	ug/Kg	☼	07/25/14 16:43	1
Chloromethane	158	U	1580	158	79.1	ug/Kg	☼	07/25/14 16:43	1
1,1-Dichloroethane	158	U	791	158	32.0	ug/Kg	☼	07/25/14 16:43	1
1,2-Dichloroethane	158	U	791	158	35.0	ug/Kg	☼	07/25/14 16:43	1
cis-1,2-Dichloroethene	158	U	791	158	33.0	ug/Kg	☼	07/25/14 16:43	1
trans-1,2-Dichloroethene	158	U	1580	158	25.7	ug/Kg	☼	07/25/14 16:43	1
1,1-Dichloroethene	158	U	791	158	76.6	ug/Kg	☼	07/25/14 16:43	1
1,2-Dichloropropane	158	U	791	158	49.6	ug/Kg	☼	07/25/14 16:43	1
cis-1,3-Dichloropropene	158	U	1580	158	20.2	ug/Kg	☼	07/25/14 16:43	1
trans-1,3-Dichloropropene	158	U	791	158	30.6	ug/Kg	☼	07/25/14 16:43	1
Ethylbenzene	158	U	791	158	26.3	ug/Kg	☼	07/25/14 16:43	1
2-Hexanone	158	U	3160	158	39.8	ug/Kg	☼	07/25/14 16:43	1
Methylene Chloride	395	U	791	395	160	ug/Kg	☼	07/25/14 16:43	1
4-Methyl-2-pentanone (MIBK)	158	U	3160	158	64.4	ug/Kg	☼	07/25/14 16:43	1
Methyl tert-butyl ether	158	U	791	158	31.3	ug/Kg	☼	07/25/14 16:43	1
Styrene	158	U	791	158	45.5	ug/Kg	☼	07/25/14 16:43	1
1,1,2,2-Tetrachloroethane	158	U	791	158	48.0	ug/Kg	☼	07/25/14 16:43	1
Tetrachloroethene	158	U	791	158	63.4	ug/Kg	☼	07/25/14 16:43	1
Toluene	158	U	791	158	40.4	ug/Kg	☼	07/25/14 16:43	1
1,1,1-Trichloroethane	158	U	791	158	31.6	ug/Kg	☼	07/25/14 16:43	1
1,1,2-Trichloroethane	158	U	791	158	94.1	ug/Kg	☼	07/25/14 16:43	1
Trichloroethene	158	U	791	158	55.7	ug/Kg	☼	07/25/14 16:43	1
Vinyl chloride	158	U	1580	158	87.3	ug/Kg	☼	07/25/14 16:43	1
Xylenes, Total	**169**	**J**	2370	158	91.9	ug/Kg	☼	07/25/14 16:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*81*	*X*	*85 - 120*	*07/24/14 20:37*	*07/25/14 16:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*75*		*71 - 128*	*07/24/14 20:37*	*07/25/14 16:43*	*1*
Toluene-d8 (Surr)	*73*	*X*	*85 - 115*	*07/24/14 20:37*	*07/25/14 16:43*	*1*
Dibromofluoromethane (Surr)	*79*		*76 - 126*	*07/24/14 20:37*	*07/25/14 16:43*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-24-01
Date Collected: 07/21/14 11:08
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-1
Matrix: Solid
Percent Solids: 55.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
1,2-Dichlorobenzene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
1,3-Dichlorobenzene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
1,4-Dichlorobenzene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
2,4,5-Trichlorophenol	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
2,4,6-Trichlorophenol	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
2,4-Dichlorophenol	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
2,4-Dimethylphenol	**18000**		8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
2,4-Dinitrophenol	17900	U	43300	17900	8930	ug/Kg	☼	08/09/14 23:41	5
2,4-Dinitrotoluene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
2,6-Dinitrotoluene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
2-Chloronaphthalene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
2-Chlorophenol	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
2-Methylphenol	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
2-Nitroaniline	2680	U	43300	2680	901	ug/Kg	☼	08/09/14 23:41	5
2-Nitrophenol	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
3 & 4 Methylphenol	2680	U	17900	2680	1800	ug/Kg	☼	08/09/14 23:41	5
3,3'-Dichlorobenzidine	17900	U	43300	17900	8930	ug/Kg	☼	08/09/14 23:41	5
3-Nitroaniline	2680	U	43300	2680	901	ug/Kg	☼	08/09/14 23:41	5
4,6-Dinitro-2-methylphenol	17900	U	43300	17900	8930	ug/Kg	☼	08/09/14 23:41	5
4-Bromophenyl phenyl ether	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
4-Chloro-3-methylphenol	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
4-Chloroaniline	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
4-Chlorophenyl phenyl ether	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
4-Nitroaniline	17900	U	43300	17900	8930	ug/Kg	☼	08/09/14 23:41	5
4-Nitrophenol	17900	U	43300	17900	8930	ug/Kg	☼	08/09/14 23:41	5
Acenaphthene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Acenaphthylene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Anthracene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Benzo[a]anthracene	**3540**	**J**	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Benzo[a]pyrene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Benzo[b]fluoranthene	**4590**	**J**	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Benzo[g,h,i]perylene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Benzo[k]fluoranthene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
bis (2-chloroisopropyl) ether	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Bis(2-chloroethoxy)methane	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Bis(2-chloroethyl)ether	2680	U	8930	2680	904	ug/Kg	☼	08/09/14 23:41	5
Bis(2-ethylhexyl) phthalate	**131000**		8930	2680	1230	ug/Kg	☼	08/09/14 23:41	5
Butyl benzyl phthalate	**5290**	**J**	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Chrysene	**5280**	**J**	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Dibenzo(a),h)anthracene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Dibenzofuran	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Diethyl phthalate	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Dimethyl phthalate	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Di-n-butyl phthalate	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Di-n-octyl phthalate	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Fluorene	**3420**	**J**	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Hexachlorobenzene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Hexachlorobutadiene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-24-01
Date Collected: 07/21/14 11:08
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-1
Matrix: Solid
Percent Solids: 55.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorocyclopentadiene	17900	U	43300	17900	8930	ug/Kg	☼	08/09/14 23:41	5
Hexachloroethane	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Indeno[1,2,3-cd]pyrene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Nitrobenzene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
N-Nitrosodiphenylamine	**6690**	**J**	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
N-Nitrosodi-n-propylamine	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Pentachlorophenol	8930	U	43300	8930	8930	ug/Kg	☼	08/09/14 23:41	5
Phenanthrene	**9140**		8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Phenol	**8530**	**J**	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Pyrene	**8160**	**J**	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5
Pyridine	2680	U	17900	2680	1800	ug/Kg	☼	08/09/14 23:41	5
Naphthalene	2680	U	8930	2680	901	ug/Kg	☼	08/09/14 23:41	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*95*		*35 - 125*	*07/31/14 09:13*	*08/09/14 23:41*	*5*
2-Fluorobiphenyl (Surr)	*84*		*45 - 105*	*07/31/14 09:13*	*08/09/14 23:41*	*5*
2-Fluorophenol (Surr)	*77*		*35 - 105*	*07/31/14 09:13*	*08/09/14 23:41*	*5*
Nitrobenzene-d5 (Surr)	*238*	*X*	*35 - 100*	*07/31/14 09:13*	*08/09/14 23:41*	*5*
Phenol-d5 (Surr)	*87*		*40 - 100*	*07/31/14 09:13*	*08/09/14 23:41*	*5*
Terphenyl-d14 (Surr)	*78*		*30 - 125*	*07/31/14 09:13*	*08/09/14 23:41*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-24-02
Date Collected: 07/21/14 11:13
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-2
Matrix: Solid
Percent Solids: 61.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
1,2-Dichlorobenzene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
1,3-Dichlorobenzene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
1,4-Dichlorobenzene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
2,4,5-Trichlorophenol	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
2,4,6-Trichlorophenol	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
2,4-Dichlorophenol	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
2,4-Dimethylphenol	**10800**		8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
2,4-Dinitrophenol	16000	U	38800	16000	8000	ug/Kg	☼	08/09/14 23:07	5
2,4-Dinitrotoluene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
2,6-Dinitrotoluene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
2-Chloronaphthalene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
2-Chlorophenol	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
2-Methylphenol	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
2-Nitroaniline	2400	U	38800	2400	807	ug/Kg	☼	08/09/14 23:07	5
2-Nitrophenol	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
3 & 4 Methylphenol	2400	U	16000	2400	1610	ug/Kg	☼	08/09/14 23:07	5
3,3'-Dichlorobenzidine	16000	U	38800	16000	8000	ug/Kg	☼	08/09/14 23:07	5
3-Nitroaniline	2400	U	38800	2400	807	ug/Kg	☼	08/09/14 23:07	5
4,6-Dinitro-2-methylphenol	16000	U	38800	16000	8000	ug/Kg	☼	08/09/14 23:07	5
4-Bromophenyl phenyl ether	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
4-Chloro-3-methylphenol	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
4-Chloroaniline	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
4-Chlorophenyl phenyl ether	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
4-Nitroaniline	16000	U	38800	16000	8000	ug/Kg	☼	08/09/14 23:07	5
4-Nitrophenol	16000	U	38800	16000	8000	ug/Kg	☼	08/09/14 23:07	5
Acenaphthene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Acenaphthylene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Anthracene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Benzo[a]anthracene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Benzo[a]pyrene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Benzo[b]fluoranthene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Benzo[g,h,i]perylene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Benzo[k]fluoranthene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
bis (2-chloroisopropyl) ether	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Bis(2-chloroethoxy)methane	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Bis(2-chloroethyl)ether	2400	U	8000	2400	810	ug/Kg	☼	08/09/14 23:07	5
Bis(2-ethylhexyl) phthalate	**109000**		8000	2400	1100	ug/Kg	☼	08/09/14 23:07	5
Butyl benzyl phthalate	**5290**	**J**	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Chrysene	**2900**	**J**	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Dibenzo(a),h)anthracene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Dibenzofuran	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Diethyl phthalate	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Dimethyl phthalate	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Di-n-butyl phthalate	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Di-n-octyl phthalate	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Fluorene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Hexachlorobenzene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Hexachlorobutadiene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-24-02
Date Collected: 07/21/14 11:13
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-2
Matrix: Solid
Percent Solids: 61.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorocyclopentadiene	16000	U	38800	16000	8000	ug/Kg	☼	08/09/14 23:07	5
Hexachloroethane	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Indeno[1,2,3-cd]pyrene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Nitrobenzene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
N-Nitrosodiphenylamine	**5550**	**J**	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
N-Nitrosodi-n-propylamine	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Pentachlorophenol	8000	U	38800	8000	8000	ug/Kg	☼	08/09/14 23:07	5
Phenanthrene	**5270**	**J**	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Phenol	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Pyrene	**4300**	**J**	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5
Pyridine	2400	U	16000	2400	1610	ug/Kg	☼	08/09/14 23:07	5
Naphthalene	2400	U	8000	2400	807	ug/Kg	☼	08/09/14 23:07	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*98*		*35 - 125*	*07/31/14 09:13*	*08/09/14 23:07*	*5*
2-Fluorobiphenyl (Surr)	*88*		*45 - 105*	*07/31/14 09:13*	*08/09/14 23:07*	*5*
2-Fluorophenol (Surr)	*77*		*35 - 105*	*07/31/14 09:13*	*08/09/14 23:07*	*5*
Nitrobenzene-d5 (Surr)	*168*	*X*	*35 - 100*	*07/31/14 09:13*	*08/09/14 23:07*	*5*
Phenol-d5 (Surr)	*83*		*40 - 100*	*07/31/14 09:13*	*08/09/14 23:07*	*5*
Terphenyl-d14 (Surr)	*79*		*30 - 125*	*07/31/14 09:13*	*08/09/14 23:07*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-23-01
Date Collected: 07/21/14 14:23
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-3
Matrix: Solid
Percent Solids: 66.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
1,2-Dichlorobenzene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
1,3-Dichlorobenzene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
1,4-Dichlorobenzene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
2,4,5-Trichlorophenol	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
2,4,6-Trichlorophenol	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
2,4-Dichlorophenol	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
2,4-Dimethylphenol	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
2,4-Dinitrophenol	14700	U	35500	14700	7330	ug/Kg	☼	08/09/14 21:25	5
2,4-Dinitrotoluene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
2,6-Dinitrotoluene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
2-Chloronaphthalene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
2-Chlorophenol	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
2-Methylphenol	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
2-Nitroaniline	2200	U	35500	2200	740	ug/Kg	☼	08/09/14 21:25	5
2-Nitrophenol	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
3 & 4 Methylphenol	2200	U	14700	2200	1480	ug/Kg	☼	08/09/14 21:25	5
3,3'-Dichlorobenzidine	14700	U	35500	14700	7330	ug/Kg	☼	08/09/14 21:25	5
3-Nitroaniline	2200	U	35500	2200	740	ug/Kg	☼	08/09/14 21:25	5
4,6-Dinitro-2-methylphenol	14700	U	35500	14700	7330	ug/Kg	☼	08/09/14 21:25	5
4-Bromophenyl phenyl ether	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
4-Chloro-3-methylphenol	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
4-Chloroaniline	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
4-Chlorophenyl phenyl ether	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
4-Nitroaniline	14700	U	35500	14700	7330	ug/Kg	☼	08/09/14 21:25	5
4-Nitrophenol	14700	U	35500	14700	7330	ug/Kg	☼	08/09/14 21:25	5
Acenaphthene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Acenaphthylene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Anthracene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Benzo[a]anthracene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Benzo[a]pyrene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Benzo[b]fluoranthene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Benzo[g,h,i]perylene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Benzo[k]fluoranthene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
bis (2-chloroisopropyl) ether	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Bis(2-chloroethoxy)methane	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Bis(2-chloroethyl)ether	2200	U	7330	2200	742	ug/Kg	☼	08/09/14 21:25	5
Bis(2-ethylhexyl) phthalate	**22700**		7330	2200	1010	ug/Kg	☼	08/09/14 21:25	5
Butyl benzyl phthalate	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Chrysene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Dibenzo(a),h)anthracene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Dibenzofuran	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Diethyl phthalate	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Dimethyl phthalate	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Di-n-butyl phthalate	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Di-n-octyl phthalate	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Fluoranthene	**7330**		7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Fluorene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Hexachlorobenzene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-23-01
Date Collected: 07/21/14 14:23
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-3
Matrix: Solid
Percent Solids: 66.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Hexachlorocyclopentadiene	14700	U	35500	14700	7330	ug/Kg	☼	08/09/14 21:25	5
Hexachloroethane	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Indeno[1,2,3-cd]pyrene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Nitrobenzene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
N-Nitrosodiphenylamine	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
N-Nitrosodi-n-propylamine	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Pentachlorophenol	7330	U	35500	7330	7330	ug/Kg	☼	08/09/14 21:25	5
Phenanthrene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Phenol	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Pyrene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5
Pyridine	2200	U	14700	2200	1480	ug/Kg	☼	08/09/14 21:25	5
Naphthalene	2200	U	7330	2200	740	ug/Kg	☼	08/09/14 21:25	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*89*		*35 - 125*	*07/31/14 09:13*	*08/09/14 21:25*	*5*
2-Fluorobiphenyl (Surr)	*90*		*45 - 105*	*07/31/14 09:13*	*08/09/14 21:25*	*5*
2-Fluorophenol (Surr)	*78*		*35 - 105*	*07/31/14 09:13*	*08/09/14 21:25*	*5*
Nitrobenzene-d5 (Surr)	*93*		*35 - 100*	*07/31/14 09:13*	*08/09/14 21:25*	*5*
Phenol-d5 (Surr)	*81*		*40 - 100*	*07/31/14 09:13*	*08/09/14 21:25*	*5*
Terphenyl-d14 (Surr)	*84*		*30 - 125*	*07/31/14 09:13*	*08/09/14 21:25*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-23-02
Date Collected: 07/21/14 14:30
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-4
Matrix: Solid
Percent Solids: 31.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
1,2-Dichlorobenzene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
1,3-Dichlorobenzene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
1,4-Dichlorobenzene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2,4,5-Trichlorophenol	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2,4,6-Trichlorophenol	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2,4-Dichlorophenol	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2,4-Dimethylphenol	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2,4-Dinitrophenol	31100	U	75500	31100	15600	ug/Kg	☼	08/09/14 20:17	5
2,4-Dinitrotoluene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2,6-Dinitrotoluene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2-Chloronaphthalene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2-Chlorophenol	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2-Methylphenol	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2-Nitroaniline	4670	U	75500	4670	1570	ug/Kg	☼	08/09/14 20:17	5
2-Nitrophenol	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
3 & 4 Methylphenol	4670	U	31100	4670	3140	ug/Kg	☼	08/09/14 20:17	5
3,3'-Dichlorobenzidine	31100	U	75500	31100	15600	ug/Kg	☼	08/09/14 20:17	5
3-Nitroaniline	4670	U	75500	4670	1570	ug/Kg	☼	08/09/14 20:17	5
4,6-Dinitro-2-methylphenol	31100	U	75500	31100	15600	ug/Kg	☼	08/09/14 20:17	5
4-Bromophenyl phenyl ether	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
4-Chloro-3-methylphenol	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
4-Chloroaniline	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
4-Chlorophenyl phenyl ether	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
4-Nitroaniline	31100	U	75500	31100	15600	ug/Kg	☼	08/09/14 20:17	5
4-Nitrophenol	31100	U	75500	31100	15600	ug/Kg	☼	08/09/14 20:17	5
Acenaphthene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Acenaphthylene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Anthracene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Benzo[a]anthracene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Benzo[a]pyrene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Benzo[b]fluoranthene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Benzo[g,h,i]perylene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Benzo[k]fluoranthene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
bis (2-chloroisopropyl) ether	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Bis(2-chloroethoxy)methane	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Bis(2-chloroethyl)ether	4670	U	15600	4670	1580	ug/Kg	☼	08/09/14 20:17	5
Bis(2-ethylhexyl) phthalate	**61400**		15600	4670	2140	ug/Kg	☼	08/09/14 20:17	5
Butyl benzyl phthalate	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Chrysene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Dibenzo(a),h)anthracene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Dibenzofuran	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Diethyl phthalate	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Dimethyl phthalate	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Di-n-butyl phthalate	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Di-n-octyl phthalate	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Fluoranthene	**9460**	**J**	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Fluorene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Hexachlorobenzene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-23-02
Date Collected: 07/21/14 14:30
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-4
Matrix: Solid
Percent Solids: 31.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Hexachlorocyclopentadiene	31100	U	75500	31100	15600	ug/Kg	☼	08/09/14 20:17	5
Hexachloroethane	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Indeno[1,2,3-cd]pyrene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Nitrobenzene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
N-Nitrosodiphenylamine	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
N-Nitrosodi-n-propylamine	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Pentachlorophenol	15600	U	75500	15600	15600	ug/Kg	☼	08/09/14 20:17	5
Phenanthrene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Phenol	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Pyrene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5
Pyridine	4670	U	31100	4670	3140	ug/Kg	☼	08/09/14 20:17	5
Naphthalene	4670	U	15600	4670	1570	ug/Kg	☼	08/09/14 20:17	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*87*		*35 - 125*	*07/31/14 09:13*	*08/09/14 20:17*	*5*
2-Fluorobiphenyl (Surr)	*88*		*45 - 105*	*07/31/14 09:13*	*08/09/14 20:17*	*5*
2-Fluorophenol (Surr)	*79*		*35 - 105*	*07/31/14 09:13*	*08/09/14 20:17*	*5*
Nitrobenzene-d5 (Surr)	*97*		*35 - 100*	*07/31/14 09:13*	*08/09/14 20:17*	*5*
Phenol-d5 (Surr)	*83*		*40 - 100*	*07/31/14 09:13*	*08/09/14 20:17*	*5*
Terphenyl-d14 (Surr)	*83*		*30 - 125*	*07/31/14 09:13*	*08/09/14 20:17*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL2

Client Sample ID: IWL-MH1-24-01
Date Collected: 07/21/14 11:08
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-1
Matrix: Solid
Percent Solids: 55.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Fluoranthene	263000		17900	5360	1800	ug/Kg	☼	08/10/14 14:55	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL2

Client Sample ID: IWL-MH1-24-02
Date Collected: 07/21/14 11:13
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-2
Matrix: Solid
Percent Solids: 61.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Fluoranthene	217000		16000	4800	1610	ug/Kg	☼	08/10/14 15:29	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-24-01
Date Collected: 07/21/14 11:08
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-1
Matrix: Solid
Percent Solids: 55.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	11.1		4.41	4.23	1.45	mg/Kg	☼	08/01/14 19:01	10
Arsenic	10.4		8.81	6.87	2.29	mg/Kg	☼	08/01/14 19:01	10
Barium	388		17.6	2.49	0.828	mg/Kg	☼	08/01/14 19:01	10
Beryllium	0.386	J	0.881	0.687	0.229	mg/Kg	☼	08/01/14 19:01	10
Cadmium	113		0.529	0.423	0.141	mg/Kg	☼	08/01/14 19:01	10
Chromium	1180		16.7	8.81	3.97	mg/Kg	☼	08/01/14 19:01	10
Cobalt	29.7		1.76	1.14	0.379	mg/Kg	☼	08/01/14 19:01	10
Copper	631	B	8.81	2.64	0.890	mg/Kg	☼	08/01/14 19:01	10
Lead	668		2.64	2.64	0.881	mg/Kg	☼	08/01/14 19:01	10
Molybdenum	42.6		4.41	3.17	1.09	mg/Kg	☼	08/01/14 19:01	10
Nickel	619		4.41	2.91	0.943	mg/Kg	☼	08/01/14 19:01	10
Selenium	4.23	U	4.41	4.23	1.39	mg/Kg	☼	07/31/14 03:28	10
Silver	64.6		3.97	0.634	0.211	mg/Kg	☼	08/01/14 19:01	10
Thallium	1.76	U	8.81	1.76	1.34	mg/Kg	☼	08/01/14 19:01	10
Vanadium	18.4		8.81	8.81	6.48	mg/Kg	☼	08/01/14 19:01	10
Zinc	2160	B	44.1	35.2	11.7	mg/Kg	☼	08/01/14 19:01	10
Iron	37900	B	106	44.1	29.1	mg/Kg	☼	08/01/14 19:01	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-24-02
Date Collected: 07/21/14 11:13
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-2
Matrix: Solid
Percent Solids: 61.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	34.2		3.86	3.71	1.27	mg/Kg	☼	08/01/14 19:08	10
Arsenic	12.1		7.73	6.03	2.01	mg/Kg	☼	08/01/14 19:08	10
Barium	1130		15.5	2.18	0.726	mg/Kg	☼	08/01/14 19:08	10
Beryllium	0.535	J	0.773	0.603	0.201	mg/Kg	☼	08/01/14 19:08	10
Cadmium	90.9		0.464	0.371	0.124	mg/Kg	☼	08/01/14 19:08	10
Chromium	1550		14.7	7.73	3.48	mg/Kg	☼	08/01/14 19:08	10
Cobalt	37.7		1.55	0.997	0.332	mg/Kg	☼	08/01/14 19:08	10
Copper	1240	B	7.73	2.32	0.780	mg/Kg	☼	08/01/14 19:08	10
Lead	2150		2.32	2.32	0.773	mg/Kg	☼	08/01/14 19:08	10
Molybdenum	52.6		3.86	2.78	0.958	mg/Kg	☼	08/01/14 19:08	10
Nickel	798		3.86	2.55	0.827	mg/Kg	☼	08/01/14 19:08	10
Selenium	3.71	U	3.86	3.71	1.22	mg/Kg	☼	07/31/14 03:34	10
Silver	88.8		3.48	0.556	0.185	mg/Kg	☼	08/01/14 19:08	10
Thallium	1.55	U	7.73	1.55	1.17	mg/Kg	☼	08/01/14 19:08	10
Vanadium	34.8		7.73	7.73	5.68	mg/Kg	☼	08/01/14 19:08	10
Zinc	4790	B	38.6	30.8	10.3	mg/Kg	☼	08/01/14 19:08	10
Iron	84300	B	92.7	38.6	25.5	mg/Kg	☼	08/01/14 19:08	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-23-01
Date Collected: 07/21/14 14:23
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-3
Matrix: Solid
Percent Solids: 66.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	62.8		3.48	3.34	1.14	mg/Kg	☼	08/01/14 19:14	10
Arsenic	16.9		6.95	5.42	1.81	mg/Kg	☼	08/01/14 19:14	10
Barium	384		13.9	1.96	0.653	mg/Kg	☼	08/01/14 19:14	10
Beryllium	0.420	J	0.695	0.542	0.181	mg/Kg	☼	08/01/14 19:14	10
Cadmium	96.1		0.417	0.334	0.111	mg/Kg	☼	08/01/14 19:14	10
Chromium	469		13.2	6.95	3.13	mg/Kg	☼	08/01/14 19:14	10
Cobalt	22.9		1.39	0.897	0.299	mg/Kg	☼	08/01/14 19:14	10
Copper	1280	B	6.95	2.09	0.702	mg/Kg	☼	08/01/14 19:14	10
Lead	784		2.09	2.09	0.695	mg/Kg	☼	08/01/14 19:14	10
Molybdenum	36.7		3.48	2.50	0.862	mg/Kg	☼	08/01/14 19:14	10
Nickel	654		3.48	2.29	0.744	mg/Kg	☼	08/01/14 19:14	10
Selenium	3.34	U	3.48	3.34	1.10	mg/Kg	☼	07/31/14 03:41	10
Silver	19.0		3.13	0.500	0.167	mg/Kg	☼	08/01/14 19:14	10
Thallium	1.39	U	6.95	1.39	1.06	mg/Kg	☼	08/01/14 19:14	10
Vanadium	19.5		6.95	6.95	5.11	mg/Kg	☼	08/01/14 19:14	10
Zinc	4440	B	34.8	27.7	9.24	mg/Kg	☼	08/01/14 19:14	10
Iron	58100	B	83.4	34.8	22.9	mg/Kg	☼	08/01/14 19:14	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-23-02
Date Collected: 07/21/14 14:30
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-4
Matrix: Solid
Percent Solids: 31.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	18.0		7.05	6.77	2.31	mg/Kg	☼	08/01/14 19:21	10
Arsenic	31.3		14.1	11.0	3.67	mg/Kg	☼	08/01/14 19:21	10
Barium	762		28.2	3.98	1.33	mg/Kg	☼	08/01/14 19:21	10
Beryllium	0.697	J	1.41	1.10	0.367	mg/Kg	☼	08/01/14 19:21	10
Cadmium	263		0.846	0.677	0.226	mg/Kg	☼	08/01/14 19:21	10
Chromium	1870		26.8	14.1	6.35	mg/Kg	☼	08/01/14 19:21	10
Cobalt	107		2.82	1.82	0.606	mg/Kg	☼	08/01/14 19:21	10
Copper	1530	B	14.1	4.23	1.42	mg/Kg	☼	08/01/14 19:21	10
Lead	1590		4.23	4.23	1.41	mg/Kg	☼	08/01/14 19:21	10
Molybdenum	107		7.05	5.08	1.75	mg/Kg	☼	08/01/14 19:21	10
Nickel	1390		7.05	4.65	1.51	mg/Kg	☼	08/01/14 19:21	10
Selenium	2.54	J	7.05	6.77	2.23	mg/Kg	☼	07/31/14 03:48	10
Silver	59.2		6.35	1.02	0.339	mg/Kg	☼	08/01/14 19:21	10
Thallium	2.82	U	14.1	2.82	2.14	mg/Kg	☼	08/01/14 19:21	10
Vanadium	36.3		14.1	14.1	10.4	mg/Kg	☼	08/01/14 19:21	10
Zinc	3350	B	70.5	56.3	18.8	mg/Kg	☼	08/01/14 19:21	10
Iron	46800	B	169	70.5	46.5	mg/Kg	☼	08/01/14 19:21	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-24-01
Date Collected: 07/21/14 11:08
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-1
Matrix: Solid
Percent Solids: 55.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.27		0.0663	0.0497	0.0182	mg/Kg	☼	07/25/14 14:41	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-24-02
Date Collected: 07/21/14 11:13
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-2
Matrix: Solid
Percent Solids: 61.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0490	J	0.0642	0.0481	0.0176	mg/Kg	☼	07/25/14 14:43	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-23-01
Date Collected: 07/21/14 14:23
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-3
Matrix: Solid
Percent Solids: 66.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	5.20		0.556	0.417	0.153	mg/Kg	☼	07/25/14 15:18	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7559-1
SDG: 160-7559

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-23-02
Date Collected: 07/21/14 14:30
Date Received: 07/22/14 09:15

Lab Sample ID: 160-7559-4
Matrix: Solid
Percent Solids: 31.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	4.27		0.125	0.0941	0.0345	mg/Kg	☼	07/25/14 14:48	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7593-1
TestAmerica Sample Delivery Group: 160-7593
Client Project/Site: Alameda IR Site 17
Revision: 1

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
8/22/2014 5:00:57 PM

Erika Gish, Project Manager II
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LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1001

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number: 7706 5992 7472
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MH1-22-01	7/22/2014	1033	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	MH1-22	—	—	N
IWL-MH1-22-02	7/22/2014	1040	6	4	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	MH1-22	—	—	MS
IWL-MH1-10-01	7/22/2014	1330	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	MH1-10	—	—	N
IWL-MH1-10-02	7/22/2014	1340	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	MH1-10	—	—	N

Relinquished by: (signature)	Date: 7-22-14	Received by (signature) FedEx	Laboratory Instructions/Comments:
Company: Tetra tech EC	Time: 1415	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company: TASLouis 7-23-14 0920	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1001

160-7593 Chain of Custody

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-22-01
Date Collected: 07/22/14 10:33
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-1
Matrix: Solid
Percent Solids: 41.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	1220	U	9720	1220	827	ug/Kg	☼	07/25/14 17:08	4
Benzene	486	U	2430	486	96.2	ug/Kg	☼	07/25/14 17:08	4
Bromodichloromethane	486	U	2430	486	105	ug/Kg	☼	07/25/14 17:08	4
Bromoform	486	U	2430	486	158	ug/Kg	☼	07/25/14 17:08	4
Bromomethane	486	U	4860	486	235	ug/Kg	☼	07/25/14 17:08	4
2-Butanone (MEK)	1220	U	4860	1220	645	ug/Kg	☼	07/25/14 17:08	4
Carbon tetrachloride	486	U	2430	486	170	ug/Kg	☼	07/25/14 17:08	4
Chlorobenzene	486	U	2430	486	101	ug/Kg	☼	07/25/14 17:08	4
Dibromochloromethane	486	U	2430	486	98.4	ug/Kg	☼	07/25/14 17:08	4
Chloroethane	486	U	4860	486	130	ug/Kg	☼	07/25/14 17:08	4
Chloroform	486	U	2430	486	102	ug/Kg	☼	07/25/14 17:08	4
Chloromethane	486	U	4860	486	243	ug/Kg	☼	07/25/14 17:08	4
1,1-Dichloroethane	486	U	2430	486	98.3	ug/Kg	☼	07/25/14 17:08	4
1,2-Dichloroethane	486	U	2430	486	108	ug/Kg	☼	07/25/14 17:08	4
cis-1,2-Dichloroethene	486	U	2430	486	101	ug/Kg	☼	07/25/14 17:08	4
trans-1,2-Dichloroethene	486	U	4860	486	79.0	ug/Kg	☼	07/25/14 17:08	4
1,1-Dichloroethene	486	U	2430	486	235	ug/Kg	☼	07/25/14 17:08	4
1,2-Dichloropropane	486	U	2430	486	152	ug/Kg	☼	07/25/14 17:08	4
cis-1,3-Dichloropropene	486	U	4860	486	62.2	ug/Kg	☼	07/25/14 17:08	4
trans-1,3-Dichloropropene	486	U	2430	486	93.9	ug/Kg	☼	07/25/14 17:08	4
Ethylbenzene	486	U	2430	486	80.7	ug/Kg	☼	07/25/14 17:08	4
2-Hexanone	486	U	9720	486	122	ug/Kg	☼	07/25/14 17:08	4
Methylene Chloride	1220	U	2430	1220	492	ug/Kg	☼	07/25/14 17:08	4
4-Methyl-2-pentanone (MIBK)	486	U	9720	486	198	ug/Kg	☼	07/25/14 17:08	4
Methyl tert-butyl ether	486	U	2430	486	96.1	ug/Kg	☼	07/25/14 17:08	4
Styrene	486	U	2430	486	140	ug/Kg	☼	07/25/14 17:08	4
1,1,2,2-Tetrachloroethane	486	U	2430	486	148	ug/Kg	☼	07/25/14 17:08	4
Tetrachloroethene	486	U	2430	486	195	ug/Kg	☼	07/25/14 17:08	4
Toluene	486	U	2430	486	124	ug/Kg	☼	07/25/14 17:08	4
1,1,1-Trichloroethane	486	U	2430	486	97.1	ug/Kg	☼	07/25/14 17:08	4
1,1,2-Trichloroethane	486	U	2430	486	289	ug/Kg	☼	07/25/14 17:08	4
Trichloroethene	486	U	2430	486	171	ug/Kg	☼	07/25/14 17:08	4
Vinyl chloride	486	U	4860	486	268	ug/Kg	☼	07/25/14 17:08	4
Xylenes, Total	486	U	7290	486	282	ug/Kg	☼	07/25/14 17:08	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*85 - 120*	*07/24/14 20:37*	*07/25/14 17:08*	*4*
1,2-Dichloroethane-d4 (Surr)	*83*		*71 - 128*	*07/24/14 20:37*	*07/25/14 17:08*	*4*
Toluene-d8 (Surr)	*86*		*85 - 115*	*07/24/14 20:37*	*07/25/14 17:08*	*4*
Dibromofluoromethane (Surr)	*85*		*76 - 126*	*07/24/14 20:37*	*07/25/14 17:08*	*4*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-22-02
Date Collected: 07/22/14 10:40
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-2
Matrix: Solid
Percent Solids: 65.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	767	U	6140	767	522	ug/Kg	☼	07/25/14 17:33	4
Benzene	307	U	1530	307	60.7	ug/Kg	☼	07/25/14 17:33	4
Bromodichloromethane	307	U	1530	307	66.1	ug/Kg	☼	07/25/14 17:33	4
Bromoform	307	U	1530	307	99.7	ug/Kg	☼	07/25/14 17:33	4
Bromomethane	307	U	3070	307	148	ug/Kg	☼	07/25/14 17:33	4
2-Butanone (MEK)	767	U	3070	767	407	ug/Kg	☼	07/25/14 17:33	4
Carbon tetrachloride	307	U	1530	307	107	ug/Kg	☼	07/25/14 17:33	4
Chlorobenzene	307	U	1530	307	63.4	ug/Kg	☼	07/25/14 17:33	4
Dibromochloromethane	307	U	1530	307	62.1	ug/Kg	☼	07/25/14 17:33	4
Chloroethane	307	U	3070	307	82.0	ug/Kg	☼	07/25/14 17:33	4
Chloroform	307	U	1530	307	64.5	ug/Kg	☼	07/25/14 17:33	4
Chloromethane	307	U	3070	307	153	ug/Kg	☼	07/25/14 17:33	4
1,1-Dichloroethane	307	U	1530	307	62.0	ug/Kg	☼	07/25/14 17:33	4
1,2-Dichloroethane	307	U	1530	307	67.9	ug/Kg	☼	07/25/14 17:33	4
cis-1,2-Dichloroethene	307	U	1530	307	64.0	ug/Kg	☼	07/25/14 17:33	4
trans-1,2-Dichloroethene	307	U	3070	307	49.8	ug/Kg	☼	07/25/14 17:33	4
1,1-Dichloroethene	307	U	1530	307	149	ug/Kg	☼	07/25/14 17:33	4
1,2-Dichloropropane	307	U	1530	307	96.1	ug/Kg	☼	07/25/14 17:33	4
cis-1,3-Dichloropropene	307	U	3070	307	39.2	ug/Kg	☼	07/25/14 17:33	4
trans-1,3-Dichloropropene	307	U	1530	307	59.3	ug/Kg	☼	07/25/14 17:33	4
Ethylbenzene	307	U	1530	307	50.9	ug/Kg	☼	07/25/14 17:33	4
2-Hexanone	307	U	6140	307	77.2	ug/Kg	☼	07/25/14 17:33	4
Methylene Chloride	767	U	1530	767	310	ug/Kg	☼	07/25/14 17:33	4
4-Methyl-2-pentanone (MIBK)	307	U	6140	307	125	ug/Kg	☼	07/25/14 17:33	4
Methyl tert-butyl ether	307	U	1530	307	60.6	ug/Kg	☼	07/25/14 17:33	4
Styrene	307	U	1530	307	88.2	ug/Kg	☼	07/25/14 17:33	4
1,1,2,2-Tetrachloroethane	307	U	1530	307	93.1	ug/Kg	☼	07/25/14 17:33	4
Tetrachloroethene	307	U	1530	307	123	ug/Kg	☼	07/25/14 17:33	4
Toluene	307	U	1530	307	78.4	ug/Kg	☼	07/25/14 17:33	4
1,1,1-Trichloroethane	307	U	1530	307	61.3	ug/Kg	☼	07/25/14 17:33	4
1,1,2-Trichloroethane	307	U	1530	307	182	ug/Kg	☼	07/25/14 17:33	4
Trichloroethene	307	U	1530	307	108	ug/Kg	☼	07/25/14 17:33	4
Vinyl chloride	307	U	3070	307	169	ug/Kg	☼	07/25/14 17:33	4
Xylenes, Total	307	U	4600	307	178	ug/Kg	☼	07/25/14 17:33	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*85 - 120*	*07/24/14 20:37*	*07/25/14 17:33*	*4*
1,2-Dichloroethane-d4 (Surr)	*81*		*71 - 128*	*07/24/14 20:37*	*07/25/14 17:33*	*4*
Toluene-d8 (Surr)	*85*		*85 - 115*	*07/24/14 20:37*	*07/25/14 17:33*	*4*
Dibromofluoromethane (Surr)	*86*		*76 - 126*	*07/24/14 20:37*	*07/25/14 17:33*	*4*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-10-01
Date Collected: 07/22/14 13:30
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-3
Matrix: Solid
Percent Solids: 69.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.44	U	7.21	1.44	0.621	ug/Kg	☼	07/25/14 13:00	1
1,1,2,2-Tetrachloroethane	1.44	U	7.21	1.44	0.578	ug/Kg	☼	07/25/14 13:00	1
1,1,2-Trichloroethane	1.44	U	7.21	1.44	0.826	ug/Kg	☼	07/25/14 13:00	1
1,1-Dichloroethane	1.44	U	7.21	1.44	0.565	ug/Kg	☼	07/25/14 13:00	1
1,1-Dichloroethene	7.21	U	7.21	7.21	2.32	ug/Kg	☼	07/25/14 13:00	1
1,2-Dichloroethane	1.44	U	7.21	1.44	1.25	ug/Kg	☼	07/25/14 13:00	1
1,2-Dichloropropane	1.44	U	7.21	1.44	0.552	ug/Kg	☼	07/25/14 13:00	1
2-Butanone (MEK)	**8.10**	**J**	28.8	7.21	2.77	ug/Kg	☼	07/25/14 13:00	1
2-Hexanone	7.21	U	14.4	7.21	2.55	ug/Kg	☼	07/25/14 13:00	1
4-Methyl-2-pentanone (MIBK)	7.21	U	28.8	7.21	1.06	ug/Kg	☼	07/25/14 13:00	1
Acetone	**20.0**	**J**	28.8	14.4	9.33	ug/Kg	☼	07/25/14 13:00	1
Benzene	**0.492**	**J**	7.21	1.44	0.365	ug/Kg	☼	07/25/14 13:00	1
Bromodichloromethane	1.44	U	7.21	1.44	0.366	ug/Kg	☼	07/25/14 13:00	1
Bromoform	1.44	U	7.21	1.44	0.528	ug/Kg	☼	07/25/14 13:00	1
Bromomethane	7.21	U	14.4	7.21	1.59	ug/Kg	☼	07/25/14 13:00	1
Carbon tetrachloride	1.44	U	7.21	1.44	0.739	ug/Kg	☼	07/25/14 13:00	1
Chlorobenzene	**26.7**		7.21	1.44	0.551	ug/Kg	☼	07/25/14 13:00	1
Chloroethane	1.44	U	14.4	1.44	0.744	ug/Kg	☼	07/25/14 13:00	1
Chloroform	1.44	U	7.21	1.44	0.542	ug/Kg	☼	07/25/14 13:00	1
Chloromethane	7.21	U	14.4	7.21	0.937	ug/Kg	☼	07/25/14 13:00	1
cis-1,2-Dichloroethene	1.44	U	7.21	1.44	0.860	ug/Kg	☼	07/25/14 13:00	1
cis-1,3-Dichloropropene	1.44	U	7.21	1.44	0.858	ug/Kg	☼	07/25/14 13:00	1
Dibromochloromethane	1.44	U	7.21	1.44	0.585	ug/Kg	☼	07/25/14 13:00	1
Ethylbenzene	**9.92**		7.21	1.44	0.431	ug/Kg	☼	07/25/14 13:00	1
Methyl tert-butyl ether	1.44	U	7.21	1.44	0.686	ug/Kg	☼	07/25/14 13:00	1
Methylene Chloride	7.21	U	14.4	7.21	2.28	ug/Kg	☼	07/25/14 13:00	1
Styrene	1.44	U	7.21	1.44	0.500	ug/Kg	☼	07/25/14 13:00	1
Tetrachloroethene	1.44	U	7.21	1.44	0.464	ug/Kg	☼	07/25/14 13:00	1
Toluene	1.44	U	7.21	1.44	1.01	ug/Kg	☼	07/25/14 13:00	1
trans-1,2-Dichloroethene	1.44	U	7.21	1.44	1.36	ug/Kg	☼	07/25/14 13:00	1
trans-1,3-Dichloropropene	1.44	U	7.21	1.44	0.503	ug/Kg	☼	07/25/14 13:00	1
Trichloroethene	1.44	U	7.21	1.44	0.555	ug/Kg	☼	07/25/14 13:00	1
Vinyl chloride	1.44	U	14.4	1.44	0.617	ug/Kg	☼	07/25/14 13:00	1
Xylenes, Total	7.21	U	14.4	7.21	1.23	ug/Kg	☼	07/25/14 13:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 128*	*07/25/14 08:13*	*07/25/14 13:00*	*1*
4-Bromofluorobenzene (Surr)	*112*		*85 - 120*	*07/25/14 08:13*	*07/25/14 13:00*	*1*
Dibromofluoromethane (Surr)	*92*		*76 - 126*	*07/25/14 08:13*	*07/25/14 13:00*	*1*
Toluene-d8 (Surr)	*99*		*85 - 115*	*07/25/14 08:13*	*07/25/14 13:00*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-10-02
Date Collected: 07/22/14 13:40
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-4
Matrix: Solid
Percent Solids: 64.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.56	U	7.79	1.56	0.671	ug/Kg	☼	07/25/14 13:25	1
1,1,2,2-Tetrachloroethane	1.56	U	7.79	1.56	0.625	ug/Kg	☼	07/25/14 13:25	1
1,1,2-Trichloroethane	1.56	U	7.79	1.56	0.892	ug/Kg	☼	07/25/14 13:25	1
1,1-Dichloroethane	1.56	U	7.79	1.56	0.610	ug/Kg	☼	07/25/14 13:25	1
1,1-Dichloroethene	7.79	U	7.79	7.79	2.51	ug/Kg	☼	07/25/14 13:25	1
1,2-Dichloroethane	1.56	U	7.79	1.56	1.35	ug/Kg	☼	07/25/14 13:25	1
1,2-Dichloropropane	1.56	U	7.79	1.56	0.596	ug/Kg	☼	07/25/14 13:25	1
2-Butanone (MEK)	**11.2**	**J**	31.1	7.79	2.99	ug/Kg	☼	07/25/14 13:25	1
2-Hexanone	7.79	U	15.6	7.79	2.76	ug/Kg	☼	07/25/14 13:25	1
4-Methyl-2-pentanone (MIBK)	7.79	U	31.1	7.79	1.14	ug/Kg	☼	07/25/14 13:25	1
Acetone	**27.3**	**J**	31.1	15.6	10.1	ug/Kg	☼	07/25/14 13:25	1
Benzene	**0.812**	**J**	7.79	1.56	0.394	ug/Kg	☼	07/25/14 13:25	1
Bromodichloromethane	1.56	U	7.79	1.56	0.396	ug/Kg	☼	07/25/14 13:25	1
Bromoform	1.56	U	7.79	1.56	0.570	ug/Kg	☼	07/25/14 13:25	1
Bromomethane	7.79	U	15.6	7.79	1.71	ug/Kg	☼	07/25/14 13:25	1
Carbon tetrachloride	1.56	U	7.79	1.56	0.799	ug/Kg	☼	07/25/14 13:25	1
Chlorobenzene	**68.7**		7.79	1.56	0.595	ug/Kg	☼	07/25/14 13:25	1
Chloroethane	1.56	U	15.6	1.56	0.804	ug/Kg	☼	07/25/14 13:25	1
Chloroform	1.56	U	7.79	1.56	0.586	ug/Kg	☼	07/25/14 13:25	1
Chloromethane	7.79	U	15.6	7.79	1.01	ug/Kg	☼	07/25/14 13:25	1
cis-1,2-Dichloroethene	1.56	U	7.79	1.56	0.930	ug/Kg	☼	07/25/14 13:25	1
cis-1,3-Dichloropropene	1.56	U	7.79	1.56	0.927	ug/Kg	☼	07/25/14 13:25	1
Dibromochloromethane	1.56	U	7.79	1.56	0.632	ug/Kg	☼	07/25/14 13:25	1
Ethylbenzene	**15.9**		7.79	1.56	0.466	ug/Kg	☼	07/25/14 13:25	1
Methyl tert-butyl ether	1.56	U	7.79	1.56	0.741	ug/Kg	☼	07/25/14 13:25	1
Methylene Chloride	7.79	U	15.6	7.79	2.46	ug/Kg	☼	07/25/14 13:25	1
Styrene	1.56	U	7.79	1.56	0.540	ug/Kg	☼	07/25/14 13:25	1
Tetrachloroethene	1.56	U	7.79	1.56	0.501	ug/Kg	☼	07/25/14 13:25	1
Toluene	1.56	U	7.79	1.56	1.09	ug/Kg	☼	07/25/14 13:25	1
trans-1,2-Dichloroethene	1.56	U	7.79	1.56	1.47	ug/Kg	☼	07/25/14 13:25	1
trans-1,3-Dichloropropene	1.56	U	7.79	1.56	0.544	ug/Kg	☼	07/25/14 13:25	1
Trichloroethene	1.56	U	7.79	1.56	0.600	ug/Kg	☼	07/25/14 13:25	1
Vinyl chloride	1.56	U	15.6	1.56	0.667	ug/Kg	☼	07/25/14 13:25	1
Xylenes, Total	7.79	U	15.6	7.79	1.33	ug/Kg	☼	07/25/14 13:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 128*	*07/25/14 08:13*	*07/25/14 13:25*	*1*
4-Bromofluorobenzene (Surr)	*125*	*X*	*85 - 120*	*07/25/14 08:13*	*07/25/14 13:25*	*1*
Dibromofluoromethane (Surr)	*93*		*76 - 126*	*07/25/14 08:13*	*07/25/14 13:25*	*1*
Toluene-d8 (Surr)	*101*		*85 - 115*	*07/25/14 08:13*	*07/25/14 13:25*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-22-01
Date Collected: 07/22/14 10:33
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-1
Matrix: Solid
Percent Solids: 41.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
1,2-Dichlorobenzene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
1,3-Dichlorobenzene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
1,4-Dichlorobenzene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2,4,5-Trichlorophenol	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2,4,6-Trichlorophenol	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2,4-Dichlorophenol	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2,4-Dimethylphenol	**27100**		11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2,4-Dinitrophenol	23500	U	56900	23500	11700	ug/Kg	☼	08/10/14 00:15	5
2,4-Dinitrotoluene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2,6-Dinitrotoluene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2-Chloronaphthalene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2-Chlorophenol	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2-Methylphenol	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2-Nitroaniline	3520	U	56900	3520	1180	ug/Kg	☼	08/10/14 00:15	5
2-Nitrophenol	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
3 & 4 Methylphenol	3520	U	23500	3520	2370	ug/Kg	☼	08/10/14 00:15	5
3,3'-Dichlorobenzidine	23500	U	56900	23500	11700	ug/Kg	☼	08/10/14 00:15	5
3-Nitroaniline	3520	U	56900	3520	1180	ug/Kg	☼	08/10/14 00:15	5
4,6-Dinitro-2-methylphenol	23500	U	56900	23500	11700	ug/Kg	☼	08/10/14 00:15	5
4-Bromophenyl phenyl ether	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
4-Chloro-3-methylphenol	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
4-Chloroaniline	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
4-Chlorophenyl phenyl ether	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
4-Nitroaniline	23500	U	56900	23500	11700	ug/Kg	☼	08/10/14 00:15	5
4-Nitrophenol	23500	U	56900	23500	11700	ug/Kg	☼	08/10/14 00:15	5
Acenaphthene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Acenaphthylene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Anthracene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Benzo[a]anthracene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Benzo[a]pyrene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Benzo[b]fluoranthene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Benzo[g,h,i]perylene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Benzo[k]fluoranthene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
bis (2-chloroisopropyl) ether	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Bis(2-chloroethoxy)methane	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Bis(2-chloroethyl)ether	3520	U	11700	3520	1190	ug/Kg	☼	08/10/14 00:15	5
Bis(2-ethylhexyl) phthalate	**69200**		11700	3520	1610	ug/Kg	☼	08/10/14 00:15	5
Butyl benzyl phthalate	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Chrysene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Dibenzo(a),h)anthracene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Dibenzofuran	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Diethyl phthalate	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Dimethyl phthalate	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Di-n-butyl phthalate	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Di-n-octyl phthalate	**4060**	**J**	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Fluorene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Hexachlorobenzene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Hexachlorobutadiene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-22-01
Date Collected: 07/22/14 10:33
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-1
Matrix: Solid
Percent Solids: 41.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorocyclopentadiene	23500	U	56900	23500	11700	ug/Kg	☼	08/10/14 00:15	5
Hexachloroethane	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Indeno[1,2,3-cd]pyrene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Nitrobenzene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
N-Nitrosodiphenylamine	**6890**	**J**	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
N-Nitrosodi-n-propylamine	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Pentachlorophenol	11700	U	56900	11700	11700	ug/Kg	☼	08/10/14 00:15	5
Phenanthrene	**5500**	**J**	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Phenol	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Pyrene	**5180**	**J**	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5
Pyridine	3520	U	23500	3520	2370	ug/Kg	☼	08/10/14 00:15	5
Naphthalene	3520	U	11700	3520	1180	ug/Kg	☼	08/10/14 00:15	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*91*		*35 - 125*	*07/31/14 09:13*	*08/10/14 00:15*	*5*
2-Fluorobiphenyl (Surr)	*84*		*45 - 105*	*07/31/14 09:13*	*08/10/14 00:15*	*5*
2-Fluorophenol (Surr)	*75*		*35 - 105*	*07/31/14 09:13*	*08/10/14 00:15*	*5*
Nitrobenzene-d5 (Surr)	*226*	*X*	*35 - 100*	*07/31/14 09:13*	*08/10/14 00:15*	*5*
Phenol-d5 (Surr)	*81*		*40 - 100*	*07/31/14 09:13*	*08/10/14 00:15*	*5*
Terphenyl-d14 (Surr)	*79*		*30 - 125*	*07/31/14 09:13*	*08/10/14 00:15*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-22-02
Date Collected: 07/22/14 10:40
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-2
Matrix: Solid
Percent Solids: 65.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
1,2-Dichlorobenzene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
1,3-Dichlorobenzene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
1,4-Dichlorobenzene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
2,4,5-Trichlorophenol	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
2,4,6-Trichlorophenol	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
2,4-Dichlorophenol	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
2,4-Dimethylphenol	**6100**	**J**	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
2,4-Dinitrophenol	14800	U	35800	14800	7380	ug/Kg	☼	08/09/14 22:33	5
2,4-Dinitrotoluene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
2,6-Dinitrotoluene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
2-Chloronaphthalene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
2-Chlorophenol	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
2-Methylphenol	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
2-Nitroaniline	2210	U	35800	2210	745	ug/Kg	☼	08/09/14 22:33	5
2-Nitrophenol	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
3 & 4 Methylphenol	2210	U	14800	2210	1490	ug/Kg	☼	08/09/14 22:33	5
3,3'-Dichlorobenzidine	14800	U	35800	14800	7380	ug/Kg	☼	08/09/14 22:33	5
3-Nitroaniline	2210	U	35800	2210	745	ug/Kg	☼	08/09/14 22:33	5
4,6-Dinitro-2-methylphenol	14800	U	35800	14800	7380	ug/Kg	☼	08/09/14 22:33	5
4-Bromophenyl phenyl ether	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
4-Chloro-3-methylphenol	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
4-Chloroaniline	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
4-Chlorophenyl phenyl ether	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
4-Nitroaniline	14800	U	35800	14800	7380	ug/Kg	☼	08/09/14 22:33	5
4-Nitrophenol	14800	U	35800	14800	7380	ug/Kg	☼	08/09/14 22:33	5
Acenaphthene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Acenaphthylene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Anthracene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Benzo[a]anthracene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Benzo[a]pyrene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Benzo[b]fluoranthene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Benzo[g,h,i]perylene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Benzo[k]fluoranthene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
bis (2-chloroisopropyl) ether	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Bis(2-chloroethoxy)methane	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Bis(2-chloroethyl)ether	2210	U	7380	2210	747	ug/Kg	☼	08/09/14 22:33	5
Bis(2-ethylhexyl) phthalate	**46400**		7380	2210	1010	ug/Kg	☼	08/09/14 22:33	5
Butyl benzyl phthalate	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Chrysene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Dibenzo(a),h)anthracene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Dibenzofuran	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Diethyl phthalate	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Dimethyl phthalate	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Di-n-butyl phthalate	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Di-n-octyl phthalate	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Fluoranthene	**86800**		7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Fluorene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Hexachlorobenzene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-22-02
Date Collected: 07/22/14 10:40
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-2
Matrix: Solid
Percent Solids: 65.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Hexachlorocyclopentadiene	14800	U	35800	14800	7380	ug/Kg	☼	08/09/14 22:33	5
Hexachloroethane	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Indeno[1,2,3-cd]pyrene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Nitrobenzene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
N-Nitrosodiphenylamine	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
N-Nitrosodi-n-propylamine	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Pentachlorophenol	7380	U	35800	7380	7380	ug/Kg	☼	08/09/14 22:33	5
Phenanthrene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Phenol	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Pyrene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5
Pyridine	2210	U	14800	2210	1490	ug/Kg	☼	08/09/14 22:33	5
Naphthalene	2210	U	7380	2210	745	ug/Kg	☼	08/09/14 22:33	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*35 - 125*	*07/31/14 09:13*	*08/09/14 22:33*	*5*
2-Fluorobiphenyl (Surr)	*86*		*45 - 105*	*07/31/14 09:13*	*08/09/14 22:33*	*5*
2-Fluorophenol (Surr)	*79*		*35 - 105*	*07/31/14 09:13*	*08/09/14 22:33*	*5*
Nitrobenzene-d5 (Surr)	*127*	*X*	*35 - 100*	*07/31/14 09:13*	*08/09/14 22:33*	*5*
Phenol-d5 (Surr)	*81*		*40 - 100*	*07/31/14 09:13*	*08/09/14 22:33*	*5*
Terphenyl-d14 (Surr)	*77*		*30 - 125*	*07/31/14 09:13*	*08/09/14 22:33*	*5*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-10-01
Date Collected: 07/22/14 13:30
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-3
Matrix: Solid
Percent Solids: 69.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
1,2-Dichlorobenzene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
1,3-Dichlorobenzene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
1,4-Dichlorobenzene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
2,4,5-Trichlorophenol	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
2,4,6-Trichlorophenol	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
2,4-Dichlorophenol	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
2,4-Dimethylphenol	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
2,4-Dinitrophenol	13700	U	33300	13700	6870	ug/Kg	☼	08/09/14 21:59	5
2,4-Dinitrotoluene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
2,6-Dinitrotoluene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
2-Chloronaphthalene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
2-Chlorophenol	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
2-Methylphenol	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
2-Nitroaniline	2060	U	33300	2060	693	ug/Kg	☼	08/09/14 21:59	5
2-Nitrophenol	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
3 & 4 Methylphenol	2060	U	13700	2060	1390	ug/Kg	☼	08/09/14 21:59	5
3,3'-Dichlorobenzidine	13700	U	33300	13700	6870	ug/Kg	☼	08/09/14 21:59	5
3-Nitroaniline	2060	U	33300	2060	693	ug/Kg	☼	08/09/14 21:59	5
4,6-Dinitro-2-methylphenol	13700	U	33300	13700	6870	ug/Kg	☼	08/09/14 21:59	5
4-Bromophenyl phenyl ether	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
4-Chloro-3-methylphenol	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
4-Chloroaniline	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
4-Chlorophenyl phenyl ether	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
4-Nitroaniline	13700	U	33300	13700	6870	ug/Kg	☼	08/09/14 21:59	5
4-Nitrophenol	13700	U	33300	13700	6870	ug/Kg	☼	08/09/14 21:59	5
Acenaphthene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Acenaphthylene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Anthracene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Benzo[a]anthracene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Benzo[a]pyrene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Benzo[b]fluoranthene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Benzo[g,h,i]perylene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Benzo[k]fluoranthene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
bis (2-chloroisopropyl) ether	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Bis(2-chloroethoxy)methane	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Bis(2-chloroethyl)ether	2060	U	6870	2060	695	ug/Kg	☼	08/09/14 21:59	5
Bis(2-ethylhexyl) phthalate	**12400**		6870	2060	943	ug/Kg	☼	08/09/14 21:59	5
Butyl benzyl phthalate	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Chrysene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Dibenzo(a),h)anthracene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Dibenzofuran	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Diethyl phthalate	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Dimethyl phthalate	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Di-n-butyl phthalate	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Di-n-octyl phthalate	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Fluoranthene	**5470**	**J**	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Fluorene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Hexachlorobenzene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-10-01
Date Collected: 07/22/14 13:30
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-3
Matrix: Solid
Percent Solids: 69.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Hexachlorocyclopentadiene	13700	U	33300	13700	6870	ug/Kg	☼	08/09/14 21:59	5
Hexachloroethane	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Indeno[1,2,3-cd]pyrene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Nitrobenzene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
N-Nitrosodiphenylamine	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
N-Nitrosodi-n-propylamine	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Pentachlorophenol	6870	U	33300	6870	6870	ug/Kg	☼	08/09/14 21:59	5
Phenanthrene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Phenol	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Pyrene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5
Pyridine	2060	U	13700	2060	1390	ug/Kg	☼	08/09/14 21:59	5
Naphthalene	2060	U	6870	2060	693	ug/Kg	☼	08/09/14 21:59	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*35 - 125*	*07/31/14 09:13*	*08/09/14 21:59*	*5*
2-Fluorobiphenyl (Surr)	*87*		*45 - 105*	*07/31/14 09:13*	*08/09/14 21:59*	*5*
2-Fluorophenol (Surr)	*76*		*35 - 105*	*07/31/14 09:13*	*08/09/14 21:59*	*5*
Nitrobenzene-d5 (Surr)	*88*		*35 - 100*	*07/31/14 09:13*	*08/09/14 21:59*	*5*
Phenol-d5 (Surr)	*79*		*40 - 100*	*07/31/14 09:13*	*08/09/14 21:59*	*5*
Terphenyl-d14 (Surr)	*77*		*30 - 125*	*07/31/14 09:13*	*08/09/14 21:59*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-10-02
Date Collected: 07/22/14 13:40
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-4
Matrix: Solid
Percent Solids: 64.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
1,2-Dichlorobenzene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
1,3-Dichlorobenzene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
1,4-Dichlorobenzene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
2,4,5-Trichlorophenol	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
2,4,6-Trichlorophenol	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
2,4-Dichlorophenol	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
2,4-Dimethylphenol	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
2,4-Dinitrophenol	14800	U	35900	14800	7400	ug/Kg	☼	08/09/14 20:51	5
2,4-Dinitrotoluene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
2,6-Dinitrotoluene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
2-Chloronaphthalene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
2-Chlorophenol	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
2-Methylphenol	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
2-Nitroaniline	2220	U	35900	2220	746	ug/Kg	☼	08/09/14 20:51	5
2-Nitrophenol	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
3 & 4 Methylphenol	2220	U	14800	2220	1490	ug/Kg	☼	08/09/14 20:51	5
3,3'-Dichlorobenzidine	14800	U	35900	14800	7400	ug/Kg	☼	08/09/14 20:51	5
3-Nitroaniline	2220	U	35900	2220	746	ug/Kg	☼	08/09/14 20:51	5
4,6-Dinitro-2-methylphenol	14800	U	35900	14800	7400	ug/Kg	☼	08/09/14 20:51	5
4-Bromophenyl phenyl ether	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
4-Chloro-3-methylphenol	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
4-Chloroaniline	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
4-Chlorophenyl phenyl ether	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
4-Nitroaniline	14800	U	35900	14800	7400	ug/Kg	☼	08/09/14 20:51	5
4-Nitrophenol	14800	U	35900	14800	7400	ug/Kg	☼	08/09/14 20:51	5
Acenaphthene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Acenaphthylene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Anthracene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Benzo[a]anthracene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Benzo[a]pyrene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Benzo[b]fluoranthene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Benzo[g,h,i]perylene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Benzo[k]fluoranthene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
bis (2-chloroisopropyl) ether	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Bis(2-chloroethoxy)methane	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Bis(2-chloroethyl)ether	2220	U	7400	2220	748	ug/Kg	☼	08/09/14 20:51	5
Bis(2-ethylhexyl) phthalate	**5520**	**J**	7400	2220	1020	ug/Kg	☼	08/09/14 20:51	5
Butyl benzyl phthalate	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Chrysene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Dibenzo(a),h)anthracene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Dibenzofuran	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Diethyl phthalate	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Dimethyl phthalate	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Di-n-butyl phthalate	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Di-n-octyl phthalate	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Fluoranthene	**2880**	**J**	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Fluorene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Hexachlorobenzene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-10-02
Date Collected: 07/22/14 13:40
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-4
Matrix: Solid
Percent Solids: 64.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Hexachlorocyclopentadiene	14800	U	35900	14800	7400	ug/Kg	☼	08/09/14 20:51	5
Hexachloroethane	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Indeno[1,2,3-cd]pyrene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Nitrobenzene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
N-Nitrosodiphenylamine	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
N-Nitrosodi-n-propylamine	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Pentachlorophenol	7400	U	35900	7400	7400	ug/Kg	☼	08/09/14 20:51	5
Phenanthrene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Phenol	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Pyrene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5
Pyridine	2220	U	14800	2220	1490	ug/Kg	☼	08/09/14 20:51	5
Naphthalene	2220	U	7400	2220	746	ug/Kg	☼	08/09/14 20:51	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*78*		*35 - 125*	*07/31/14 09:13*	*08/09/14 20:51*	*5*
2-Fluorobiphenyl (Surr)	*79*		*45 - 105*	*07/31/14 09:13*	*08/09/14 20:51*	*5*
2-Fluorophenol (Surr)	*69*		*35 - 105*	*07/31/14 09:13*	*08/09/14 20:51*	*5*
Nitrobenzene-d5 (Surr)	*76*		*35 - 100*	*07/31/14 09:13*	*08/09/14 20:51*	*5*
Phenol-d5 (Surr)	*70*		*40 - 100*	*07/31/14 09:13*	*08/09/14 20:51*	*5*
Terphenyl-d14 (Surr)	*74*		*30 - 125*	*07/31/14 09:13*	*08/09/14 20:51*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL2

Client Sample ID: IWL-MH1-22-01
Date Collected: 07/22/14 10:33
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-1
Matrix: Solid
Percent Solids: 41.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Fluoranthene	449000		23500	7050	2370	ug/Kg	☼	08/10/14 16:03	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-22-01
Date Collected: 07/22/14 10:33
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-1
Matrix: Solid
Percent Solids: 41.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	55.8		5.59	5.37	1.83	mg/Kg	☼	08/01/14 17:54	10
Arsenic	7.98	J	11.2	8.72	2.91	mg/Kg	☼	08/01/14 17:54	10
Barium	355		22.4	3.15	1.05	mg/Kg	☼	08/01/14 17:54	10
Beryllium	0.895	J	1.12	0.872	0.291	mg/Kg	☼	08/01/14 17:54	10
Cadmium	395		0.671	0.537	0.179	mg/Kg	☼	08/01/14 17:54	10
Chromium	2870		21.2	11.2	5.03	mg/Kg	☼	08/01/14 17:54	10
Cobalt	62.0		2.24	1.44	0.481	mg/Kg	☼	08/01/14 17:54	10
Copper	622	B	11.2	3.35	1.13	mg/Kg	☼	08/01/14 17:54	10
Lead	1060		3.35	3.35	1.12	mg/Kg	☼	08/01/14 17:54	10
Molybdenum	97.0		5.59	4.03	1.39	mg/Kg	☼	08/01/14 17:54	10
Nickel	2160		5.59	3.69	1.20	mg/Kg	☼	08/01/14 17:54	10
Selenium	5.37	U	5.59	5.37	1.77	mg/Kg	☼	07/31/14 02:21	10
Silver	185		5.03	0.805	0.268	mg/Kg	☼	08/01/14 17:54	10
Thallium	2.24	U	11.2	2.24	1.70	mg/Kg	☼	08/01/14 17:54	10
Vanadium	15.9		11.2	11.2	8.22	mg/Kg	☼	08/01/14 17:54	10
Iron	23200	B	134	55.9	36.9	mg/Kg	☼	08/01/14 17:54	10
Zinc	1990	B	55.9	44.6	14.9	mg/Kg	☼	08/01/14 17:54	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-22-02
Date Collected: 07/22/14 10:40
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-2
Matrix: Solid
Percent Solids: 65.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	213		3.71	3.56	1.22	mg/Kg	☼	08/01/14 18:01	10
Arsenic	8.35		7.42	5.79	1.93	mg/Kg	☼	08/01/14 18:01	10
Barium	962		14.8	2.09	0.698	mg/Kg	☼	08/01/14 18:01	10
Beryllium	1.05		0.742	0.579	0.193	mg/Kg	☼	08/01/14 18:01	10
Cadmium	454		0.445	0.356	0.119	mg/Kg	☼	08/01/14 18:01	10
Chromium	2410		14.1	7.42	3.34	mg/Kg	☼	08/01/14 18:01	10
Cobalt	34.4		1.48	0.958	0.319	mg/Kg	☼	08/01/14 18:01	10
Copper	628	B	7.42	2.23	0.750	mg/Kg	☼	08/01/14 18:01	10
Lead	907		2.23	2.23	0.742	mg/Kg	☼	08/01/14 18:01	10
Molybdenum	51.6		3.71	2.67	0.920	mg/Kg	☼	08/01/14 18:01	10
Nickel	1460		3.71	2.45	0.794	mg/Kg	☼	08/01/14 18:01	10
Selenium	66.2		3.71	3.56	1.17	mg/Kg	☼	07/31/14 02:27	10
Silver	91.9		3.34	0.534	0.178	mg/Kg	☼	08/01/14 18:01	10
Thallium	1.48	U	7.42	1.48	1.13	mg/Kg	☼	08/01/14 18:01	10
Vanadium	14.5		7.42	7.42	5.46	mg/Kg	☼	08/01/14 18:01	10
Iron	31900	B	89.1	37.1	24.5	mg/Kg	☼	08/01/14 18:01	10
Zinc	2250	B	37.1	29.6	9.87	mg/Kg	☼	08/01/14 18:01	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-10-01
Date Collected: 07/22/14 13:30
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-3
Matrix: Solid
Percent Solids: 69.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	5.18		3.53	3.38	1.16	mg/Kg	☼	08/01/14 18:34	10
Arsenic	5.61	J	7.05	5.50	1.83	mg/Kg	☼	08/01/14 18:34	10
Barium	158		14.1	1.99	0.663	mg/Kg	☼	08/01/14 18:34	10
Beryllium	0.203	J	0.705	0.550	0.183	mg/Kg	☼	08/01/14 18:34	10
Cadmium	16.8		0.423	0.338	0.113	mg/Kg	☼	08/01/14 18:34	10
Chromium	277		13.4	7.05	3.17	mg/Kg	☼	08/01/14 18:34	10
Cobalt	6.37		1.41	0.910	0.303	mg/Kg	☼	08/01/14 18:34	10
Copper	175	B	7.05	2.12	0.712	mg/Kg	☼	08/01/14 18:34	10
Lead	389		2.12	2.12	0.705	mg/Kg	☼	08/01/14 18:34	10
Molybdenum	6.52		3.53	2.54	0.874	mg/Kg	☼	08/01/14 18:34	10
Nickel	101		3.53	2.33	0.755	mg/Kg	☼	08/01/14 18:34	10
Selenium	3.38	U	3.53	3.38	1.11	mg/Kg	☼	07/31/14 03:01	10
Silver	2.39	J	3.17	0.508	0.169	mg/Kg	☼	08/01/14 18:34	10
Thallium	1.41	U	7.05	1.41	1.07	mg/Kg	☼	08/01/14 18:34	10
Vanadium	15.0		7.05	7.05	5.18	mg/Kg	☼	08/01/14 18:34	10
Iron	24100	B	84.6	35.3	23.3	mg/Kg	☼	08/01/14 18:34	10
Zinc	890	B	35.3	28.1	9.38	mg/Kg	☼	08/01/14 18:34	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-10-02
Date Collected: 07/22/14 13:40
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-4
Matrix: Solid
Percent Solids: 64.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	**2.24**	**J**	3.49	3.35	1.14	mg/Kg	☼	08/01/14 18:41	10
Arsenic	**7.51**		6.98	5.44	1.81	mg/Kg	☼	08/01/14 18:41	10
Barium	**182**		14.0	1.97	0.656	mg/Kg	☼	08/01/14 18:41	10
Beryllium	0.544	U	0.698	0.544	0.181	mg/Kg	☼	08/01/14 18:41	10
Cadmium	**8.69**		0.419	0.335	0.112	mg/Kg	☼	08/01/14 18:41	10
Chromium	**132**		13.3	6.98	3.14	mg/Kg	☼	08/01/14 18:41	10
Cobalt	**9.69**		1.40	0.900	0.300	mg/Kg	☼	08/01/14 18:41	10
Copper	**163**	**B**	6.98	2.09	0.705	mg/Kg	☼	08/01/14 18:41	10
Lead	**204**		2.09	2.09	0.698	mg/Kg	☼	08/01/14 18:41	10
Molybdenum	**8.11**		3.49	2.51	0.865	mg/Kg	☼	08/01/14 18:41	10
Nickel	**96.8**		3.49	2.30	0.747	mg/Kg	☼	08/01/14 18:41	10
Selenium	3.35	U	3.49	3.35	1.10	mg/Kg	☼	07/31/14 03:08	10
Silver	**5.44**		3.14	0.502	0.167	mg/Kg	☼	08/01/14 18:41	10
Thallium	1.40	U	6.98	1.40	1.06	mg/Kg	☼	08/01/14 18:41	10
Vanadium	**20.5**		6.98	6.98	5.13	mg/Kg	☼	08/01/14 18:41	10
Iron	**45000**	**B**	83.7	34.9	23.0	mg/Kg	☼	08/01/14 18:41	10
Zinc	**615**	**B**	34.9	27.8	9.28	mg/Kg	☼	08/01/14 18:41	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-22-01
Date Collected: 07/22/14 10:33
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-1
Matrix: Solid
Percent Solids: 41.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	3.39		0.0953	0.0715	0.0262	mg/Kg	☼	07/25/14 14:51	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-22-02
Date Collected: 07/22/14 10:40
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-2
Matrix: Solid
Percent Solids: 65.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.70		0.571	0.428	0.157	mg/Kg	☼	07/25/14 15:21	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-10-01
Date Collected: 07/22/14 13:30
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-3
Matrix: Solid
Percent Solids: 69.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.62		0.559	0.420	0.154	mg/Kg	☼	07/25/14 15:36	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7593-1
SDG: 160-7593

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-10-02
Date Collected: 07/22/14 13:40
Date Received: 07/23/14 09:20

Lab Sample ID: 160-7593-4
Matrix: Solid
Percent Solids: 64.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.43		0.0613	0.0460	0.0169	mg/Kg	☼	07/25/14 15:12	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7600-1
TestAmerica Sample Delivery Group: 160-7600
Client Project/Site: Alameda IR Site 17
Revision: 1

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
8/22/2014 3:58:24 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

160-7600 Chain of Custody

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1002

Project Name	FZ02 - Alameda Site 17
PO Number	1036773-23
Project Location	Alameda, CA
Project Number	FZ02.0202.1000
Sampler Name	W. Solorzano
Airbill Number	7706 7499 3440
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MH1-11-01	7/23/2014	0903	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-11	—	—	N
IWL-MH1-11-02	7/23/2014	0912	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-11	—	—	N
IWL-MH1-12-01	7/23/2014	1458	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-12	—	—	N
IWL-MH1-12-02	7/23/2014	1520	2	3	S	10 dy	X	X	X					two-4 oz for voc, two- 8 oz for svoc/metals	IWL-MH1-12	—	—	N

Relinquished by: (signature)	Date: 7/23/14	Received by (signature) FedEx	Laboratory Instructions/Comments:
Company: Tetra tech	Time: 1600	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature) 7/24/14	Composite Discription:
Company:	Time:	Company: TA 0925	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1002

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-11-01
Date Collected: 07/23/14 09:03
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-1
Matrix: Solid
Percent Solids: 48.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	2.06	U	10.3	2.06	0.888	ug/Kg	☼	07/25/14 13:49	1
1,1,2,2-Tetrachloroethane	2.06	U *	10.3	2.06	0.826	ug/Kg	☼	07/25/14 13:49	1
1,1,2-Trichloroethane	2.06	U *	10.3	2.06	1.18	ug/Kg	☼	07/25/14 13:49	1
1,1-Dichloroethane	2.06	U	10.3	2.06	0.807	ug/Kg	☼	07/25/14 13:49	1
1,1-Dichloroethene	10.3	U	10.3	10.3	3.32	ug/Kg	☼	07/25/14 13:49	1
1,2-Dichloroethane	2.06	U	10.3	2.06	1.79	ug/Kg	☼	07/25/14 13:49	1
1,2-Dichloropropane	2.06	U	10.3	2.06	0.789	ug/Kg	☼	07/25/14 13:49	1
2-Butanone (MEK)	10.3	U	41.2	10.3	3.95	ug/Kg	☼	07/25/14 13:49	1
2-Hexanone	10.3	U *	20.6	10.3	3.65	ug/Kg	☼	07/25/14 13:49	1
4-Methyl-2-pentanone (MIBK)	10.3	U *	41.2	10.3	1.51	ug/Kg	☼	07/25/14 13:49	1
Acetone	20.6	U	41.2	20.6	13.3	ug/Kg	☼	07/25/14 13:49	1
Benzene	**14.0**		10.3	2.06	0.521	ug/Kg	☼	07/25/14 13:49	1
Bromodichloromethane	2.06	U	10.3	2.06	0.523	ug/Kg	☼	07/25/14 13:49	1
Bromoform	2.06	U *	10.3	2.06	0.754	ug/Kg	☼	07/25/14 13:49	1
Bromomethane	10.3	U	20.6	10.3	2.27	ug/Kg	☼	07/25/14 13:49	1
Carbon tetrachloride	2.06	U	10.3	2.06	1.06	ug/Kg	☼	07/25/14 13:49	1
Chlorobenzene	**8.10**	**J ***	10.3	2.06	0.787	ug/Kg	☼	07/25/14 13:49	1
Chloroethane	2.06	U	20.6	2.06	1.06	ug/Kg	☼	07/25/14 13:49	1
Chloroform	2.06	U	10.3	2.06	0.774	ug/Kg	☼	07/25/14 13:49	1
Chloromethane	10.3	U	20.6	10.3	1.34	ug/Kg	☼	07/25/14 13:49	1
cis-1,2-Dichloroethene	**17.1**		10.3	2.06	1.23	ug/Kg	☼	07/25/14 13:49	1
cis-1,3-Dichloropropene	2.06	U	10.3	2.06	1.23	ug/Kg	☼	07/25/14 13:49	1
Dibromochloromethane	2.06	U *	10.3	2.06	0.836	ug/Kg	☼	07/25/14 13:49	1
Ethylbenzene	**6.77**	**J ***	10.3	2.06	0.616	ug/Kg	☼	07/25/14 13:49	1
Methyl tert-butyl ether	2.06	U	10.3	2.06	0.980	ug/Kg	☼	07/25/14 13:49	1
Methylene Chloride	10.3	U	20.6	10.3	3.25	ug/Kg	☼	07/25/14 13:49	1
Styrene	2.06	U *	10.3	2.06	0.715	ug/Kg	☼	07/25/14 13:49	1
Tetrachloroethene	2.06	U *	10.3	2.06	0.663	ug/Kg	☼	07/25/14 13:49	1
Toluene	**4.17**	**J ***	10.3	2.06	1.44	ug/Kg	☼	07/25/14 13:49	1
trans-1,2-Dichloroethene	2.06	U	10.3	2.06	1.94	ug/Kg	☼	07/25/14 13:49	1
trans-1,3-Dichloropropene	2.06	U *	10.3	2.06	0.719	ug/Kg	☼	07/25/14 13:49	1
Trichloroethene	2.06	U	10.3	2.06	0.793	ug/Kg	☼	07/25/14 13:49	1
Vinyl chloride	**13.9**	**J**	20.6	2.06	0.882	ug/Kg	☼	07/25/14 13:49	1
Xylenes, Total	**4.08**	**J ***	20.6	10.3	1.76	ug/Kg	☼	07/25/14 13:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 128*	*07/25/14 08:13*	*07/25/14 13:49*	*1*
4-Bromofluorobenzene (Surr)	*420*	*E X **	*85 - 120*	*07/25/14 08:13*	*07/25/14 13:49*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 126*	*07/25/14 08:13*	*07/25/14 13:49*	*1*
Toluene-d8 (Surr)	*128*	*X **	*85 - 115*	*07/25/14 08:13*	*07/25/14 13:49*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-11-02
Date Collected: 07/23/14 09:12
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-2
Matrix: Solid
Percent Solids: 52.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.89	U	9.47	1.89	0.817	ug/Kg	☼	07/25/14 14:14	1
1,1,2,2-Tetrachloroethane	1.89	U *	9.47	1.89	0.760	ug/Kg	☼	07/25/14 14:14	1
1,1,2-Trichloroethane	1.89	U	9.47	1.89	1.09	ug/Kg	☼	07/25/14 14:14	1
1,1-Dichloroethane	1.89	U	9.47	1.89	0.743	ug/Kg	☼	07/25/14 14:14	1
1,1-Dichloroethene	9.47	U	9.47	9.47	3.05	ug/Kg	☼	07/25/14 14:14	1
1,2-Dichloroethane	1.89	U	9.47	1.89	1.64	ug/Kg	☼	07/25/14 14:14	1
1,2-Dichloropropane	1.89	U	9.47	1.89	0.726	ug/Kg	☼	07/25/14 14:14	1
2-Butanone (MEK)	9.47	U	37.9	9.47	3.64	ug/Kg	☼	07/25/14 14:14	1
2-Hexanone	9.47	U	18.9	9.47	3.35	ug/Kg	☼	07/25/14 14:14	1
4-Methyl-2-pentanone (MIBK)	9.47	U	37.9	9.47	1.39	ug/Kg	☼	07/25/14 14:14	1
Acetone	**26.2**	**J**	37.9	18.9	12.3	ug/Kg	☼	07/25/14 14:14	1
Benzene	**5.75**	**J**	9.47	1.89	0.479	ug/Kg	☼	07/25/14 14:14	1
Bromodichloromethane	1.89	U	9.47	1.89	0.481	ug/Kg	☼	07/25/14 14:14	1
Bromoform	1.89	U *	9.47	1.89	0.693	ug/Kg	☼	07/25/14 14:14	1
Bromomethane	9.47	U	18.9	9.47	2.08	ug/Kg	☼	07/25/14 14:14	1
Carbon tetrachloride	1.89	U	9.47	1.89	0.972	ug/Kg	☼	07/25/14 14:14	1
Chlorobenzene	**2.32**	**J**	9.47	1.89	0.724	ug/Kg	☼	07/25/14 14:14	1
Chloroethane	1.89	U	18.9	1.89	0.978	ug/Kg	☼	07/25/14 14:14	1
Chloroform	1.89	U	9.47	1.89	0.712	ug/Kg	☼	07/25/14 14:14	1
Chloromethane	9.47	U	18.9	9.47	1.23	ug/Kg	☼	07/25/14 14:14	1
cis-1,2-Dichloroethene	**19.4**		9.47	1.89	1.13	ug/Kg	☼	07/25/14 14:14	1
cis-1,3-Dichloropropene	1.89	U	9.47	1.89	1.13	ug/Kg	☼	07/25/14 14:14	1
Dibromochloromethane	1.89	U	9.47	1.89	0.769	ug/Kg	☼	07/25/14 14:14	1
Ethylbenzene	**2.51**	**J**	9.47	1.89	0.567	ug/Kg	☼	07/25/14 14:14	1
Methyl tert-butyl ether	1.89	U	9.47	1.89	0.902	ug/Kg	☼	07/25/14 14:14	1
Methylene Chloride	9.47	U	18.9	9.47	2.99	ug/Kg	☼	07/25/14 14:14	1
Styrene	1.89	U	9.47	1.89	0.657	ug/Kg	☼	07/25/14 14:14	1
Tetrachloroethene	1.89	U	9.47	1.89	0.610	ug/Kg	☼	07/25/14 14:14	1
Toluene	**2.33**	**J**	9.47	1.89	1.33	ug/Kg	☼	07/25/14 14:14	1
trans-1,2-Dichloroethene	1.89	U	9.47	1.89	1.79	ug/Kg	☼	07/25/14 14:14	1
trans-1,3-Dichloropropene	1.89	U	9.47	1.89	0.661	ug/Kg	☼	07/25/14 14:14	1
Trichloroethene	1.89	U	9.47	1.89	0.729	ug/Kg	☼	07/25/14 14:14	1
Vinyl chloride	**8.54**	**J**	18.9	1.89	0.811	ug/Kg	☼	07/25/14 14:14	1
Xylenes, Total	**2.14**	**J**	18.9	9.47	1.62	ug/Kg	☼	07/25/14 14:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 128*	*07/25/14 08:13*	*07/25/14 14:14*	*1*
4-Bromofluorobenzene (Surr)	*214*	*X **	*85 - 120*	*07/25/14 08:13*	*07/25/14 14:14*	*1*
Dibromofluoromethane (Surr)	*95*		*76 - 126*	*07/25/14 08:13*	*07/25/14 14:14*	*1*
Toluene-d8 (Surr)	*120*	*X*	*85 - 115*	*07/25/14 08:13*	*07/25/14 14:14*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-12-01
Date Collected: 07/23/14 14:58
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-3
Matrix: Solid
Percent Solids: 47.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	2.10	U	10.5	2.10	0.905	ug/Kg	☼	07/25/14 14:38	1
1,1,2,2-Tetrachloroethane	2.10	U *	10.5	2.10	0.842	ug/Kg	☼	07/25/14 14:38	1
1,1,2-Trichloroethane	2.10	U *	10.5	2.10	1.20	ug/Kg	☼	07/25/14 14:38	1
1,1-Dichloroethane	2.10	U	10.5	2.10	0.823	ug/Kg	☼	07/25/14 14:38	1
1,1-Dichloroethene	10.5	U	10.5	10.5	3.38	ug/Kg	☼	07/25/14 14:38	1
1,2-Dichloroethane	2.10	U	10.5	2.10	1.82	ug/Kg	☼	07/25/14 14:38	1
1,2-Dichloropropane	2.10	U	10.5	2.10	0.804	ug/Kg	☼	07/25/14 14:38	1
2-Butanone (MEK)	**45.8**		42.0	10.5	4.03	ug/Kg	☼	07/25/14 14:38	1
2-Hexanone	10.5	U *	21.0	10.5	3.72	ug/Kg	☼	07/25/14 14:38	1
4-Methyl-2-pentanone (MIBK)	10.5	U *	42.0	10.5	1.54	ug/Kg	☼	07/25/14 14:38	1
Acetone	**149**		42.0	21.0	13.6	ug/Kg	☼	07/25/14 14:38	1
Benzene	**12.9**		10.5	2.10	0.531	ug/Kg	☼	07/25/14 14:38	1
Bromodichloromethane	2.10	U	10.5	2.10	0.533	ug/Kg	☼	07/25/14 14:38	1
Bromoform	2.10	U *	10.5	2.10	0.769	ug/Kg	☼	07/25/14 14:38	1
Bromomethane	10.5	U	21.0	10.5	2.31	ug/Kg	☼	07/25/14 14:38	1
Carbon tetrachloride	2.10	U	10.5	2.10	1.08	ug/Kg	☼	07/25/14 14:38	1
Chlorobenzene	**5.31**	**J ***	10.5	2.10	0.802	ug/Kg	☼	07/25/14 14:38	1
Chloroethane	2.10	U	21.0	2.10	1.08	ug/Kg	☼	07/25/14 14:38	1
Chloroform	2.10	U	10.5	2.10	0.790	ug/Kg	☼	07/25/14 14:38	1
Chloromethane	10.5	U	21.0	10.5	1.36	ug/Kg	☼	07/25/14 14:38	1
cis-1,2-Dichloroethene	**2.15**	**J**	10.5	2.10	1.25	ug/Kg	☼	07/25/14 14:38	1
cis-1,3-Dichloropropene	2.10	U	10.5	2.10	1.25	ug/Kg	☼	07/25/14 14:38	1
Dibromochloromethane	2.10	U *	10.5	2.10	0.853	ug/Kg	☼	07/25/14 14:38	1
Ethylbenzene	**3.17**	**J ***	10.5	2.10	0.628	ug/Kg	☼	07/25/14 14:38	1
Methyl tert-butyl ether	2.10	U	10.5	2.10	1.00	ug/Kg	☼	07/25/14 14:38	1
Methylene Chloride	10.5	U	21.0	10.5	3.32	ug/Kg	☼	07/25/14 14:38	1
Styrene	2.10	U *	10.5	2.10	0.729	ug/Kg	☼	07/25/14 14:38	1
Tetrachloroethene	2.10	U *	10.5	2.10	0.676	ug/Kg	☼	07/25/14 14:38	1
Toluene	**4.66**	**J ***	10.5	2.10	1.47	ug/Kg	☼	07/25/14 14:38	1
trans-1,2-Dichloroethene	2.10	U	10.5	2.10	1.98	ug/Kg	☼	07/25/14 14:38	1
trans-1,3-Dichloropropene	2.10	U *	10.5	2.10	0.733	ug/Kg	☼	07/25/14 14:38	1
Trichloroethene	2.10	U	10.5	2.10	0.808	ug/Kg	☼	07/25/14 14:38	1
Vinyl chloride	**9.62**	**J**	21.0	2.10	0.899	ug/Kg	☼	07/25/14 14:38	1
Xylenes, Total	**4.16**	**J ***	21.0	10.5	1.79	ug/Kg	☼	07/25/14 14:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*71 - 128*	*07/25/14 08:13*	*07/25/14 14:38*	*1*
4-Bromofluorobenzene (Surr)	*262*	*X **	*85 - 120*	*07/25/14 08:13*	*07/25/14 14:38*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 126*	*07/25/14 08:13*	*07/25/14 14:38*	*1*
Toluene-d8 (Surr)	*133*	*X **	*85 - 115*	*07/25/14 08:13*	*07/25/14 14:38*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-12-02
Date Collected: 07/23/14 15:20
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-4
Matrix: Solid
Percent Solids: 30.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	3.26	U	16.3	3.26	1.40	ug/Kg	☼	07/25/14 15:03	1
1,1,2,2-Tetrachloroethane	3.26	U *	16.3	3.26	1.31	ug/Kg	☼	07/25/14 15:03	1
1,1,2-Trichloroethane	3.26	U *	16.3	3.26	1.87	ug/Kg	☼	07/25/14 15:03	1
1,1-Dichloroethane	3.26	U	16.3	3.26	1.28	ug/Kg	☼	07/25/14 15:03	1
1,1-Dichloroethene	16.3	U	16.3	16.3	5.24	ug/Kg	☼	07/25/14 15:03	1
1,2-Dichloroethane	3.26	U	16.3	3.26	2.82	ug/Kg	☼	07/25/14 15:03	1
1,2-Dichloropropane	3.26	U	16.3	3.26	1.25	ug/Kg	☼	07/25/14 15:03	1
2-Butanone (MEK)	**48.8**	**J**	65.1	16.3	6.25	ug/Kg	☼	07/25/14 15:03	1
2-Hexanone	16.3	U *	32.6	16.3	5.76	ug/Kg	☼	07/25/14 15:03	1
4-Methyl-2-pentanone (MIBK)	16.3	U *	65.1	16.3	2.38	ug/Kg	☼	07/25/14 15:03	1
Acetone	**143**		65.1	32.6	21.1	ug/Kg	☼	07/25/14 15:03	1
Benzene	**20.2**		16.3	3.26	0.824	ug/Kg	☼	07/25/14 15:03	1
Bromodichloromethane	3.26	U	16.3	3.26	0.827	ug/Kg	☼	07/25/14 15:03	1
Bromoform	3.26	U *	16.3	3.26	1.19	ug/Kg	☼	07/25/14 15:03	1
Bromomethane	16.3	U	32.6	16.3	3.58	ug/Kg	☼	07/25/14 15:03	1
Carbon tetrachloride	3.26	U	16.3	3.26	1.67	ug/Kg	☼	07/25/14 15:03	1
Chlorobenzene	**7.81**	**J ***	16.3	3.26	1.24	ug/Kg	☼	07/25/14 15:03	1
Chloroethane	3.26	U	32.6	3.26	1.68	ug/Kg	☼	07/25/14 15:03	1
Chloroform	3.26	U	16.3	3.26	1.22	ug/Kg	☼	07/25/14 15:03	1
Chloromethane	16.3	U	32.6	16.3	2.12	ug/Kg	☼	07/25/14 15:03	1
cis-1,2-Dichloroethene	**2.39**	**J**	16.3	3.26	1.94	ug/Kg	☼	07/25/14 15:03	1
cis-1,3-Dichloropropene	3.26	U	16.3	3.26	1.94	ug/Kg	☼	07/25/14 15:03	1
Dibromochloromethane	3.26	U *	16.3	3.26	1.32	ug/Kg	☼	07/25/14 15:03	1
Ethylbenzene	**3.37**	**J ***	16.3	3.26	0.973	ug/Kg	☼	07/25/14 15:03	1
Methyl tert-butyl ether	3.26	U	16.3	3.26	1.55	ug/Kg	☼	07/25/14 15:03	1
Methylene Chloride	16.3	U	32.6	16.3	5.14	ug/Kg	☼	07/25/14 15:03	1
Styrene	3.26	U *	16.3	3.26	1.13	ug/Kg	☼	07/25/14 15:03	1
Tetrachloroethene	3.26	U *	16.3	3.26	1.05	ug/Kg	☼	07/25/14 15:03	1
Toluene	**5.69**	**J ***	16.3	3.26	2.28	ug/Kg	☼	07/25/14 15:03	1
trans-1,2-Dichloroethene	3.26	U	16.3	3.26	3.07	ug/Kg	☼	07/25/14 15:03	1
trans-1,3-Dichloropropene	3.26	U *	16.3	3.26	1.14	ug/Kg	☼	07/25/14 15:03	1
Trichloroethene	3.26	U	16.3	3.26	1.25	ug/Kg	☼	07/25/14 15:03	1
Vinyl chloride	**13.4**	**J**	32.6	3.26	1.39	ug/Kg	☼	07/25/14 15:03	1
Xylenes, Total	**15.4**	**J ***	32.6	16.3	2.78	ug/Kg	☼	07/25/14 15:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 128*	*07/25/14 08:13*	*07/25/14 15:03*	*1*
4-Bromofluorobenzene (Surr)	*222*	*X **	*85 - 120*	*07/25/14 08:13*	*07/25/14 15:03*	*1*
Dibromofluoromethane (Surr)	*97*		*76 - 126*	*07/25/14 08:13*	*07/25/14 15:03*	*1*
Toluene-d8 (Surr)	*122*	*X **	*85 - 115*	*07/25/14 08:13*	*07/25/14 15:03*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-11-01
Date Collected: 07/23/14 09:03
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-1
Matrix: Solid
Percent Solids: 48.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
1,2-Dichlorobenzene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
1,3-Dichlorobenzene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
1,4-Dichlorobenzene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2,4,5-Trichlorophenol	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2,4,6-Trichlorophenol	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2,4-Dichlorophenol	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2,4-Dimethylphenol	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2,4-Dinitrophenol	20200	U	49100	20200	10100	ug/Kg	☼	08/09/14 15:45	5
2,4-Dinitrotoluene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2,6-Dinitrotoluene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2-Chloronaphthalene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2-Chlorophenol	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2-Methylphenol	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2-Nitroaniline	3040	U	49100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
2-Nitrophenol	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
3 & 4 Methylphenol	3040	U	20200	3040	2040	ug/Kg	☼	08/09/14 15:45	5
3,3'-Dichlorobenzidine	20200	U	49100	20200	10100	ug/Kg	☼	08/09/14 15:45	5
3-Nitroaniline	3040	U	49100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
4,6-Dinitro-2-methylphenol	20200	U	49100	20200	10100	ug/Kg	☼	08/09/14 15:45	5
4-Bromophenyl phenyl ether	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
4-Chloro-3-methylphenol	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
4-Chloroaniline	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
4-Chlorophenyl phenyl ether	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
4-Nitroaniline	20200	U	49100	20200	10100	ug/Kg	☼	08/09/14 15:45	5
4-Nitrophenol	20200	U	49100	20200	10100	ug/Kg	☼	08/09/14 15:45	5
Acenaphthene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Acenaphthylene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Anthracene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Benzo[a]anthracene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Benzo[a]pyrene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Benzo[b]fluoranthene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Benzo[g,h,i]perylene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Benzo[k]fluoranthene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
bis (2-chloroisopropyl) ether	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Bis(2-chloroethoxy)methane	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Bis(2-chloroethyl)ether	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Bis(2-ethylhexyl) phthalate	3040	U	10100	3040	1390	ug/Kg	☼	08/09/14 15:45	5
Butyl benzyl phthalate	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Chrysene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Dibenzo(a),h)anthracene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Dibenzofuran	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Diethyl phthalate	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Dimethyl phthalate	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Di-n-butyl phthalate	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Di-n-octyl phthalate	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Fluoranthene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Fluorene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Hexachlorobenzene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-11-01
Date Collected: 07/23/14 09:03
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-1
Matrix: Solid
Percent Solids: 48.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Hexachlorocyclopentadiene	20200	U	49100	20200	10100	ug/Kg	☼	08/09/14 15:45	5
Hexachloroethane	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Indeno[1,2,3-cd]pyrene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Nitrobenzene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
N-Nitrosodiphenylamine	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
N-Nitrosodi-n-propylamine	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Pentachlorophenol	10100	U	49100	10100	10100	ug/Kg	☼	08/09/14 15:45	5
Phenanthrene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Phenol	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Pyrene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5
Pyridine	3040	U	20200	3040	2040	ug/Kg	☼	08/09/14 15:45	5
Naphthalene	3040	U	10100	3040	1020	ug/Kg	☼	08/09/14 15:45	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*35 - 125*	*07/31/14 09:13*	*08/09/14 15:45*	*5*
2-Fluorobiphenyl (Surr)	*86*		*45 - 105*	*07/31/14 09:13*	*08/09/14 15:45*	*5*
2-Fluorophenol (Surr)	*76*		*35 - 105*	*07/31/14 09:13*	*08/09/14 15:45*	*5*
Nitrobenzene-d5 (Surr)	*85*		*35 - 100*	*07/31/14 09:13*	*08/09/14 15:45*	*5*
Phenol-d5 (Surr)	*78*		*40 - 100*	*07/31/14 09:13*	*08/09/14 15:45*	*5*
Terphenyl-d14 (Surr)	*83*		*30 - 125*	*07/31/14 09:13*	*08/09/14 15:45*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-11-02
Date Collected: 07/23/14 09:12
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-2
Matrix: Solid
Percent Solids: 52.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
1,2-Dichlorobenzene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
1,3-Dichlorobenzene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
1,4-Dichlorobenzene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
2,4,5-Trichlorophenol	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
2,4,6-Trichlorophenol	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
2,4-Dichlorophenol	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
2,4-Dimethylphenol	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
2,4-Dinitrophenol	18700	U	45300	18700	9350	ug/Kg	☼	08/09/14 16:19	5
2,4-Dinitrotoluene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
2,6-Dinitrotoluene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
2-Chloronaphthalene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
2-Chlorophenol	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
2-Methylphenol	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
2-Nitroaniline	2810	U	45300	2810	944	ug/Kg	☼	08/09/14 16:19	5
2-Nitrophenol	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
3 & 4 Methylphenol	2810	U	18700	2810	1890	ug/Kg	☼	08/09/14 16:19	5
3,3'-Dichlorobenzidine	18700	U	45300	18700	9350	ug/Kg	☼	08/09/14 16:19	5
3-Nitroaniline	2810	U	45300	2810	944	ug/Kg	☼	08/09/14 16:19	5
4,6-Dinitro-2-methylphenol	18700	U	45300	18700	9350	ug/Kg	☼	08/09/14 16:19	5
4-Bromophenyl phenyl ether	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
4-Chloro-3-methylphenol	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
4-Chloroaniline	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
4-Chlorophenyl phenyl ether	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
4-Nitroaniline	18700	U	45300	18700	9350	ug/Kg	☼	08/09/14 16:19	5
4-Nitrophenol	18700	U	45300	18700	9350	ug/Kg	☼	08/09/14 16:19	5
Acenaphthene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Acenaphthylene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Anthracene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Benzo[a]anthracene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Benzo[a]pyrene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Benzo[b]fluoranthene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Benzo[g,h,i]perylene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Benzo[k]fluoranthene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
bis (2-chloroisopropyl) ether	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Bis(2-chloroethoxy)methane	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Bis(2-chloroethyl)ether	2810	U	9350	2810	947	ug/Kg	☼	08/09/14 16:19	5
Bis(2-ethylhexyl) phthalate	**4180**	**J**	9350	2810	1280	ug/Kg	☼	08/09/14 16:19	5
Butyl benzyl phthalate	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Chrysene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Dibenzo(a),h)anthracene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Dibenzofuran	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Diethyl phthalate	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Dimethyl phthalate	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Di-n-butyl phthalate	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Di-n-octyl phthalate	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Fluoranthene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Fluorene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Hexachlorobenzene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-11-02
Date Collected: 07/23/14 09:12
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-2
Matrix: Solid
Percent Solids: 52.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Hexachlorocyclopentadiene	18700	U	45300	18700	9350	ug/Kg	☼	08/09/14 16:19	5
Hexachloroethane	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Indeno[1,2,3-cd]pyrene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Nitrobenzene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
N-Nitrosodiphenylamine	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
N-Nitrosodi-n-propylamine	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Pentachlorophenol	9350	U	45300	9350	9350	ug/Kg	☼	08/09/14 16:19	5
Phenanthrene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Phenol	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Pyrene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5
Pyridine	2810	U	18700	2810	1890	ug/Kg	☼	08/09/14 16:19	5
Naphthalene	2810	U	9350	2810	944	ug/Kg	☼	08/09/14 16:19	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*77*		*35 - 125*	*07/31/14 09:13*	*08/09/14 16:19*	*5*
2-Fluorobiphenyl (Surr)	*85*		*45 - 105*	*07/31/14 09:13*	*08/09/14 16:19*	*5*
2-Fluorophenol (Surr)	*73*		*35 - 105*	*07/31/14 09:13*	*08/09/14 16:19*	*5*
Nitrobenzene-d5 (Surr)	*85*		*35 - 100*	*07/31/14 09:13*	*08/09/14 16:19*	*5*
Phenol-d5 (Surr)	*79*		*40 - 100*	*07/31/14 09:13*	*08/09/14 16:19*	*5*
Terphenyl-d14 (Surr)	*82*		*30 - 125*	*07/31/14 09:13*	*08/09/14 16:19*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-12-01
Date Collected: 07/23/14 14:58
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-3
Matrix: Solid
Percent Solids: 47.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
1,2-Dichlorobenzene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
1,3-Dichlorobenzene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
1,4-Dichlorobenzene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2,4,5-Trichlorophenol	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2,4,6-Trichlorophenol	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2,4-Dichlorophenol	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2,4-Dimethylphenol	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2,4-Dinitrophenol	20400	U	49500	20400	10200	ug/Kg	☼	08/09/14 16:53	5
2,4-Dinitrotoluene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2,6-Dinitrotoluene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2-Chloronaphthalene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2-Chlorophenol	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2-Methylphenol	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2-Nitroaniline	3060	U	49500	3060	1030	ug/Kg	☼	08/09/14 16:53	5
2-Nitrophenol	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
3 & 4 Methylphenol	3060	U	20400	3060	2060	ug/Kg	☼	08/09/14 16:53	5
3,3'-Dichlorobenzidine	20400	U	49500	20400	10200	ug/Kg	☼	08/09/14 16:53	5
3-Nitroaniline	3060	U	49500	3060	1030	ug/Kg	☼	08/09/14 16:53	5
4,6-Dinitro-2-methylphenol	20400	U	49500	20400	10200	ug/Kg	☼	08/09/14 16:53	5
4-Bromophenyl phenyl ether	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
4-Chloro-3-methylphenol	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
4-Chloroaniline	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
4-Chlorophenyl phenyl ether	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
4-Nitroaniline	20400	U	49500	20400	10200	ug/Kg	☼	08/09/14 16:53	5
4-Nitrophenol	20400	U	49500	20400	10200	ug/Kg	☼	08/09/14 16:53	5
Acenaphthene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Acenaphthylene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Anthracene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Benzo[a]anthracene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Benzo[a]pyrene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Benzo[b]fluoranthene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Benzo[g,h,i]perylene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Benzo[k]fluoranthene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
bis (2-chloroisopropyl) ether	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Bis(2-chloroethoxy)methane	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Bis(2-chloroethyl)ether	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Bis(2-ethylhexyl) phthalate	**4680**	**J**	10200	3060	1400	ug/Kg	☼	08/09/14 16:53	5
Butyl benzyl phthalate	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Chrysene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Dibenzo(a),h)anthracene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Dibenzofuran	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Diethyl phthalate	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Dimethyl phthalate	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Di-n-butyl phthalate	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Di-n-octyl phthalate	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Fluoranthene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Fluorene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Hexachlorobenzene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-12-01
Date Collected: 07/23/14 14:58
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-3
Matrix: Solid
Percent Solids: 47.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Hexachlorocyclopentadiene	20400	U	49500	20400	10200	ug/Kg	☼	08/09/14 16:53	5
Hexachloroethane	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Indeno[1,2,3-cd]pyrene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Nitrobenzene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
N-Nitrosodiphenylamine	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
N-Nitrosodi-n-propylamine	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Pentachlorophenol	10200	U	49500	10200	10200	ug/Kg	☼	08/09/14 16:53	5
Phenanthrene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Phenol	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Pyrene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5
Pyridine	3060	U	20400	3060	2060	ug/Kg	☼	08/09/14 16:53	5
Naphthalene	3060	U	10200	3060	1030	ug/Kg	☼	08/09/14 16:53	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*35 - 125*	*07/31/14 09:13*	*08/09/14 16:53*	*5*
2-Fluorobiphenyl (Surr)	*81*		*45 - 105*	*07/31/14 09:13*	*08/09/14 16:53*	*5*
2-Fluorophenol (Surr)	*70*		*35 - 105*	*07/31/14 09:13*	*08/09/14 16:53*	*5*
Nitrobenzene-d5 (Surr)	*79*		*35 - 100*	*07/31/14 09:13*	*08/09/14 16:53*	*5*
Phenol-d5 (Surr)	*72*		*40 - 100*	*07/31/14 09:13*	*08/09/14 16:53*	*5*
Terphenyl-d14 (Surr)	*76*		*30 - 125*	*07/31/14 09:13*	*08/09/14 16:53*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-12-02
Date Collected: 07/23/14 15:20
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-4
Matrix: Solid
Percent Solids: 30.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
1,2-Dichlorobenzene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
1,3-Dichlorobenzene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
1,4-Dichlorobenzene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2,4,5-Trichlorophenol	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2,4,6-Trichlorophenol	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2,4-Dichlorophenol	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2,4-Dimethylphenol	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2,4-Dinitrophenol	31800	U	77000	31800	15900	ug/Kg	☼	08/09/14 17:27	5
2,4-Dinitrotoluene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2,6-Dinitrotoluene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2-Chloronaphthalene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2-Chlorophenol	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2-Methylphenol	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2-Nitroaniline	4760	U	77000	4760	1600	ug/Kg	☼	08/09/14 17:27	5
2-Nitrophenol	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
3 & 4 Methylphenol	4760	U	31800	4760	3200	ug/Kg	☼	08/09/14 17:27	5
3,3'-Dichlorobenzidine	31800	U	77000	31800	15900	ug/Kg	☼	08/09/14 17:27	5
3-Nitroaniline	4760	U	77000	4760	1600	ug/Kg	☼	08/09/14 17:27	5
4,6-Dinitro-2-methylphenol	31800	U	77000	31800	15900	ug/Kg	☼	08/09/14 17:27	5
4-Bromophenyl phenyl ether	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
4-Chloro-3-methylphenol	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
4-Chloroaniline	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
4-Chlorophenyl phenyl ether	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
4-Nitroaniline	31800	U	77000	31800	15900	ug/Kg	☼	08/09/14 17:27	5
4-Nitrophenol	31800	U	77000	31800	15900	ug/Kg	☼	08/09/14 17:27	5
Acenaphthene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Acenaphthylene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Anthracene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Benzo[a]anthracene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Benzo[a]pyrene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Benzo[b]fluoranthene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Benzo[g,h,i]perylene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Benzo[k]fluoranthene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
bis (2-chloroisopropyl) ether	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Bis(2-chloroethoxy)methane	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Bis(2-chloroethyl)ether	4760	U	15900	4760	1610	ug/Kg	☼	08/09/14 17:27	5
Bis(2-ethylhexyl) phthalate	**14000**	**J**	15900	4760	2180	ug/Kg	☼	08/09/14 17:27	5
Butyl benzyl phthalate	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Chrysene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Dibenzo(a),h)anthracene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Dibenzofuran	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Diethyl phthalate	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Dimethyl phthalate	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Di-n-butyl phthalate	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Di-n-octyl phthalate	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Fluoranthene	**6090**	**J**	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Fluorene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Hexachlorobenzene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-12-02
Date Collected: 07/23/14 15:20
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-4
Matrix: Solid
Percent Solids: 30.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Hexachlorocyclopentadiene	31800	U	77000	31800	15900	ug/Kg	☼	08/09/14 17:27	5
Hexachloroethane	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Indeno[1,2,3-cd]pyrene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Nitrobenzene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
N-Nitrosodiphenylamine	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
N-Nitrosodi-n-propylamine	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Pentachlorophenol	15900	U	77000	15900	15900	ug/Kg	☼	08/09/14 17:27	5
Phenanthrene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Phenol	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Pyrene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5
Pyridine	4760	U	31800	4760	3200	ug/Kg	☼	08/09/14 17:27	5
Naphthalene	4760	U	15900	4760	1600	ug/Kg	☼	08/09/14 17:27	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*72*		*35 - 125*	*07/31/14 09:13*	*08/09/14 17:27*	*5*
2-Fluorobiphenyl (Surr)	*80*		*45 - 105*	*07/31/14 09:13*	*08/09/14 17:27*	*5*
2-Fluorophenol (Surr)	*69*		*35 - 105*	*07/31/14 09:13*	*08/09/14 17:27*	*5*
Nitrobenzene-d5 (Surr)	*82*		*35 - 100*	*07/31/14 09:13*	*08/09/14 17:27*	*5*
Phenol-d5 (Surr)	*72*		*40 - 100*	*07/31/14 09:13*	*08/09/14 17:27*	*5*
Terphenyl-d14 (Surr)	*73*		*30 - 125*	*07/31/14 09:13*	*08/09/14 17:27*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-11-01
Date Collected: 07/23/14 09:03
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-1
Matrix: Solid
Percent Solids: 48.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	11.9		4.41	4.23	1.45	mg/Kg	☼	08/04/14 17:35	10
Arsenic	6.12	J	8.82	6.88	2.29	mg/Kg	☼	08/04/14 17:35	10
Barium	448	B	17.6	2.49	0.829	mg/Kg	☼	08/04/14 17:35	10
Beryllium	0.736	J	0.882	0.688	0.229	mg/Kg	☼	08/04/14 17:35	10
Cadmium	271	B	0.529	0.423	0.141	mg/Kg	☼	08/04/14 17:35	10
Chromium	3780	B	33.5	17.6	7.94	mg/Kg	☼	08/01/14 20:01	20
Cobalt	93.4		1.76	1.14	0.379	mg/Kg	☼	08/04/14 17:35	10
Copper	489	B	8.82	2.65	0.891	mg/Kg	☼	08/04/14 17:35	10
Lead	1030	B	2.65	2.65	0.882	mg/Kg	☼	08/04/14 17:35	10
Molybdenum	125		4.41	3.18	1.09	mg/Kg	☼	08/04/14 17:35	10
Nickel	2720	B	4.41	2.91	0.944	mg/Kg	☼	08/04/14 17:35	10
Selenium	1.56	J	4.41	4.23	1.39	mg/Kg	☼	08/04/14 17:35	10
Silver	219	B	3.97	0.635	0.212	mg/Kg	☼	08/04/14 17:35	10
Thallium	1.76	U	8.82	1.76	1.34	mg/Kg	☼	08/04/14 17:35	10
Vanadium	15.4		8.82	8.82	6.48	mg/Kg	☼	08/04/14 17:35	10
Iron	18100	B	106	44.1	29.1	mg/Kg	☼	08/04/14 17:35	10
Zinc	1390	B	44.1	35.2	11.7	mg/Kg	☼	08/04/14 17:35	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-11-02
Date Collected: 07/23/14 09:12
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-2
Matrix: Solid
Percent Solids: 52.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	6.98		4.21	4.04	1.38	mg/Kg	☼	08/04/14 18:08	10
Arsenic	9.42		8.42	6.57	2.19	mg/Kg	☼	08/04/14 18:08	10
Barium	375	B	16.8	2.37	0.792	mg/Kg	☼	08/04/14 18:08	10
Beryllium	0.308	J	0.842	0.657	0.219	mg/Kg	☼	08/04/14 18:08	10
Cadmium	370	B	0.505	0.404	0.135	mg/Kg	☼	08/04/14 18:08	10
Chromium	4990	B	32.0	16.8	7.58	mg/Kg	☼	08/01/14 20:35	20
Cobalt	52.9		1.68	1.09	0.362	mg/Kg	☼	08/04/14 18:08	10
Copper	571	B	8.42	2.53	0.850	mg/Kg	☼	08/04/14 18:08	10
Lead	1310	B	2.53	2.53	0.842	mg/Kg	☼	08/04/14 18:08	10
Molybdenum	67.9		4.21	3.03	1.04	mg/Kg	☼	08/04/14 18:08	10
Nickel	2800	B	4.21	2.78	0.901	mg/Kg	☼	08/04/14 18:08	10
Selenium	1.91	J	4.21	4.04	1.33	mg/Kg	☼	08/04/14 18:08	10
Silver	350	B	3.79	0.606	0.202	mg/Kg	☼	08/04/14 18:08	10
Thallium	1.68	U	8.42	1.68	1.28	mg/Kg	☼	08/04/14 18:08	10
Vanadium	17.1		8.42	8.42	6.19	mg/Kg	☼	08/04/14 18:08	10
Iron	16800	B	101	42.1	27.8	mg/Kg	☼	08/04/14 18:08	10
Zinc	1460	B	42.1	33.6	11.2	mg/Kg	☼	08/04/14 18:08	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-12-01
Date Collected: 07/23/14 14:58
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-3
Matrix: Solid
Percent Solids: 47.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	36.3		4.96	4.76	1.63	mg/Kg	☼	08/04/14 18:15	10
Arsenic	16.8		9.92	7.74	2.58	mg/Kg	☼	08/04/14 18:15	10
Barium	723	B	19.8	2.80	0.932	mg/Kg	☼	08/04/14 18:15	10
Beryllium	0.454	J	0.992	0.774	0.258	mg/Kg	☼	08/04/14 18:15	10
Cadmium	154	B	0.595	0.476	0.159	mg/Kg	☼	08/04/14 18:15	10
Chromium	1780	B	18.8	9.92	4.46	mg/Kg	☼	08/04/14 18:15	10
Cobalt	53.3		1.98	1.28	0.427	mg/Kg	☼	08/04/14 18:15	10
Copper	646	B	9.92	2.98	1.00	mg/Kg	☼	08/04/14 18:15	10
Lead	1870	B	2.98	2.98	0.992	mg/Kg	☼	08/04/14 18:15	10
Molybdenum	66.2		4.96	3.57	1.23	mg/Kg	☼	08/04/14 18:15	10
Nickel	1070	B	4.96	3.27	1.06	mg/Kg	☼	08/04/14 18:15	10
Selenium	4.76	U	4.96	4.76	1.57	mg/Kg	☼	08/04/14 18:15	10
Silver	86.0	B	4.46	0.714	0.238	mg/Kg	☼	08/04/14 18:15	10
Thallium	1.98	U	9.92	1.98	1.51	mg/Kg	☼	08/04/14 18:15	10
Vanadium	37.2		9.92	9.92	7.29	mg/Kg	☼	08/04/14 18:15	10
Iron	31500	B	119	49.6	32.7	mg/Kg	☼	08/04/14 18:15	10
Zinc	3110	B	49.6	39.6	13.2	mg/Kg	☼	08/04/14 18:15	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-12-02
Date Collected: 07/23/14 15:20
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-4
Matrix: Solid
Percent Solids: 30.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	9.69		6.95	6.67	2.28	mg/Kg	☼	08/04/14 18:21	10
Arsenic	21.7		13.9	10.8	3.61	mg/Kg	☼	08/04/14 18:21	10
Barium	1390	B	27.8	3.92	1.31	mg/Kg	☼	08/04/14 18:21	10
Beryllium	0.572	J	1.39	1.08	0.361	mg/Kg	☼	08/04/14 18:21	10
Cadmium	467	B	0.834	0.667	0.222	mg/Kg	☼	08/04/14 18:21	10
Chromium	7470	B	52.8	27.8	12.5	mg/Kg	☼	08/01/14 20:41	20
Cobalt	124		2.78	1.79	0.597	mg/Kg	☼	08/04/14 18:21	10
Copper	1130	B	13.9	4.17	1.40	mg/Kg	☼	08/04/14 18:21	10
Lead	3100	B	4.17	4.17	1.39	mg/Kg	☼	08/04/14 18:21	10
Molybdenum	157		6.95	5.00	1.72	mg/Kg	☼	08/04/14 18:21	10
Nickel	3830	B	6.95	4.59	1.49	mg/Kg	☼	08/04/14 18:21	10
Selenium	6.67	U	6.95	6.67	2.20	mg/Kg	☼	08/04/14 18:21	10
Silver	371	B	6.25	1.00	0.333	mg/Kg	☼	08/04/14 18:21	10
Thallium	2.78	U	13.9	2.78	2.11	mg/Kg	☼	08/04/14 18:21	10
Vanadium	61.6		13.9	13.9	10.2	mg/Kg	☼	08/04/14 18:21	10
Iron	47800	B	167	69.5	45.9	mg/Kg	☼	08/04/14 18:21	10
Zinc	4150	B	69.5	55.4	18.5	mg/Kg	☼	08/04/14 18:21	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-11-01
Date Collected: 07/23/14 09:03
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-1
Matrix: Solid
Percent Solids: 48.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	3.28		0.735	0.551	0.202	mg/Kg	☼	08/01/14 10:18	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-11-02
Date Collected: 07/23/14 09:12
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-2
Matrix: Solid
Percent Solids: 52.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	2.77		0.0682	0.0511	0.0187	mg/Kg	☼	08/01/14 07:49	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-12-01
Date Collected: 07/23/14 14:58
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-3
Matrix: Solid
Percent Solids: 47.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	12.9		1.46	1.09	0.401	mg/Kg	☼	08/01/14 07:53	20

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7600-1
SDG: 160-7600

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-12-02
Date Collected: 07/23/14 15:20
Date Received: 07/24/14 09:25

Lab Sample ID: 160-7600-4
Matrix: Solid
Percent Solids: 30.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	18.2		2.28	1.71	0.626	mg/Kg	☼	08/01/14 07:56	20

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7636-1
TestAmerica Sample Delivery Group: 160-7636
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
8/18/2014 11:06:16 AM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1003

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number: 7706 8506 1562
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MH1-13-01	7/24/2014	1047	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-13	—	—	N
IWL-MH1-13-02	7/24/2014	1058	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-13	—	—	N
IWL-PS2-VAULT-01	7/24/2014	1440	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-PS2-VAULT	—	—	N
IWL-PS2-VAULT-02	7/24/2014	1455	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-PS2-VAULT	—	—	N

Relinquished by: (signature)	Date:	Received by (signature)	Laboratory Instructions/Comments:	Sampling Comments:
[signature]	7/24/14	[signature] 7/25/14		Piles:
Company: Tetra tech EC	Time: 1650	Company: TT 0910		
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:	
Company:	Time:	Company:		
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)	
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:	FZ02 - 1003

160-7636 Chain of Custody

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-13-01
Date Collected: 07/24/14 10:47
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-1
Matrix: Solid
Percent Solids: 22.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	22.1	U	110	22.1	9.52	ug/Kg	☼	07/28/14 12:24	1
1,1,2,2-Tetrachloroethane	22.1	U	110	22.1	8.86	ug/Kg	☼	07/28/14 12:24	1
1,1,2-Trichloroethane	22.1	U	110	22.1	12.7	ug/Kg	☼	07/28/14 12:24	1
1,1-Dichloroethane	22.1	U	110	22.1	8.66	ug/Kg	☼	07/28/14 12:24	1
1,1-Dichloroethene	110	U	110	110	35.6	ug/Kg	☼	07/28/14 12:24	1
1,2-Dichloroethane	22.1	U	110	22.1	19.1	ug/Kg	☼	07/28/14 12:24	1
1,2-Dichloropropane	22.1	U	110	22.1	8.46	ug/Kg	☼	07/28/14 12:24	1
2-Butanone (MEK)	110	U	442	110	42.4	ug/Kg	☼	07/28/14 12:24	1
2-Hexanone	110	U	221	110	39.1	ug/Kg	☼	07/28/14 12:24	1
4-Methyl-2-pentanone (MIBK)	110	U	442	110	16.2	ug/Kg	☼	07/28/14 12:24	1
Acetone	221	U	442	221	143	ug/Kg	☼	07/28/14 12:24	1
Benzene	**10.5**	**J**	110	22.1	5.59	ug/Kg	☼	07/28/14 12:24	1
Bromodichloromethane	22.1	U	110	22.1	5.61	ug/Kg	☼	07/28/14 12:24	1
Bromoform	22.1	U	110	22.1	8.08	ug/Kg	☼	07/28/14 12:24	1
Bromomethane	110	U	221	110	24.3	ug/Kg	☼	07/28/14 12:24	1
Carbon tetrachloride	22.1	U	110	22.1	11.3	ug/Kg	☼	07/28/14 12:24	1
Chlorobenzene	22.1	U	110	22.1	8.44	ug/Kg	☼	07/28/14 12:24	1
Chloroethane	**54.1**	**J**	221	22.1	11.4	ug/Kg	☼	07/28/14 12:24	1
Chloroform	22.1	U	110	22.1	8.30	ug/Kg	☼	07/28/14 12:24	1
Chloromethane	110	U	221	110	14.4	ug/Kg	☼	07/28/14 12:24	1
cis-1,2-Dichloroethene	22.1	U	110	22.1	13.2	ug/Kg	☼	07/28/14 12:24	1
cis-1,3-Dichloropropene	22.1	U	110	22.1	13.1	ug/Kg	☼	07/28/14 12:24	1
Dibromochloromethane	22.1	U	110	22.1	8.97	ug/Kg	☼	07/28/14 12:24	1
Ethylbenzene	**13.6**	**J**	110	22.1	6.60	ug/Kg	☼	07/28/14 12:24	1
Methyl tert-butyl ether	22.1	U	110	22.1	10.5	ug/Kg	☼	07/28/14 12:24	1
Methylene Chloride	110	U	221	110	34.9	ug/Kg	☼	07/28/14 12:24	1
Styrene	22.1	U	110	22.1	7.66	ug/Kg	☼	07/28/14 12:24	1
Tetrachloroethene	22.1	U	110	22.1	7.11	ug/Kg	☼	07/28/14 12:24	1
Toluene	**17.6**	**J**	110	22.1	15.5	ug/Kg	☼	07/28/14 12:24	1
trans-1,2-Dichloroethene	22.1	U	110	22.1	20.8	ug/Kg	☼	07/28/14 12:24	1
trans-1,3-Dichloropropene	22.1	U	110	22.1	7.71	ug/Kg	☼	07/28/14 12:24	1
Trichloroethene	22.1	U	110	22.1	8.50	ug/Kg	☼	07/28/14 12:24	1
Vinyl chloride	22.1	U	221	22.1	9.45	ug/Kg	☼	07/28/14 12:24	1
Xylenes, Total	110	U	221	110	18.9	ug/Kg	☼	07/28/14 12:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 128*	*07/28/14 08:27*	*07/28/14 12:24*	*1*
4-Bromofluorobenzene (Surr)	*193*	*X*	*85 - 120*	*07/28/14 08:27*	*07/28/14 12:24*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 126*	*07/28/14 08:27*	*07/28/14 12:24*	*1*
Toluene-d8 (Surr)	*103*		*85 - 115*	*07/28/14 08:27*	*07/28/14 12:24*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-13-02
Date Collected: 07/24/14 10:58
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-2
Matrix: Solid
Percent Solids: 17.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	26.9	U	135	26.9	11.6	ug/Kg	☼	07/28/14 14:03	1
1,1,2,2-Tetrachloroethane	26.9	U *	135	26.9	10.8	ug/Kg	☼	07/28/14 14:03	1
1,1,2-Trichloroethane	26.9	U	135	26.9	15.4	ug/Kg	☼	07/28/14 14:03	1
1,1-Dichloroethane	26.9	U	135	26.9	10.6	ug/Kg	☼	07/28/14 14:03	1
1,1-Dichloroethene	135	U	135	135	43.4	ug/Kg	☼	07/28/14 14:03	1
1,2-Dichloroethane	26.9	U	135	26.9	23.4	ug/Kg	☼	07/28/14 14:03	1
1,2-Dichloropropane	26.9	U	135	26.9	10.3	ug/Kg	☼	07/28/14 14:03	1
2-Butanone (MEK)	135	U	539	135	51.7	ug/Kg	☼	07/28/14 14:03	1
2-Hexanone	135	U	269	135	47.7	ug/Kg	☼	07/28/14 14:03	1
4-Methyl-2-pentanone (MIBK)	135	U	539	135	19.7	ug/Kg	☼	07/28/14 14:03	1
Acetone	269	U	539	269	174	ug/Kg	☼	07/28/14 14:03	1
Benzene	**13.2**	**J**	135	26.9	6.82	ug/Kg	☼	07/28/14 14:03	1
Bromodichloromethane	26.9	U	135	26.9	6.84	ug/Kg	☼	07/28/14 14:03	1
Bromoform	26.9	U *	135	26.9	9.86	ug/Kg	☼	07/28/14 14:03	1
Bromomethane	135	U	269	135	29.6	ug/Kg	☼	07/28/14 14:03	1
Carbon tetrachloride	26.9	U	135	26.9	13.8	ug/Kg	☼	07/28/14 14:03	1
Chlorobenzene	**25.6**	**J**	135	26.9	10.3	ug/Kg	☼	07/28/14 14:03	1
Chloroethane	**83.3**	**J**	269	26.9	13.9	ug/Kg	☼	07/28/14 14:03	1
Chloroform	26.9	U	135	26.9	10.1	ug/Kg	☼	07/28/14 14:03	1
Chloromethane	135	U	269	135	17.5	ug/Kg	☼	07/28/14 14:03	1
cis-1,2-Dichloroethene	26.9	U	135	26.9	16.1	ug/Kg	☼	07/28/14 14:03	1
cis-1,3-Dichloropropene	26.9	U	135	26.9	16.0	ug/Kg	☼	07/28/14 14:03	1
Dibromochloromethane	26.9	U	135	26.9	10.9	ug/Kg	☼	07/28/14 14:03	1
Ethylbenzene	**13.5**	**J**	135	26.9	8.06	ug/Kg	☼	07/28/14 14:03	1
Methyl tert-butyl ether	26.9	U	135	26.9	12.8	ug/Kg	☼	07/28/14 14:03	1
Methylene Chloride	135	U	269	135	42.6	ug/Kg	☼	07/28/14 14:03	1
Styrene	26.9	U	135	26.9	9.35	ug/Kg	☼	07/28/14 14:03	1
Tetrachloroethene	26.9	U	135	26.9	8.68	ug/Kg	☼	07/28/14 14:03	1
Toluene	**22.6**	**J**	135	26.9	18.9	ug/Kg	☼	07/28/14 14:03	1
trans-1,2-Dichloroethene	26.9	U	135	26.9	25.4	ug/Kg	☼	07/28/14 14:03	1
trans-1,3-Dichloropropene	26.9	U	135	26.9	9.40	ug/Kg	☼	07/28/14 14:03	1
Trichloroethene	26.9	U	135	26.9	10.4	ug/Kg	☼	07/28/14 14:03	1
Vinyl chloride	26.9	U	269	26.9	11.5	ug/Kg	☼	07/28/14 14:03	1
Xylenes, Total	**23.4**	**J**	269	135	23.0	ug/Kg	☼	07/28/14 14:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*71 - 128*	*07/28/14 08:27*	*07/28/14 14:03*	*1*
4-Bromofluorobenzene (Surr)	*195*	*X **	*85 - 120*	*07/28/14 08:27*	*07/28/14 14:03*	*1*
Dibromofluoromethane (Surr)	*96*		*76 - 126*	*07/28/14 08:27*	*07/28/14 14:03*	*1*
Toluene-d8 (Surr)	*103*		*85 - 115*	*07/28/14 08:27*	*07/28/14 14:03*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-PS2-VAULT-01
Date Collected: 07/24/14 14:40
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-3
Matrix: Solid
Percent Solids: 30.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	16.1	U	80.7	16.1	6.95	ug/Kg	☼	07/28/14 14:27	1
1,1,2,2-Tetrachloroethane	16.1	U *	80.7	16.1	6.47	ug/Kg	☼	07/28/14 14:27	1
1,1,2-Trichloroethane	16.1	U	80.7	16.1	9.24	ug/Kg	☼	07/28/14 14:27	1
1,1-Dichloroethane	16.1	U	80.7	16.1	6.32	ug/Kg	☼	07/28/14 14:27	1
1,1-Dichloroethene	80.7	U	80.7	80.7	26.0	ug/Kg	☼	07/28/14 14:27	1
1,2-Dichloroethane	16.1	U	80.7	16.1	14.0	ug/Kg	☼	07/28/14 14:27	1
1,2-Dichloropropane	16.1	U	80.7	16.1	6.18	ug/Kg	☼	07/28/14 14:27	1
2-Butanone (MEK)	**433**		323	80.7	31.0	ug/Kg	☼	07/28/14 14:27	1
2-Hexanone	80.7	U	161	80.7	28.6	ug/Kg	☼	07/28/14 14:27	1
4-Methyl-2-pentanone (MIBK)	80.7	U	323	80.7	11.8	ug/Kg	☼	07/28/14 14:27	1
Acetone	161	U	323	161	104	ug/Kg	☼	07/28/14 14:27	1
Benzene	**12.0**	**J**	80.7	16.1	4.08	ug/Kg	☼	07/28/14 14:27	1
Bromodichloromethane	16.1	U	80.7	16.1	4.10	ug/Kg	☼	07/28/14 14:27	1
Bromoform	16.1	U *	80.7	16.1	5.90	ug/Kg	☼	07/28/14 14:27	1
Bromomethane	80.7	U	161	80.7	17.7	ug/Kg	☼	07/28/14 14:27	1
Carbon tetrachloride	16.1	U	80.7	16.1	8.27	ug/Kg	☼	07/28/14 14:27	1
Chlorobenzene	**160**		80.7	16.1	6.16	ug/Kg	☼	07/28/14 14:27	1
Chloroethane	16.1	U	161	16.1	8.32	ug/Kg	☼	07/28/14 14:27	1
Chloroform	16.1	U	80.7	16.1	6.07	ug/Kg	☼	07/28/14 14:27	1
Chloromethane	80.7	U	161	80.7	10.5	ug/Kg	☼	07/28/14 14:27	1
cis-1,2-Dichloroethene	16.1	U	80.7	16.1	9.63	ug/Kg	☼	07/28/14 14:27	1
cis-1,3-Dichloropropene	16.1	U	80.7	16.1	9.60	ug/Kg	☼	07/28/14 14:27	1
Dibromochloromethane	16.1	U	80.7	16.1	6.55	ug/Kg	☼	07/28/14 14:27	1
Ethylbenzene	**16.9**	**J**	80.7	16.1	4.82	ug/Kg	☼	07/28/14 14:27	1
Methyl tert-butyl ether	16.1	U	80.7	16.1	7.68	ug/Kg	☼	07/28/14 14:27	1
Methylene Chloride	80.7	U	161	80.7	25.5	ug/Kg	☼	07/28/14 14:27	1
Styrene	16.1	U	80.7	16.1	5.60	ug/Kg	☼	07/28/14 14:27	1
Tetrachloroethene	16.1	U	80.7	16.1	5.19	ug/Kg	☼	07/28/14 14:27	1
Toluene	**65.0**	**J**	80.7	16.1	11.3	ug/Kg	☼	07/28/14 14:27	1
trans-1,2-Dichloroethene	16.1	U	80.7	16.1	15.2	ug/Kg	☼	07/28/14 14:27	1
trans-1,3-Dichloropropene	16.1	U	80.7	16.1	5.63	ug/Kg	☼	07/28/14 14:27	1
Trichloroethene	16.1	U	80.7	16.1	6.21	ug/Kg	☼	07/28/14 14:27	1
Vinyl chloride	16.1	U	161	16.1	6.90	ug/Kg	☼	07/28/14 14:27	1
Xylenes, Total	**19.7**	**J**	161	80.7	13.8	ug/Kg	☼	07/28/14 14:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 128*	*07/28/14 08:27*	*07/28/14 14:27*	*1*
4-Bromofluorobenzene (Surr)	*557*	*E X **	*85 - 120*	*07/28/14 08:27*	*07/28/14 14:27*	*1*
Dibromofluoromethane (Surr)	*97*		*76 - 126*	*07/28/14 08:27*	*07/28/14 14:27*	*1*
Toluene-d8 (Surr)	*108*		*85 - 115*	*07/28/14 08:27*	*07/28/14 14:27*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-PS2-VAULT-02
Date Collected: 07/24/14 14:55
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-4
Matrix: Solid
Percent Solids: 37.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	13.2	U	65.8	13.2	5.67	ug/Kg	☼	07/28/14 14:52	1
1,1,2,2-Tetrachloroethane	13.2	U *	65.8	13.2	5.28	ug/Kg	☼	07/28/14 14:52	1
1,1,2-Trichloroethane	13.2	U	65.8	13.2	7.54	ug/Kg	☼	07/28/14 14:52	1
1,1-Dichloroethane	13.2	U	65.8	13.2	5.16	ug/Kg	☼	07/28/14 14:52	1
1,1-Dichloroethene	65.8	U	65.8	65.8	21.2	ug/Kg	☼	07/28/14 14:52	1
1,2-Dichloroethane	13.2	U	65.8	13.2	11.4	ug/Kg	☼	07/28/14 14:52	1
1,2-Dichloropropane	13.2	U	65.8	13.2	5.04	ug/Kg	☼	07/28/14 14:52	1
2-Butanone (MEK)	65.8	U	263	65.8	25.3	ug/Kg	☼	07/28/14 14:52	1
2-Hexanone	65.8	U	132	65.8	23.3	ug/Kg	☼	07/28/14 14:52	1
4-Methyl-2-pentanone (MIBK)	65.8	U	263	65.8	9.64	ug/Kg	☼	07/28/14 14:52	1
Acetone	132	U	263	132	85.2	ug/Kg	☼	07/28/14 14:52	1
Benzene	**10.6**	**J**	65.8	13.2	3.33	ug/Kg	☼	07/28/14 14:52	1
Bromodichloromethane	13.2	U	65.8	13.2	3.34	ug/Kg	☼	07/28/14 14:52	1
Bromoform	13.2	U *	65.8	13.2	4.82	ug/Kg	☼	07/28/14 14:52	1
Bromomethane	65.8	U	132	65.8	14.5	ug/Kg	☼	07/28/14 14:52	1
Carbon tetrachloride	13.2	U	65.8	13.2	6.75	ug/Kg	☼	07/28/14 14:52	1
Chlorobenzene	**233**		65.8	13.2	5.03	ug/Kg	☼	07/28/14 14:52	1
Chloroethane	13.2	U	132	13.2	6.79	ug/Kg	☼	07/28/14 14:52	1
Chloroform	13.2	U	65.8	13.2	4.95	ug/Kg	☼	07/28/14 14:52	1
Chloromethane	65.8	U	132	65.8	8.56	ug/Kg	☼	07/28/14 14:52	1
cis-1,2-Dichloroethene	13.2	U	65.8	13.2	7.86	ug/Kg	☼	07/28/14 14:52	1
cis-1,3-Dichloropropene	13.2	U	65.8	13.2	7.83	ug/Kg	☼	07/28/14 14:52	1
Dibromochloromethane	13.2	U	65.8	13.2	5.34	ug/Kg	☼	07/28/14 14:52	1
Ethylbenzene	**15.1**	**J**	65.8	13.2	3.94	ug/Kg	☼	07/28/14 14:52	1
Methyl tert-butyl ether	13.2	U	65.8	13.2	6.27	ug/Kg	☼	07/28/14 14:52	1
Methylene Chloride	65.8	U	132	65.8	20.8	ug/Kg	☼	07/28/14 14:52	1
Styrene	13.2	U	65.8	13.2	4.57	ug/Kg	☼	07/28/14 14:52	1
Tetrachloroethene	13.2	U	65.8	13.2	4.24	ug/Kg	☼	07/28/14 14:52	1
Toluene	**61.0**	**J**	65.8	13.2	9.21	ug/Kg	☼	07/28/14 14:52	1
trans-1,2-Dichloroethene	13.2	U	65.8	13.2	12.4	ug/Kg	☼	07/28/14 14:52	1
trans-1,3-Dichloropropene	13.2	U	65.8	13.2	4.59	ug/Kg	☼	07/28/14 14:52	1
Trichloroethene	13.2	U	65.8	13.2	5.07	ug/Kg	☼	07/28/14 14:52	1
Vinyl chloride	13.2	U	132	13.2	5.63	ug/Kg	☼	07/28/14 14:52	1
Xylenes, Total	**19.1**	**J**	132	65.8	11.2	ug/Kg	☼	07/28/14 14:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 128*	*07/28/14 08:27*	*07/28/14 14:52*	*1*
4-Bromofluorobenzene (Surr)	*381*	*X **	*85 - 120*	*07/28/14 08:27*	*07/28/14 14:52*	*1*
Dibromofluoromethane (Surr)	*96*		*76 - 126*	*07/28/14 08:27*	*07/28/14 14:52*	*1*
Toluene-d8 (Surr)	*110*		*85 - 115*	*07/28/14 08:27*	*07/28/14 14:52*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-13-01
Date Collected: 07/24/14 10:47
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-1
Matrix: Solid
Percent Solids: 22.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
1,2-Dichlorobenzene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
1,3-Dichlorobenzene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
1,4-Dichlorobenzene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2,4,5-Trichlorophenol	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2,4,6-Trichlorophenol	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2,4-Dichlorophenol	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2,4-Dimethylphenol	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2,4-Dinitrophenol	42600	U	103000	42600	21300	ug/Kg	☼	08/09/14 18:01	5
2,4-Dinitrotoluene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2,6-Dinitrotoluene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2-Chloronaphthalene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2-Chlorophenol	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2-Methylphenol	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2-Nitroaniline	6390	U	103000	6390	2150	ug/Kg	☼	08/09/14 18:01	5
2-Nitrophenol	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
3 & 4 Methylphenol	6390	U	42600	6390	4300	ug/Kg	☼	08/09/14 18:01	5
3,3'-Dichlorobenzidine	42600	U	103000	42600	21300	ug/Kg	☼	08/09/14 18:01	5
3-Nitroaniline	6390	U	103000	6390	2150	ug/Kg	☼	08/09/14 18:01	5
4,6-Dinitro-2-methylphenol	42600	U	103000	42600	21300	ug/Kg	☼	08/09/14 18:01	5
4-Bromophenyl phenyl ether	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
4-Chloro-3-methylphenol	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
4-Chloroaniline	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
4-Chlorophenyl phenyl ether	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
4-Nitroaniline	42600	U	103000	42600	21300	ug/Kg	☼	08/09/14 18:01	5
4-Nitrophenol	42600	U	103000	42600	21300	ug/Kg	☼	08/09/14 18:01	5
Acenaphthene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Acenaphthylene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Anthracene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Benzo[a]anthracene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Benzo[a]pyrene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Benzo[b]fluoranthene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Benzo[g,h,i]perylene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Benzo[k]fluoranthene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
bis (2-chloroisopropyl) ether	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Bis(2-chloroethoxy)methane	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Bis(2-chloroethyl)ether	6390	U	21300	6390	2160	ug/Kg	☼	08/09/14 18:01	5
Bis(2-ethylhexyl) phthalate	**48100**		21300	6390	2920	ug/Kg	☼	08/09/14 18:01	5
Butyl benzyl phthalate	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Chrysene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Dibenzo(a),h)anthracene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Dibenzofuran	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Diethyl phthalate	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Dimethyl phthalate	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Di-n-butyl phthalate	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Di-n-octyl phthalate	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Fluoranthene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Fluorene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Hexachlorobenzene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-13-01
Date Collected: 07/24/14 10:47
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-1
Matrix: Solid
Percent Solids: 22.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Hexachlorocyclopentadiene	42600	U	103000	42600	21300	ug/Kg	☼	08/09/14 18:01	5
Hexachloroethane	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Indeno[1,2,3-cd]pyrene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Nitrobenzene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
N-Nitrosodiphenylamine	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
N-Nitrosodi-n-propylamine	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Pentachlorophenol	21300	U	103000	21300	21300	ug/Kg	☼	08/09/14 18:01	5
Phenanthrene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Phenol	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Pyrene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5
Pyridine	6390	U	42600	6390	4300	ug/Kg	☼	08/09/14 18:01	5
Naphthalene	6390	U	21300	6390	2150	ug/Kg	☼	08/09/14 18:01	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*35 - 125*	*07/31/14 09:13*	*08/09/14 18:01*	*5*
2-Fluorobiphenyl (Surr)	*85*		*45 - 105*	*07/31/14 09:13*	*08/09/14 18:01*	*5*
2-Fluorophenol (Surr)	*77*		*35 - 105*	*07/31/14 09:13*	*08/09/14 18:01*	*5*
Nitrobenzene-d5 (Surr)	*94*		*35 - 100*	*07/31/14 09:13*	*08/09/14 18:01*	*5*
Phenol-d5 (Surr)	*80*		*40 - 100*	*07/31/14 09:13*	*08/09/14 18:01*	*5*
Terphenyl-d14 (Surr)	*79*		*30 - 125*	*07/31/14 09:13*	*08/09/14 18:01*	*5*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-13-02
Date Collected: 07/24/14 10:58
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-2
Matrix: Solid
Percent Solids: 17.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
1,2-Dichlorobenzene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
1,3-Dichlorobenzene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
1,4-Dichlorobenzene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2,4,5-Trichlorophenol	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2,4,6-Trichlorophenol	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2,4-Dichlorophenol	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2,4-Dimethylphenol	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2,4-Dinitrophenol	55400	U	134000	55400	27700	ug/Kg	☼	08/09/14 18:35	5
2,4-Dinitrotoluene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2,6-Dinitrotoluene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2-Chloronaphthalene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2-Chlorophenol	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2-Methylphenol	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2-Nitroaniline	8310	U	134000	8310	2800	ug/Kg	☼	08/09/14 18:35	5
2-Nitrophenol	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
3 & 4 Methylphenol	8310	U	55400	8310	5590	ug/Kg	☼	08/09/14 18:35	5
3,3'-Dichlorobenzidine	55400	U	134000	55400	27700	ug/Kg	☼	08/09/14 18:35	5
3-Nitroaniline	8310	U	134000	8310	2800	ug/Kg	☼	08/09/14 18:35	5
4,6-Dinitro-2-methylphenol	55400	U	134000	55400	27700	ug/Kg	☼	08/09/14 18:35	5
4-Bromophenyl phenyl ether	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
4-Chloro-3-methylphenol	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
4-Chloroaniline	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
4-Chlorophenyl phenyl ether	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
4-Nitroaniline	55400	U	134000	55400	27700	ug/Kg	☼	08/09/14 18:35	5
4-Nitrophenol	55400	U	134000	55400	27700	ug/Kg	☼	08/09/14 18:35	5
Acenaphthene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Acenaphthylene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Anthracene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Benzo[a]anthracene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Benzo[a]pyrene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Benzo[b]fluoranthene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Benzo[g,h,i]perylene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Benzo[k]fluoranthene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
bis (2-chloroisopropyl) ether	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Bis(2-chloroethoxy)methane	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Bis(2-chloroethyl)ether	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Bis(2-ethylhexyl) phthalate	**60400**		27700	8310	3800	ug/Kg	☼	08/09/14 18:35	5
Butyl benzyl phthalate	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Chrysene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Dibenzo(a),h)anthracene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Dibenzofuran	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Diethyl phthalate	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Dimethyl phthalate	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Di-n-butyl phthalate	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Di-n-octyl phthalate	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Fluoranthene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Fluorene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Hexachlorobenzene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-13-02
Date Collected: 07/24/14 10:58
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-2
Matrix: Solid
Percent Solids: 17.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Hexachlorocyclopentadiene	55400	U	134000	55400	27700	ug/Kg	☼	08/09/14 18:35	5
Hexachloroethane	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Indeno[1,2,3-cd]pyrene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Nitrobenzene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
N-Nitrosodiphenylamine	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
N-Nitrosodi-n-propylamine	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Pentachlorophenol	27700	U	134000	27700	27700	ug/Kg	☼	08/09/14 18:35	5
Phenanthrene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Phenol	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Pyrene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5
Pyridine	8310	U	55400	8310	5590	ug/Kg	☼	08/09/14 18:35	5
Naphthalene	8310	U	27700	8310	2800	ug/Kg	☼	08/09/14 18:35	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*35 - 125*	*07/31/14 09:13*	*08/09/14 18:35*	*5*
2-Fluorobiphenyl (Surr)	*86*		*45 - 105*	*07/31/14 09:13*	*08/09/14 18:35*	*5*
2-Fluorophenol (Surr)	*76*		*35 - 105*	*07/31/14 09:13*	*08/09/14 18:35*	*5*
Nitrobenzene-d5 (Surr)	*88*		*35 - 100*	*07/31/14 09:13*	*08/09/14 18:35*	*5*
Phenol-d5 (Surr)	*76*		*40 - 100*	*07/31/14 09:13*	*08/09/14 18:35*	*5*
Terphenyl-d14 (Surr)	*80*		*30 - 125*	*07/31/14 09:13*	*08/09/14 18:35*	*5*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-PS2-VAULT-01
Date Collected: 07/24/14 14:40
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-3
Matrix: Solid
Percent Solids: 30.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
1,2-Dichlorobenzene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
1,3-Dichlorobenzene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
1,4-Dichlorobenzene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2,4,5-Trichlorophenol	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2,4,6-Trichlorophenol	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2,4-Dichlorophenol	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2,4-Dimethylphenol	**11200**	**J**	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2,4-Dinitrophenol	31600	U	76700	31600	15800	ug/Kg	☼	08/09/14 19:09	5
2,4-Dinitrotoluene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2,6-Dinitrotoluene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2-Chloronaphthalene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2-Chlorophenol	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2-Methylphenol	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2-Nitroaniline	4750	U	76700	4750	1600	ug/Kg	☼	08/09/14 19:09	5
2-Nitrophenol	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
3 & 4 Methylphenol	4750	U	31600	4750	3190	ug/Kg	☼	08/09/14 19:09	5
3,3'-Dichlorobenzidine	31600	U	76700	31600	15800	ug/Kg	☼	08/09/14 19:09	5
3-Nitroaniline	4750	U	76700	4750	1600	ug/Kg	☼	08/09/14 19:09	5
4,6-Dinitro-2-methylphenol	31600	U	76700	31600	15800	ug/Kg	☼	08/09/14 19:09	5
4-Bromophenyl phenyl ether	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
4-Chloro-3-methylphenol	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
4-Chloroaniline	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
4-Chlorophenyl phenyl ether	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
4-Nitroaniline	31600	U	76700	31600	15800	ug/Kg	☼	08/09/14 19:09	5
4-Nitrophenol	31600	U	76700	31600	15800	ug/Kg	☼	08/09/14 19:09	5
Acenaphthene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Acenaphthylene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Anthracene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Benzo[a]anthracene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Benzo[a]pyrene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Benzo[b]fluoranthene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Benzo[g,h,i]perylene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Benzo[k]fluoranthene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
bis (2-chloroisopropyl) ether	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Bis(2-chloroethoxy)methane	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Bis(2-chloroethyl)ether	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Bis(2-ethylhexyl) phthalate	**58500**		15800	4750	2170	ug/Kg	☼	08/09/14 19:09	5
Butyl benzyl phthalate	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Chrysene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Dibenzo(a),h)anthracene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Dibenzofuran	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Diethyl phthalate	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Dimethyl phthalate	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Di-n-butyl phthalate	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Di-n-octyl phthalate	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Fluoranthene	**54800**		15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Fluorene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Hexachlorobenzene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-PS2-VAULT-01
Date Collected: 07/24/14 14:40
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-3
Matrix: Solid
Percent Solids: 30.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Hexachlorocyclopentadiene	31600	U	76700	31600	15800	ug/Kg	☼	08/09/14 19:09	5
Hexachloroethane	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Indeno[1,2,3-cd]pyrene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Nitrobenzene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
N-Nitrosodiphenylamine	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
N-Nitrosodi-n-propylamine	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Pentachlorophenol	15800	U	76700	15800	15800	ug/Kg	☼	08/09/14 19:09	5
Phenanthrene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Phenol	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Pyrene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5
Pyridine	4750	U	31600	4750	3190	ug/Kg	☼	08/09/14 19:09	5
Naphthalene	4750	U	15800	4750	1600	ug/Kg	☼	08/09/14 19:09	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*35 - 125*	*07/31/14 09:13*	*08/09/14 19:09*	*5*
2-Fluorobiphenyl (Surr)	*83*		*45 - 105*	*07/31/14 09:13*	*08/09/14 19:09*	*5*
2-Fluorophenol (Surr)	*74*		*35 - 105*	*07/31/14 09:13*	*08/09/14 19:09*	*5*
Nitrobenzene-d5 (Surr)	*111*	*X*	*35 - 100*	*07/31/14 09:13*	*08/09/14 19:09*	*5*
Phenol-d5 (Surr)	*78*		*40 - 100*	*07/31/14 09:13*	*08/09/14 19:09*	*5*
Terphenyl-d14 (Surr)	*77*		*30 - 125*	*07/31/14 09:13*	*08/09/14 19:09*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-PS2-VAULT-02
Date Collected: 07/24/14 14:55
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-4
Matrix: Solid
Percent Solids: 37.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
1,2-Dichlorobenzene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
1,3-Dichlorobenzene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
1,4-Dichlorobenzene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2,4,5-Trichlorophenol	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2,4,6-Trichlorophenol	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2,4-Dichlorophenol	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2,4-Dimethylphenol	**10100**	**J**	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2,4-Dinitrophenol	26000	U	63100	26000	13000	ug/Kg	☼	08/09/14 19:43	5
2,4-Dinitrotoluene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2,6-Dinitrotoluene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2-Chloronaphthalene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2-Chlorophenol	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2-Methylphenol	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2-Nitroaniline	3910	U	63100	3910	1310	ug/Kg	☼	08/09/14 19:43	5
2-Nitrophenol	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
3 & 4 Methylphenol	3910	U	26000	3910	2630	ug/Kg	☼	08/09/14 19:43	5
3,3'-Dichlorobenzidine	26000	U	63100	26000	13000	ug/Kg	☼	08/09/14 19:43	5
3-Nitroaniline	3910	U	63100	3910	1310	ug/Kg	☼	08/09/14 19:43	5
4,6-Dinitro-2-methylphenol	26000	U	63100	26000	13000	ug/Kg	☼	08/09/14 19:43	5
4-Bromophenyl phenyl ether	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
4-Chloro-3-methylphenol	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
4-Chloroaniline	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
4-Chlorophenyl phenyl ether	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
4-Nitroaniline	26000	U	63100	26000	13000	ug/Kg	☼	08/09/14 19:43	5
4-Nitrophenol	26000	U	63100	26000	13000	ug/Kg	☼	08/09/14 19:43	5
Acenaphthene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Acenaphthylene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Anthracene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Benzo[a]anthracene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Benzo[a]pyrene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Benzo[b]fluoranthene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Benzo[g,h,i]perylene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Benzo[k]fluoranthene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
bis (2-chloroisopropyl) ether	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Bis(2-chloroethoxy)methane	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Bis(2-chloroethyl)ether	3910	U	13000	3910	1320	ug/Kg	☼	08/09/14 19:43	5
Bis(2-ethylhexyl) phthalate	**55300**		13000	3910	1790	ug/Kg	☼	08/09/14 19:43	5
Butyl benzyl phthalate	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Chrysene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Dibenzo(a),h)anthracene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Dibenzofuran	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Diethyl phthalate	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Dimethyl phthalate	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Di-n-butyl phthalate	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Di-n-octyl phthalate	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Fluoranthene	**52400**		13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Fluorene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Hexachlorobenzene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-PS2-VAULT-02
Date Collected: 07/24/14 14:55
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-4
Matrix: Solid
Percent Solids: 37.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Hexachlorocyclopentadiene	26000	U	63100	26000	13000	ug/Kg	☼	08/09/14 19:43	5
Hexachloroethane	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Indeno[1,2,3-cd]pyrene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Nitrobenzene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
N-Nitrosodiphenylamine	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
N-Nitrosodi-n-propylamine	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Pentachlorophenol	13000	U	63100	13000	13000	ug/Kg	☼	08/09/14 19:43	5
Phenanthrene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Phenol	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Pyrene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5
Pyridine	3910	U	26000	3910	2630	ug/Kg	☼	08/09/14 19:43	5
Naphthalene	3910	U	13000	3910	1310	ug/Kg	☼	08/09/14 19:43	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*86*		*35 - 125*	*07/31/14 09:13*	*08/09/14 19:43*	*5*
2-Fluorobiphenyl (Surr)	*83*		*45 - 105*	*07/31/14 09:13*	*08/09/14 19:43*	*5*
2-Fluorophenol (Surr)	*73*		*35 - 105*	*07/31/14 09:13*	*08/09/14 19:43*	*5*
Nitrobenzene-d5 (Surr)	*103*	*X*	*35 - 100*	*07/31/14 09:13*	*08/09/14 19:43*	*5*
Phenol-d5 (Surr)	*75*		*40 - 100*	*07/31/14 09:13*	*08/09/14 19:43*	*5*
Terphenyl-d14 (Surr)	*76*		*30 - 125*	*07/31/14 09:13*	*08/09/14 19:43*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-13-01
Date Collected: 07/24/14 10:47
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-1
Matrix: Solid
Percent Solids: 22.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	11.5		10.9	10.5	3.57	mg/Kg	☼	08/04/14 18:55	10
Arsenic	24.6		21.8	17.0	5.66	mg/Kg	☼	08/04/14 18:55	10
Barium	584		43.6	6.14	2.05	mg/Kg	☼	08/04/14 18:55	10
Beryllium	0.823	J	2.18	1.70	0.566	mg/Kg	☼	08/04/14 18:55	10
Cadmium	262		1.31	1.05	0.348	mg/Kg	☼	08/04/14 18:55	10
Chromium	890		41.4	21.8	9.80	mg/Kg	☼	08/04/14 18:55	10
Cobalt	33.6		4.36	2.81	0.936	mg/Kg	☼	08/04/14 18:55	10
Copper	617		21.8	6.53	2.20	mg/Kg	☼	08/04/14 18:55	10
Lead	1030		6.53	6.53	2.18	mg/Kg	☼	08/04/14 18:55	10
Molybdenum	42.5		10.9	7.84	2.70	mg/Kg	☼	08/04/14 18:55	10
Nickel	395		10.9	7.19	2.33	mg/Kg	☼	08/04/14 18:55	10
Selenium	10.5	U	10.9	10.5	3.44	mg/Kg	☼	08/04/14 18:55	10
Silver	30.0		9.80	1.57	0.523	mg/Kg	☼	08/04/14 18:55	10
Thallium	4.36	U	21.8	4.36	3.31	mg/Kg	☼	08/04/14 18:55	10
Vanadium	28.4		21.8	21.8	16.0	mg/Kg	☼	08/04/14 18:55	10
Iron	35500		261	109	71.9	mg/Kg	☼	08/04/14 18:55	10
Zinc	2640	B	109	86.9	29.0	mg/Kg	☼	08/04/14 18:55	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-13-02
Date Collected: 07/24/14 10:58
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-2
Matrix: Solid
Percent Solids: 17.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	14.5		12.6	12.1	4.14	mg/Kg	☼	08/04/14 19:28	10
Arsenic	49.2		25.2	19.7	6.56	mg/Kg	☼	08/04/14 19:28	10
Barium	817		50.4	7.11	2.37	mg/Kg	☼	08/04/14 19:28	10
Beryllium	0.943	J	2.52	1.97	0.656	mg/Kg	☼	08/04/14 19:28	10
Cadmium	694		1.51	1.21	0.404	mg/Kg	☼	08/04/14 19:28	10
Chromium	1870		47.9	25.2	11.3	mg/Kg	☼	08/04/14 19:28	10
Cobalt	59.9		5.04	3.25	1.08	mg/Kg	☼	08/04/14 19:28	10
Copper	1110		25.2	7.57	2.55	mg/Kg	☼	08/04/14 19:28	10
Lead	2020		7.57	7.57	2.52	mg/Kg	☼	08/04/14 19:28	10
Molybdenum	70.4		12.6	9.08	3.13	mg/Kg	☼	08/04/14 19:28	10
Nickel	1020		12.6	8.32	2.70	mg/Kg	☼	08/04/14 19:28	10
Selenium	12.1	U	12.6	12.1	3.99	mg/Kg	☼	08/04/14 19:28	10
Silver	41.8		11.3	1.82	0.605	mg/Kg	☼	08/04/14 19:28	10
Thallium	5.04	U	25.2	5.04	3.83	mg/Kg	☼	08/04/14 19:28	10
Vanadium	56.1		25.2	25.2	18.5	mg/Kg	☼	08/04/14 19:28	10
Iron	81300		303	126	83.2	mg/Kg	☼	08/04/14 19:28	10
Zinc	4790	B	126	101	33.5	mg/Kg	☼	08/04/14 19:28	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-PS2-VAULT-01
Date Collected: 07/24/14 14:40
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-3
Matrix: Solid
Percent Solids: 30.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	6.86	J	8.00	7.68	2.62	mg/Kg	☼	08/04/14 19:35	10
Arsenic	31.1		16.0	12.5	4.16	mg/Kg	☼	08/04/14 19:35	10
Barium	409		32.0	4.51	1.50	mg/Kg	☼	08/04/14 19:35	10
Beryllium	0.496	J	1.60	1.25	0.416	mg/Kg	☼	08/04/14 19:35	10
Cadmium	1360		0.960	0.768	0.256	mg/Kg	☼	08/04/14 19:35	10
Chromium	3490		30.4	16.0	7.20	mg/Kg	☼	08/04/14 19:35	10
Cobalt	71.7		3.20	2.06	0.688	mg/Kg	☼	08/04/14 19:35	10
Copper	1270		16.0	4.80	1.62	mg/Kg	☼	08/04/14 19:35	10
Lead	944		4.80	4.80	1.60	mg/Kg	☼	08/04/14 19:35	10
Molybdenum	243		8.00	5.76	1.98	mg/Kg	☼	08/04/14 19:35	10
Nickel	1690		8.00	5.28	1.71	mg/Kg	☼	08/04/14 19:35	10
Selenium	7.68	U	8.00	7.68	2.53	mg/Kg	☼	08/04/14 19:35	10
Silver	152		7.20	1.15	0.384	mg/Kg	☼	08/04/14 19:35	10
Thallium	3.20	U	16.0	3.20	2.43	mg/Kg	☼	08/04/14 19:35	10
Vanadium	35.5		16.0	16.0	11.8	mg/Kg	☼	08/04/14 19:35	10
Iron	67700		192	80.0	52.8	mg/Kg	☼	08/04/14 19:35	10
Zinc	2500	B	80.0	63.8	21.3	mg/Kg	☼	08/04/14 19:35	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-PS2-VAULT-02
Date Collected: 07/24/14 14:55
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-4
Matrix: Solid
Percent Solids: 37.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	7.57		6.46	6.20	2.12	mg/Kg	☼	08/04/14 19:42	10
Arsenic	21.1		12.9	10.1	3.36	mg/Kg	☼	08/04/14 19:42	10
Barium	466		25.8	3.64	1.21	mg/Kg	☼	08/04/14 19:42	10
Beryllium	0.478	J	1.29	1.01	0.336	mg/Kg	☼	08/04/14 19:42	10
Cadmium	879		0.775	0.620	0.207	mg/Kg	☼	08/04/14 19:42	10
Chromium	4160		24.6	12.9	5.81	mg/Kg	☼	08/04/14 19:42	10
Cobalt	62.4		2.58	1.67	0.556	mg/Kg	☼	08/04/14 19:42	10
Copper	1050		12.9	3.88	1.31	mg/Kg	☼	08/04/14 19:42	10
Lead	828		3.88	3.88	1.29	mg/Kg	☼	08/04/14 19:42	10
Molybdenum	122		6.46	4.65	1.60	mg/Kg	☼	08/04/14 19:42	10
Nickel	1630		6.46	4.26	1.38	mg/Kg	☼	08/04/14 19:42	10
Selenium	2.07	J	6.46	6.20	2.04	mg/Kg	☼	08/04/14 19:42	10
Silver	172		5.81	0.930	0.310	mg/Kg	☼	08/04/14 19:42	10
Thallium	2.58	U	12.9	2.58	1.96	mg/Kg	☼	08/04/14 19:42	10
Vanadium	31.9		12.9	12.9	9.50	mg/Kg	☼	08/04/14 19:42	10
Iron	45300		155	64.6	42.6	mg/Kg	☼	08/04/14 19:42	10
Zinc	2050	B	64.6	51.6	17.2	mg/Kg	☼	08/04/14 19:42	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-13-01
Date Collected: 07/24/14 10:47
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-1
Matrix: Solid
Percent Solids: 22.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	3.21		0.169	0.127	0.0465	mg/Kg	☼	08/01/14 07:58	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-13-02
Date Collected: 07/24/14 10:58
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-2
Matrix: Solid
Percent Solids: 17.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	3.29		0.198	0.149	0.0545	mg/Kg	☼	08/01/14 08:06	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-PS2-VAULT-01
Date Collected: 07/24/14 14:40
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-3
Matrix: Solid
Percent Solids: 30.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	4.07		0.126	0.0944	0.0346	mg/Kg	☼	08/01/14 08:08	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7636-1
SDG: 160-7636

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-PS2-VAULT-02
Date Collected: 07/24/14 14:55
Date Received: 07/25/14 09:10

Lab Sample ID: 160-7636-4
Matrix: Solid
Percent Solids: 37.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	2.37		0.0959	0.0719	0.0264	mg/Kg	☼	08/01/14 08:11	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7680-1
TestAmerica Sample Delivery Group: 160-7680
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
8/18/2014 2:49:38 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

160-7680 Chain of Custody

TETRA TECH EC, INC. Chain of Custody Record

NUMBER: FZ02 - 1004

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number: 7707 1649 6997
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED: E 8260C (VOC); E 8270D (SVOCs); E 6020A/7471B (Metals /Hg); HS

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-PS1VAULT-01	7/29/2014	0948	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-PS1VAULT			N
IWL-PS1VAULT-02	7/29/2014	0955	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-PS1VAULT			N
IWL-MH1-1-01	7/29/2014	1000	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-1			N
IWL-MH1-1-02	7/29/2014	1033	2	3	S	10 dy	X	X	X					two-4 oz for voc, two- 8 oz for svoc/metals	IWL-MH1-1			N
IWL-MH1-2-01	7/29/2014	1144	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-2			N
IWL-MH1-2-02	7/29/2014	1155	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-2			N
IWL-MH2-3-01	7/29/2014	1525	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-3			N
IWL-MH2-3-02	7/29/2014	1535	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-3			N

Relinquished by: (signature)	Date:	Received by (signature)
	7-29-14	FedEx
Company: Tetra tech	Time: 1615	Company: FedEx
Relinquished by: (signature)	Date:	Received by (signature) 7/30/14
Company:	Time:	Company: TT 0900
Relinquished by: (signature)	Date:	Received by (signature)
Company:	Time:	Company:

Laboratory Instructions/Comments:

Composite Discription:

Sample Condition Upon Receipt (for Laboratory)

Temperature: Sample Condition:

Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1004

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-PS1VAULT-01
Date Collected: 07/29/14 09:48
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-1
Matrix: Solid
Percent Solids: 26.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**178**	**J**	372	186	120	ug/Kg	☼	07/31/14 11:08	1
Benzene	18.6	U	93.1	18.6	4.71	ug/Kg	☼	07/31/14 11:08	1
Bromodichloromethane	18.6	U	93.1	18.6	4.73	ug/Kg	☼	07/31/14 11:08	1
Bromoform	18.6	U *	93.1	18.6	6.81	ug/Kg	☼	07/31/14 11:08	1
Bromomethane	93.1	U	186	93.1	20.5	ug/Kg	☼	07/31/14 11:08	1
2-Butanone (MEK)	93.1	U	372	93.1	35.7	ug/Kg	☼	07/31/14 11:08	1
Carbon tetrachloride	18.6	U	93.1	18.6	9.55	ug/Kg	☼	07/31/14 11:08	1
Chlorobenzene	18.6	U *	93.1	18.6	7.11	ug/Kg	☼	07/31/14 11:08	1
Dibromochloromethane	18.6	U *	93.1	18.6	7.56	ug/Kg	☼	07/31/14 11:08	1
Chloroethane	18.6	U	186	18.6	9.60	ug/Kg	☼	07/31/14 11:08	1
Chloroform	18.6	U	93.1	18.6	7.00	ug/Kg	☼	07/31/14 11:08	1
Chloromethane	93.1	U	186	93.1	12.1	ug/Kg	☼	07/31/14 11:08	1
1,1-Dichloroethane	18.6	U	93.1	18.6	7.30	ug/Kg	☼	07/31/14 11:08	1
1,2-Dichloroethane	18.6	U	93.1	18.6	16.1	ug/Kg	☼	07/31/14 11:08	1
cis-1,2-Dichloroethene	18.6	U	93.1	18.6	11.1	ug/Kg	☼	07/31/14 11:08	1
trans-1,2-Dichloroethene	18.6	U	93.1	18.6	17.6	ug/Kg	☼	07/31/14 11:08	1
1,1-Dichloroethene	93.1	U	93.1	93.1	30.0	ug/Kg	☼	07/31/14 11:08	1
1,2-Dichloropropane	18.6	U	93.1	18.6	7.13	ug/Kg	☼	07/31/14 11:08	1
cis-1,3-Dichloropropene	18.6	U	93.1	18.6	11.1	ug/Kg	☼	07/31/14 11:08	1
trans-1,3-Dichloropropene	18.6	U *	93.1	18.6	6.50	ug/Kg	☼	07/31/14 11:08	1
Ethylbenzene	**75.1**	**J ***	93.1	18.6	5.57	ug/Kg	☼	07/31/14 11:08	1
2-Hexanone	93.1	U *	186	93.1	32.9	ug/Kg	☼	07/31/14 11:08	1
Methylene Chloride	93.1	U	186	93.1	29.4	ug/Kg	☼	07/31/14 11:08	1
4-Methyl-2-pentanone (MIBK)	93.1	U *	372	93.1	13.6	ug/Kg	☼	07/31/14 11:08	1
Methyl tert-butyl ether	18.6	U	93.1	18.6	8.86	ug/Kg	☼	07/31/14 11:08	1
Styrene	18.6	U *	93.1	18.6	6.46	ug/Kg	☼	07/31/14 11:08	1
1,1,2,2-Tetrachloroethane	18.6	U *	93.1	18.6	7.46	ug/Kg	☼	07/31/14 11:08	1
Tetrachloroethene	18.6	U *	93.1	18.6	5.99	ug/Kg	☼	07/31/14 11:08	1
Toluene	**69.0**	**J ***	93.1	18.6	13.0	ug/Kg	☼	07/31/14 11:08	1
1,1,1-Trichloroethane	18.6	U	93.1	18.6	8.02	ug/Kg	☼	07/31/14 11:08	1
1,1,2-Trichloroethane	18.6	U *	93.1	18.6	10.7	ug/Kg	☼	07/31/14 11:08	1
Trichloroethene	18.6	U	93.1	18.6	7.17	ug/Kg	☼	07/31/14 11:08	1
Vinyl chloride	18.6	U *	186	18.6	7.97	ug/Kg	☼	07/31/14 11:08	1
Xylenes, Total	**936**	****	186	93.1	15.9	ug/Kg	☼	07/31/14 11:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*224*	*X **	*85 - 120*	*07/31/14 09:01*	*07/31/14 11:08*	*1*
1,2-Dichloroethane-d4 (Surr)	*117*		*71 - 128*	*07/31/14 09:01*	*07/31/14 11:08*	*1*
Toluene-d8 (Surr)	*117*	*X **	*85 - 115*	*07/31/14 09:01*	*07/31/14 11:08*	*1*
Dibromofluoromethane (Surr)	*107*		*76 - 126*	*07/31/14 09:01*	*07/31/14 11:08*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-PS1VAULT-02
Date Collected: 07/29/14 09:55
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-2
Matrix: Solid
Percent Solids: 21.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	218	U	436	218	141	ug/Kg	☼	07/31/14 12:46	1
Benzene	21.8	U	109	21.8	5.52	ug/Kg	☼	07/31/14 12:46	1
Bromodichloromethane	21.8	U	109	21.8	5.54	ug/Kg	☼	07/31/14 12:46	1
Bromoform	21.8	U *	109	21.8	7.99	ug/Kg	☼	07/31/14 12:46	1
Bromomethane	109	U	218	109	24.0	ug/Kg	☼	07/31/14 12:46	1
2-Butanone (MEK)	109	U	436	109	41.9	ug/Kg	☼	07/31/14 12:46	1
Carbon tetrachloride	21.8	U	109	21.8	11.2	ug/Kg	☼	07/31/14 12:46	1
Chlorobenzene	21.8	U	109	21.8	8.34	ug/Kg	☼	07/31/14 12:46	1
Dibromochloromethane	21.8	U	109	21.8	8.86	ug/Kg	☼	07/31/14 12:46	1
Chloroethane	21.8	U	218	21.8	11.3	ug/Kg	☼	07/31/14 12:46	1
Chloroform	21.8	U	109	21.8	8.21	ug/Kg	☼	07/31/14 12:46	1
Chloromethane	109	U	218	109	14.2	ug/Kg	☼	07/31/14 12:46	1
1,1-Dichloroethane	21.8	U	109	21.8	8.55	ug/Kg	☼	07/31/14 12:46	1
1,2-Dichloroethane	21.8	U	109	21.8	18.9	ug/Kg	☼	07/31/14 12:46	1
cis-1,2-Dichloroethene	21.8	U	109	21.8	13.0	ug/Kg	☼	07/31/14 12:46	1
trans-1,2-Dichloroethene	21.8	U	109	21.8	20.6	ug/Kg	☼	07/31/14 12:46	1
1,1-Dichloroethene	109	U	109	109	35.1	ug/Kg	☼	07/31/14 12:46	1
1,2-Dichloropropane	21.8	U	109	21.8	8.36	ug/Kg	☼	07/31/14 12:46	1
cis-1,3-Dichloropropene	21.8	U	109	21.8	13.0	ug/Kg	☼	07/31/14 12:46	1
trans-1,3-Dichloropropene	21.8	U	109	21.8	7.62	ug/Kg	☼	07/31/14 12:46	1
Ethylbenzene	**88.8**	**J**	109	21.8	6.53	ug/Kg	☼	07/31/14 12:46	1
2-Hexanone	109	U	218	109	38.6	ug/Kg	☼	07/31/14 12:46	1
Methylene Chloride	109	U	218	109	34.5	ug/Kg	☼	07/31/14 12:46	1
4-Methyl-2-pentanone (MIBK)	109	U	436	109	16.0	ug/Kg	☼	07/31/14 12:46	1
Methyl tert-butyl ether	21.8	U	109	21.8	10.4	ug/Kg	☼	07/31/14 12:46	1
Styrene	21.8	U	109	21.8	7.57	ug/Kg	☼	07/31/14 12:46	1
1,1,2,2-Tetrachloroethane	21.8	U *	109	21.8	8.75	ug/Kg	☼	07/31/14 12:46	1
Tetrachloroethene	21.8	U	109	21.8	7.03	ug/Kg	☼	07/31/14 12:46	1
Toluene	**96.7**	**J**	109	21.8	15.3	ug/Kg	☼	07/31/14 12:46	1
1,1,1-Trichloroethane	21.8	U	109	21.8	9.41	ug/Kg	☼	07/31/14 12:46	1
1,1,2-Trichloroethane	21.8	U	109	21.8	12.5	ug/Kg	☼	07/31/14 12:46	1
Trichloroethene	21.8	U	109	21.8	8.40	ug/Kg	☼	07/31/14 12:46	1
Vinyl chloride	21.8	U *	218	21.8	9.34	ug/Kg	☼	07/31/14 12:46	1
Xylenes, Total	**1130**		218	109	18.6	ug/Kg	☼	07/31/14 12:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*259*	*X **	*85 - 120*	*07/31/14 09:01*	*07/31/14 12:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 128*	*07/31/14 09:01*	*07/31/14 12:46*	*1*
Toluene-d8 (Surr)	*119*	*X*	*85 - 115*	*07/31/14 09:01*	*07/31/14 12:46*	*1*
Dibromofluoromethane (Surr)	*100*		*76 - 126*	*07/31/14 09:01*	*07/31/14 12:46*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-1-01
Date Collected: 07/29/14 10:00
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-3
Matrix: Solid
Percent Solids: 47.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	103	U	206	103	66.6	ug/Kg	☼	07/31/14 13:35	1
Benzene	10.3	U	51.4	10.3	2.60	ug/Kg	☼	07/31/14 13:35	1
Bromodichloromethane	10.3	U	51.4	10.3	2.61	ug/Kg	☼	07/31/14 13:35	1
Bromoform	10.3	U	51.4	10.3	3.76	ug/Kg	☼	07/31/14 13:35	1
Bromomethane	51.4	U	103	51.4	11.3	ug/Kg	☼	07/31/14 13:35	1
2-Butanone (MEK)	51.4	U	206	51.4	19.7	ug/Kg	☼	07/31/14 13:35	1
Carbon tetrachloride	10.3	U	51.4	10.3	5.28	ug/Kg	☼	07/31/14 13:35	1
Chlorobenzene	10.3	U	51.4	10.3	3.93	ug/Kg	☼	07/31/14 13:35	1
Dibromochloromethane	10.3	U	51.4	10.3	4.18	ug/Kg	☼	07/31/14 13:35	1
Chloroethane	10.3	U	103	10.3	5.31	ug/Kg	☼	07/31/14 13:35	1
Chloroform	10.3	U	51.4	10.3	3.87	ug/Kg	☼	07/31/14 13:35	1
Chloromethane	51.4	U	103	51.4	6.69	ug/Kg	☼	07/31/14 13:35	1
1,1-Dichloroethane	10.3	U	51.4	10.3	4.03	ug/Kg	☼	07/31/14 13:35	1
1,2-Dichloroethane	10.3	U	51.4	10.3	8.92	ug/Kg	☼	07/31/14 13:35	1
cis-1,2-Dichloroethene	10.3	U	51.4	10.3	6.14	ug/Kg	☼	07/31/14 13:35	1
trans-1,2-Dichloroethene	10.3	U	51.4	10.3	9.70	ug/Kg	☼	07/31/14 13:35	1
1,1-Dichloroethene	51.4	U	51.4	51.4	16.6	ug/Kg	☼	07/31/14 13:35	1
1,2-Dichloropropane	10.3	U	51.4	10.3	3.94	ug/Kg	☼	07/31/14 13:35	1
cis-1,3-Dichloropropene	10.3	U	51.4	10.3	6.12	ug/Kg	☼	07/31/14 13:35	1
trans-1,3-Dichloropropene	10.3	U	51.4	10.3	3.59	ug/Kg	☼	07/31/14 13:35	1
Ethylbenzene	**3.79**	**J**	51.4	10.3	3.08	ug/Kg	☼	07/31/14 13:35	1
2-Hexanone	51.4	U	103	51.4	18.2	ug/Kg	☼	07/31/14 13:35	1
Methylene Chloride	51.4	U	103	51.4	16.3	ug/Kg	☼	07/31/14 13:35	1
4-Methyl-2-pentanone (MIBK)	51.4	U	206	51.4	7.53	ug/Kg	☼	07/31/14 13:35	1
Methyl tert-butyl ether	10.3	U	51.4	10.3	4.90	ug/Kg	☼	07/31/14 13:35	1
Styrene	10.3	U	51.4	10.3	3.57	ug/Kg	☼	07/31/14 13:35	1
1,1,2,2-Tetrachloroethane	10.3	U	51.4	10.3	4.12	ug/Kg	☼	07/31/14 13:35	1
Tetrachloroethene	10.3	U	51.4	10.3	3.31	ug/Kg	☼	07/31/14 13:35	1
Toluene	10.3	U	51.4	10.3	7.20	ug/Kg	☼	07/31/14 13:35	1
1,1,1-Trichloroethane	10.3	U	51.4	10.3	4.43	ug/Kg	☼	07/31/14 13:35	1
1,1,2-Trichloroethane	10.3	U	51.4	10.3	5.89	ug/Kg	☼	07/31/14 13:35	1
Trichloroethene	10.3	U	51.4	10.3	3.96	ug/Kg	☼	07/31/14 13:35	1
Vinyl chloride	10.3	U *	103	10.3	4.40	ug/Kg	☼	07/31/14 13:35	1
Xylenes, Total	51.4	U	103	51.4	8.78	ug/Kg	☼	07/31/14 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*126*	*X*	*85 - 120*	*07/31/14 09:01*	*07/31/14 13:35*	*1*
1,2-Dichloroethane-d4 (Surr)	*90*		*71 - 128*	*07/31/14 09:01*	*07/31/14 13:35*	*1*
Toluene-d8 (Surr)	*100*		*85 - 115*	*07/31/14 09:01*	*07/31/14 13:35*	*1*
Dibromofluoromethane (Surr)	*94*		*76 - 126*	*07/31/14 09:01*	*07/31/14 13:35*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-1-02
Date Collected: 07/29/14 10:33
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-4
Matrix: Solid
Percent Solids: 53.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	88.5	U	177	88.5	57.3	ug/Kg	☼	07/31/14 14:24	1
Benzene	8.85	U	44.3	8.85	2.24	ug/Kg	☼	07/31/14 14:24	1
Bromodichloromethane	8.85	U	44.3	8.85	2.25	ug/Kg	☼	07/31/14 14:24	1
Bromoform	8.85	U	44.3	8.85	3.24	ug/Kg	☼	07/31/14 14:24	1
Bromomethane	44.3	U	88.5	44.3	9.74	ug/Kg	☼	07/31/14 14:24	1
2-Butanone (MEK)	44.3	U	177	44.3	17.0	ug/Kg	☼	07/31/14 14:24	1
Carbon tetrachloride	8.85	U	44.3	8.85	4.54	ug/Kg	☼	07/31/14 14:24	1
Chlorobenzene	8.85	U	44.3	8.85	3.38	ug/Kg	☼	07/31/14 14:24	1
Dibromochloromethane	8.85	U	44.3	8.85	3.59	ug/Kg	☼	07/31/14 14:24	1
Chloroethane	8.85	U	88.5	8.85	4.57	ug/Kg	☼	07/31/14 14:24	1
Chloroform	8.85	U	44.3	8.85	3.33	ug/Kg	☼	07/31/14 14:24	1
Chloromethane	44.3	U	88.5	44.3	5.75	ug/Kg	☼	07/31/14 14:24	1
1,1-Dichloroethane	8.85	U	44.3	8.85	3.47	ug/Kg	☼	07/31/14 14:24	1
1,2-Dichloroethane	8.85	U	44.3	8.85	7.68	ug/Kg	☼	07/31/14 14:24	1
cis-1,2-Dichloroethene	8.85	U	44.3	8.85	5.29	ug/Kg	☼	07/31/14 14:24	1
trans-1,2-Dichloroethene	8.85	U	44.3	8.85	8.35	ug/Kg	☼	07/31/14 14:24	1
1,1-Dichloroethene	44.3	U	44.3	44.3	14.3	ug/Kg	☼	07/31/14 14:24	1
1,2-Dichloropropane	8.85	U	44.3	8.85	3.39	ug/Kg	☼	07/31/14 14:24	1
cis-1,3-Dichloropropene	8.85	U	44.3	8.85	5.27	ug/Kg	☼	07/31/14 14:24	1
trans-1,3-Dichloropropene	8.85	U	44.3	8.85	3.09	ug/Kg	☼	07/31/14 14:24	1
Ethylbenzene	**3.98**	**J**	44.3	8.85	2.65	ug/Kg	☼	07/31/14 14:24	1
2-Hexanone	44.3	U	88.5	44.3	15.7	ug/Kg	☼	07/31/14 14:24	1
Methylene Chloride	44.3	U	88.5	44.3	14.0	ug/Kg	☼	07/31/14 14:24	1
4-Methyl-2-pentanone (MIBK)	44.3	U	177	44.3	6.48	ug/Kg	☼	07/31/14 14:24	1
Methyl tert-butyl ether	8.85	U	44.3	8.85	4.21	ug/Kg	☼	07/31/14 14:24	1
Styrene	8.85	U	44.3	8.85	3.07	ug/Kg	☼	07/31/14 14:24	1
1,1,2,2-Tetrachloroethane	8.85	U	44.3	8.85	3.55	ug/Kg	☼	07/31/14 14:24	1
Tetrachloroethene	8.85	U	44.3	8.85	2.85	ug/Kg	☼	07/31/14 14:24	1
Toluene	8.85	U	44.3	8.85	6.20	ug/Kg	☼	07/31/14 14:24	1
1,1,1-Trichloroethane	8.85	U	44.3	8.85	3.82	ug/Kg	☼	07/31/14 14:24	1
1,1,2-Trichloroethane	8.85	U	44.3	8.85	5.07	ug/Kg	☼	07/31/14 14:24	1
Trichloroethene	8.85	U	44.3	8.85	3.41	ug/Kg	☼	07/31/14 14:24	1
Vinyl chloride	8.85	U *	88.5	8.85	3.79	ug/Kg	☼	07/31/14 14:24	1
Xylenes, Total	44.3	U	88.5	44.3	7.56	ug/Kg	☼	07/31/14 14:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*85 - 120*	*07/31/14 09:01*	*07/31/14 14:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 128*	*07/31/14 09:01*	*07/31/14 14:24*	*1*
Toluene-d8 (Surr)	*98*		*85 - 115*	*07/31/14 09:01*	*07/31/14 14:24*	*1*
Dibromofluoromethane (Surr)	*95*		*76 - 126*	*07/31/14 09:01*	*07/31/14 14:24*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-2-01
Date Collected: 07/29/14 11:44
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-5
Matrix: Solid
Percent Solids: 25.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**323**	**J**	386	193	125	ug/Kg	☼	08/01/14 15:25	1
Benzene	19.3	U	96.4	19.3	4.88	ug/Kg	☼	08/01/14 15:25	1
Bromodichloromethane	19.3	U	96.4	19.3	4.90	ug/Kg	☼	08/01/14 15:25	1
Bromoform	19.3	U *	96.4	19.3	7.06	ug/Kg	☼	08/01/14 15:25	1
Bromomethane	96.4	U	193	96.4	21.2	ug/Kg	☼	08/01/14 15:25	1
2-Butanone (MEK)	96.4	U	386	96.4	37.0	ug/Kg	☼	08/01/14 15:25	1
Carbon tetrachloride	19.3	U	96.4	19.3	9.89	ug/Kg	☼	08/01/14 15:25	1
Chlorobenzene	19.3	U *	96.4	19.3	7.36	ug/Kg	☼	08/01/14 15:25	1
Dibromochloromethane	19.3	U *	96.4	19.3	7.83	ug/Kg	☼	08/01/14 15:25	1
Chloroethane	19.3	U	193	19.3	9.95	ug/Kg	☼	08/01/14 15:25	1
Chloroform	19.3	U	96.4	19.3	7.25	ug/Kg	☼	08/01/14 15:25	1
Chloromethane	96.4	U	193	96.4	12.5	ug/Kg	☼	08/01/14 15:25	1
1,1-Dichloroethane	19.3	U	96.4	19.3	7.56	ug/Kg	☼	08/01/14 15:25	1
1,2-Dichloroethane	19.3	U	96.4	19.3	16.7	ug/Kg	☼	08/01/14 15:25	1
cis-1,2-Dichloroethene	19.3	U	96.4	19.3	11.5	ug/Kg	☼	08/01/14 15:25	1
trans-1,2-Dichloroethene	19.3	U	96.4	19.3	18.2	ug/Kg	☼	08/01/14 15:25	1
1,1-Dichloroethene	96.4	U	96.4	96.4	31.0	ug/Kg	☼	08/01/14 15:25	1
1,2-Dichloropropane	19.3	U	96.4	19.3	7.38	ug/Kg	☼	08/01/14 15:25	1
cis-1,3-Dichloropropene	19.3	U	96.4	19.3	11.5	ug/Kg	☼	08/01/14 15:25	1
trans-1,3-Dichloropropene	19.3	U *	96.4	19.3	6.73	ug/Kg	☼	08/01/14 15:25	1
Ethylbenzene	**96.3**	**J ***	96.4	19.3	5.76	ug/Kg	☼	08/01/14 15:25	1
2-Hexanone	96.4	U *	193	96.4	34.1	ug/Kg	☼	08/01/14 15:25	1
Methylene Chloride	96.4	U	193	96.4	30.5	ug/Kg	☼	08/01/14 15:25	1
4-Methyl-2-pentanone (MIBK)	96.4	U *	386	96.4	14.1	ug/Kg	☼	08/01/14 15:25	1
Methyl tert-butyl ether	19.3	U	96.4	19.3	9.18	ug/Kg	☼	08/01/14 15:25	1
Styrene	19.3	U *	96.4	19.3	6.69	ug/Kg	☼	08/01/14 15:25	1
1,1,2,2-Tetrachloroethane	19.3	U *	96.4	19.3	7.73	ug/Kg	☼	08/01/14 15:25	1
Tetrachloroethene	19.3	U *	96.4	19.3	6.21	ug/Kg	☼	08/01/14 15:25	1
Toluene	**16.5**	**J ***	96.4	19.3	13.5	ug/Kg	☼	08/01/14 15:25	1
1,1,1-Trichloroethane	19.3	U	96.4	19.3	8.31	ug/Kg	☼	08/01/14 15:25	1
1,1,2-Trichloroethane	19.3	U *	96.4	19.3	11.0	ug/Kg	☼	08/01/14 15:25	1
Trichloroethene	19.3	U	96.4	19.3	7.42	ug/Kg	☼	08/01/14 15:25	1
Vinyl chloride	19.3	U	193	19.3	8.25	ug/Kg	☼	08/01/14 15:25	1
Xylenes, Total	**96.0**	**J ***	193	96.4	16.5	ug/Kg	☼	08/01/14 15:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*138*	** X*	*85 - 120*	*08/01/14 07:53*	*08/01/14 15:25*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*71 - 128*	*08/01/14 07:53*	*08/01/14 15:25*	*1*
Toluene-d8 (Surr)	*117*	** X*	*85 - 115*	*08/01/14 07:53*	*08/01/14 15:25*	*1*
Dibromofluoromethane (Surr)	*106*		*76 - 126*	*08/01/14 07:53*	*08/01/14 15:25*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-2-02
Date Collected: 07/29/14 11:55
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-6
Matrix: Solid
Percent Solids: 31.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	152	U	305	152	98.7	ug/Kg	☼	07/31/14 15:38	1
Benzene	15.2	U	76.2	15.2	3.86	ug/Kg	☼	07/31/14 15:38	1
Bromodichloromethane	15.2	U	76.2	15.2	3.87	ug/Kg	☼	07/31/14 15:38	1
Bromoform	15.2	U	76.2	15.2	5.58	ug/Kg	☼	07/31/14 15:38	1
Bromomethane	76.2	U	152	76.2	16.8	ug/Kg	☼	07/31/14 15:38	1
2-Butanone (MEK)	76.2	U	305	76.2	29.3	ug/Kg	☼	07/31/14 15:38	1
Carbon tetrachloride	15.2	U	76.2	15.2	7.82	ug/Kg	☼	07/31/14 15:38	1
Chlorobenzene	**13.8**	**J**	76.2	15.2	5.82	ug/Kg	☼	07/31/14 15:38	1
Dibromochloromethane	15.2	U	76.2	15.2	6.19	ug/Kg	☼	07/31/14 15:38	1
Chloroethane	15.2	U	152	15.2	7.87	ug/Kg	☼	07/31/14 15:38	1
Chloroform	15.2	U	76.2	15.2	5.73	ug/Kg	☼	07/31/14 15:38	1
Chloromethane	76.2	U	152	76.2	9.91	ug/Kg	☼	07/31/14 15:38	1
1,1-Dichloroethane	15.2	U	76.2	15.2	5.98	ug/Kg	☼	07/31/14 15:38	1
1,2-Dichloroethane	15.2	U	76.2	15.2	13.2	ug/Kg	☼	07/31/14 15:38	1
cis-1,2-Dichloroethene	15.2	U	76.2	15.2	9.10	ug/Kg	☼	07/31/14 15:38	1
trans-1,2-Dichloroethene	15.2	U	76.2	15.2	14.4	ug/Kg	☼	07/31/14 15:38	1
1,1-Dichloroethene	76.2	U	76.2	76.2	24.6	ug/Kg	☼	07/31/14 15:38	1
1,2-Dichloropropane	15.2	U	76.2	15.2	5.84	ug/Kg	☼	07/31/14 15:38	1
cis-1,3-Dichloropropene	15.2	U	76.2	15.2	9.07	ug/Kg	☼	07/31/14 15:38	1
trans-1,3-Dichloropropene	15.2	U	76.2	15.2	5.32	ug/Kg	☼	07/31/14 15:38	1
Ethylbenzene	15.2	U	76.2	15.2	4.56	ug/Kg	☼	07/31/14 15:38	1
2-Hexanone	76.2	U	152	76.2	27.0	ug/Kg	☼	07/31/14 15:38	1
Methylene Chloride	76.2	U	152	76.2	24.1	ug/Kg	☼	07/31/14 15:38	1
4-Methyl-2-pentanone (MIBK)	76.2	U	305	76.2	11.2	ug/Kg	☼	07/31/14 15:38	1
Methyl tert-butyl ether	15.2	U	76.2	15.2	7.26	ug/Kg	☼	07/31/14 15:38	1
Styrene	15.2	U	76.2	15.2	5.29	ug/Kg	☼	07/31/14 15:38	1
1,1,2,2-Tetrachloroethane	15.2	U	76.2	15.2	6.11	ug/Kg	☼	07/31/14 15:38	1
Tetrachloroethene	15.2	U	76.2	15.2	4.91	ug/Kg	☼	07/31/14 15:38	1
Toluene	15.2	U	76.2	15.2	10.7	ug/Kg	☼	07/31/14 15:38	1
1,1,1-Trichloroethane	**14.2**	**J**	76.2	15.2	6.57	ug/Kg	☼	07/31/14 15:38	1
1,1,2-Trichloroethane	15.2	U	76.2	15.2	8.74	ug/Kg	☼	07/31/14 15:38	1
Trichloroethene	15.2	U	76.2	15.2	5.87	ug/Kg	☼	07/31/14 15:38	1
Vinyl chloride	15.2	U *	152	15.2	6.53	ug/Kg	☼	07/31/14 15:38	1
Xylenes, Total	76.2	U	152	76.2	13.0	ug/Kg	☼	07/31/14 15:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*129*	*X*	*85 - 120*	*07/31/14 09:01*	*07/31/14 15:38*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 128*	*07/31/14 09:01*	*07/31/14 15:38*	*1*
Toluene-d8 (Surr)	*107*		*85 - 115*	*07/31/14 09:01*	*07/31/14 15:38*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 126*	*07/31/14 09:01*	*07/31/14 15:38*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH2-3-01
Date Collected: 07/29/14 15:25
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-7
Matrix: Solid
Percent Solids: 68.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	14.6	U	29.1	14.6	9.42	ug/Kg	☼	08/01/14 11:16	1
Benzene	1.46	U	7.28	1.46	0.368	ug/Kg	☼	08/01/14 11:16	1
Bromodichloromethane	1.46	U	7.28	1.46	0.370	ug/Kg	☼	08/01/14 11:16	1
Bromoform	1.46	U *	7.28	1.46	0.533	ug/Kg	☼	08/01/14 11:16	1
Bromomethane	7.28	U	14.6	7.28	1.60	ug/Kg	☼	08/01/14 11:16	1
2-Butanone (MEK)	7.28	U	29.1	7.28	2.79	ug/Kg	☼	08/01/14 11:16	1
Carbon tetrachloride	1.46	U	7.28	1.46	0.747	ug/Kg	☼	08/01/14 11:16	1
Chlorobenzene	**1.97**	**J**	7.28	1.46	0.556	ug/Kg	☼	08/01/14 11:16	1
Dibromochloromethane	1.46	U	7.28	1.46	0.591	ug/Kg	☼	08/01/14 11:16	1
Chloroethane	1.46	U	14.6	1.46	0.751	ug/Kg	☼	08/01/14 11:16	1
Chloroform	1.46	U	7.28	1.46	0.547	ug/Kg	☼	08/01/14 11:16	1
Chloromethane	7.28	U	14.6	7.28	0.946	ug/Kg	☼	08/01/14 11:16	1
1,1-Dichloroethane	1.46	U	7.28	1.46	0.571	ug/Kg	☼	08/01/14 11:16	1
1,2-Dichloroethane	1.46	U	7.28	1.46	1.26	ug/Kg	☼	08/01/14 11:16	1
cis-1,2-Dichloroethene	1.46	U	7.28	1.46	0.869	ug/Kg	☼	08/01/14 11:16	1
trans-1,2-Dichloroethene	1.46	U	7.28	1.46	1.37	ug/Kg	☼	08/01/14 11:16	1
1,1-Dichloroethene	7.28	U	7.28	7.28	2.34	ug/Kg	☼	08/01/14 11:16	1
1,2-Dichloropropane	1.46	U	7.28	1.46	0.557	ug/Kg	☼	08/01/14 11:16	1
cis-1,3-Dichloropropene	1.46	U	7.28	1.46	0.866	ug/Kg	☼	08/01/14 11:16	1
trans-1,3-Dichloropropene	1.46	U	7.28	1.46	0.508	ug/Kg	☼	08/01/14 11:16	1
Ethylbenzene	1.46	U	7.28	1.46	0.435	ug/Kg	☼	08/01/14 11:16	1
2-Hexanone	7.28	U	14.6	7.28	2.58	ug/Kg	☼	08/01/14 11:16	1
Methylene Chloride	7.28	U	14.6	7.28	2.30	ug/Kg	☼	08/01/14 11:16	1
4-Methyl-2-pentanone (MIBK)	7.28	U	29.1	7.28	1.07	ug/Kg	☼	08/01/14 11:16	1
Methyl tert-butyl ether	1.46	U	7.28	1.46	0.693	ug/Kg	☼	08/01/14 11:16	1
Styrene	1.46	U	7.28	1.46	0.505	ug/Kg	☼	08/01/14 11:16	1
1,1,2,2-Tetrachloroethane	1.46	U *	7.28	1.46	0.584	ug/Kg	☼	08/01/14 11:16	1
Tetrachloroethene	1.46	U	7.28	1.46	0.469	ug/Kg	☼	08/01/14 11:16	1
Toluene	1.46	U	7.28	1.46	1.02	ug/Kg	☼	08/01/14 11:16	1
1,1,1-Trichloroethane	1.46	U	7.28	1.46	0.627	ug/Kg	☼	08/01/14 11:16	1
1,1,2-Trichloroethane	1.46	U	7.28	1.46	0.834	ug/Kg	☼	08/01/14 11:16	1
Trichloroethene	1.46	U	7.28	1.46	0.560	ug/Kg	☼	08/01/14 11:16	1
Vinyl chloride	1.46	U	14.6	1.46	0.623	ug/Kg	☼	08/01/14 11:16	1
Xylenes, Total	7.28	U	14.6	7.28	1.24	ug/Kg	☼	08/01/14 11:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*130*	** X*	*85 - 120*	*08/01/14 07:53*	*08/01/14 11:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*71 - 128*	*08/01/14 07:53*	*08/01/14 11:16*	*1*
Toluene-d8 (Surr)	*106*		*85 - 115*	*08/01/14 07:53*	*08/01/14 11:16*	*1*
Dibromofluoromethane (Surr)	*104*		*76 - 126*	*08/01/14 07:53*	*08/01/14 11:16*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH2-3-02
Date Collected: 07/29/14 15:35
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-8
Matrix: Solid
Percent Solids: 60.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	16.7	U	33.4	16.7	10.8	ug/Kg	☼	08/01/14 11:41	1
Benzene	1.67	U	8.36	1.67	0.423	ug/Kg	☼	08/01/14 11:41	1
Bromodichloromethane	1.67	U	8.36	1.67	0.425	ug/Kg	☼	08/01/14 11:41	1
Bromoform	1.67	U *	8.36	1.67	0.612	ug/Kg	☼	08/01/14 11:41	1
Bromomethane	8.36	U	16.7	8.36	1.84	ug/Kg	☼	08/01/14 11:41	1
2-Butanone (MEK)	8.36	U	33.4	8.36	3.21	ug/Kg	☼	08/01/14 11:41	1
Carbon tetrachloride	1.67	U	8.36	1.67	0.858	ug/Kg	☼	08/01/14 11:41	1
Chlorobenzene	1.67	U	8.36	1.67	0.639	ug/Kg	☼	08/01/14 11:41	1
Dibromochloromethane	1.67	U	8.36	1.67	0.679	ug/Kg	☼	08/01/14 11:41	1
Chloroethane	1.67	U	16.7	1.67	0.863	ug/Kg	☼	08/01/14 11:41	1
Chloroform	1.67	U	8.36	1.67	0.629	ug/Kg	☼	08/01/14 11:41	1
Chloromethane	8.36	U	16.7	8.36	1.09	ug/Kg	☼	08/01/14 11:41	1
1,1-Dichloroethane	1.67	U	8.36	1.67	0.655	ug/Kg	☼	08/01/14 11:41	1
1,2-Dichloroethane	1.67	U	8.36	1.67	1.45	ug/Kg	☼	08/01/14 11:41	1
cis-1,2-Dichloroethene	1.67	U	8.36	1.67	0.998	ug/Kg	☼	08/01/14 11:41	1
trans-1,2-Dichloroethene	1.67	U	8.36	1.67	1.58	ug/Kg	☼	08/01/14 11:41	1
1,1-Dichloroethene	8.36	U	8.36	8.36	2.69	ug/Kg	☼	08/01/14 11:41	1
1,2-Dichloropropane	1.67	U	8.36	1.67	0.640	ug/Kg	☼	08/01/14 11:41	1
cis-1,3-Dichloropropene	1.67	U	8.36	1.67	0.995	ug/Kg	☼	08/01/14 11:41	1
trans-1,3-Dichloropropene	1.67	U	8.36	1.67	0.584	ug/Kg	☼	08/01/14 11:41	1
Ethylbenzene	1.67	U	8.36	1.67	0.500	ug/Kg	☼	08/01/14 11:41	1
2-Hexanone	8.36	U	16.7	8.36	2.96	ug/Kg	☼	08/01/14 11:41	1
Methylene Chloride	8.36	U	16.7	8.36	2.64	ug/Kg	☼	08/01/14 11:41	1
4-Methyl-2-pentanone (MIBK)	8.36	U	33.4	8.36	1.22	ug/Kg	☼	08/01/14 11:41	1
Methyl tert-butyl ether	1.67	U	8.36	1.67	0.796	ug/Kg	☼	08/01/14 11:41	1
Styrene	1.67	U	8.36	1.67	0.580	ug/Kg	☼	08/01/14 11:41	1
1,1,2,2-Tetrachloroethane	1.67	U *	8.36	1.67	0.671	ug/Kg	☼	08/01/14 11:41	1
Tetrachloroethene	1.67	U	8.36	1.67	0.538	ug/Kg	☼	08/01/14 11:41	1
Toluene	1.67	U	8.36	1.67	1.17	ug/Kg	☼	08/01/14 11:41	1
1,1,1-Trichloroethane	1.67	U	8.36	1.67	0.721	ug/Kg	☼	08/01/14 11:41	1
1,1,2-Trichloroethane	1.67	U	8.36	1.67	0.958	ug/Kg	☼	08/01/14 11:41	1
Trichloroethene	1.67	U	8.36	1.67	0.644	ug/Kg	☼	08/01/14 11:41	1
Vinyl chloride	1.67	U	16.7	1.67	0.716	ug/Kg	☼	08/01/14 11:41	1
Xylenes, Total	8.36	U	16.7	8.36	1.43	ug/Kg	☼	08/01/14 11:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*	*	*85 - 120*	*08/01/14 07:53*	*08/01/14 11:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 128*	*08/01/14 07:53*	*08/01/14 11:41*	*1*
Toluene-d8 (Surr)	*98*		*85 - 115*	*08/01/14 07:53*	*08/01/14 11:41*	*1*
Dibromofluoromethane (Surr)	*98*		*76 - 126*	*08/01/14 07:53*	*08/01/14 11:41*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-PS1VAULT-01
Date Collected: 07/29/14 09:48
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-1
Matrix: Solid
Percent Solids: 26.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
1,2-Dichlorobenzene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
1,3-Dichlorobenzene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
1,4-Dichlorobenzene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2,4,5-Trichlorophenol	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2,4,6-Trichlorophenol	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2,4-Dichlorophenol	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2,4-Dimethylphenol	**9030**	**J**	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2,4-Dinitrophenol	37000	U	89600	37000	18500	ug/Kg	☼	08/10/14 16:37	5
2,4-Dinitrotoluene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2,6-Dinitrotoluene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2-Chloronaphthalene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2-Chlorophenol	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2-Methylphenol	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2-Nitroaniline	5540	U	89600	5540	1860	ug/Kg	☼	08/10/14 16:37	5
2-Nitrophenol	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
3 & 4 Methylphenol	5540	U	37000	5540	3730	ug/Kg	☼	08/10/14 16:37	5
3,3'-Dichlorobenzidine	37000	U	89600	37000	18500	ug/Kg	☼	08/10/14 16:37	5
3-Nitroaniline	5540	U	89600	5540	1860	ug/Kg	☼	08/10/14 16:37	5
4,6-Dinitro-2-methylphenol	37000	U	89600	37000	18500	ug/Kg	☼	08/10/14 16:37	5
4-Bromophenyl phenyl ether	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
4-Chloro-3-methylphenol	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
4-Chloroaniline	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
4-Chlorophenyl phenyl ether	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
4-Nitroaniline	37000	U	89600	37000	18500	ug/Kg	☼	08/10/14 16:37	5
4-Nitrophenol	37000	U	89600	37000	18500	ug/Kg	☼	08/10/14 16:37	5
Acenaphthene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Acenaphthylene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Anthracene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Benzo[a]anthracene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Benzo[a]pyrene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Benzo[b]fluoranthene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Benzo[g,h,i]perylene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Benzo[k]fluoranthene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
bis (2-chloroisopropyl) ether	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Bis(2-chloroethoxy)methane	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Bis(2-chloroethyl)ether	5540	U	18500	5540	1870	ug/Kg	☼	08/10/14 16:37	5
Bis(2-ethylhexyl) phthalate	**223000**		18500	5540	2540	ug/Kg	☼	08/10/14 16:37	5
Butyl benzyl phthalate	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Chrysene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Dibenzo(a),h)anthracene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Dibenzofuran	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Diethyl phthalate	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Dimethyl phthalate	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Di-n-butyl phthalate	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Di-n-octyl phthalate	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Fluoranthene	**4760**	**J**	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Fluorene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Hexachlorobenzene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-PS1VAULT-01
Date Collected: 07/29/14 09:48
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-1
Matrix: Solid
Percent Solids: 26.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Hexachlorocyclopentadiene	37000	U	89600	37000	18500	ug/Kg	☼	08/10/14 16:37	5
Hexachloroethane	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Indeno[1,2,3-cd]pyrene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Nitrobenzene	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
N-Nitrosodiphenylamine	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
N-Nitrosodi-n-propylamine	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Pentachlorophenol	18500	U	89600	18500	18500	ug/Kg	☼	08/10/14 16:37	5
Phenanthrene	**4810**	**J**	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Phenol	5540	U	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Pyrene	**4450**	**J**	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5
Pyridine	5540	U	37000	5540	3730	ug/Kg	☼	08/10/14 16:37	5
Naphthalene	**13200**	**J**	18500	5540	1860	ug/Kg	☼	08/10/14 16:37	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*79*		*35 - 125*	*07/31/14 10:03*	*08/10/14 16:37*	*5*
2-Fluorobiphenyl (Surr)	*88*		*45 - 105*	*07/31/14 10:03*	*08/10/14 16:37*	*5*
2-Fluorophenol (Surr)	*73*		*35 - 105*	*07/31/14 10:03*	*08/10/14 16:37*	*5*
Nitrobenzene-d5 (Surr)	*101*	*X*	*35 - 100*	*07/31/14 10:03*	*08/10/14 16:37*	*5*
Phenol-d5 (Surr)	*75*		*40 - 100*	*07/31/14 10:03*	*08/10/14 16:37*	*5*
Terphenyl-d14 (Surr)	*79*		*30 - 125*	*07/31/14 10:03*	*08/10/14 16:37*	*5*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-PS1VAULT-02
Date Collected: 07/29/14 09:55
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-2
Matrix: Solid
Percent Solids: 21.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
1,2-Dichlorobenzene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
1,3-Dichlorobenzene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
1,4-Dichlorobenzene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2,4,5-Trichlorophenol	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2,4,6-Trichlorophenol	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2,4-Dichlorophenol	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2,4-Dimethylphenol	**5100**	**J**	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2,4-Dinitrophenol	44400	U	108000	44400	22200	ug/Kg	☼	08/10/14 17:11	5
2,4-Dinitrotoluene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2,6-Dinitrotoluene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2-Chloronaphthalene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2-Chlorophenol	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2-Methylphenol	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2-Nitroaniline	6670	U	108000	6670	2240	ug/Kg	☼	08/10/14 17:11	5
2-Nitrophenol	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
3 & 4 Methylphenol	6670	U	44400	6670	4480	ug/Kg	☼	08/10/14 17:11	5
3,3'-Dichlorobenzidine	44400	U	108000	44400	22200	ug/Kg	☼	08/10/14 17:11	5
3-Nitroaniline	6670	U	108000	6670	2240	ug/Kg	☼	08/10/14 17:11	5
4,6-Dinitro-2-methylphenol	44400	U	108000	44400	22200	ug/Kg	☼	08/10/14 17:11	5
4-Bromophenyl phenyl ether	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
4-Chloro-3-methylphenol	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
4-Chloroaniline	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
4-Chlorophenyl phenyl ether	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
4-Nitroaniline	44400	U	108000	44400	22200	ug/Kg	☼	08/10/14 17:11	5
4-Nitrophenol	44400	U	108000	44400	22200	ug/Kg	☼	08/10/14 17:11	5
Acenaphthene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Acenaphthylene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Anthracene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Benzo[a]anthracene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Benzo[a]pyrene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Benzo[b]fluoranthene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Benzo[g,h,i]perylene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Benzo[k]fluoranthene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
bis (2-chloroisopropyl) ether	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Bis(2-chloroethoxy)methane	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Bis(2-chloroethyl)ether	6670	U	22200	6670	2250	ug/Kg	☼	08/10/14 17:11	5
Bis(2-ethylhexyl) phthalate	**231000**		22200	6670	3050	ug/Kg	☼	08/10/14 17:11	5
Butyl benzyl phthalate	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Chrysene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Dibenzo(a),h)anthracene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Dibenzofuran	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Diethyl phthalate	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Dimethyl phthalate	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Di-n-butyl phthalate	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Di-n-octyl phthalate	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Fluoranthene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Fluorene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Hexachlorobenzene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-PS1VAULT-02
Date Collected: 07/29/14 09:55
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-2
Matrix: Solid
Percent Solids: 21.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Hexachlorocyclopentadiene	44400	U	108000	44400	22200	ug/Kg	☼	08/10/14 17:11	5
Hexachloroethane	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Indeno[1,2,3-cd]pyrene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Nitrobenzene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
N-Nitrosodiphenylamine	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
N-Nitrosodi-n-propylamine	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Pentachlorophenol	22200	U	108000	22200	22200	ug/Kg	☼	08/10/14 17:11	5
Phenanthrene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Phenol	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Pyrene	6670	U	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5
Pyridine	6670	U	44400	6670	4480	ug/Kg	☼	08/10/14 17:11	5
Naphthalene	**4800**	**J**	22200	6670	2240	ug/Kg	☼	08/10/14 17:11	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*35 - 125*	*07/31/14 10:03*	*08/10/14 17:11*	*5*
2-Fluorobiphenyl (Surr)	*91*		*45 - 105*	*07/31/14 10:03*	*08/10/14 17:11*	*5*
2-Fluorophenol (Surr)	*77*		*35 - 105*	*07/31/14 10:03*	*08/10/14 17:11*	*5*
Nitrobenzene-d5 (Surr)	*94*		*35 - 100*	*07/31/14 10:03*	*08/10/14 17:11*	*5*
Phenol-d5 (Surr)	*76*		*40 - 100*	*07/31/14 10:03*	*08/10/14 17:11*	*5*
Terphenyl-d14 (Surr)	*84*		*30 - 125*	*07/31/14 10:03*	*08/10/14 17:11*	*5*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-1-01
Date Collected: 07/29/14 10:00
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-3
Matrix: Solid
Percent Solids: 47.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
1,2-Dichlorobenzene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
1,3-Dichlorobenzene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
1,4-Dichlorobenzene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2,4,5-Trichlorophenol	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2,4,6-Trichlorophenol	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2,4-Dichlorophenol	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2,4-Dimethylphenol	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2,4-Dinitrophenol	20800	U	50500	20800	10400	ug/Kg	☼	08/10/14 17:45	5
2,4-Dinitrotoluene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2,6-Dinitrotoluene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2-Chloronaphthalene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2-Chlorophenol	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2-Methylphenol	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2-Nitroaniline	3130	U	50500	3130	1050	ug/Kg	☼	08/10/14 17:45	5
2-Nitrophenol	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
3 & 4 Methylphenol	3130	U	20800	3130	2100	ug/Kg	☼	08/10/14 17:45	5
3,3'-Dichlorobenzidine	20800	U	50500	20800	10400	ug/Kg	☼	08/10/14 17:45	5
3-Nitroaniline	3130	U	50500	3130	1050	ug/Kg	☼	08/10/14 17:45	5
4,6-Dinitro-2-methylphenol	20800	U	50500	20800	10400	ug/Kg	☼	08/10/14 17:45	5
4-Bromophenyl phenyl ether	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
4-Chloro-3-methylphenol	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
4-Chloroaniline	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
4-Chlorophenyl phenyl ether	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
4-Nitroaniline	20800	U	50500	20800	10400	ug/Kg	☼	08/10/14 17:45	5
4-Nitrophenol	20800	U	50500	20800	10400	ug/Kg	☼	08/10/14 17:45	5
Acenaphthene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Acenaphthylene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Anthracene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Benzo[a]anthracene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Benzo[a]pyrene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Benzo[b]fluoranthene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Benzo[g,h,i]perylene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Benzo[k]fluoranthene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
bis (2-chloroisopropyl) ether	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Bis(2-chloroethoxy)methane	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Bis(2-chloroethyl)ether	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Bis(2-ethylhexyl) phthalate	**10800**		10400	3130	1430	ug/Kg	☼	08/10/14 17:45	5
Butyl benzyl phthalate	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Chrysene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Dibenzo(a),h)anthracene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Dibenzofuran	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Diethyl phthalate	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Dimethyl phthalate	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Di-n-butyl phthalate	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Di-n-octyl phthalate	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Fluoranthene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Fluorene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Hexachlorobenzene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-1-01
Date Collected: 07/29/14 10:00
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-3
Matrix: Solid
Percent Solids: 47.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Hexachlorocyclopentadiene	20800	U	50500	20800	10400	ug/Kg	☼	08/10/14 17:45	5
Hexachloroethane	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Indeno[1,2,3-cd]pyrene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Nitrobenzene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
N-Nitrosodiphenylamine	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
N-Nitrosodi-n-propylamine	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Pentachlorophenol	10400	U	50500	10400	10400	ug/Kg	☼	08/10/14 17:45	5
Phenanthrene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Phenol	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Pyrene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5
Pyridine	3130	U	20800	3130	2100	ug/Kg	☼	08/10/14 17:45	5
Naphthalene	3130	U	10400	3130	1050	ug/Kg	☼	08/10/14 17:45	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*72*		*35 - 125*	*07/31/14 10:03*	*08/10/14 17:45*	*5*
2-Fluorobiphenyl (Surr)	*86*		*45 - 105*	*07/31/14 10:03*	*08/10/14 17:45*	*5*
2-Fluorophenol (Surr)	*71*		*35 - 105*	*07/31/14 10:03*	*08/10/14 17:45*	*5*
Nitrobenzene-d5 (Surr)	*84*		*35 - 100*	*07/31/14 10:03*	*08/10/14 17:45*	*5*
Phenol-d5 (Surr)	*72*		*40 - 100*	*07/31/14 10:03*	*08/10/14 17:45*	*5*
Terphenyl-d14 (Surr)	*84*		*30 - 125*	*07/31/14 10:03*	*08/10/14 17:45*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-1-02
Date Collected: 07/29/14 10:33
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-4
Matrix: Solid
Percent Solids: 53.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
1,2-Dichlorobenzene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
1,3-Dichlorobenzene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
1,4-Dichlorobenzene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
2,4,5-Trichlorophenol	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
2,4,6-Trichlorophenol	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
2,4-Dichlorophenol	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
2,4-Dimethylphenol	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
2,4-Dinitrophenol	18300	U	44400	18300	9150	ug/Kg	☼	08/10/14 19:27	5
2,4-Dinitrotoluene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
2,6-Dinitrotoluene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
2-Chloronaphthalene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
2-Chlorophenol	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
2-Methylphenol	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
2-Nitroaniline	2740	U	44400	2740	923	ug/Kg	☼	08/10/14 19:27	5
2-Nitrophenol	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
3 & 4 Methylphenol	2740	U	18300	2740	1850	ug/Kg	☼	08/10/14 19:27	5
3,3'-Dichlorobenzidine	18300	U	44400	18300	9150	ug/Kg	☼	08/10/14 19:27	5
3-Nitroaniline	2740	U	44400	2740	923	ug/Kg	☼	08/10/14 19:27	5
4,6-Dinitro-2-methylphenol	18300	U	44400	18300	9150	ug/Kg	☼	08/10/14 19:27	5
4-Bromophenyl phenyl ether	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
4-Chloro-3-methylphenol	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
4-Chloroaniline	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
4-Chlorophenyl phenyl ether	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
4-Nitroaniline	18300	U	44400	18300	9150	ug/Kg	☼	08/10/14 19:27	5
4-Nitrophenol	18300	U	44400	18300	9150	ug/Kg	☼	08/10/14 19:27	5
Acenaphthene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Acenaphthylene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Anthracene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Benzo[a]anthracene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Benzo[a]pyrene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Benzo[b]fluoranthene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Benzo[g,h,i]perylene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Benzo[k]fluoranthene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
bis (2-chloroisopropyl) ether	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Bis(2-chloroethoxy)methane	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Bis(2-chloroethyl)ether	2740	U	9150	2740	926	ug/Kg	☼	08/10/14 19:27	5
Bis(2-ethylhexyl) phthalate	**3890**	**J**	9150	2740	1260	ug/Kg	☼	08/10/14 19:27	5
Butyl benzyl phthalate	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Chrysene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Dibenzo(a),h)anthracene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Dibenzofuran	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Diethyl phthalate	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Dimethyl phthalate	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Di-n-butyl phthalate	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Di-n-octyl phthalate	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Fluoranthene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Fluorene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Hexachlorobenzene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-1-02
Date Collected: 07/29/14 10:33
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-4
Matrix: Solid
Percent Solids: 53.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Hexachlorocyclopentadiene	18300	U	44400	18300	9150	ug/Kg	☼	08/10/14 19:27	5
Hexachloroethane	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Indeno[1,2,3-cd]pyrene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Nitrobenzene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
N-Nitrosodiphenylamine	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
N-Nitrosodi-n-propylamine	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Pentachlorophenol	9150	U	44400	9150	9150	ug/Kg	☼	08/10/14 19:27	5
Phenanthrene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Phenol	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Pyrene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5
Pyridine	2740	U	18300	2740	1850	ug/Kg	☼	08/10/14 19:27	5
Naphthalene	2740	U	9150	2740	923	ug/Kg	☼	08/10/14 19:27	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*62*		*35 - 125*	*07/31/14 10:03*	*08/10/14 19:27*	*5*
2-Fluorobiphenyl (Surr)	*78*		*45 - 105*	*07/31/14 10:03*	*08/10/14 19:27*	*5*
2-Fluorophenol (Surr)	*60*		*35 - 105*	*07/31/14 10:03*	*08/10/14 19:27*	*5*
Nitrobenzene-d5 (Surr)	*71*		*35 - 100*	*07/31/14 10:03*	*08/10/14 19:27*	*5*
Phenol-d5 (Surr)	*59*		*40 - 100*	*07/31/14 10:03*	*08/10/14 19:27*	*5*
Terphenyl-d14 (Surr)	*73*		*30 - 125*	*07/31/14 10:03*	*08/10/14 19:27*	*5*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-2-01
Date Collected: 07/29/14 11:44
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-5
Matrix: Solid
Percent Solids: 25.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
1,2-Dichlorobenzene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
1,3-Dichlorobenzene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
1,4-Dichlorobenzene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2,4,5-Trichlorophenol	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2,4,6-Trichlorophenol	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2,4-Dichlorophenol	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2,4-Dimethylphenol	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2,4-Dinitrophenol	38900	U	94200	38900	19400	ug/Kg	☼	08/10/14 20:01	5
2,4-Dinitrotoluene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2,6-Dinitrotoluene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2-Chloronaphthalene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2-Chlorophenol	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2-Methylphenol	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2-Nitroaniline	5830	U	94200	5830	1960	ug/Kg	☼	08/10/14 20:01	5
2-Nitrophenol	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
3 & 4 Methylphenol	5830	U	38900	5830	3920	ug/Kg	☼	08/10/14 20:01	5
3,3'-Dichlorobenzidine	38900	U	94200	38900	19400	ug/Kg	☼	08/10/14 20:01	5
3-Nitroaniline	5830	U	94200	5830	1960	ug/Kg	☼	08/10/14 20:01	5
4,6-Dinitro-2-methylphenol	38900	U	94200	38900	19400	ug/Kg	☼	08/10/14 20:01	5
4-Bromophenyl phenyl ether	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
4-Chloro-3-methylphenol	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
4-Chloroaniline	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
4-Chlorophenyl phenyl ether	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
4-Nitroaniline	38900	U	94200	38900	19400	ug/Kg	☼	08/10/14 20:01	5
4-Nitrophenol	38900	U	94200	38900	19400	ug/Kg	☼	08/10/14 20:01	5
Acenaphthene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Acenaphthylene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Anthracene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Benzo[a]anthracene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Benzo[a]pyrene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Benzo[b]fluoranthene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Benzo[g,h,i]perylene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Benzo[k]fluoranthene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
bis (2-chloroisopropyl) ether	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Bis(2-chloroethoxy)methane	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Bis(2-chloroethyl)ether	5830	U	19400	5830	1970	ug/Kg	☼	08/10/14 20:01	5
Bis(2-ethylhexyl) phthalate	**58000**		19400	5830	2670	ug/Kg	☼	08/10/14 20:01	5
Butyl benzyl phthalate	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Chrysene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Dibenzo(a),h)anthracene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Dibenzofuran	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Diethyl phthalate	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Dimethyl phthalate	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Di-n-butyl phthalate	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Di-n-octyl phthalate	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Fluoranthene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Fluorene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Hexachlorobenzene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-2-01
Date Collected: 07/29/14 11:44
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-5
Matrix: Solid
Percent Solids: 25.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Hexachlorocyclopentadiene	38900	U	94200	38900	19400	ug/Kg	☼	08/10/14 20:01	5
Hexachloroethane	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Indeno[1,2,3-cd]pyrene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Nitrobenzene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
N-Nitrosodiphenylamine	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
N-Nitrosodi-n-propylamine	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Pentachlorophenol	19400	U	94200	19400	19400	ug/Kg	☼	08/10/14 20:01	5
Phenanthrene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Phenol	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Pyrene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5
Pyridine	5830	U	38900	5830	3920	ug/Kg	☼	08/10/14 20:01	5
Naphthalene	5830	U	19400	5830	1960	ug/Kg	☼	08/10/14 20:01	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*65*		*35 - 125*	*07/31/14 10:03*	*08/10/14 20:01*	*5*
2-Fluorobiphenyl (Surr)	*83*		*45 - 105*	*07/31/14 10:03*	*08/10/14 20:01*	*5*
2-Fluorophenol (Surr)	*64*		*35 - 105*	*07/31/14 10:03*	*08/10/14 20:01*	*5*
Nitrobenzene-d5 (Surr)	*79*		*35 - 100*	*07/31/14 10:03*	*08/10/14 20:01*	*5*
Phenol-d5 (Surr)	*66*		*40 - 100*	*07/31/14 10:03*	*08/10/14 20:01*	*5*
Terphenyl-d14 (Surr)	*73*		*30 - 125*	*07/31/14 10:03*	*08/10/14 20:01*	*5*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH1-2-02
Date Collected: 07/29/14 11:55
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-6
Matrix: Solid
Percent Solids: 31.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
1,2-Dichlorobenzene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
1,3-Dichlorobenzene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
1,4-Dichlorobenzene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2,4,5-Trichlorophenol	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2,4,6-Trichlorophenol	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2,4-Dichlorophenol	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2,4-Dimethylphenol	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2,4-Dinitrophenol	31400	U	76100	31400	15700	ug/Kg	☼	08/10/14 20:36	5
2,4-Dinitrotoluene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2,6-Dinitrotoluene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2-Chloronaphthalene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2-Chlorophenol	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2-Methylphenol	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2-Nitroaniline	4710	U	76100	4710	1580	ug/Kg	☼	08/10/14 20:36	5
2-Nitrophenol	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
3 & 4 Methylphenol	4710	U	31400	4710	3170	ug/Kg	☼	08/10/14 20:36	5
3,3'-Dichlorobenzidine	31400	U	76100	31400	15700	ug/Kg	☼	08/10/14 20:36	5
3-Nitroaniline	4710	U	76100	4710	1580	ug/Kg	☼	08/10/14 20:36	5
4,6-Dinitro-2-methylphenol	31400	U	76100	31400	15700	ug/Kg	☼	08/10/14 20:36	5
4-Bromophenyl phenyl ether	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
4-Chloro-3-methylphenol	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
4-Chloroaniline	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
4-Chlorophenyl phenyl ether	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
4-Nitroaniline	31400	U	76100	31400	15700	ug/Kg	☼	08/10/14 20:36	5
4-Nitrophenol	31400	U	76100	31400	15700	ug/Kg	☼	08/10/14 20:36	5
Acenaphthene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Acenaphthylene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Anthracene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Benzo[a]anthracene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Benzo[a]pyrene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Benzo[b]fluoranthene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Benzo[g,h,i]perylene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Benzo[k]fluoranthene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
bis (2-chloroisopropyl) ether	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Bis(2-chloroethoxy)methane	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Bis(2-chloroethyl)ether	4710	U	15700	4710	1590	ug/Kg	☼	08/10/14 20:36	5
Bis(2-ethylhexyl) phthalate	**5800**	**J**	15700	4710	2160	ug/Kg	☼	08/10/14 20:36	5
Butyl benzyl phthalate	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Chrysene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Dibenzo(a),h)anthracene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Dibenzofuran	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Diethyl phthalate	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Dimethyl phthalate	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Di-n-butyl phthalate	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Di-n-octyl phthalate	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Fluoranthene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Fluorene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Hexachlorobenzene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH1-2-02
Date Collected: 07/29/14 11:55
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-6
Matrix: Solid
Percent Solids: 31.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Hexachlorocyclopentadiene	31400	U	76100	31400	15700	ug/Kg	☼	08/10/14 20:36	5
Hexachloroethane	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Indeno[1,2,3-cd]pyrene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Nitrobenzene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
N-Nitrosodiphenylamine	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
N-Nitrosodi-n-propylamine	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Pentachlorophenol	15700	U	76100	15700	15700	ug/Kg	☼	08/10/14 20:36	5
Phenanthrene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Phenol	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Pyrene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5
Pyridine	4710	U	31400	4710	3170	ug/Kg	☼	08/10/14 20:36	5
Naphthalene	4710	U	15700	4710	1580	ug/Kg	☼	08/10/14 20:36	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*64*		*35 - 125*	*07/31/14 10:03*	*08/10/14 20:36*	*5*
2-Fluorobiphenyl (Surr)	*81*		*45 - 105*	*07/31/14 10:03*	*08/10/14 20:36*	*5*
2-Fluorophenol (Surr)	*62*		*35 - 105*	*07/31/14 10:03*	*08/10/14 20:36*	*5*
Nitrobenzene-d5 (Surr)	*74*		*35 - 100*	*07/31/14 10:03*	*08/10/14 20:36*	*5*
Phenol-d5 (Surr)	*61*		*40 - 100*	*07/31/14 10:03*	*08/10/14 20:36*	*5*
Terphenyl-d14 (Surr)	*73*		*30 - 125*	*07/31/14 10:03*	*08/10/14 20:36*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH2-3-01
Date Collected: 07/29/14 15:25
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-7
Matrix: Solid
Percent Solids: 68.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
1,2-Dichlorobenzene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
1,3-Dichlorobenzene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
1,4-Dichlorobenzene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
2,4,5-Trichlorophenol	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
2,4,6-Trichlorophenol	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
2,4-Dichlorophenol	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
2,4-Dimethylphenol	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
2,4-Dinitrophenol	14000	U	33900	14000	6990	ug/Kg	☼	08/10/14 21:09	5
2,4-Dinitrotoluene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
2,6-Dinitrotoluene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
2-Chloronaphthalene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
2-Chlorophenol	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
2-Methylphenol	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
2-Nitroaniline	2100	U	33900	2100	705	ug/Kg	☼	08/10/14 21:09	5
2-Nitrophenol	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
3 & 4 Methylphenol	2100	U	14000	2100	1410	ug/Kg	☼	08/10/14 21:09	5
3,3'-Dichlorobenzidine	14000	U	33900	14000	6990	ug/Kg	☼	08/10/14 21:09	5
3-Nitroaniline	2100	U	33900	2100	705	ug/Kg	☼	08/10/14 21:09	5
4,6-Dinitro-2-methylphenol	14000	U	33900	14000	6990	ug/Kg	☼	08/10/14 21:09	5
4-Bromophenyl phenyl ether	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
4-Chloro-3-methylphenol	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
4-Chloroaniline	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
4-Chlorophenyl phenyl ether	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
4-Nitroaniline	14000	U	33900	14000	6990	ug/Kg	☼	08/10/14 21:09	5
4-Nitrophenol	14000	U	33900	14000	6990	ug/Kg	☼	08/10/14 21:09	5
Acenaphthene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Acenaphthylene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Anthracene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Benzo[a]anthracene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Benzo[a]pyrene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Benzo[b]fluoranthene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Benzo[g,h,i]perylene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Benzo[k]fluoranthene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
bis (2-chloroisopropyl) ether	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Bis(2-chloroethoxy)methane	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Bis(2-chloroethyl)ether	2100	U	6990	2100	707	ug/Kg	☼	08/10/14 21:09	5
Bis(2-ethylhexyl) phthalate	2100	U	6990	2100	959	ug/Kg	☼	08/10/14 21:09	5
Butyl benzyl phthalate	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Chrysene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Dibenzo(a),h)anthracene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Dibenzofuran	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Diethyl phthalate	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Dimethyl phthalate	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Di-n-butyl phthalate	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Di-n-octyl phthalate	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Fluoranthene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Fluorene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Hexachlorobenzene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH2-3-01
Date Collected: 07/29/14 15:25
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-7
Matrix: Solid
Percent Solids: 68.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Hexachlorocyclopentadiene	14000	U	33900	14000	6990	ug/Kg	☼	08/10/14 21:09	5
Hexachloroethane	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Indeno[1,2,3-cd]pyrene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Nitrobenzene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
N-Nitrosodiphenylamine	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
N-Nitrosodi-n-propylamine	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Pentachlorophenol	6990	U	33900	6990	6990	ug/Kg	☼	08/10/14 21:09	5
Phenanthrene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Phenol	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Pyrene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5
Pyridine	2100	U	14000	2100	1410	ug/Kg	☼	08/10/14 21:09	5
Naphthalene	2100	U	6990	2100	705	ug/Kg	☼	08/10/14 21:09	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*57*		*35 - 125*	*07/31/14 10:03*	*08/10/14 21:09*	*5*
2-Fluorobiphenyl (Surr)	*76*		*45 - 105*	*07/31/14 10:03*	*08/10/14 21:09*	*5*
2-Fluorophenol (Surr)	*58*		*35 - 105*	*07/31/14 10:03*	*08/10/14 21:09*	*5*
Nitrobenzene-d5 (Surr)	*70*		*35 - 100*	*07/31/14 10:03*	*08/10/14 21:09*	*5*
Phenol-d5 (Surr)	*58*		*40 - 100*	*07/31/14 10:03*	*08/10/14 21:09*	*5*
Terphenyl-d14 (Surr)	*72*		*30 - 125*	*07/31/14 10:03*	*08/10/14 21:09*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MH2-3-02
Date Collected: 07/29/14 15:35
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-8
Matrix: Solid
Percent Solids: 60.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
1,2-Dichlorobenzene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
1,3-Dichlorobenzene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
1,4-Dichlorobenzene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
2,4,5-Trichlorophenol	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
2,4,6-Trichlorophenol	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
2,4-Dichlorophenol	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
2,4-Dimethylphenol	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
2,4-Dinitrophenol	16200	U	39200	16200	8090	ug/Kg	☼	08/10/14 21:43	5
2,4-Dinitrotoluene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
2,6-Dinitrotoluene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
2-Chloronaphthalene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
2-Chlorophenol	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
2-Methylphenol	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
2-Nitroaniline	2430	U	39200	2430	817	ug/Kg	☼	08/10/14 21:43	5
2-Nitrophenol	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
3 & 4 Methylphenol	2430	U	16200	2430	1630	ug/Kg	☼	08/10/14 21:43	5
3,3'-Dichlorobenzidine	16200	U	39200	16200	8090	ug/Kg	☼	08/10/14 21:43	5
3-Nitroaniline	2430	U	39200	2430	817	ug/Kg	☼	08/10/14 21:43	5
4,6-Dinitro-2-methylphenol	16200	U	39200	16200	8090	ug/Kg	☼	08/10/14 21:43	5
4-Bromophenyl phenyl ether	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
4-Chloro-3-methylphenol	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
4-Chloroaniline	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
4-Chlorophenyl phenyl ether	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
4-Nitroaniline	16200	U	39200	16200	8090	ug/Kg	☼	08/10/14 21:43	5
4-Nitrophenol	16200	U	39200	16200	8090	ug/Kg	☼	08/10/14 21:43	5
Acenaphthene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Acenaphthylene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Anthracene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Benzo[a]anthracene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Benzo[a]pyrene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Benzo[b]fluoranthene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Benzo[g,h,i]perylene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Benzo[k]fluoranthene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
bis (2-chloroisopropyl) ether	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Bis(2-chloroethoxy)methane	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Bis(2-chloroethyl)ether	2430	U	8090	2430	819	ug/Kg	☼	08/10/14 21:43	5
Bis(2-ethylhexyl) phthalate	2430	U	8090	2430	1110	ug/Kg	☼	08/10/14 21:43	5
Butyl benzyl phthalate	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Chrysene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Dibenzo(a),h)anthracene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Dibenzofuran	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Diethyl phthalate	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Dimethyl phthalate	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Di-n-butyl phthalate	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Di-n-octyl phthalate	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Fluoranthene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Fluorene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Hexachlorobenzene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL (Continued)

Client Sample ID: IWL-MH2-3-02
Date Collected: 07/29/14 15:35
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-8
Matrix: Solid
Percent Solids: 60.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Hexachlorocyclopentadiene	16200	U	39200	16200	8090	ug/Kg	☼	08/10/14 21:43	5
Hexachloroethane	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Indeno[1,2,3-cd]pyrene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Nitrobenzene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
N-Nitrosodiphenylamine	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
N-Nitrosodi-n-propylamine	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Pentachlorophenol	8090	U	39200	8090	8090	ug/Kg	☼	08/10/14 21:43	5
Phenanthrene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Phenol	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Pyrene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5
Pyridine	2430	U	16200	2430	1630	ug/Kg	☼	08/10/14 21:43	5
Naphthalene	2430	U	8090	2430	817	ug/Kg	☼	08/10/14 21:43	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*61*		*35 - 125*	*07/31/14 10:03*	*08/10/14 21:43*	*5*
2-Fluorobiphenyl (Surr)	*80*		*45 - 105*	*07/31/14 10:03*	*08/10/14 21:43*	*5*
2-Fluorophenol (Surr)	*63*		*35 - 105*	*07/31/14 10:03*	*08/10/14 21:43*	*5*
Nitrobenzene-d5 (Surr)	*74*		*35 - 100*	*07/31/14 10:03*	*08/10/14 21:43*	*5*
Phenol-d5 (Surr)	*60*		*40 - 100*	*07/31/14 10:03*	*08/10/14 21:43*	*5*
Terphenyl-d14 (Surr)	*73*		*30 - 125*	*07/31/14 10:03*	*08/10/14 21:43*	*5*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-PS1VAULT-01
Date Collected: 07/29/14 09:48
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-1
Matrix: Solid
Percent Solids: 26.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	11.8		8.22	7.89	2.70	mg/Kg	☼	08/16/14 01:51	10
Arsenic	21.8		16.4	12.8	4.27	mg/Kg	☼	08/16/14 01:51	10
Barium	972		32.9	4.64	1.55	mg/Kg	☼	08/16/14 01:51	10
Beryllium	0.539	J	1.64	1.28	0.427	mg/Kg	☼	08/16/14 01:51	10
Cadmium	223		0.986	0.789	0.263	mg/Kg	☼	08/16/14 01:51	10
Chromium	1860		31.2	16.4	7.40	mg/Kg	☼	08/16/14 01:51	10
Cobalt	23.4		3.29	2.12	0.707	mg/Kg	☼	08/16/14 01:51	10
Copper	802		16.4	4.93	1.66	mg/Kg	☼	08/16/14 01:51	10
Lead	1190		4.93	4.93	1.64	mg/Kg	☼	08/16/14 01:51	10
Molybdenum	71.1		8.22	5.92	2.04	mg/Kg	☼	08/16/14 01:51	10
Nickel	174		8.22	5.42	1.76	mg/Kg	☼	08/16/14 01:51	10
Selenium	7.89	U ^	8.22	7.89	2.60	mg/Kg	☼	08/16/14 01:51	10
Silver	10.3	B	7.40	1.18	0.395	mg/Kg	☼	08/16/14 01:51	10
Thallium	3.29	U	16.4	3.29	2.50	mg/Kg	☼	08/16/14 01:51	10
Vanadium	53.5		16.4	16.4	12.1	mg/Kg	☼	08/16/14 01:51	10
Iron	66200		197	82.2	54.2	mg/Kg	☼	08/16/14 01:51	10
Zinc	6390		82.2	65.6	21.9	mg/Kg	☼	08/16/14 01:51	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-PS1VAULT-02
Date Collected: 07/29/14 09:55
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-2
Matrix: Solid
Percent Solids: 21.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	**11.8**		9.66	9.27	3.17	mg/Kg	☼	08/16/14 01:58	10
Arsenic	**27.5**		19.3	15.1	5.02	mg/Kg	☼	08/16/14 01:58	10
Barium	**704**		38.6	5.45	1.82	mg/Kg	☼	08/16/14 01:58	10
Beryllium	1.51	U	1.93	1.51	0.502	mg/Kg	☼	08/16/14 01:58	10
Cadmium	**196**		1.16	0.927	0.309	mg/Kg	☼	08/16/14 01:58	10
Chromium	**1600**		36.7	19.3	8.69	mg/Kg	☼	08/16/14 01:58	10
Cobalt	**19.3**		3.86	2.49	0.831	mg/Kg	☼	08/16/14 01:58	10
Copper	**733**		19.3	5.80	1.95	mg/Kg	☼	08/16/14 01:58	10
Lead	**1140**		5.80	5.80	1.93	mg/Kg	☼	08/16/14 01:58	10
Molybdenum	**69.3**		9.66	6.95	2.40	mg/Kg	☼	08/16/14 01:58	10
Nickel	**125**		9.66	6.37	2.07	mg/Kg	☼	08/16/14 01:58	10
Selenium	**3.87**	**J ^**	9.66	9.27	3.05	mg/Kg	☼	08/16/14 01:58	10
Silver	**10.6**	**B**	8.69	1.39	0.464	mg/Kg	☼	08/16/14 01:58	10
Thallium	3.86	U	19.3	3.86	2.94	mg/Kg	☼	08/16/14 01:58	10
Vanadium	**50.6**		19.3	19.3	14.2	mg/Kg	☼	08/16/14 01:58	10
Iron	**95300**		232	96.6	63.7	mg/Kg	☼	08/16/14 01:58	10
Zinc	**8580**		96.6	77.1	25.7	mg/Kg	☼	08/16/14 01:58	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-1-01
Date Collected: 07/29/14 10:00
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-3
Matrix: Solid
Percent Solids: 47.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	3.13	J	4.83	4.63	1.58	mg/Kg	☼	08/16/14 02:05	10
Arsenic	25.3		9.65	7.53	2.51	mg/Kg	☼	08/16/14 02:05	10
Barium	315		19.3	2.72	0.908	mg/Kg	☼	08/16/14 02:05	10
Beryllium	0.421	J	0.965	0.753	0.251	mg/Kg	☼	08/16/14 02:05	10
Cadmium	111		0.579	0.463	0.154	mg/Kg	☼	08/16/14 02:05	10
Chromium	2810		18.3	9.65	4.34	mg/Kg	☼	08/16/14 02:05	10
Cobalt	10.9		1.93	1.25	0.415	mg/Kg	☼	08/16/14 02:05	10
Copper	223		9.65	2.90	0.975	mg/Kg	☼	08/16/14 02:05	10
Lead	383		2.90	2.90	0.965	mg/Kg	☼	08/16/14 02:05	10
Molybdenum	8.85		4.83	3.48	1.20	mg/Kg	☼	08/16/14 02:05	10
Nickel	118		4.83	3.19	1.03	mg/Kg	☼	08/16/14 02:05	10
Selenium	4.63	U ^	4.83	4.63	1.53	mg/Kg	☼	08/16/14 02:05	10
Silver	4.67	B	4.34	0.695	0.232	mg/Kg	☼	08/16/14 02:05	10
Thallium	1.93	U	9.65	1.93	1.47	mg/Kg	☼	08/16/14 02:05	10
Vanadium	34.8		9.65	9.65	7.10	mg/Kg	☼	08/16/14 02:05	10
Iron	22800		116	48.3	31.9	mg/Kg	☼	08/16/14 02:05	10
Zinc	1600		48.3	38.5	12.8	mg/Kg	☼	08/16/14 02:05	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-1-02
Date Collected: 07/29/14 10:33
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-4
Matrix: Solid
Percent Solids: 53.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.66	J	4.14	3.97	1.36	mg/Kg	☼	08/16/14 02:11	10
Arsenic	9.66		8.28	6.46	2.15	mg/Kg	☼	08/16/14 02:11	10
Barium	245		16.6	2.33	0.778	mg/Kg	☼	08/16/14 02:11	10
Beryllium	0.467	J	0.828	0.646	0.215	mg/Kg	☼	08/16/14 02:11	10
Cadmium	111		0.497	0.397	0.132	mg/Kg	☼	08/16/14 02:11	10
Chromium	2610		15.7	8.28	3.73	mg/Kg	☼	08/16/14 02:11	10
Cobalt	11.2		1.66	1.07	0.356	mg/Kg	☼	08/16/14 02:11	10
Copper	244		8.28	2.48	0.836	mg/Kg	☼	08/16/14 02:11	10
Lead	389		2.48	2.48	0.828	mg/Kg	☼	08/16/14 02:11	10
Molybdenum	10.7		4.14	2.98	1.03	mg/Kg	☼	08/16/14 02:11	10
Nickel	123		4.14	2.73	0.886	mg/Kg	☼	08/16/14 02:11	10
Selenium	1.40	J ^	4.14	3.97	1.31	mg/Kg	☼	08/16/14 02:11	10
Silver	2.50	J B	3.73	0.596	0.199	mg/Kg	☼	08/16/14 02:11	10
Thallium	1.66	U	8.28	1.66	1.26	mg/Kg	☼	08/16/14 02:11	10
Vanadium	31.6		8.28	8.28	6.09	mg/Kg	☼	08/16/14 02:11	10
Iron	34200		99.4	41.4	27.3	mg/Kg	☼	08/16/14 02:11	10
Zinc	1590		41.4	33.0	11.0	mg/Kg	☼	08/16/14 02:11	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-2-01
Date Collected: 07/29/14 11:44
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-5
Matrix: Solid
Percent Solids: 25.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	10.5		9.34	8.97	3.06	mg/Kg	☼	08/16/14 02:18	10
Arsenic	18.4	J	18.7	14.6	4.86	mg/Kg	☼	08/16/14 02:18	10
Barium	524		37.4	5.27	1.76	mg/Kg	☼	08/16/14 02:18	10
Beryllium	0.505	J	1.87	1.46	0.486	mg/Kg	☼	08/16/14 02:18	10
Cadmium	332		1.12	0.897	0.299	mg/Kg	☼	08/16/14 02:18	10
Chromium	7120		35.5	18.7	8.41	mg/Kg	☼	08/16/14 02:18	10
Cobalt	14.5		3.74	2.41	0.803	mg/Kg	☼	08/16/14 02:18	10
Copper	554		18.7	5.61	1.89	mg/Kg	☼	08/16/14 02:18	10
Lead	582		5.61	5.61	1.87	mg/Kg	☼	08/16/14 02:18	10
Molybdenum	66.5		9.34	6.73	2.32	mg/Kg	☼	08/16/14 02:18	10
Nickel	419		9.34	6.17	2.00	mg/Kg	☼	08/16/14 02:18	10
Selenium	8.97	U ^	9.34	8.97	2.95	mg/Kg	☼	08/16/14 02:18	10
Silver	8.63	B	8.41	1.35	0.448	mg/Kg	☼	08/16/14 02:18	10
Thallium	3.74	U	18.7	3.74	2.84	mg/Kg	☼	08/16/14 02:18	10
Vanadium	37.3		18.7	18.7	13.7	mg/Kg	☼	08/16/14 02:18	10
Iron	32500		224	93.4	61.7	mg/Kg	☼	08/16/14 02:18	10
Zinc	2310		93.4	74.6	24.9	mg/Kg	☼	08/16/14 02:18	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-2-02
Date Collected: 07/29/14 11:55
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-6
Matrix: Solid
Percent Solids: 31.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	6.67	J	7.76	7.45	2.55	mg/Kg	☼	08/16/14 02:25	10
Arsenic	14.2	J	15.5	12.1	4.04	mg/Kg	☼	08/16/14 02:25	10
Barium	608		31.0	4.38	1.46	mg/Kg	☼	08/16/14 02:25	10
Beryllium	0.487	J	1.55	1.21	0.404	mg/Kg	☼	08/16/14 02:25	10
Cadmium	398		0.931	0.745	0.248	mg/Kg	☼	08/16/14 02:25	10
Chromium	10800		59.0	31.0	14.0	mg/Kg	☼	08/12/14 22:05	20
Cobalt	16.0		3.10	2.00	0.667	mg/Kg	☼	08/16/14 02:25	10
Copper	569		15.5	4.66	1.57	mg/Kg	☼	08/16/14 02:25	10
Lead	1550		4.66	4.66	1.55	mg/Kg	☼	08/16/14 02:25	10
Molybdenum	41.9		7.76	5.59	1.92	mg/Kg	☼	08/16/14 02:25	10
Nickel	421		7.76	5.12	1.66	mg/Kg	☼	08/16/14 02:25	10
Selenium	7.45	U ^	7.76	7.45	2.45	mg/Kg	☼	08/16/14 02:25	10
Silver	8.15	B	6.98	1.12	0.372	mg/Kg	☼	08/16/14 02:25	10
Thallium	3.10	U	15.5	3.10	2.36	mg/Kg	☼	08/16/14 02:25	10
Vanadium	37.6		15.5	15.5	11.4	mg/Kg	☼	08/16/14 02:25	10
Iron	33700		186	77.6	51.2	mg/Kg	☼	08/16/14 02:25	10
Zinc	2830		77.6	61.9	20.6	mg/Kg	☼	08/16/14 02:25	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH2-3-01
Date Collected: 07/29/14 15:25
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-7
Matrix: Solid
Percent Solids: 68.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	3.22	U	3.35	3.22	1.10	mg/Kg	☼	08/16/14 02:45	10
Arsenic	**4.28**	**J**	6.70	5.23	1.74	mg/Kg	☼	08/16/14 02:45	10
Barium	**125**		13.4	1.89	0.630	mg/Kg	☼	08/16/14 02:45	10
Beryllium	**0.244**	**J**	0.670	0.523	0.174	mg/Kg	☼	08/16/14 02:45	10
Cadmium	**43.5**		0.402	0.322	0.107	mg/Kg	☼	08/16/14 02:45	10
Chromium	**250**		12.7	6.70	3.01	mg/Kg	☼	08/16/14 02:45	10
Cobalt	**10.2**		1.34	0.864	0.288	mg/Kg	☼	08/16/14 02:45	10
Copper	**141**		6.70	2.01	0.677	mg/Kg	☼	08/16/14 02:45	10
Lead	**120**		2.01	2.01	0.670	mg/Kg	☼	08/16/14 02:45	10
Molybdenum	**2.01**	**J**	3.35	2.41	0.831	mg/Kg	☼	08/16/14 02:45	10
Nickel	**63.2**		3.35	2.21	0.717	mg/Kg	☼	08/16/14 02:45	10
Selenium	**1.11**	**J ^**	3.35	3.22	1.06	mg/Kg	☼	08/16/14 02:45	10
Silver	**2.36**	**J B**	3.01	0.482	0.161	mg/Kg	☼	08/16/14 02:45	10
Thallium	1.34	U	6.70	1.34	1.02	mg/Kg	☼	08/16/14 02:45	10
Vanadium	**36.1**		6.70	6.70	4.92	mg/Kg	☼	08/16/14 02:45	10
Iron	**19200**		80.4	33.5	22.1	mg/Kg	☼	08/16/14 02:45	10
Zinc	**907**		33.5	26.7	8.91	mg/Kg	☼	08/16/14 02:45	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH2-3-02
Date Collected: 07/29/14 15:35
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-8
Matrix: Solid
Percent Solids: 60.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	1.81	J	3.92	3.76	1.29	mg/Kg	☼	08/16/14 02:52	10
Arsenic	5.69	J	7.84	6.11	2.04	mg/Kg	☼	08/16/14 02:52	10
Barium	125		15.7	2.21	0.737	mg/Kg	☼	08/16/14 02:52	10
Beryllium	0.245	J	0.784	0.611	0.204	mg/Kg	☼	08/16/14 02:52	10
Cadmium	71.9		0.470	0.376	0.125	mg/Kg	☼	08/16/14 02:52	10
Chromium	431		14.9	7.84	3.53	mg/Kg	☼	08/16/14 02:52	10
Cobalt	12.4		1.57	1.01	0.337	mg/Kg	☼	08/16/14 02:52	10
Copper	305		7.84	2.35	0.792	mg/Kg	☼	08/16/14 02:52	10
Lead	238		2.35	2.35	0.784	mg/Kg	☼	08/16/14 02:52	10
Molybdenum	5.24		3.92	2.82	0.972	mg/Kg	☼	08/16/14 02:52	10
Nickel	88.2		3.92	2.59	0.839	mg/Kg	☼	08/16/14 02:52	10
Selenium	1.56	J ^	3.92	3.76	1.24	mg/Kg	☼	08/16/14 02:52	10
Silver	4.96	B	3.53	0.564	0.188	mg/Kg	☼	08/16/14 02:52	10
Thallium	1.57	U	7.84	1.57	1.19	mg/Kg	☼	08/16/14 02:52	10
Vanadium	40.6		7.84	7.84	5.76	mg/Kg	☼	08/16/14 02:52	10
Iron	21500		94.1	39.2	25.9	mg/Kg	☼	08/16/14 02:52	10
Zinc	1610		39.2	31.3	10.4	mg/Kg	☼	08/16/14 02:52	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-PS1VAULT-01
Date Collected: 07/29/14 09:48
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-1
Matrix: Solid
Percent Solids: 26.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.02		0.138	0.104	0.0381	mg/Kg	☼	08/11/14 14:25	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-PS1VAULT-02
Date Collected: 07/29/14 09:55
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-2
Matrix: Solid
Percent Solids: 21.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.12		0.165	0.124	0.0454	mg/Kg	☼	08/11/14 14:34	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-1-01
Date Collected: 07/29/14 10:00
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-3
Matrix: Solid
Percent Solids: 47.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.575		0.0736	0.0552	0.0202	mg/Kg	☼	08/11/14 14:36	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-1-02
Date Collected: 07/29/14 10:33
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-4
Matrix: Solid
Percent Solids: 53.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.555		0.0680	0.0510	0.0187	mg/Kg	☼	08/11/14 14:38	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-2-01
Date Collected: 07/29/14 11:44
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-5
Matrix: Solid
Percent Solids: 25.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.914		0.138	0.103	0.0379	mg/Kg	☼	08/11/14 14:40	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-2-02
Date Collected: 07/29/14 11:55
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-6
Matrix: Solid
Percent Solids: 31.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.90		0.111	0.0835	0.0306	mg/Kg	☼	08/11/14 14:47	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH2-3-01
Date Collected: 07/29/14 15:25
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-7
Matrix: Solid
Percent Solids: 68.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.253		0.0521	0.0391	0.0143	mg/Kg	☼	08/11/14 14:49	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7680-1
SDG: 160-7680

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH2-3-02
Date Collected: 07/29/14 15:35
Date Received: 07/30/14 09:05

Lab Sample ID: 160-7680-8
Matrix: Solid
Percent Solids: 60.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.828		0.0591	0.0443	0.0162	mg/Kg	☼	08/11/14 14:51	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7699-1
TestAmerica Sample Delivery Group: 160-7699
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
8/20/2014 3:57:09 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1005

Project Name	FZ02 - Alameda Site 17
PO Number	1036773-23
Project Location	Alameda, CA
Project Number	FZ02.0202.1000
Sampler Name	W. Solorzano
Airbill Number	7707 2741 5560
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MH1-4-01	7/30/2014	0933	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-4			N
IWL-MH1-4-02	7/30/2014	0940	2	3	S	10 dy	X	X	X					two-4 oz for voc, two- 8 oz for svoc/metals	IWL-MH1-4			N
IWL-MH1-4-UP	7/30/2014	1500	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-4			N
IWL-MH1-5-01	7/30/2014	1340	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-5			N
IWL-MH1-5-02	7/30/2014	1354	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-5			N
IWL-MH1-5-UP-01	7/30/2014	1605	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-5-UP			N
IWL-MH1-6-01	7/30/2014	1127	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-6			N
IWL-MH1-6-02	7/30/2014	1135	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-6			N

Relinquished by: (signature)	Date: 7-30-14	Received by (signature) FedEx	Laboratory Instructions/Comments:
Company: Tetra tech	Time: 1630	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature) 7/31/14	Composite Discription:
Company:	Time:	Company: TA 0920	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1005

160-7699 Chain of Custody

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-4-01
Date Collected: 07/30/14 09:33
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-1
Matrix: Solid
Percent Solids: 41.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**126**	**J**	234	117	75.7	ug/Kg	☼	08/01/14 13:46	1
Benzene	11.7	U	58.5	11.7	2.96	ug/Kg	☼	08/01/14 13:46	1
Bromodichloromethane	11.7	U	58.5	11.7	2.97	ug/Kg	☼	08/01/14 13:46	1
Bromoform	11.7	U *	58.5	11.7	4.28	ug/Kg	☼	08/01/14 13:46	1
Bromomethane	58.5	U	117	58.5	12.9	ug/Kg	☼	08/01/14 13:46	1
2-Butanone (MEK)	58.5	U	234	58.5	22.5	ug/Kg	☼	08/01/14 13:46	1
Carbon tetrachloride	11.7	U	58.5	11.7	6.00	ug/Kg	☼	08/01/14 13:46	1
Chlorobenzene	11.7	U	58.5	11.7	4.47	ug/Kg	☼	08/01/14 13:46	1
Dibromochloromethane	11.7	U	58.5	11.7	4.75	ug/Kg	☼	08/01/14 13:46	1
Chloroethane	11.7	U	117	11.7	6.04	ug/Kg	☼	08/01/14 13:46	1
Chloroform	11.7	U	58.5	11.7	4.40	ug/Kg	☼	08/01/14 13:46	1
Chloromethane	58.5	U	117	58.5	7.60	ug/Kg	☼	08/01/14 13:46	1
1,1-Dichloroethane	11.7	U	58.5	11.7	4.59	ug/Kg	☼	08/01/14 13:46	1
1,2-Dichloroethane	11.7	U	58.5	11.7	10.1	ug/Kg	☼	08/01/14 13:46	1
cis-1,2-Dichloroethene	11.7	U	58.5	11.7	6.98	ug/Kg	☼	08/01/14 13:46	1
trans-1,2-Dichloroethene	11.7	U	58.5	11.7	11.0	ug/Kg	☼	08/01/14 13:46	1
1,1-Dichloroethene	58.5	U	58.5	58.5	18.8	ug/Kg	☼	08/01/14 13:46	1
1,2-Dichloropropane	11.7	U	58.5	11.7	4.48	ug/Kg	☼	08/01/14 13:46	1
cis-1,3-Dichloropropene	11.7	U	58.5	11.7	6.96	ug/Kg	☼	08/01/14 13:46	1
trans-1,3-Dichloropropene	11.7	U	58.5	11.7	4.08	ug/Kg	☼	08/01/14 13:46	1
Ethylbenzene	11.7	U	58.5	11.7	3.50	ug/Kg	☼	08/01/14 13:46	1
2-Hexanone	58.5	U	117	58.5	20.7	ug/Kg	☼	08/01/14 13:46	1
Methylene Chloride	58.5	U	117	58.5	18.5	ug/Kg	☼	08/01/14 13:46	1
4-Methyl-2-pentanone (MIBK)	58.5	U	234	58.5	8.56	ug/Kg	☼	08/01/14 13:46	1
Methyl tert-butyl ether	11.7	U	58.5	11.7	5.57	ug/Kg	☼	08/01/14 13:46	1
Styrene	11.7	U	58.5	11.7	4.06	ug/Kg	☼	08/01/14 13:46	1
1,1,2,2-Tetrachloroethane	11.7	U *	58.5	11.7	4.69	ug/Kg	☼	08/01/14 13:46	1
Tetrachloroethene	11.7	U	58.5	11.7	3.77	ug/Kg	☼	08/01/14 13:46	1
Toluene	**18.6**	**J**	58.5	11.7	8.19	ug/Kg	☼	08/01/14 13:46	1
1,1,1-Trichloroethane	**8.13**	**J**	58.5	11.7	5.04	ug/Kg	☼	08/01/14 13:46	1
1,1,2-Trichloroethane	11.7	U	58.5	11.7	6.70	ug/Kg	☼	08/01/14 13:46	1
Trichloroethene	11.7	U	58.5	11.7	4.50	ug/Kg	☼	08/01/14 13:46	1
Vinyl chloride	11.7	U	117	11.7	5.01	ug/Kg	☼	08/01/14 13:46	1
Xylenes, Total	58.5	U	117	58.5	9.99	ug/Kg	☼	08/01/14 13:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*186*	** X*	*85 - 120*	*08/01/14 07:53*	*08/01/14 13:46*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 128*	*08/01/14 07:53*	*08/01/14 13:46*	*1*
Toluene-d8 (Surr)	*105*		*85 - 115*	*08/01/14 07:53*	*08/01/14 13:46*	*1*
Dibromofluoromethane (Surr)	*104*		*76 - 126*	*08/01/14 07:53*	*08/01/14 13:46*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-4-02
Date Collected: 07/30/14 09:40
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-2
Matrix: Solid
Percent Solids: 38.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	123	U	245	123	79.3	ug/Kg	☼	08/01/14 14:11	1
Benzene	12.3	U	61.3	12.3	3.10	ug/Kg	☼	08/01/14 14:11	1
Bromodichloromethane	12.3	U	61.3	12.3	3.11	ug/Kg	☼	08/01/14 14:11	1
Bromoform	12.3	U	61.3	12.3	4.49	ug/Kg	☼	08/01/14 14:11	1
Bromomethane	61.3	U	123	61.3	13.5	ug/Kg	☼	08/01/14 14:11	1
2-Butanone (MEK)	61.3	U	245	61.3	23.5	ug/Kg	☼	08/01/14 14:11	1
Carbon tetrachloride	12.3	U	61.3	12.3	6.29	ug/Kg	☼	08/01/14 14:11	1
Chlorobenzene	12.3	U	61.3	12.3	4.68	ug/Kg	☼	08/01/14 14:11	1
Dibromochloromethane	12.3	U	61.3	12.3	4.98	ug/Kg	☼	08/01/14 14:11	1
Chloroethane	**70.1**	**J**	123	12.3	6.32	ug/Kg	☼	08/01/14 14:11	1
Chloroform	12.3	U	61.3	12.3	4.61	ug/Kg	☼	08/01/14 14:11	1
Chloromethane	61.3	U	123	61.3	7.97	ug/Kg	☼	08/01/14 14:11	1
1,1-Dichloroethane	12.3	U	61.3	12.3	4.80	ug/Kg	☼	08/01/14 14:11	1
1,2-Dichloroethane	12.3	U	61.3	12.3	10.6	ug/Kg	☼	08/01/14 14:11	1
cis-1,2-Dichloroethene	12.3	U	61.3	12.3	7.32	ug/Kg	☼	08/01/14 14:11	1
trans-1,2-Dichloroethene	12.3	U	61.3	12.3	11.6	ug/Kg	☼	08/01/14 14:11	1
1,1-Dichloroethene	61.3	U	61.3	61.3	19.7	ug/Kg	☼	08/01/14 14:11	1
1,2-Dichloropropane	12.3	U	61.3	12.3	4.69	ug/Kg	☼	08/01/14 14:11	1
cis-1,3-Dichloropropene	12.3	U	61.3	12.3	7.29	ug/Kg	☼	08/01/14 14:11	1
trans-1,3-Dichloropropene	12.3	U	61.3	12.3	4.28	ug/Kg	☼	08/01/14 14:11	1
Ethylbenzene	12.3	U	61.3	12.3	3.66	ug/Kg	☼	08/01/14 14:11	1
2-Hexanone	61.3	U	123	61.3	21.7	ug/Kg	☼	08/01/14 14:11	1
Methylene Chloride	61.3	U	123	61.3	19.4	ug/Kg	☼	08/01/14 14:11	1
4-Methyl-2-pentanone (MIBK)	61.3	U	245	61.3	8.97	ug/Kg	☼	08/01/14 14:11	1
Methyl tert-butyl ether	12.3	U	61.3	12.3	5.83	ug/Kg	☼	08/01/14 14:11	1
Styrene	12.3	U	61.3	12.3	4.25	ug/Kg	☼	08/01/14 14:11	1
1,1,2,2-Tetrachloroethane	12.3	U	61.3	12.3	4.91	ug/Kg	☼	08/01/14 14:11	1
Tetrachloroethene	12.3	U	61.3	12.3	3.95	ug/Kg	☼	08/01/14 14:11	1
Toluene	**9.31**	**J**	61.3	12.3	8.58	ug/Kg	☼	08/01/14 14:11	1
1,1,1-Trichloroethane	12.3	U	61.3	12.3	5.28	ug/Kg	☼	08/01/14 14:11	1
1,1,2-Trichloroethane	12.3	U	61.3	12.3	7.02	ug/Kg	☼	08/01/14 14:11	1
Trichloroethene	12.3	U	61.3	12.3	4.72	ug/Kg	☼	08/01/14 14:11	1
Vinyl chloride	12.3	U	123	12.3	5.25	ug/Kg	☼	08/01/14 14:11	1
Xylenes, Total	61.3	U	123	61.3	10.5	ug/Kg	☼	08/01/14 14:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*129*	*X*	*85 - 120*	*08/01/14 07:53*	*08/01/14 14:11*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*71 - 128*	*08/01/14 07:53*	*08/01/14 14:11*	*1*
Toluene-d8 (Surr)	*99*		*85 - 115*	*08/01/14 07:53*	*08/01/14 14:11*	*1*
Dibromofluoromethane (Surr)	*105*		*76 - 126*	*08/01/14 07:53*	*08/01/14 14:11*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-4-UP
Date Collected: 07/30/14 15:00
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-3
Matrix: Solid
Percent Solids: 35.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	137	U	274	137	88.5	ug/Kg	☼	08/01/14 14:36	1
Benzene	13.7	U	68.4	13.7	3.46	ug/Kg	☼	08/01/14 14:36	1
Bromodichloromethane	13.7	U	68.4	13.7	3.47	ug/Kg	☼	08/01/14 14:36	1
Bromoform	13.7	U	68.4	13.7	5.01	ug/Kg	☼	08/01/14 14:36	1
Bromomethane	68.4	U	137	68.4	15.0	ug/Kg	☼	08/01/14 14:36	1
2-Butanone (MEK)	68.4	U	274	68.4	26.3	ug/Kg	☼	08/01/14 14:36	1
Carbon tetrachloride	13.7	U	68.4	13.7	7.02	ug/Kg	☼	08/01/14 14:36	1
Chlorobenzene	13.7	U	68.4	13.7	5.23	ug/Kg	☼	08/01/14 14:36	1
Dibromochloromethane	13.7	U	68.4	13.7	5.55	ug/Kg	☼	08/01/14 14:36	1
Chloroethane	**124**	**J**	137	13.7	7.06	ug/Kg	☼	08/01/14 14:36	1
Chloroform	13.7	U	68.4	13.7	5.14	ug/Kg	☼	08/01/14 14:36	1
Chloromethane	68.4	U	137	68.4	8.89	ug/Kg	☼	08/01/14 14:36	1
1,1-Dichloroethane	13.7	U	68.4	13.7	5.36	ug/Kg	☼	08/01/14 14:36	1
1,2-Dichloroethane	13.7	U	68.4	13.7	11.9	ug/Kg	☼	08/01/14 14:36	1
cis-1,2-Dichloroethene	13.7	U	68.4	13.7	8.17	ug/Kg	☼	08/01/14 14:36	1
trans-1,2-Dichloroethene	13.7	U	68.4	13.7	12.9	ug/Kg	☼	08/01/14 14:36	1
1,1-Dichloroethene	68.4	U	68.4	68.4	22.0	ug/Kg	☼	08/01/14 14:36	1
1,2-Dichloropropane	13.7	U	68.4	13.7	5.24	ug/Kg	☼	08/01/14 14:36	1
cis-1,3-Dichloropropene	13.7	U	68.4	13.7	8.14	ug/Kg	☼	08/01/14 14:36	1
trans-1,3-Dichloropropene	13.7	U	68.4	13.7	4.77	ug/Kg	☼	08/01/14 14:36	1
Ethylbenzene	13.7	U	68.4	13.7	4.09	ug/Kg	☼	08/01/14 14:36	1
2-Hexanone	68.4	U	137	68.4	24.2	ug/Kg	☼	08/01/14 14:36	1
Methylene Chloride	68.4	U	137	68.4	21.6	ug/Kg	☼	08/01/14 14:36	1
4-Methyl-2-pentanone (MIBK)	68.4	U	274	68.4	10.0	ug/Kg	☼	08/01/14 14:36	1
Methyl tert-butyl ether	13.7	U	68.4	13.7	6.51	ug/Kg	☼	08/01/14 14:36	1
Styrene	13.7	U	68.4	13.7	4.75	ug/Kg	☼	08/01/14 14:36	1
1,1,2,2-Tetrachloroethane	13.7	U	68.4	13.7	5.49	ug/Kg	☼	08/01/14 14:36	1
Tetrachloroethene	13.7	U	68.4	13.7	4.40	ug/Kg	☼	08/01/14 14:36	1
Toluene	13.7	U	68.4	13.7	9.58	ug/Kg	☼	08/01/14 14:36	1
1,1,1-Trichloroethane	13.7	U	68.4	13.7	5.90	ug/Kg	☼	08/01/14 14:36	1
1,1,2-Trichloroethane	13.7	U	68.4	13.7	7.84	ug/Kg	☼	08/01/14 14:36	1
Trichloroethene	13.7	U	68.4	13.7	5.27	ug/Kg	☼	08/01/14 14:36	1
Vinyl chloride	**13.9**	**J**	137	13.7	5.86	ug/Kg	☼	08/01/14 14:36	1
Xylenes, Total	68.4	U	137	68.4	11.7	ug/Kg	☼	08/01/14 14:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*85 - 120*	*08/01/14 07:53*	*08/01/14 14:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 128*	*08/01/14 07:53*	*08/01/14 14:36*	*1*
Toluene-d8 (Surr)	*97*		*85 - 115*	*08/01/14 07:53*	*08/01/14 14:36*	*1*
Dibromofluoromethane (Surr)	*103*		*76 - 126*	*08/01/14 07:53*	*08/01/14 14:36*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-5-01
Date Collected: 07/30/14 13:40
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-4
Matrix: Solid
Percent Solids: 43.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**76.9**	**J**	227	113	73.4	ug/Kg	☼	08/05/14 12:23	1
Benzene	11.3	U	56.7	11.3	2.87	ug/Kg	☼	08/05/14 12:23	1
Bromodichloromethane	11.3	U	56.7	11.3	2.88	ug/Kg	☼	08/05/14 12:23	1
Bromoform	11.3	U *	56.7	11.3	4.15	ug/Kg	☼	08/05/14 12:23	1
Bromomethane	56.7	U	113	56.7	12.5	ug/Kg	☼	08/05/14 12:23	1
2-Butanone (MEK)	56.7	U	227	56.7	21.8	ug/Kg	☼	08/05/14 12:23	1
Carbon tetrachloride	11.3	U	56.7	11.3	5.82	ug/Kg	☼	08/05/14 12:23	1
Chlorobenzene	**36.2**	**J**	56.7	11.3	4.34	ug/Kg	☼	08/05/14 12:23	1
Dibromochloromethane	11.3	U	56.7	11.3	4.61	ug/Kg	☼	08/05/14 12:23	1
Chloroethane	11.3	U	113	11.3	5.86	ug/Kg	☼	08/05/14 12:23	1
Chloroform	11.3	U	56.7	11.3	4.27	ug/Kg	☼	08/05/14 12:23	1
Chloromethane	56.7	U	113	56.7	7.38	ug/Kg	☼	08/05/14 12:23	1
1,1-Dichloroethane	**84.8**		56.7	11.3	4.45	ug/Kg	☼	08/05/14 12:23	1
1,2-Dichloroethane	11.3	U	56.7	11.3	9.84	ug/Kg	☼	08/05/14 12:23	1
cis-1,2-Dichloroethene	11.3	U	56.7	11.3	6.78	ug/Kg	☼	08/05/14 12:23	1
trans-1,2-Dichloroethene	11.3	U	56.7	11.3	10.7	ug/Kg	☼	08/05/14 12:23	1
1,1-Dichloroethene	56.7	U	56.7	56.7	18.3	ug/Kg	☼	08/05/14 12:23	1
1,2-Dichloropropane	11.3	U	56.7	11.3	4.35	ug/Kg	☼	08/05/14 12:23	1
cis-1,3-Dichloropropene	11.3	U	56.7	11.3	6.75	ug/Kg	☼	08/05/14 12:23	1
trans-1,3-Dichloropropene	11.3	U	56.7	11.3	3.96	ug/Kg	☼	08/05/14 12:23	1
Ethylbenzene	11.3	U	56.7	11.3	3.39	ug/Kg	☼	08/05/14 12:23	1
2-Hexanone	56.7	U	113	56.7	20.1	ug/Kg	☼	08/05/14 12:23	1
Methylene Chloride	56.7	U	113	56.7	17.9	ug/Kg	☼	08/05/14 12:23	1
4-Methyl-2-pentanone (MIBK)	56.7	U	227	56.7	8.31	ug/Kg	☼	08/05/14 12:23	1
Methyl tert-butyl ether	11.3	U	56.7	11.3	5.40	ug/Kg	☼	08/05/14 12:23	1
Styrene	11.3	U	56.7	11.3	3.94	ug/Kg	☼	08/05/14 12:23	1
1,1,2,2-Tetrachloroethane	11.3	U *	56.7	11.3	4.55	ug/Kg	☼	08/05/14 12:23	1
Tetrachloroethene	11.3	U	56.7	11.3	3.65	ug/Kg	☼	08/05/14 12:23	1
Toluene	11.3	U	56.7	11.3	7.94	ug/Kg	☼	08/05/14 12:23	1
1,1,1-Trichloroethane	**18.6**	**J**	56.7	11.3	4.89	ug/Kg	☼	08/05/14 12:23	1
1,1,2-Trichloroethane	11.3	U	56.7	11.3	6.50	ug/Kg	☼	08/05/14 12:23	1
Trichloroethene	11.3	U	56.7	11.3	4.37	ug/Kg	☼	08/05/14 12:23	1
Vinyl chloride	11.3	U	113	11.3	4.86	ug/Kg	☼	08/05/14 12:23	1
Xylenes, Total	56.7	U	113	56.7	9.69	ug/Kg	☼	08/05/14 12:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*142*	** X*	*85 - 120*	*08/05/14 10:00*	*08/05/14 12:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*109*		*71 - 128*	*08/05/14 10:00*	*08/05/14 12:23*	*1*
Toluene-d8 (Surr)	*113*		*85 - 115*	*08/05/14 10:00*	*08/05/14 12:23*	*1*
Dibromofluoromethane (Surr)	*109*		*76 - 126*	*08/05/14 10:00*	*08/05/14 12:23*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-5-02
Date Collected: 07/30/14 13:54
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-5
Matrix: Solid
Percent Solids: 29.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**121**	**J**	328	164	106	ug/Kg	☼	08/05/14 14:02	1
Benzene	16.4	U	82.0	16.4	4.15	ug/Kg	☼	08/05/14 14:02	1
Bromodichloromethane	16.4	U	82.0	16.4	4.16	ug/Kg	☼	08/05/14 14:02	1
Bromoform	16.4	U *	82.0	16.4	6.00	ug/Kg	☼	08/05/14 14:02	1
Bromomethane	82.0	U	164	82.0	18.0	ug/Kg	☼	08/05/14 14:02	1
2-Butanone (MEK)	82.0	U	328	82.0	31.5	ug/Kg	☼	08/05/14 14:02	1
Carbon tetrachloride	16.4	U	82.0	16.4	8.41	ug/Kg	☼	08/05/14 14:02	1
Chlorobenzene	**49.9**	**J**	82.0	16.4	6.26	ug/Kg	☼	08/05/14 14:02	1
Dibromochloromethane	16.4	U	82.0	16.4	6.66	ug/Kg	☼	08/05/14 14:02	1
Chloroethane	16.4	U	164	16.4	8.46	ug/Kg	☼	08/05/14 14:02	1
Chloroform	16.4	U	82.0	16.4	6.16	ug/Kg	☼	08/05/14 14:02	1
Chloromethane	82.0	U	164	82.0	10.7	ug/Kg	☼	08/05/14 14:02	1
1,1-Dichloroethane	**36.7**	**J**	82.0	16.4	6.43	ug/Kg	☼	08/05/14 14:02	1
1,2-Dichloroethane	16.4	U	82.0	16.4	14.2	ug/Kg	☼	08/05/14 14:02	1
cis-1,2-Dichloroethene	16.4	U	82.0	16.4	9.79	ug/Kg	☼	08/05/14 14:02	1
trans-1,2-Dichloroethene	16.4	U	82.0	16.4	15.5	ug/Kg	☼	08/05/14 14:02	1
1,1-Dichloroethene	82.0	U	82.0	82.0	26.4	ug/Kg	☼	08/05/14 14:02	1
1,2-Dichloropropane	16.4	U	82.0	16.4	6.28	ug/Kg	☼	08/05/14 14:02	1
cis-1,3-Dichloropropene	16.4	U	82.0	16.4	9.76	ug/Kg	☼	08/05/14 14:02	1
trans-1,3-Dichloropropene	16.4	U	82.0	16.4	5.72	ug/Kg	☼	08/05/14 14:02	1
Ethylbenzene	16.4	U	82.0	16.4	4.90	ug/Kg	☼	08/05/14 14:02	1
2-Hexanone	82.0	U	164	82.0	29.0	ug/Kg	☼	08/05/14 14:02	1
Methylene Chloride	82.0	U	164	82.0	25.9	ug/Kg	☼	08/05/14 14:02	1
4-Methyl-2-pentanone (MIBK)	82.0	U	328	82.0	12.0	ug/Kg	☼	08/05/14 14:02	1
Methyl tert-butyl ether	16.4	U	82.0	16.4	7.80	ug/Kg	☼	08/05/14 14:02	1
Styrene	16.4	U	82.0	16.4	5.69	ug/Kg	☼	08/05/14 14:02	1
1,1,2,2-Tetrachloroethane	16.4	U *	82.0	16.4	6.57	ug/Kg	☼	08/05/14 14:02	1
Tetrachloroethene	16.4	U	82.0	16.4	5.28	ug/Kg	☼	08/05/14 14:02	1
Toluene	16.4	U	82.0	16.4	11.5	ug/Kg	☼	08/05/14 14:02	1
1,1,1-Trichloroethane	**8.22**	**J**	82.0	16.4	7.07	ug/Kg	☼	08/05/14 14:02	1
1,1,2-Trichloroethane	16.4	U	82.0	16.4	9.39	ug/Kg	☼	08/05/14 14:02	1
Trichloroethene	16.4	U	82.0	16.4	6.31	ug/Kg	☼	08/05/14 14:02	1
Vinyl chloride	16.4	U	164	16.4	7.02	ug/Kg	☼	08/05/14 14:02	1
Xylenes, Total	82.0	U	164	82.0	14.0	ug/Kg	☼	08/05/14 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*157*	** X*	*85 - 120*	*08/05/14 10:00*	*08/05/14 14:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 128*	*08/05/14 10:00*	*08/05/14 14:02*	*1*
Toluene-d8 (Surr)	*109*		*85 - 115*	*08/05/14 10:00*	*08/05/14 14:02*	*1*
Dibromofluoromethane (Surr)	*100*		*76 - 126*	*08/05/14 10:00*	*08/05/14 14:02*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-5-UP-01
Date Collected: 07/30/14 16:05
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-6
Matrix: Solid
Percent Solids: 64.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	73.9	U	148	73.9	47.8	ug/Kg	☼	08/01/14 15:00	1
Benzene	7.39	U	37.0	7.39	1.87	ug/Kg	☼	08/01/14 15:00	1
Bromodichloromethane	7.39	U	37.0	7.39	1.88	ug/Kg	☼	08/01/14 15:00	1
Bromoform	7.39	U	37.0	7.39	2.71	ug/Kg	☼	08/01/14 15:00	1
Bromomethane	37.0	U	73.9	37.0	8.13	ug/Kg	☼	08/01/14 15:00	1
2-Butanone (MEK)	37.0	U	148	37.0	14.2	ug/Kg	☼	08/01/14 15:00	1
Carbon tetrachloride	7.39	U	37.0	7.39	3.79	ug/Kg	☼	08/01/14 15:00	1
Chlorobenzene	7.39	U	37.0	7.39	2.82	ug/Kg	☼	08/01/14 15:00	1
Dibromochloromethane	7.39	U	37.0	7.39	3.00	ug/Kg	☼	08/01/14 15:00	1
Chloroethane	**681**		73.9	7.39	3.82	ug/Kg	☼	08/01/14 15:00	1
Chloroform	7.39	U	37.0	7.39	2.78	ug/Kg	☼	08/01/14 15:00	1
Chloromethane	37.0	U	73.9	37.0	4.81	ug/Kg	☼	08/01/14 15:00	1
1,1-Dichloroethane	7.39	U	37.0	7.39	2.90	ug/Kg	☼	08/01/14 15:00	1
1,2-Dichloroethane	7.39	U	37.0	7.39	6.41	ug/Kg	☼	08/01/14 15:00	1
cis-1,2-Dichloroethene	7.39	U	37.0	7.39	4.41	ug/Kg	☼	08/01/14 15:00	1
trans-1,2-Dichloroethene	7.39	U	37.0	7.39	6.97	ug/Kg	☼	08/01/14 15:00	1
1,1-Dichloroethene	37.0	U	37.0	37.0	11.9	ug/Kg	☼	08/01/14 15:00	1
1,2-Dichloropropane	7.39	U	37.0	7.39	2.83	ug/Kg	☼	08/01/14 15:00	1
cis-1,3-Dichloropropene	7.39	U	37.0	7.39	4.40	ug/Kg	☼	08/01/14 15:00	1
trans-1,3-Dichloropropene	7.39	U	37.0	7.39	2.58	ug/Kg	☼	08/01/14 15:00	1
Ethylbenzene	7.39	U	37.0	7.39	2.21	ug/Kg	☼	08/01/14 15:00	1
2-Hexanone	37.0	U	73.9	37.0	13.1	ug/Kg	☼	08/01/14 15:00	1
Methylene Chloride	37.0	U	73.9	37.0	11.7	ug/Kg	☼	08/01/14 15:00	1
4-Methyl-2-pentanone (MIBK)	37.0	U	148	37.0	5.41	ug/Kg	☼	08/01/14 15:00	1
Methyl tert-butyl ether	7.39	U	37.0	7.39	3.52	ug/Kg	☼	08/01/14 15:00	1
Styrene	7.39	U	37.0	7.39	2.57	ug/Kg	☼	08/01/14 15:00	1
1,1,2,2-Tetrachloroethane	7.39	U	37.0	7.39	2.96	ug/Kg	☼	08/01/14 15:00	1
Tetrachloroethene	7.39	U	37.0	7.39	2.38	ug/Kg	☼	08/01/14 15:00	1
Toluene	7.39	U	37.0	7.39	5.18	ug/Kg	☼	08/01/14 15:00	1
1,1,1-Trichloroethane	7.39	U	37.0	7.39	3.19	ug/Kg	☼	08/01/14 15:00	1
1,1,2-Trichloroethane	7.39	U	37.0	7.39	4.24	ug/Kg	☼	08/01/14 15:00	1
Trichloroethene	7.39	U	37.0	7.39	2.85	ug/Kg	☼	08/01/14 15:00	1
Vinyl chloride	7.39	U	73.9	7.39	3.16	ug/Kg	☼	08/01/14 15:00	1
Xylenes, Total	37.0	U	73.9	37.0	6.31	ug/Kg	☼	08/01/14 15:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*85 - 120*	*08/01/14 07:53*	*08/01/14 15:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 128*	*08/01/14 07:53*	*08/01/14 15:00*	*1*
Toluene-d8 (Surr)	*94*		*85 - 115*	*08/01/14 07:53*	*08/01/14 15:00*	*1*
Dibromofluoromethane (Surr)	*101*		*76 - 126*	*08/01/14 07:53*	*08/01/14 15:00*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-6-01
Date Collected: 07/30/14 11:27
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-7
Matrix: Solid
Percent Solids: 50.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	95.8	U	192	95.8	62.0	ug/Kg	☼	08/05/14 14:26	1
Benzene	9.58	U	47.9	9.58	2.42	ug/Kg	☼	08/05/14 14:26	1
Bromodichloromethane	9.58	U	47.9	9.58	2.43	ug/Kg	☼	08/05/14 14:26	1
Bromoform	9.58	U	47.9	9.58	3.50	ug/Kg	☼	08/05/14 14:26	1
Bromomethane	47.9	U	95.8	47.9	10.5	ug/Kg	☼	08/05/14 14:26	1
2-Butanone (MEK)	47.9	U	192	47.9	18.4	ug/Kg	☼	08/05/14 14:26	1
Carbon tetrachloride	9.58	U	47.9	9.58	4.91	ug/Kg	☼	08/05/14 14:26	1
Chlorobenzene	9.58	U	47.9	9.58	3.66	ug/Kg	☼	08/05/14 14:26	1
Dibromochloromethane	9.58	U	47.9	9.58	3.89	ug/Kg	☼	08/05/14 14:26	1
Chloroethane	9.58	U	95.8	9.58	4.94	ug/Kg	☼	08/05/14 14:26	1
Chloroform	9.58	U	47.9	9.58	3.60	ug/Kg	☼	08/05/14 14:26	1
Chloromethane	47.9	U	95.8	47.9	6.22	ug/Kg	☼	08/05/14 14:26	1
1,1-Dichloroethane	9.58	U	47.9	9.58	3.75	ug/Kg	☼	08/05/14 14:26	1
1,2-Dichloroethane	9.58	U	47.9	9.58	8.30	ug/Kg	☼	08/05/14 14:26	1
cis-1,2-Dichloroethene	9.58	U	47.9	9.58	5.72	ug/Kg	☼	08/05/14 14:26	1
trans-1,2-Dichloroethene	9.58	U	47.9	9.58	9.03	ug/Kg	☼	08/05/14 14:26	1
1,1-Dichloroethene	47.9	U	47.9	47.9	15.4	ug/Kg	☼	08/05/14 14:26	1
1,2-Dichloropropane	9.58	U	47.9	9.58	3.67	ug/Kg	☼	08/05/14 14:26	1
cis-1,3-Dichloropropene	9.58	U	47.9	9.58	5.70	ug/Kg	☼	08/05/14 14:26	1
trans-1,3-Dichloropropene	9.58	U	47.9	9.58	3.34	ug/Kg	☼	08/05/14 14:26	1
Ethylbenzene	9.58	U	47.9	9.58	2.86	ug/Kg	☼	08/05/14 14:26	1
2-Hexanone	47.9	U	95.8	47.9	16.9	ug/Kg	☼	08/05/14 14:26	1
Methylene Chloride	47.9	U	95.8	47.9	15.1	ug/Kg	☼	08/05/14 14:26	1
4-Methyl-2-pentanone (MIBK)	47.9	U	192	47.9	7.01	ug/Kg	☼	08/05/14 14:26	1
Methyl tert-butyl ether	9.58	U	47.9	9.58	4.56	ug/Kg	☼	08/05/14 14:26	1
Styrene	9.58	U	47.9	9.58	3.32	ug/Kg	☼	08/05/14 14:26	1
1,1,2,2-Tetrachloroethane	9.58	U	47.9	9.58	3.84	ug/Kg	☼	08/05/14 14:26	1
Tetrachloroethene	9.58	U	47.9	9.58	3.08	ug/Kg	☼	08/05/14 14:26	1
Toluene	9.58	U	47.9	9.58	6.70	ug/Kg	☼	08/05/14 14:26	1
1,1,1-Trichloroethane	9.58	U	47.9	9.58	4.13	ug/Kg	☼	08/05/14 14:26	1
1,1,2-Trichloroethane	9.58	U	47.9	9.58	5.49	ug/Kg	☼	08/05/14 14:26	1
Trichloroethene	9.58	U	47.9	9.58	3.69	ug/Kg	☼	08/05/14 14:26	1
Vinyl chloride	9.58	U	95.8	9.58	4.10	ug/Kg	☼	08/05/14 14:26	1
Xylenes, Total	47.9	U	95.8	47.9	8.18	ug/Kg	☼	08/05/14 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*132*	*X*	*85 - 120*	*08/05/14 10:00*	*08/05/14 14:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 128*	*08/05/14 10:00*	*08/05/14 14:26*	*1*
Toluene-d8 (Surr)	*104*		*85 - 115*	*08/05/14 10:00*	*08/05/14 14:26*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 126*	*08/05/14 10:00*	*08/05/14 14:26*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-6-02
Date Collected: 07/30/14 11:35
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-8
Matrix: Solid
Percent Solids: 47.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**96.4**	**J**	200	100	64.9	ug/Kg	☼	08/05/14 14:51	1
Benzene	10.0	U	50.1	10.0	2.54	ug/Kg	☼	08/05/14 14:51	1
Bromodichloromethane	10.0	U	50.1	10.0	2.55	ug/Kg	☼	08/05/14 14:51	1
Bromoform	10.0	U *	50.1	10.0	3.67	ug/Kg	☼	08/05/14 14:51	1
Bromomethane	50.1	U	100	50.1	11.0	ug/Kg	☼	08/05/14 14:51	1
2-Butanone (MEK)	50.1	U	200	50.1	19.2	ug/Kg	☼	08/05/14 14:51	1
Carbon tetrachloride	10.0	U	50.1	10.0	5.14	ug/Kg	☼	08/05/14 14:51	1
Chlorobenzene	10.0	U	50.1	10.0	3.83	ug/Kg	☼	08/05/14 14:51	1
Dibromochloromethane	10.0	U	50.1	10.0	4.07	ug/Kg	☼	08/05/14 14:51	1
Chloroethane	10.0	U	100	10.0	5.17	ug/Kg	☼	08/05/14 14:51	1
Chloroform	10.0	U	50.1	10.0	3.77	ug/Kg	☼	08/05/14 14:51	1
Chloromethane	50.1	U	100	50.1	6.52	ug/Kg	☼	08/05/14 14:51	1
1,1-Dichloroethane	10.0	U	50.1	10.0	3.93	ug/Kg	☼	08/05/14 14:51	1
1,2-Dichloroethane	10.0	U	50.1	10.0	8.69	ug/Kg	☼	08/05/14 14:51	1
cis-1,2-Dichloroethene	10.0	U	50.1	10.0	5.98	ug/Kg	☼	08/05/14 14:51	1
trans-1,2-Dichloroethene	10.0	U	50.1	10.0	9.45	ug/Kg	☼	08/05/14 14:51	1
1,1-Dichloroethene	50.1	U	50.1	50.1	16.1	ug/Kg	☼	08/05/14 14:51	1
1,2-Dichloropropane	10.0	U	50.1	10.0	3.84	ug/Kg	☼	08/05/14 14:51	1
cis-1,3-Dichloropropene	10.0	U	50.1	10.0	5.96	ug/Kg	☼	08/05/14 14:51	1
trans-1,3-Dichloropropene	10.0	U	50.1	10.0	3.50	ug/Kg	☼	08/05/14 14:51	1
Ethylbenzene	10.0	U	50.1	10.0	3.00	ug/Kg	☼	08/05/14 14:51	1
2-Hexanone	50.1	U	100	50.1	17.7	ug/Kg	☼	08/05/14 14:51	1
Methylene Chloride	50.1	U	100	50.1	15.8	ug/Kg	☼	08/05/14 14:51	1
4-Methyl-2-pentanone (MIBK)	50.1	U	200	50.1	7.34	ug/Kg	☼	08/05/14 14:51	1
Methyl tert-butyl ether	10.0	U	50.1	10.0	4.77	ug/Kg	☼	08/05/14 14:51	1
Styrene	10.0	U	50.1	10.0	3.48	ug/Kg	☼	08/05/14 14:51	1
1,1,2,2-Tetrachloroethane	10.0	U *	50.1	10.0	4.02	ug/Kg	☼	08/05/14 14:51	1
Tetrachloroethene	10.0	U	50.1	10.0	3.23	ug/Kg	☼	08/05/14 14:51	1
Toluene	10.0	U	50.1	10.0	7.02	ug/Kg	☼	08/05/14 14:51	1
1,1,1-Trichloroethane	10.0	U	50.1	10.0	4.32	ug/Kg	☼	08/05/14 14:51	1
1,1,2-Trichloroethane	10.0	U	50.1	10.0	5.74	ug/Kg	☼	08/05/14 14:51	1
Trichloroethene	10.0	U	50.1	10.0	3.86	ug/Kg	☼	08/05/14 14:51	1
Vinyl chloride	10.0	U	100	10.0	4.29	ug/Kg	☼	08/05/14 14:51	1
Xylenes, Total	50.1	U	100	50.1	8.56	ug/Kg	☼	08/05/14 14:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*151*	** X*	*85 - 120*	*08/05/14 10:00*	*08/05/14 14:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 128*	*08/05/14 10:00*	*08/05/14 14:51*	*1*
Toluene-d8 (Surr)	*111*		*85 - 115*	*08/05/14 10:00*	*08/05/14 14:51*	*1*
Dibromofluoromethane (Surr)	*106*		*76 - 126*	*08/05/14 10:00*	*08/05/14 14:51*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-4-01
Date Collected: 07/30/14 09:33
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-1
Matrix: Solid
Percent Solids: 41.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
1,2-Dichlorobenzene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
1,3-Dichlorobenzene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
1,4-Dichlorobenzene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
2,4,5-Trichlorophenol	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
2,4,6-Trichlorophenol	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
2,4-Dichlorophenol	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
2,4-Dimethylphenol	**654**	**J**	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
2,4-Dinitrophenol	4730	U	11500	4730	2370	ug/Kg	☼	08/11/14 14:14	1
2,4-Dinitrotoluene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
2,6-Dinitrotoluene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
2-Chloronaphthalene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
2-Chlorophenol	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
2-Methylphenol	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
2-Nitroaniline	710	U	11500	710	239	ug/Kg	☼	08/11/14 14:14	1
2-Nitrophenol	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
3 & 4 Methylphenol	710	U	4730	710	478	ug/Kg	☼	08/11/14 14:14	1
3,3'-Dichlorobenzidine	4730	U	11500	4730	2370	ug/Kg	☼	08/11/14 14:14	1
3-Nitroaniline	710	U	11500	710	239	ug/Kg	☼	08/11/14 14:14	1
4,6-Dinitro-2-methylphenol	4730	U	11500	4730	2370	ug/Kg	☼	08/11/14 14:14	1
4-Bromophenyl phenyl ether	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
4-Chloro-3-methylphenol	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
4-Chloroaniline	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
4-Chlorophenyl phenyl ether	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
4-Nitroaniline	4730	U	11500	4730	2370	ug/Kg	☼	08/11/14 14:14	1
4-Nitrophenol	4730	U	11500	4730	2370	ug/Kg	☼	08/11/14 14:14	1
Acenaphthene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Acenaphthylene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Anthracene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Benzo[a]anthracene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Benzo[a]pyrene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Benzo[b]fluoranthene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Benzo[g,h,i]perylene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Benzo[k]fluoranthene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
bis (2-chloroisopropyl) ether	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Bis(2-chloroethoxy)methane	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Bis(2-chloroethyl)ether	710	U	2370	710	240	ug/Kg	☼	08/11/14 14:14	1
Bis(2-ethylhexyl) phthalate	**21800**		2370	710	325	ug/Kg	☼	08/11/14 14:14	1
Butyl benzyl phthalate	**417**	**J**	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Chrysene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Dibenzo(a),h)anthracene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Dibenzofuran	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Diethyl phthalate	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Dimethyl phthalate	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Di-n-butyl phthalate	**638**	**J**	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Di-n-octyl phthalate	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Fluoranthene	**305**	**J**	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Fluorene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Hexachlorobenzene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-4-01
Date Collected: 07/30/14 09:33
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-1
Matrix: Solid
Percent Solids: 41.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Hexachlorocyclopentadiene	4730	U	11500	4730	2370	ug/Kg	☼	08/11/14 14:14	1
Hexachloroethane	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Indeno[1,2,3-cd]pyrene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Nitrobenzene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
N-Nitrosodiphenylamine	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
N-Nitrosodi-n-propylamine	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Pentachlorophenol	2370	U	11500	2370	2370	ug/Kg	☼	08/11/14 14:14	1
Phenanthrene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Phenol	**2650**		2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Pyrene	**293**	**J**	2370	710	239	ug/Kg	☼	08/11/14 14:14	1
Pyridine	710	U	4730	710	478	ug/Kg	☼	08/11/14 14:14	1
Naphthalene	710	U	2370	710	239	ug/Kg	☼	08/11/14 14:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*82*		*35 - 125*	*08/11/14 10:56*	*08/11/14 14:14*	*1*
2-Fluorobiphenyl (Surr)	*77*		*45 - 105*	*08/11/14 10:56*	*08/11/14 14:14*	*1*
2-Fluorophenol (Surr)	*69*		*35 - 105*	*08/11/14 10:56*	*08/11/14 14:14*	*1*
Nitrobenzene-d5 (Surr)	*79*		*35 - 100*	*08/11/14 10:56*	*08/11/14 14:14*	*1*
Phenol-d5 (Surr)	*71*		*40 - 100*	*08/11/14 10:56*	*08/11/14 14:14*	*1*
Terphenyl-d14 (Surr)	*69*		*30 - 125*	*08/11/14 10:56*	*08/11/14 14:14*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-4-02
Date Collected: 07/30/14 09:40
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-2
Matrix: Solid
Percent Solids: 38.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
1,2-Dichlorobenzene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
1,3-Dichlorobenzene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
1,4-Dichlorobenzene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
2,4,5-Trichlorophenol	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
2,4,6-Trichlorophenol	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
2,4-Dichlorophenol	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
2,4-Dimethylphenol	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
2,4-Dinitrophenol	5050	U	12200	5050	2530	ug/Kg	☼	08/11/14 14:48	1
2,4-Dinitrotoluene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
2,6-Dinitrotoluene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
2-Chloronaphthalene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
2-Chlorophenol	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
2-Methylphenol	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
2-Nitroaniline	758	U	12200	758	255	ug/Kg	☼	08/11/14 14:48	1
2-Nitrophenol	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
3 & 4 Methylphenol	758	U	5050	758	510	ug/Kg	☼	08/11/14 14:48	1
3,3'-Dichlorobenzidine	5050	U	12200	5050	2530	ug/Kg	☼	08/11/14 14:48	1
3-Nitroaniline	758	U	12200	758	255	ug/Kg	☼	08/11/14 14:48	1
4,6-Dinitro-2-methylphenol	5050	U	12200	5050	2530	ug/Kg	☼	08/11/14 14:48	1
4-Bromophenyl phenyl ether	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
4-Chloro-3-methylphenol	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
4-Chloroaniline	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
4-Chlorophenyl phenyl ether	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
4-Nitroaniline	5050	U	12200	5050	2530	ug/Kg	☼	08/11/14 14:48	1
4-Nitrophenol	5050	U	12200	5050	2530	ug/Kg	☼	08/11/14 14:48	1
Acenaphthene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Acenaphthylene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Anthracene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Benzo[a]anthracene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Benzo[a]pyrene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Benzo[b]fluoranthene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Benzo[g,h,i]perylene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Benzo[k]fluoranthene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
bis (2-chloroisopropyl) ether	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Bis(2-chloroethoxy)methane	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Bis(2-chloroethyl)ether	758	U	2530	758	256	ug/Kg	☼	08/11/14 14:48	1
Bis(2-ethylhexyl) phthalate	**27800**		2530	758	347	ug/Kg	☼	08/11/14 14:48	1
Butyl benzyl phthalate	**853**	**J**	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Chrysene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Dibenzo(a),h)anthracene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Dibenzofuran	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Diethyl phthalate	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Dimethyl phthalate	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Di-n-butyl phthalate	**737**	**J**	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Di-n-octyl phthalate	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Fluoranthene	**606**	**J**	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Fluorene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Hexachlorobenzene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-4-02
Date Collected: 07/30/14 09:40
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-2
Matrix: Solid
Percent Solids: 38.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Hexachlorocyclopentadiene	5050	U	12200	5050	2530	ug/Kg	☼	08/11/14 14:48	1
Hexachloroethane	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Indeno[1,2,3-cd]pyrene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Nitrobenzene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
N-Nitrosodiphenylamine	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
N-Nitrosodi-n-propylamine	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Pentachlorophenol	2530	U	12200	2530	2530	ug/Kg	☼	08/11/14 14:48	1
Phenanthrene	**475**	**J**	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Phenol	**781**	**J**	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Pyrene	**498**	**J**	2530	758	255	ug/Kg	☼	08/11/14 14:48	1
Pyridine	758	U	5050	758	510	ug/Kg	☼	08/11/14 14:48	1
Naphthalene	758	U	2530	758	255	ug/Kg	☼	08/11/14 14:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*35 - 125*	*08/11/14 10:56*	*08/11/14 14:48*	*1*
2-Fluorobiphenyl (Surr)	*78*		*45 - 105*	*08/11/14 10:56*	*08/11/14 14:48*	*1*
2-Fluorophenol (Surr)	*70*		*35 - 105*	*08/11/14 10:56*	*08/11/14 14:48*	*1*
Nitrobenzene-d5 (Surr)	*80*		*35 - 100*	*08/11/14 10:56*	*08/11/14 14:48*	*1*
Phenol-d5 (Surr)	*73*		*40 - 100*	*08/11/14 10:56*	*08/11/14 14:48*	*1*
Terphenyl-d14 (Surr)	*70*		*30 - 125*	*08/11/14 10:56*	*08/11/14 14:48*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-4-UP
Date Collected: 07/30/14 15:00
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-3
Matrix: Solid
Percent Solids: 35.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
1,2-Dichlorobenzene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
1,3-Dichlorobenzene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
1,4-Dichlorobenzene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
2,4,5-Trichlorophenol	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
2,4,6-Trichlorophenol	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
2,4-Dichlorophenol	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
2,4-Dimethylphenol	**670**	**J**	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
2,4-Dinitrophenol	5590	U	13600	5590	2790	ug/Kg	☼	08/11/14 15:23	1
2,4-Dinitrotoluene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
2,6-Dinitrotoluene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
2-Chloronaphthalene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
2-Chlorophenol	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
2-Methylphenol	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
2-Nitroaniline	838	U	13600	838	282	ug/Kg	☼	08/11/14 15:23	1
2-Nitrophenol	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
3 & 4 Methylphenol	838	U	5590	838	564	ug/Kg	☼	08/11/14 15:23	1
3,3'-Dichlorobenzidine	5590	U	13600	5590	2790	ug/Kg	☼	08/11/14 15:23	1
3-Nitroaniline	838	U	13600	838	282	ug/Kg	☼	08/11/14 15:23	1
4,6-Dinitro-2-methylphenol	5590	U	13600	5590	2790	ug/Kg	☼	08/11/14 15:23	1
4-Bromophenyl phenyl ether	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
4-Chloro-3-methylphenol	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
4-Chloroaniline	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
4-Chlorophenyl phenyl ether	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
4-Nitroaniline	5590	U	13600	5590	2790	ug/Kg	☼	08/11/14 15:23	1
4-Nitrophenol	5590	U	13600	5590	2790	ug/Kg	☼	08/11/14 15:23	1
Acenaphthene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Acenaphthylene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Anthracene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Benzo[a]anthracene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Benzo[a]pyrene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Benzo[b]fluoranthene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Benzo[g,h,i]perylene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Benzo[k]fluoranthene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
bis (2-chloroisopropyl) ether	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Bis(2-chloroethoxy)methane	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Bis(2-chloroethyl)ether	838	U	2790	838	283	ug/Kg	☼	08/11/14 15:23	1
Bis(2-ethylhexyl) phthalate	**20700**		2790	838	384	ug/Kg	☼	08/11/14 15:23	1
Butyl benzyl phthalate	**686**	**J**	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Chrysene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Dibenzo(a),h)anthracene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Dibenzofuran	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Diethyl phthalate	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Dimethyl phthalate	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Di-n-butyl phthalate	**559**	**J**	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Di-n-octyl phthalate	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Fluoranthene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Fluorene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Hexachlorobenzene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-4-UP
Date Collected: 07/30/14 15:00
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-3
Matrix: Solid
Percent Solids: 35.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Hexachlorocyclopentadiene	5590	U	13600	5590	2790	ug/Kg	☼	08/11/14 15:23	1
Hexachloroethane	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Indeno[1,2,3-cd]pyrene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Nitrobenzene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
N-Nitrosodiphenylamine	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
N-Nitrosodi-n-propylamine	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Pentachlorophenol	2790	U	13600	2790	2790	ug/Kg	☼	08/11/14 15:23	1
Phenanthrene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Phenol	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Pyrene	838	U	2790	838	282	ug/Kg	☼	08/11/14 15:23	1
Pyridine	838	U	5590	838	564	ug/Kg	☼	08/11/14 15:23	1
Naphthalene	**313**	**J**	2790	838	282	ug/Kg	☼	08/11/14 15:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*86*		*35 - 125*	*08/11/14 10:56*	*08/11/14 15:23*	*1*
2-Fluorobiphenyl (Surr)	*75*		*45 - 105*	*08/11/14 10:56*	*08/11/14 15:23*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 105*	*08/11/14 10:56*	*08/11/14 15:23*	*1*
Nitrobenzene-d5 (Surr)	*75*		*35 - 100*	*08/11/14 10:56*	*08/11/14 15:23*	*1*
Phenol-d5 (Surr)	*69*		*40 - 100*	*08/11/14 10:56*	*08/11/14 15:23*	*1*
Terphenyl-d14 (Surr)	*68*		*30 - 125*	*08/11/14 10:56*	*08/11/14 15:23*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-5-01
Date Collected: 07/30/14 13:40
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-4
Matrix: Solid
Percent Solids: 43.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
1,2-Dichlorobenzene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
1,3-Dichlorobenzene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
1,4-Dichlorobenzene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
2,4,5-Trichlorophenol	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
2,4,6-Trichlorophenol	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
2,4-Dichlorophenol	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
2,4-Dimethylphenol	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
2,4-Dinitrophenol	4480	U	10900	4480	2240	ug/Kg	☼	08/11/14 15:57	1
2,4-Dinitrotoluene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
2,6-Dinitrotoluene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
2-Chloronaphthalene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
2-Chlorophenol	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
2-Methylphenol	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
2-Nitroaniline	672	U	10900	672	226	ug/Kg	☼	08/11/14 15:57	1
2-Nitrophenol	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
3 & 4 Methylphenol	672	U	4480	672	452	ug/Kg	☼	08/11/14 15:57	1
3,3'-Dichlorobenzidine	4480	U	10900	4480	2240	ug/Kg	☼	08/11/14 15:57	1
3-Nitroaniline	672	U	10900	672	226	ug/Kg	☼	08/11/14 15:57	1
4,6-Dinitro-2-methylphenol	4480	U	10900	4480	2240	ug/Kg	☼	08/11/14 15:57	1
4-Bromophenyl phenyl ether	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
4-Chloro-3-methylphenol	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
4-Chloroaniline	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
4-Chlorophenyl phenyl ether	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
4-Nitroaniline	4480	U	10900	4480	2240	ug/Kg	☼	08/11/14 15:57	1
4-Nitrophenol	4480	U	10900	4480	2240	ug/Kg	☼	08/11/14 15:57	1
Acenaphthene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Acenaphthylene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Anthracene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Benzo[a]anthracene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Benzo[a]pyrene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Benzo[b]fluoranthene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Benzo[g,h,i]perylene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Benzo[k]fluoranthene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
bis (2-chloroisopropyl) ether	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Bis(2-chloroethoxy)methane	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Bis(2-chloroethyl)ether	672	U	2240	672	227	ug/Kg	☼	08/11/14 15:57	1
Bis(2-ethylhexyl) phthalate	**2290**		2240	672	308	ug/Kg	☼	08/11/14 15:57	1
Butyl benzyl phthalate	**304**	**J**	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Chrysene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Dibenzo(a),h)anthracene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Dibenzofuran	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Diethyl phthalate	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Dimethyl phthalate	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Di-n-butyl phthalate	**855**	**J**	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Di-n-octyl phthalate	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Fluoranthene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Fluorene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Hexachlorobenzene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-5-01
Date Collected: 07/30/14 13:40
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-4
Matrix: Solid
Percent Solids: 43.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Hexachlorocyclopentadiene	4480	U	10900	4480	2240	ug/Kg	☼	08/11/14 15:57	1
Hexachloroethane	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Indeno[1,2,3-cd]pyrene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Nitrobenzene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
N-Nitrosodiphenylamine	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
N-Nitrosodi-n-propylamine	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Pentachlorophenol	2240	U	10900	2240	2240	ug/Kg	☼	08/11/14 15:57	1
Phenanthrene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Phenol	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Pyrene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1
Pyridine	672	U	4480	672	452	ug/Kg	☼	08/11/14 15:57	1
Naphthalene	672	U	2240	672	226	ug/Kg	☼	08/11/14 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*80*		*35 - 125*	*08/11/14 10:56*	*08/11/14 15:57*	*1*
2-Fluorobiphenyl (Surr)	*74*		*45 - 105*	*08/11/14 10:56*	*08/11/14 15:57*	*1*
2-Fluorophenol (Surr)	*66*		*35 - 105*	*08/11/14 10:56*	*08/11/14 15:57*	*1*
Nitrobenzene-d5 (Surr)	*74*		*35 - 100*	*08/11/14 10:56*	*08/11/14 15:57*	*1*
Phenol-d5 (Surr)	*69*		*40 - 100*	*08/11/14 10:56*	*08/11/14 15:57*	*1*
Terphenyl-d14 (Surr)	*68*		*30 - 125*	*08/11/14 10:56*	*08/11/14 15:57*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-5-02
Date Collected: 07/30/14 13:54
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-5
Matrix: Solid
Percent Solids: 29.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
1,2-Dichlorobenzene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
1,3-Dichlorobenzene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
1,4-Dichlorobenzene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
2,4,5-Trichlorophenol	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
2,4,6-Trichlorophenol	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
2,4-Dichlorophenol	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
2,4-Dimethylphenol	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
2,4-Dinitrophenol	6520	U	15800	6520	3260	ug/Kg	☼	08/11/14 17:39	1
2,4-Dinitrotoluene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
2,6-Dinitrotoluene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
2-Chloronaphthalene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
2-Chlorophenol	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
2-Methylphenol	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
2-Nitroaniline	978	U	15800	978	329	ug/Kg	☼	08/11/14 17:39	1
2-Nitrophenol	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
3 & 4 Methylphenol	978	U	6520	978	658	ug/Kg	☼	08/11/14 17:39	1
3,3'-Dichlorobenzidine	6520	U	15800	6520	3260	ug/Kg	☼	08/11/14 17:39	1
3-Nitroaniline	978	U	15800	978	329	ug/Kg	☼	08/11/14 17:39	1
4,6-Dinitro-2-methylphenol	6520	U	15800	6520	3260	ug/Kg	☼	08/11/14 17:39	1
4-Bromophenyl phenyl ether	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
4-Chloro-3-methylphenol	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
4-Chloroaniline	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
4-Chlorophenyl phenyl ether	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
4-Nitroaniline	6520	U	15800	6520	3260	ug/Kg	☼	08/11/14 17:39	1
4-Nitrophenol	6520	U	15800	6520	3260	ug/Kg	☼	08/11/14 17:39	1
Acenaphthene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Acenaphthylene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Anthracene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Benzo[a]anthracene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Benzo[a]pyrene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Benzo[b]fluoranthene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Benzo[g,h,i]perylene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Benzo[k]fluoranthene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
bis (2-chloroisopropyl) ether	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Bis(2-chloroethoxy)methane	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Bis(2-chloroethyl)ether	978	U	3260	978	330	ug/Kg	☼	08/11/14 17:39	1
Bis(2-ethylhexyl) phthalate	**4740**		3260	978	448	ug/Kg	☼	08/11/14 17:39	1
Butyl benzyl phthalate	**416**	**J**	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Chrysene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Dibenzo(a),h)anthracene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Dibenzofuran	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Diethyl phthalate	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Dimethyl phthalate	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Di-n-butyl phthalate	**1470**	**J**	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Di-n-octyl phthalate	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Fluoranthene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Fluorene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Hexachlorobenzene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-5-02
Date Collected: 07/30/14 13:54
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-5
Matrix: Solid
Percent Solids: 29.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Hexachlorocyclopentadiene	6520	U	15800	6520	3260	ug/Kg	☼	08/11/14 17:39	1
Hexachloroethane	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Indeno[1,2,3-cd]pyrene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Nitrobenzene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
N-Nitrosodiphenylamine	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
N-Nitrosodi-n-propylamine	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Pentachlorophenol	3260	U	15800	3260	3260	ug/Kg	☼	08/11/14 17:39	1
Phenanthrene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Phenol	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Pyrene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1
Pyridine	978	U	6520	978	658	ug/Kg	☼	08/11/14 17:39	1
Naphthalene	978	U	3260	978	329	ug/Kg	☼	08/11/14 17:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*82*		*35 - 125*	*08/11/14 10:56*	*08/11/14 17:39*	*1*
2-Fluorobiphenyl (Surr)	*76*		*45 - 105*	*08/11/14 10:56*	*08/11/14 17:39*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 105*	*08/11/14 10:56*	*08/11/14 17:39*	*1*
Nitrobenzene-d5 (Surr)	*77*		*35 - 100*	*08/11/14 10:56*	*08/11/14 17:39*	*1*
Phenol-d5 (Surr)	*70*		*40 - 100*	*08/11/14 10:56*	*08/11/14 17:39*	*1*
Terphenyl-d14 (Surr)	*67*		*30 - 125*	*08/11/14 10:56*	*08/11/14 17:39*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-5-UP-01
Date Collected: 07/30/14 16:05
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-6
Matrix: Solid
Percent Solids: 64.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
1,2-Dichlorobenzene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
1,3-Dichlorobenzene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
1,4-Dichlorobenzene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
2,4,5-Trichlorophenol	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
2,4,6-Trichlorophenol	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
2,4-Dichlorophenol	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
2,4-Dimethylphenol	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
2,4-Dinitrophenol	3010	U	7300	3010	1510	ug/Kg	☼	08/11/14 18:14	1
2,4-Dinitrotoluene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
2,6-Dinitrotoluene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
2-Chloronaphthalene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
2-Chlorophenol	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
2-Methylphenol	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
2-Nitroaniline	452	U	7300	452	152	ug/Kg	☼	08/11/14 18:14	1
2-Nitrophenol	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
3 & 4 Methylphenol	452	U	3010	452	304	ug/Kg	☼	08/11/14 18:14	1
3,3'-Dichlorobenzidine	3010	U	7300	3010	1510	ug/Kg	☼	08/11/14 18:14	1
3-Nitroaniline	452	U	7300	452	152	ug/Kg	☼	08/11/14 18:14	1
4,6-Dinitro-2-methylphenol	3010	U	7300	3010	1510	ug/Kg	☼	08/11/14 18:14	1
4-Bromophenyl phenyl ether	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
4-Chloro-3-methylphenol	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
4-Chloroaniline	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
4-Chlorophenyl phenyl ether	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
4-Nitroaniline	3010	U	7300	3010	1510	ug/Kg	☼	08/11/14 18:14	1
4-Nitrophenol	3010	U	7300	3010	1510	ug/Kg	☼	08/11/14 18:14	1
Acenaphthene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Acenaphthylene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Anthracene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Benzo[a]anthracene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Benzo[a]pyrene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Benzo[b]fluoranthene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Benzo[g,h,i]perylene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Benzo[k]fluoranthene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
bis (2-chloroisopropyl) ether	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Bis(2-chloroethoxy)methane	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Bis(2-chloroethyl)ether	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Bis(2-ethylhexyl) phthalate	**12800**		1510	452	207	ug/Kg	☼	08/11/14 18:14	1
Butyl benzyl phthalate	**284**	**J**	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Chrysene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Dibenzo(a),h)anthracene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Dibenzofuran	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Diethyl phthalate	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Dimethyl phthalate	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Di-n-butyl phthalate	**362**	**J**	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Di-n-octyl phthalate	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Fluoranthene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Fluorene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Hexachlorobenzene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-5-UP-01
Date Collected: 07/30/14 16:05
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-6
Matrix: Solid
Percent Solids: 64.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Hexachlorocyclopentadiene	3010	U	7300	3010	1510	ug/Kg	☼	08/11/14 18:14	1
Hexachloroethane	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Indeno[1,2,3-cd]pyrene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Nitrobenzene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
N-Nitrosodiphenylamine	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
N-Nitrosodi-n-propylamine	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Pentachlorophenol	1510	U	7300	1510	1510	ug/Kg	☼	08/11/14 18:14	1
Phenanthrene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Phenol	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Pyrene	452	U	1510	452	152	ug/Kg	☼	08/11/14 18:14	1
Pyridine	452	U	3010	452	304	ug/Kg	☼	08/11/14 18:14	1
Naphthalene	**422**	**J**	1510	452	152	ug/Kg	☼	08/11/14 18:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*89*		*35 - 125*	*08/11/14 10:56*	*08/11/14 18:14*	*1*
2-Fluorobiphenyl (Surr)	*76*		*45 - 105*	*08/11/14 10:56*	*08/11/14 18:14*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 105*	*08/11/14 10:56*	*08/11/14 18:14*	*1*
Nitrobenzene-d5 (Surr)	*76*		*35 - 100*	*08/11/14 10:56*	*08/11/14 18:14*	*1*
Phenol-d5 (Surr)	*69*		*40 - 100*	*08/11/14 10:56*	*08/11/14 18:14*	*1*
Terphenyl-d14 (Surr)	*65*		*30 - 125*	*08/11/14 10:56*	*08/11/14 18:14*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-6-01
Date Collected: 07/30/14 11:27
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-7
Matrix: Solid
Percent Solids: 50.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
1,2-Dichlorobenzene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
1,3-Dichlorobenzene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
1,4-Dichlorobenzene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
2,4,5-Trichlorophenol	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
2,4,6-Trichlorophenol	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
2,4-Dichlorophenol	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
2,4-Dimethylphenol	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
2,4-Dinitrophenol	3910	U	9470	3910	1950	ug/Kg	☼	08/11/14 18:47	1
2,4-Dinitrotoluene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
2,6-Dinitrotoluene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
2-Chloronaphthalene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
2-Chlorophenol	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
2-Methylphenol	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
2-Nitroaniline	586	U	9470	586	197	ug/Kg	☼	08/11/14 18:47	1
2-Nitrophenol	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
3 & 4 Methylphenol	586	U	3910	586	394	ug/Kg	☼	08/11/14 18:47	1
3,3'-Dichlorobenzidine	3910	U	9470	3910	1950	ug/Kg	☼	08/11/14 18:47	1
3-Nitroaniline	586	U	9470	586	197	ug/Kg	☼	08/11/14 18:47	1
4,6-Dinitro-2-methylphenol	3910	U	9470	3910	1950	ug/Kg	☼	08/11/14 18:47	1
4-Bromophenyl phenyl ether	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
4-Chloro-3-methylphenol	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
4-Chloroaniline	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
4-Chlorophenyl phenyl ether	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
4-Nitroaniline	3910	U	9470	3910	1950	ug/Kg	☼	08/11/14 18:47	1
4-Nitrophenol	3910	U	9470	3910	1950	ug/Kg	☼	08/11/14 18:47	1
Acenaphthene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Acenaphthylene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Anthracene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Benzo[a]anthracene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Benzo[a]pyrene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Benzo[b]fluoranthene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Benzo[g,h,i]perylene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Benzo[k]fluoranthene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
bis (2-chloroisopropyl) ether	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Bis(2-chloroethoxy)methane	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Bis(2-chloroethyl)ether	586	U	1950	586	198	ug/Kg	☼	08/11/14 18:47	1
Bis(2-ethylhexyl) phthalate	**4470**		1950	586	268	ug/Kg	☼	08/11/14 18:47	1
Butyl benzyl phthalate	**521**	**J**	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Chrysene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Dibenzo(a),h)anthracene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Dibenzofuran	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Diethyl phthalate	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Dimethyl phthalate	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Di-n-butyl phthalate	**872**	**J**	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Di-n-octyl phthalate	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Fluoranthene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Fluorene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Hexachlorobenzene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-6-01
Date Collected: 07/30/14 11:27
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-7
Matrix: Solid
Percent Solids: 50.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Hexachlorocyclopentadiene	3910	U	9470	3910	1950	ug/Kg	☼	08/11/14 18:47	1
Hexachloroethane	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Indeno[1,2,3-cd]pyrene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Nitrobenzene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
N-Nitrosodiphenylamine	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
N-Nitrosodi-n-propylamine	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Pentachlorophenol	1950	U	9470	1950	1950	ug/Kg	☼	08/11/14 18:47	1
Phenanthrene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Phenol	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Pyrene	586	U	1950	586	197	ug/Kg	☼	08/11/14 18:47	1
Pyridine	586	U	3910	586	394	ug/Kg	☼	08/11/14 18:47	1
Naphthalene	**216**	**J**	1950	586	197	ug/Kg	☼	08/11/14 18:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*85*		*35 - 125*	*08/11/14 10:56*	*08/11/14 18:47*	*1*
2-Fluorobiphenyl (Surr)	*73*		*45 - 105*	*08/11/14 10:56*	*08/11/14 18:47*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 105*	*08/11/14 10:56*	*08/11/14 18:47*	*1*
Nitrobenzene-d5 (Surr)	*75*		*35 - 100*	*08/11/14 10:56*	*08/11/14 18:47*	*1*
Phenol-d5 (Surr)	*69*		*40 - 100*	*08/11/14 10:56*	*08/11/14 18:47*	*1*
Terphenyl-d14 (Surr)	*64*		*30 - 125*	*08/11/14 10:56*	*08/11/14 18:47*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-6-02
Date Collected: 07/30/14 11:35
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-8
Matrix: Solid
Percent Solids: 47.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
1,2-Dichlorobenzene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
1,3-Dichlorobenzene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
1,4-Dichlorobenzene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
2,4,5-Trichlorophenol	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
2,4,6-Trichlorophenol	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
2,4-Dichlorophenol	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
2,4-Dimethylphenol	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
2,4-Dinitrophenol	4150	U	10100	4150	2070	ug/Kg	☼	08/11/14 19:21	1
2,4-Dinitrotoluene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
2,6-Dinitrotoluene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
2-Chloronaphthalene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
2-Chlorophenol	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
2-Methylphenol	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
2-Nitroaniline	622	U	10100	622	209	ug/Kg	☼	08/11/14 19:21	1
2-Nitrophenol	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
3 & 4 Methylphenol	622	U	4150	622	419	ug/Kg	☼	08/11/14 19:21	1
3,3'-Dichlorobenzidine	4150	U	10100	4150	2070	ug/Kg	☼	08/11/14 19:21	1
3-Nitroaniline	622	U	10100	622	209	ug/Kg	☼	08/11/14 19:21	1
4,6-Dinitro-2-methylphenol	4150	U	10100	4150	2070	ug/Kg	☼	08/11/14 19:21	1
4-Bromophenyl phenyl ether	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
4-Chloro-3-methylphenol	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
4-Chloroaniline	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
4-Chlorophenyl phenyl ether	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
4-Nitroaniline	4150	U	10100	4150	2070	ug/Kg	☼	08/11/14 19:21	1
4-Nitrophenol	4150	U	10100	4150	2070	ug/Kg	☼	08/11/14 19:21	1
Acenaphthene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Acenaphthylene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Anthracene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Benzo[a]anthracene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Benzo[a]pyrene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Benzo[b]fluoranthene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Benzo[g,h,i]perylene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Benzo[k]fluoranthene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
bis (2-chloroisopropyl) ether	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Bis(2-chloroethoxy)methane	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Bis(2-chloroethyl)ether	622	U	2070	622	210	ug/Kg	☼	08/11/14 19:21	1
Bis(2-ethylhexyl) phthalate	**3860**		2070	622	285	ug/Kg	☼	08/11/14 19:21	1
Butyl benzyl phthalate	**394**	**J**	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Chrysene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Dibenzo(a),h)anthracene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Dibenzofuran	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Diethyl phthalate	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Dimethyl phthalate	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Di-n-butyl phthalate	**628**	**J**	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Di-n-octyl phthalate	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Fluoranthene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Fluorene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Hexachlorobenzene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-6-02
Date Collected: 07/30/14 11:35
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-8
Matrix: Solid
Percent Solids: 47.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Hexachlorocyclopentadiene	4150	U	10100	4150	2070	ug/Kg	☼	08/11/14 19:21	1
Hexachloroethane	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Indeno[1,2,3-cd]pyrene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Nitrobenzene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
N-Nitrosodiphenylamine	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
N-Nitrosodi-n-propylamine	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Pentachlorophenol	2070	U	10100	2070	2070	ug/Kg	☼	08/11/14 19:21	1
Phenanthrene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Phenol	**3270**		2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Pyrene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1
Pyridine	622	U	4150	622	419	ug/Kg	☼	08/11/14 19:21	1
Naphthalene	622	U	2070	622	209	ug/Kg	☼	08/11/14 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*95*		*35 - 125*	*08/11/14 10:56*	*08/11/14 19:21*	*1*
2-Fluorobiphenyl (Surr)	*78*		*45 - 105*	*08/11/14 10:56*	*08/11/14 19:21*	*1*
2-Fluorophenol (Surr)	*69*		*35 - 105*	*08/11/14 10:56*	*08/11/14 19:21*	*1*
Nitrobenzene-d5 (Surr)	*75*		*35 - 100*	*08/11/14 10:56*	*08/11/14 19:21*	*1*
Phenol-d5 (Surr)	*71*		*40 - 100*	*08/11/14 10:56*	*08/11/14 19:21*	*1*
Terphenyl-d14 (Surr)	*68*		*30 - 125*	*08/11/14 10:56*	*08/11/14 19:21*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-4-01
Date Collected: 07/30/14 09:33
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-1
Matrix: Solid
Percent Solids: 41.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	6.47		6.04	5.80	1.98	mg/Kg	☼	08/16/14 00:17	10
Arsenic	11.7	J	12.1	9.42	3.14	mg/Kg	☼	08/16/14 00:17	10
Barium	291		24.2	3.41	1.14	mg/Kg	☼	08/16/14 00:17	10
Beryllium	1.30		1.21	0.942	0.314	mg/Kg	☼	08/16/14 00:17	10
Cadmium	1280		0.725	0.580	0.193	mg/Kg	☼	08/16/14 00:17	10
Chromium	2560		23.0	12.1	5.44	mg/Kg	☼	08/16/14 00:17	10
Cobalt	30.4		2.42	1.56	0.519	mg/Kg	☼	08/16/14 00:17	10
Copper	511		12.1	3.62	1.22	mg/Kg	☼	08/16/14 00:17	10
Lead	547		3.62	3.62	1.21	mg/Kg	☼	08/16/14 00:17	10
Molybdenum	48.3		6.04	4.35	1.50	mg/Kg	☼	08/16/14 00:17	10
Nickel	587		6.04	3.99	1.29	mg/Kg	☼	08/16/14 00:17	10
Selenium	5.80	U ^	6.04	5.80	1.91	mg/Kg	☼	08/16/14 00:17	10
Silver	27.8	B	5.44	0.870	0.290	mg/Kg	☼	08/16/14 00:17	10
Thallium	2.42	U	12.1	2.42	1.84	mg/Kg	☼	08/16/14 00:17	10
Vanadium	25.7		12.1	12.1	8.88	mg/Kg	☼	08/16/14 00:17	10
Iron	21900		145	60.4	39.9	mg/Kg	☼	08/16/14 00:17	10
Zinc	2410		60.4	48.2	16.1	mg/Kg	☼	08/16/14 00:17	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-4-02
Date Collected: 07/30/14 09:40
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-2
Matrix: Solid
Percent Solids: 38.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	**7.74**		6.35	6.10	2.08	mg/Kg	☼	08/16/14 00:51	10
Arsenic	**13.5**		12.7	9.91	3.30	mg/Kg	☼	08/16/14 00:51	10
Barium	**362**		25.4	3.58	1.19	mg/Kg	☼	08/16/14 00:51	10
Beryllium	**2.19**		1.27	0.991	0.330	mg/Kg	☼	08/16/14 00:51	10
Cadmium	**1790**		0.762	0.610	0.203	mg/Kg	☼	08/16/14 00:51	10
Chromium	**2370**		24.1	12.7	5.72	mg/Kg	☼	08/16/14 00:51	10
Cobalt	**90.3**		2.54	1.64	0.546	mg/Kg	☼	08/16/14 00:51	10
Copper	**532**		12.7	3.81	1.28	mg/Kg	☼	08/16/14 00:51	10
Lead	**549**		3.81	3.81	1.27	mg/Kg	☼	08/16/14 00:51	10
Molybdenum	**63.9**		6.35	4.57	1.58	mg/Kg	☼	08/16/14 00:51	10
Nickel	**840**		6.35	4.19	1.36	mg/Kg	☼	08/16/14 00:51	10
Selenium	6.10	U ^	6.35	6.10	2.01	mg/Kg	☼	08/16/14 00:51	10
Silver	**27.0**	**B**	5.72	0.915	0.305	mg/Kg	☼	08/16/14 00:51	10
Thallium	2.54	U	12.7	2.54	1.93	mg/Kg	☼	08/16/14 00:51	10
Vanadium	**30.2**		12.7	12.7	9.34	mg/Kg	☼	08/16/14 00:51	10
Iron	**29800**		152	63.5	41.9	mg/Kg	☼	08/16/14 00:51	10
Zinc	**2600**		63.5	50.7	16.9	mg/Kg	☼	08/16/14 00:51	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-4-UP
Date Collected: 07/30/14 15:00
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-3
Matrix: Solid
Percent Solids: 35.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	11.5		6.92	6.64	2.27	mg/Kg	☼	08/16/14 00:58	10
Arsenic	20.0		13.8	10.8	3.60	mg/Kg	☼	08/16/14 00:58	10
Barium	682		27.7	3.90	1.30	mg/Kg	☼	08/16/14 00:58	10
Beryllium	1.83		1.38	1.08	0.360	mg/Kg	☼	08/16/14 00:58	10
Cadmium	1370		0.830	0.664	0.221	mg/Kg	☼	08/16/14 00:58	10
Chromium	2000		26.3	13.8	6.23	mg/Kg	☼	08/16/14 00:58	10
Cobalt	51.4		2.77	1.79	0.595	mg/Kg	☼	08/16/14 00:58	10
Copper	4700		13.8	4.15	1.40	mg/Kg	☼	08/16/14 00:58	10
Lead	879		4.15	4.15	1.38	mg/Kg	☼	08/16/14 00:58	10
Molybdenum	47.7		6.92	4.98	1.72	mg/Kg	☼	08/16/14 00:58	10
Nickel	1170		6.92	4.57	1.48	mg/Kg	☼	08/16/14 00:58	10
Selenium	2.67	J ^	6.92	6.64	2.19	mg/Kg	☼	08/16/14 00:58	10
Silver	28.4	B	6.23	0.996	0.332	mg/Kg	☼	08/16/14 00:58	10
Thallium	2.77	U	13.8	2.77	2.10	mg/Kg	☼	08/16/14 00:58	10
Vanadium	38.1		13.8	13.8	10.2	mg/Kg	☼	08/16/14 00:58	10
Iron	32700		166	69.2	45.7	mg/Kg	☼	08/16/14 00:58	10
Zinc	3960		69.2	55.2	18.4	mg/Kg	☼	08/16/14 00:58	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-5-01
Date Collected: 07/30/14 13:40
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-4
Matrix: Solid
Percent Solids: 43.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	7.76		5.60	5.37	1.84	mg/Kg	☼	08/16/14 01:04	10
Arsenic	11.4		11.2	8.73	2.91	mg/Kg	☼	08/16/14 01:04	10
Barium	683		22.4	3.16	1.05	mg/Kg	☼	08/16/14 01:04	10
Beryllium	1.26		1.12	0.873	0.291	mg/Kg	☼	08/16/14 01:04	10
Cadmium	1470		0.672	0.537	0.179	mg/Kg	☼	08/16/14 01:04	10
Chromium	7110		42.5	22.4	10.1	mg/Kg	☼	08/12/14 22:12	20
Cobalt	28.7		2.24	1.44	0.481	mg/Kg	☼	08/16/14 01:04	10
Copper	1060		11.2	3.36	1.13	mg/Kg	☼	08/16/14 01:04	10
Lead	1620		3.36	3.36	1.12	mg/Kg	☼	08/16/14 01:04	10
Molybdenum	62.4		5.60	4.03	1.39	mg/Kg	☼	08/16/14 01:04	10
Nickel	648		5.60	3.69	1.20	mg/Kg	☼	08/16/14 01:04	10
Selenium	1.87	J ^	5.60	5.37	1.77	mg/Kg	☼	08/16/14 01:04	10
Silver	34.8	B	5.04	0.806	0.269	mg/Kg	☼	08/16/14 01:04	10
Thallium	2.24	U	11.2	2.24	1.70	mg/Kg	☼	08/16/14 01:04	10
Vanadium	53.7		11.2	11.2	8.23	mg/Kg	☼	08/16/14 01:04	10
Iron	37800		134	56.0	36.9	mg/Kg	☼	08/16/14 01:04	10
Zinc	7560		56.0	44.7	14.9	mg/Kg	☼	08/16/14 01:04	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-5-02
Date Collected: 07/30/14 13:54
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-5
Matrix: Solid
Percent Solids: 29.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	16.5		7.10	6.81	2.33	mg/Kg	☼	08/16/14 01:24	10
Arsenic	13.2	J	14.2	11.1	3.69	mg/Kg	☼	08/16/14 01:24	10
Barium	832		28.4	4.00	1.33	mg/Kg	☼	08/16/14 01:24	10
Beryllium	1.35	J	1.42	1.11	0.369	mg/Kg	☼	08/16/14 01:24	10
Cadmium	2380		0.852	0.681	0.227	mg/Kg	☼	08/16/14 01:24	10
Chromium	9410		53.9	28.4	12.8	mg/Kg	☼	08/12/14 22:19	20
Cobalt	33.8		2.84	1.83	0.610	mg/Kg	☼	08/16/14 01:24	10
Copper	1350		14.2	4.26	1.43	mg/Kg	☼	08/16/14 01:24	10
Lead	1910		4.26	4.26	1.42	mg/Kg	☼	08/16/14 01:24	10
Molybdenum	103		7.10	5.11	1.76	mg/Kg	☼	08/16/14 01:24	10
Nickel	716		7.10	4.68	1.52	mg/Kg	☼	08/16/14 01:24	10
Selenium	6.81	U ^	7.10	6.81	2.24	mg/Kg	☼	08/16/14 01:24	10
Silver	60.5	B	6.39	1.02	0.341	mg/Kg	☼	08/16/14 01:24	10
Thallium	2.84	U	14.2	2.84	2.16	mg/Kg	☼	08/16/14 01:24	10
Vanadium	36.9		14.2	14.2	10.4	mg/Kg	☼	08/16/14 01:24	10
Iron	30800		170	71.0	46.8	mg/Kg	☼	08/16/14 01:24	10
Zinc	3230		71.0	56.6	18.9	mg/Kg	☼	08/16/14 01:24	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-5-UP-01
Date Collected: 07/30/14 16:05
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-6
Matrix: Solid
Percent Solids: 64.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	10.9		3.59	3.44	1.18	mg/Kg	☼	08/16/14 01:31	10
Arsenic	7.03	J	7.17	5.59	1.86	mg/Kg	☼	08/16/14 01:31	10
Barium	210		14.3	2.02	0.674	mg/Kg	☼	08/16/14 01:31	10
Beryllium	0.587	J	0.717	0.559	0.186	mg/Kg	☼	08/16/14 01:31	10
Cadmium	1370		0.430	0.344	0.115	mg/Kg	☼	08/16/14 01:31	10
Chromium	1060		13.6	7.17	3.23	mg/Kg	☼	08/16/14 01:31	10
Cobalt	10.0		1.43	0.925	0.308	mg/Kg	☼	08/16/14 01:31	10
Copper	1500		7.17	2.15	0.724	mg/Kg	☼	08/16/14 01:31	10
Lead	1290		2.15	2.15	0.717	mg/Kg	☼	08/16/14 01:31	10
Molybdenum	29.9		3.59	2.58	0.889	mg/Kg	☼	08/16/14 01:31	10
Nickel	253		3.59	2.37	0.767	mg/Kg	☼	08/16/14 01:31	10
Selenium	3.44	U ^	3.59	3.44	1.13	mg/Kg	☼	08/16/14 01:31	10
Silver	10.7	B	3.23	0.516	0.172	mg/Kg	☼	08/16/14 01:31	10
Thallium	1.43	U	7.17	1.43	1.09	mg/Kg	☼	08/16/14 01:31	10
Vanadium	11.5		7.17	7.17	5.27	mg/Kg	☼	08/16/14 01:31	10
Iron	12400		86.1	35.9	23.7	mg/Kg	☼	08/16/14 01:31	10
Zinc	377		35.9	28.6	9.54	mg/Kg	☼	08/16/14 01:31	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-6-01
Date Collected: 07/30/14 11:27
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-7
Matrix: Solid
Percent Solids: 50.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	5.61		4.17	4.00	1.37	mg/Kg	☼	08/16/14 01:38	10
Arsenic	13.7		8.34	6.50	2.17	mg/Kg	☼	08/16/14 01:38	10
Barium	310		16.7	2.35	0.784	mg/Kg	☼	08/16/14 01:38	10
Beryllium	0.874		0.834	0.650	0.217	mg/Kg	☼	08/16/14 01:38	10
Cadmium	2230		0.500	0.400	0.133	mg/Kg	☼	08/16/14 01:38	10
Chromium	2040		15.8	8.34	3.75	mg/Kg	☼	08/16/14 01:38	10
Cobalt	28.7		1.67	1.08	0.358	mg/Kg	☼	08/16/14 01:38	10
Copper	434		8.34	2.50	0.842	mg/Kg	☼	08/16/14 01:38	10
Lead	436		2.50	2.50	0.834	mg/Kg	☼	08/16/14 01:38	10
Molybdenum	28.5		4.17	3.00	1.03	mg/Kg	☼	08/16/14 01:38	10
Nickel	634		4.17	2.75	0.892	mg/Kg	☼	08/16/14 01:38	10
Selenium	4.00	U ^	4.17	4.00	1.32	mg/Kg	☼	08/16/14 01:38	10
Silver	28.4	B	3.75	0.600	0.200	mg/Kg	☼	08/16/14 01:38	10
Thallium	1.67	U	8.34	1.67	1.27	mg/Kg	☼	08/16/14 01:38	10
Vanadium	21.3		8.34	8.34	6.13	mg/Kg	☼	08/16/14 01:38	10
Iron	23200		100	41.7	27.5	mg/Kg	☼	08/16/14 01:38	10
Zinc	1900		41.7	33.3	11.1	mg/Kg	☼	08/16/14 01:38	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-6-02
Date Collected: 07/30/14 11:35
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-8
Matrix: Solid
Percent Solids: 47.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	**4.77**		4.46	4.29	1.46	mg/Kg	☼	08/16/14 01:45	10
Arsenic	**12.9**		8.93	6.96	2.32	mg/Kg	☼	08/16/14 01:45	10
Barium	**475**		17.9	2.52	0.839	mg/Kg	☼	08/16/14 01:45	10
Beryllium	**1.00**		0.893	0.696	0.232	mg/Kg	☼	08/16/14 01:45	10
Cadmium	**1660**		0.536	0.429	0.143	mg/Kg	☼	08/16/14 01:45	10
Chromium	**2210**		17.0	8.93	4.02	mg/Kg	☼	08/16/14 01:45	10
Cobalt	**25.6**		1.79	1.15	0.384	mg/Kg	☼	08/16/14 01:45	10
Copper	**427**		8.93	2.68	0.902	mg/Kg	☼	08/16/14 01:45	10
Lead	**494**		2.68	2.68	0.893	mg/Kg	☼	08/16/14 01:45	10
Molybdenum	**33.4**		4.46	3.21	1.11	mg/Kg	☼	08/16/14 01:45	10
Nickel	**702**		4.46	2.95	0.955	mg/Kg	☼	08/16/14 01:45	10
Selenium	4.29	U ^	4.46	4.29	1.41	mg/Kg	☼	08/16/14 01:45	10
Silver	**21.4**	**B**	4.02	0.643	0.214	mg/Kg	☼	08/16/14 01:45	10
Thallium	1.79	U	8.93	1.79	1.36	mg/Kg	☼	08/16/14 01:45	10
Vanadium	**20.5**		8.93	8.93	6.56	mg/Kg	☼	08/16/14 01:45	10
Iron	**32400**		107	44.6	29.5	mg/Kg	☼	08/16/14 01:45	10
Zinc	**1490**		44.6	35.6	11.9	mg/Kg	☼	08/16/14 01:45	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-4-01
Date Collected: 07/30/14 09:33
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-1
Matrix: Solid
Percent Solids: 41.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.56		0.0970	0.0727	0.0267	mg/Kg	☼	08/13/14 17:18	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-4-02
Date Collected: 07/30/14 09:40
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-2
Matrix: Solid
Percent Solids: 38.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.13		0.0918	0.0689	0.0253	mg/Kg	☼	08/13/14 17:27	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-4-UP
Date Collected: 07/30/14 15:00
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-3
Matrix: Solid
Percent Solids: 35.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.33		0.107	0.0802	0.0294	mg/Kg	☼	08/13/14 17:29	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-5-01
Date Collected: 07/30/14 13:40
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-4
Matrix: Solid
Percent Solids: 43.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	2.16		0.0822	0.0617	0.0226	mg/Kg	☼	08/13/14 17:31	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-5-02
Date Collected: 07/30/14 13:54
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-5
Matrix: Solid
Percent Solids: 29.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	2.31		0.129	0.0969	0.0355	mg/Kg	☼	08/13/14 17:34	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-5-UP-01
Date Collected: 07/30/14 16:05
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-6
Matrix: Solid
Percent Solids: 64.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.192		0.0548	0.0411	0.0151	mg/Kg	☼	08/13/14 17:40	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-6-01
Date Collected: 07/30/14 11:27
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-7
Matrix: Solid
Percent Solids: 50.6

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.717		0.0733	0.0550	0.0202	mg/Kg	☼	08/13/14 17:43	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7699-1
SDG: 160-7699

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-6-02
Date Collected: 07/30/14 11:35
Date Received: 07/31/14 09:20

Lab Sample ID: 160-7699-8
Matrix: Solid
Percent Solids: 47.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.864		0.0759	0.0569	0.0209	mg/Kg	☼	08/13/14 17:45	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7718-1
TestAmerica Sample Delivery Group: 160-7718
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
8/25/2014 5:15:06 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1006

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number: 7707 3633 1426
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MH1-7-01	7/31/2014	0905	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-7			N
IWL-MH1-7-02	7/31/2014	0914	2	3	S	10 dy	X	X	X					two-4 oz for voc, two- 8 oz for svoc/metals	IWL-MH1-7			N
IWL-MH1-8-01	7/31/2014	1407	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-8			N
IWL-MH1-8-02	7/31/2014	1418	2	3	S	10 dy	X	X	X					two-4 oz for voc, two- 8 oz for svoc/metals	IWL-MH1-8			N
IWL-RINSE-01	7/31/2014	1000	5	3	W	10 dy	X	X	X						EQUIPMENT BLK			N

Relinquished by: (signature)	Date: 7-31-14	Received by (signature) FedEx	Laboratory Instructions/Comments:
Company: Tetra tech	Time: 1600	Company: FedEx	
Relinquished by: (Signature)	Date:	Received by (signature) 8/1/14	Composite Discription:
Company:	Time:	Company: TA 0905	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1006

160-7718 Chain of Custody

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-7-01
Date Collected: 07/31/14 09:05
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-1
Matrix: Solid
Percent Solids: 53.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**49.3**		36.8	18.4	11.9	ug/Kg	☼	08/05/14 15:16	1
Benzene	1.84	U	9.20	1.84	0.466	ug/Kg	☼	08/05/14 15:16	1
Bromodichloromethane	1.84	U	9.20	1.84	0.467	ug/Kg	☼	08/05/14 15:16	1
Bromoform	1.84	U *	9.20	1.84	0.674	ug/Kg	☼	08/05/14 15:16	1
Bromomethane	9.20	U	18.4	9.20	2.02	ug/Kg	☼	08/05/14 15:16	1
2-Butanone (MEK)	9.20	U	36.8	9.20	3.53	ug/Kg	☼	08/05/14 15:16	1
Carbon tetrachloride	1.84	U	9.20	1.84	0.944	ug/Kg	☼	08/05/14 15:16	1
Chlorobenzene	1.84	U *	9.20	1.84	0.703	ug/Kg	☼	08/05/14 15:16	1
Dibromochloromethane	1.84	U *	9.20	1.84	0.747	ug/Kg	☼	08/05/14 15:16	1
Chloroethane	**120**		18.4	1.84	0.950	ug/Kg	☼	08/05/14 15:16	1
Chloroform	1.84	U	9.20	1.84	0.692	ug/Kg	☼	08/05/14 15:16	1
Chloromethane	9.20	U	18.4	9.20	1.20	ug/Kg	☼	08/05/14 15:16	1
1,1-Dichloroethane	**15.4**		9.20	1.84	0.721	ug/Kg	☼	08/05/14 15:16	1
1,2-Dichloroethane	1.84	U	9.20	1.84	1.60	ug/Kg	☼	08/05/14 15:16	1
cis-1,2-Dichloroethene	**2.52**	**J**	9.20	1.84	1.10	ug/Kg	☼	08/05/14 15:16	1
trans-1,2-Dichloroethene	1.84	U	9.20	1.84	1.74	ug/Kg	☼	08/05/14 15:16	1
1,1-Dichloroethene	9.20	U	9.20	9.20	2.96	ug/Kg	☼	08/05/14 15:16	1
1,2-Dichloropropane	1.84	U	9.20	1.84	0.705	ug/Kg	☼	08/05/14 15:16	1
cis-1,3-Dichloropropene	1.84	U	9.20	1.84	1.09	ug/Kg	☼	08/05/14 15:16	1
trans-1,3-Dichloropropene	1.84	U *	9.20	1.84	0.642	ug/Kg	☼	08/05/14 15:16	1
Ethylbenzene	1.84	U *	9.20	1.84	0.550	ug/Kg	☼	08/05/14 15:16	1
2-Hexanone	9.20	U *	18.4	9.20	3.26	ug/Kg	☼	08/05/14 15:16	1
Methylene Chloride	9.20	U	18.4	9.20	2.91	ug/Kg	☼	08/05/14 15:16	1
4-Methyl-2-pentanone (MIBK)	9.20	U *	36.8	9.20	1.35	ug/Kg	☼	08/05/14 15:16	1
Methyl tert-butyl ether	1.84	U	9.20	1.84	0.876	ug/Kg	☼	08/05/14 15:16	1
Styrene	1.84	U *	9.20	1.84	0.639	ug/Kg	☼	08/05/14 15:16	1
1,1,2,2-Tetrachloroethane	1.84	U *	9.20	1.84	0.738	ug/Kg	☼	08/05/14 15:16	1
Tetrachloroethene	1.84	U *	9.20	1.84	0.593	ug/Kg	☼	08/05/14 15:16	1
Toluene	1.84	U *	9.20	1.84	1.29	ug/Kg	☼	08/05/14 15:16	1
1,1,1-Trichloroethane	**6.71**	**J**	9.20	1.84	0.793	ug/Kg	☼	08/05/14 15:16	1
1,1,2-Trichloroethane	1.84	U *	9.20	1.84	1.05	ug/Kg	☼	08/05/14 15:16	1
Trichloroethene	1.84	U	9.20	1.84	0.709	ug/Kg	☼	08/05/14 15:16	1
Vinyl chloride	1.84	U	18.4	1.84	0.788	ug/Kg	☼	08/05/14 15:16	1
Xylenes, Total	9.20	U *	18.4	9.20	1.57	ug/Kg	☼	08/05/14 15:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*176*	** X*	*85 - 120*	*08/05/14 10:00*	*08/05/14 15:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*71 - 128*	*08/05/14 10:00*	*08/05/14 15:16*	*1*
Toluene-d8 (Surr)	*129*	** X*	*85 - 115*	*08/05/14 10:00*	*08/05/14 15:16*	*1*
Dibromofluoromethane (Surr)	*112*		*76 - 126*	*08/05/14 10:00*	*08/05/14 15:16*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-7-02
Date Collected: 07/31/14 09:14
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-2
Matrix: Solid
Percent Solids: 50.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**101**		39.1	19.6	12.7	ug/Kg	☼	08/05/14 15:41	1
Benzene	1.96	U	9.78	1.96	0.495	ug/Kg	☼	08/05/14 15:41	1
Bromodichloromethane	1.96	U	9.78	1.96	0.497	ug/Kg	☼	08/05/14 15:41	1
Bromoform	1.96	U *	9.78	1.96	0.716	ug/Kg	☼	08/05/14 15:41	1
Bromomethane	9.78	U	19.6	9.78	2.15	ug/Kg	☼	08/05/14 15:41	1
2-Butanone (MEK)	9.78	U	39.1	9.78	3.76	ug/Kg	☼	08/05/14 15:41	1
Carbon tetrachloride	1.96	U	9.78	1.96	1.00	ug/Kg	☼	08/05/14 15:41	1
Chlorobenzene	**4.24**	**J ***	9.78	1.96	0.747	ug/Kg	☼	08/05/14 15:41	1
Dibromochloromethane	1.96	U *	9.78	1.96	0.794	ug/Kg	☼	08/05/14 15:41	1
Chloroethane	**49.3**		19.6	1.96	1.01	ug/Kg	☼	08/05/14 15:41	1
Chloroform	1.96	U	9.78	1.96	0.736	ug/Kg	☼	08/05/14 15:41	1
Chloromethane	9.78	U	19.6	9.78	1.27	ug/Kg	☼	08/05/14 15:41	1
1,1-Dichloroethane	**6.85**	**J**	9.78	1.96	0.767	ug/Kg	☼	08/05/14 15:41	1
1,2-Dichloroethane	1.96	U	9.78	1.96	1.70	ug/Kg	☼	08/05/14 15:41	1
cis-1,2-Dichloroethene	1.96	U	9.78	1.96	1.17	ug/Kg	☼	08/05/14 15:41	1
trans-1,2-Dichloroethene	1.96	U	9.78	1.96	1.84	ug/Kg	☼	08/05/14 15:41	1
1,1-Dichloroethene	9.78	U	9.78	9.78	3.15	ug/Kg	☼	08/05/14 15:41	1
1,2-Dichloropropane	1.96	U	9.78	1.96	0.749	ug/Kg	☼	08/05/14 15:41	1
cis-1,3-Dichloropropene	1.96	U	9.78	1.96	1.16	ug/Kg	☼	08/05/14 15:41	1
trans-1,3-Dichloropropene	1.96	U *	9.78	1.96	0.683	ug/Kg	☼	08/05/14 15:41	1
Ethylbenzene	1.96	U *	9.78	1.96	0.585	ug/Kg	☼	08/05/14 15:41	1
2-Hexanone	9.78	U *	19.6	9.78	3.46	ug/Kg	☼	08/05/14 15:41	1
Methylene Chloride	9.78	U	19.6	9.78	3.09	ug/Kg	☼	08/05/14 15:41	1
4-Methyl-2-pentanone (MIBK)	9.78	U *	39.1	9.78	1.43	ug/Kg	☼	08/05/14 15:41	1
Methyl tert-butyl ether	1.96	U	9.78	1.96	0.931	ug/Kg	☼	08/05/14 15:41	1
Styrene	1.96	U *	9.78	1.96	0.679	ug/Kg	☼	08/05/14 15:41	1
1,1,2,2-Tetrachloroethane	1.96	U *	9.78	1.96	0.784	ug/Kg	☼	08/05/14 15:41	1
Tetrachloroethene	1.96	U *	9.78	1.96	0.630	ug/Kg	☼	08/05/14 15:41	1
Toluene	1.96	U *	9.78	1.96	1.37	ug/Kg	☼	08/05/14 15:41	1
1,1,1-Trichloroethane	**4.13**	**J**	9.78	1.96	0.843	ug/Kg	☼	08/05/14 15:41	1
1,1,2-Trichloroethane	1.96	U *	9.78	1.96	1.12	ug/Kg	☼	08/05/14 15:41	1
Trichloroethene	1.96	U	9.78	1.96	0.753	ug/Kg	☼	08/05/14 15:41	1
Vinyl chloride	1.96	U	19.6	1.96	0.837	ug/Kg	☼	08/05/14 15:41	1
Xylenes, Total	9.78	U *	19.6	9.78	1.67	ug/Kg	☼	08/05/14 15:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*140*	** X*	*85 - 120*	*08/05/14 10:00*	*08/05/14 15:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*81*		*71 - 128*	*08/05/14 10:00*	*08/05/14 15:41*	*1*
Toluene-d8 (Surr)	*103*	***	*85 - 115*	*08/05/14 10:00*	*08/05/14 15:41*	*1*
Dibromofluoromethane (Surr)	*85*		*76 - 126*	*08/05/14 10:00*	*08/05/14 15:41*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-8-01
Date Collected: 07/31/14 14:07
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-3
Matrix: Solid
Percent Solids: 37.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**247**	**J**	262	131	84.6	ug/Kg	☼	08/05/14 16:05	1
Benzene	**6.95**	**J**	65.4	13.1	3.31	ug/Kg	☼	08/05/14 16:05	1
Bromodichloromethane	13.1	U	65.4	13.1	3.32	ug/Kg	☼	08/05/14 16:05	1
Bromoform	13.1	U *	65.4	13.1	4.79	ug/Kg	☼	08/05/14 16:05	1
Bromomethane	65.4	U	131	65.4	14.4	ug/Kg	☼	08/05/14 16:05	1
2-Butanone (MEK)	65.4	U	262	65.4	25.1	ug/Kg	☼	08/05/14 16:05	1
Carbon tetrachloride	13.1	U	65.4	13.1	6.71	ug/Kg	☼	08/05/14 16:05	1
Chlorobenzene	**30.1**	**J**	65.4	13.1	5.00	ug/Kg	☼	08/05/14 16:05	1
Dibromochloromethane	13.1	U	65.4	13.1	5.31	ug/Kg	☼	08/05/14 16:05	1
Chloroethane	13.1	U	131	13.1	6.75	ug/Kg	☼	08/05/14 16:05	1
Chloroform	13.1	U	65.4	13.1	4.92	ug/Kg	☼	08/05/14 16:05	1
Chloromethane	65.4	U	131	65.4	8.50	ug/Kg	☼	08/05/14 16:05	1
1,1-Dichloroethane	13.1	U	65.4	13.1	5.13	ug/Kg	☼	08/05/14 16:05	1
1,2-Dichloroethane	13.1	U	65.4	13.1	11.3	ug/Kg	☼	08/05/14 16:05	1
cis-1,2-Dichloroethene	13.1	U	65.4	13.1	7.81	ug/Kg	☼	08/05/14 16:05	1
trans-1,2-Dichloroethene	13.1	U	65.4	13.1	12.3	ug/Kg	☼	08/05/14 16:05	1
1,1-Dichloroethene	65.4	U	65.4	65.4	21.1	ug/Kg	☼	08/05/14 16:05	1
1,2-Dichloropropane	13.1	U	65.4	13.1	5.01	ug/Kg	☼	08/05/14 16:05	1
cis-1,3-Dichloropropene	13.1	U	65.4	13.1	7.78	ug/Kg	☼	08/05/14 16:05	1
trans-1,3-Dichloropropene	13.1	U	65.4	13.1	4.56	ug/Kg	☼	08/05/14 16:05	1
Ethylbenzene	**7.54**	**J**	65.4	13.1	3.91	ug/Kg	☼	08/05/14 16:05	1
2-Hexanone	65.4	U	131	65.4	23.2	ug/Kg	☼	08/05/14 16:05	1
Methylene Chloride	65.4	U	131	65.4	20.7	ug/Kg	☼	08/05/14 16:05	1
4-Methyl-2-pentanone (MIBK)	65.4	U	262	65.4	9.57	ug/Kg	☼	08/05/14 16:05	1
Methyl tert-butyl ether	13.1	U	65.4	13.1	6.23	ug/Kg	☼	08/05/14 16:05	1
Styrene	13.1	U	65.4	13.1	4.54	ug/Kg	☼	08/05/14 16:05	1
1,1,2,2-Tetrachloroethane	13.1	U *	65.4	13.1	5.24	ug/Kg	☼	08/05/14 16:05	1
Tetrachloroethene	13.1	U	65.4	13.1	4.21	ug/Kg	☼	08/05/14 16:05	1
Toluene	13.1	U	65.4	13.1	9.16	ug/Kg	☼	08/05/14 16:05	1
1,1,1-Trichloroethane	13.1	U	65.4	13.1	5.64	ug/Kg	☼	08/05/14 16:05	1
1,1,2-Trichloroethane	13.1	U	65.4	13.1	7.49	ug/Kg	☼	08/05/14 16:05	1
Trichloroethene	13.1	U	65.4	13.1	5.04	ug/Kg	☼	08/05/14 16:05	1
Vinyl chloride	13.1	U	131	13.1	5.60	ug/Kg	☼	08/05/14 16:05	1
Xylenes, Total	65.4	U	131	65.4	11.2	ug/Kg	☼	08/05/14 16:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*235*	** X*	*85 - 120*	*08/05/14 10:00*	*08/05/14 16:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*71 - 128*	*08/05/14 10:00*	*08/05/14 16:05*	*1*
Toluene-d8 (Surr)	*128*	*X*	*85 - 115*	*08/05/14 10:00*	*08/05/14 16:05*	*1*
Dibromofluoromethane (Surr)	*106*		*76 - 126*	*08/05/14 10:00*	*08/05/14 16:05*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-8-02
Date Collected: 07/31/14 14:18
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-4
Matrix: Solid
Percent Solids: 50.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**189**		186	92.9	60.1	ug/Kg	☼	08/05/14 16:30	1
Benzene	9.29	U	46.5	9.29	2.35	ug/Kg	☼	08/05/14 16:30	1
Bromodichloromethane	9.29	U	46.5	9.29	2.36	ug/Kg	☼	08/05/14 16:30	1
Bromoform	9.29	U *	46.5	9.29	3.40	ug/Kg	☼	08/05/14 16:30	1
Bromomethane	46.5	U	92.9	46.5	10.2	ug/Kg	☼	08/05/14 16:30	1
2-Butanone (MEK)	46.5	U	186	46.5	17.8	ug/Kg	☼	08/05/14 16:30	1
Carbon tetrachloride	9.29	U	46.5	9.29	4.77	ug/Kg	☼	08/05/14 16:30	1
Chlorobenzene	**44.4**	**J**	46.5	9.29	3.55	ug/Kg	☼	08/05/14 16:30	1
Dibromochloromethane	9.29	U	46.5	9.29	3.77	ug/Kg	☼	08/05/14 16:30	1
Chloroethane	9.29	U	92.9	9.29	4.80	ug/Kg	☼	08/05/14 16:30	1
Chloroform	9.29	U	46.5	9.29	3.49	ug/Kg	☼	08/05/14 16:30	1
Chloromethane	46.5	U	92.9	46.5	6.04	ug/Kg	☼	08/05/14 16:30	1
1,1-Dichloroethane	**16.1**	**J**	46.5	9.29	3.64	ug/Kg	☼	08/05/14 16:30	1
1,2-Dichloroethane	9.29	U	46.5	9.29	8.06	ug/Kg	☼	08/05/14 16:30	1
cis-1,2-Dichloroethene	9.29	U	46.5	9.29	5.55	ug/Kg	☼	08/05/14 16:30	1
trans-1,2-Dichloroethene	9.29	U	46.5	9.29	8.76	ug/Kg	☼	08/05/14 16:30	1
1,1-Dichloroethene	46.5	U	46.5	46.5	15.0	ug/Kg	☼	08/05/14 16:30	1
1,2-Dichloropropane	9.29	U	46.5	9.29	3.56	ug/Kg	☼	08/05/14 16:30	1
cis-1,3-Dichloropropene	9.29	U	46.5	9.29	5.53	ug/Kg	☼	08/05/14 16:30	1
trans-1,3-Dichloropropene	9.29	U	46.5	9.29	3.24	ug/Kg	☼	08/05/14 16:30	1
Ethylbenzene	**4.13**	**J**	46.5	9.29	2.78	ug/Kg	☼	08/05/14 16:30	1
2-Hexanone	46.5	U	92.9	46.5	16.5	ug/Kg	☼	08/05/14 16:30	1
Methylene Chloride	46.5	U	92.9	46.5	14.7	ug/Kg	☼	08/05/14 16:30	1
4-Methyl-2-pentanone (MIBK)	46.5	U	186	46.5	6.80	ug/Kg	☼	08/05/14 16:30	1
Methyl tert-butyl ether	9.29	U	46.5	9.29	4.42	ug/Kg	☼	08/05/14 16:30	1
Styrene	9.29	U	46.5	9.29	3.23	ug/Kg	☼	08/05/14 16:30	1
1,1,2,2-Tetrachloroethane	9.29	U *	46.5	9.29	3.73	ug/Kg	☼	08/05/14 16:30	1
Tetrachloroethene	9.29	U	46.5	9.29	2.99	ug/Kg	☼	08/05/14 16:30	1
Toluene	9.29	U	46.5	9.29	6.51	ug/Kg	☼	08/05/14 16:30	1
1,1,1-Trichloroethane	**6.29**	**J**	46.5	9.29	4.01	ug/Kg	☼	08/05/14 16:30	1
1,1,2-Trichloroethane	9.29	U	46.5	9.29	5.33	ug/Kg	☼	08/05/14 16:30	1
Trichloroethene	9.29	U	46.5	9.29	3.58	ug/Kg	☼	08/05/14 16:30	1
Vinyl chloride	9.29	U	92.9	9.29	3.98	ug/Kg	☼	08/05/14 16:30	1
Xylenes, Total	46.5	U	92.9	46.5	7.94	ug/Kg	☼	08/05/14 16:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*342*	** X*	*85 - 120*	*08/05/14 10:00*	*08/05/14 16:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 128*	*08/05/14 10:00*	*08/05/14 16:30*	*1*
Toluene-d8 (Surr)	*120*	*X*	*85 - 115*	*08/05/14 10:00*	*08/05/14 16:30*	*1*
Dibromofluoromethane (Surr)	*98*		*76 - 126*	*08/05/14 10:00*	*08/05/14 16:30*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-01
Date Collected: 07/31/14 10:00
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-5
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.00	U	5.00	1.00	0.291	ug/L		08/08/14 12:51	1
1,1,2,2-Tetrachloroethane	2.00	U	5.00	2.00	0.425	ug/L		08/08/14 12:51	1
1,1,2-Trichloroethane	1.00	U	5.00	1.00	0.573	ug/L		08/08/14 12:51	1
1,1-Dichloroethane	1.00	U	5.00	1.00	0.392	ug/L		08/08/14 12:51	1
1,1-Dichloroethene	1.00	U	5.00	1.00	0.365	ug/L		08/08/14 12:51	1
1,2-Dichloroethane	1.00	U	5.00	1.00	0.372	ug/L		08/08/14 12:51	1
1,2-Dichloropropane	1.00	U	5.00	1.00	0.317	ug/L		08/08/14 12:51	1
2-Butanone (MEK)	5.00	U	20.0	5.00	0.389	ug/L		08/08/14 12:51	1
2-Hexanone	2.00	U	20.0	2.00	0.593	ug/L		08/08/14 12:51	1
4-Methyl-2-pentanone (MIBK)	2.00	U	20.0	2.00	0.326	ug/L		08/08/14 12:51	1
Acetone	10.0	U	20.0	10.0	6.67	ug/L		08/08/14 12:51	1
Benzene	1.00	U	5.00	1.00	0.253	ug/L		08/08/14 12:51	1
Bromoform	1.00	U	5.00	1.00	0.366	ug/L		08/08/14 12:51	1
Bromomethane	2.00	U	10.0	2.00	0.396	ug/L		08/08/14 12:51	1
Carbon tetrachloride	1.00	U	5.00	1.00	0.360	ug/L		08/08/14 12:51	1
Chlorobenzene	1.00	U	5.00	1.00	0.382	ug/L		08/08/14 12:51	1
Dibromochloromethane	1.00	U	5.00	1.00	0.329	ug/L		08/08/14 12:51	1
Chloroethane	1.00	U	10.0	1.00	0.382	ug/L		08/08/14 12:51	1
Chloroform	1.00	U	5.00	1.00	0.147	ug/L		08/08/14 12:51	1
Chloromethane	2.00	U	10.0	2.00	0.553	ug/L		08/08/14 12:51	1
cis-1,2-Dichloroethene	1.00	U	5.00	1.00	0.159	ug/L		08/08/14 12:51	1
cis-1,3-Dichloropropene	1.00	U	5.00	1.00	0.339	ug/L		08/08/14 12:51	1
Bromodichloromethane	2.00	U	5.00	2.00	0.254	ug/L		08/08/14 12:51	1
Ethylbenzene	1.00	U	5.00	1.00	0.299	ug/L		08/08/14 12:51	1
Methyl tert-butyl ether	2.00	U	5.00	2.00	0.401	ug/L		08/08/14 12:51	1
Methylene Chloride	5.00	U	7.50	5.00	1.67	ug/L		08/08/14 12:51	1
Styrene	1.00	U	5.00	1.00	0.347	ug/L		08/08/14 12:51	1
Tetrachloroethene	1.00	U	5.00	1.00	0.280	ug/L		08/08/14 12:51	1
Toluene	1.00	U	5.00	1.00	1.00	ug/L		08/08/14 12:51	1
trans-1,2-Dichloroethene	1.00	U	5.00	1.00	0.178	ug/L		08/08/14 12:51	1
trans-1,3-Dichloropropene	1.00	U	5.00	1.00	0.349	ug/L		08/08/14 12:51	1
Trichloroethene	1.00	U	5.00	1.00	0.290	ug/L		08/08/14 12:51	1
Vinyl chloride	1.00	U	2.00	1.00	0.428	ug/L		08/08/14 12:51	1
Xylenes, Total	5.00	U	10.0	5.00	0.854	ug/L		08/08/14 12:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*75 - 120*		*08/08/14 12:51*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 120*		*08/08/14 12:51*	*1*
Toluene-d8 (Surr)	*96*		*85 - 120*		*08/08/14 12:51*	*1*
Dibromofluoromethane (Surr)	*105*		*85 - 115*		*08/08/14 12:51*	*1*

Method: 8270D/DoD - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-01
Date Collected: 07/31/14 10:00
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-5
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Bis(2-chloroethyl)ether	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Bis(2-ethylhexyl) phthalate	**2.35**	**J**	9.49	2.85	1.77	ug/L		08/10/14 22:17	1
4-Bromophenyl phenyl ether	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Butyl benzyl phthalate	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
4-Chloroaniline	2.85	U	9.49	2.85	1.90	ug/L		08/10/14 22:17	1
4-Chloro-3-methylphenol	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
2-Chloronaphthalene	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
2-Chlorophenol	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
4-Chlorophenyl phenyl ether	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Dibenzofuran	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Di-n-butyl phthalate	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
1,2-Dichlorobenzene	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
1,3-Dichlorobenzene	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
1,4-Dichlorobenzene	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
3,3'-Dichlorobenzidine	2.85	U	47.4	2.85	1.22	ug/L		08/10/14 22:17	1
2,4-Dichlorophenol	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Diethyl phthalate	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
2,4-Dimethylphenol	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Dimethyl phthalate	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
4,6-Dinitro-2-methylphenol	2.85	U	47.4	2.85	1.20	ug/L		08/10/14 22:17	1
2,4-Dinitrophenol	9.49	U	47.4	9.49	1.90	ug/L		08/10/14 22:17	1
2,4-Dinitrotoluene	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
2,6-Dinitrotoluene	2.85	U	9.49	2.85	2.05	ug/L		08/10/14 22:17	1
Di-n-octyl phthalate	9.49	U	14.2	9.49	0.949	ug/L		08/10/14 22:17	1
Hexachlorobenzene	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Hexachlorobutadiene	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Hexachlorocyclopentadiene	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Hexachloroethane	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
2-Methylphenol	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
3 & 4 Methylphenol	2.85	U	19.0	2.85	1.90	ug/L		08/10/14 22:17	1
2-Nitroaniline	2.85	U	9.49	2.85	1.04	ug/L		08/10/14 22:17	1
3-Nitroaniline	9.49	U	9.49	9.49	0.949	ug/L		08/10/14 22:17	1
4-Nitroaniline	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Nitrobenzene	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
2-Nitrophenol	2.85	U	9.49	2.85	1.44	ug/L		08/10/14 22:17	1
4-Nitrophenol	9.49	U	23.7	9.49	1.90	ug/L		08/10/14 22:17	1
N-Nitrosodiphenylamine	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
N-Nitrosodi-n-propylamine	2.85	U	9.49	2.85	1.42	ug/L		08/10/14 22:17	1
bis (2-chloroisopropyl) ether	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Pentachlorophenol	2.85	U	47.4	2.85	1.21	ug/L		08/10/14 22:17	1
Phenol	2.85	U	14.2	2.85	1.90	ug/L		08/10/14 22:17	1
1,2,4-Trichlorobenzene	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
2,4,5-Trichlorophenol	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
2,4,6-Trichlorophenol	2.85	U	9.49	2.85	0.949	ug/L		08/10/14 22:17	1
Pyridine	2.85	U	19.0	2.85	1.90	ug/L		08/10/14 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*32*		*20 - 110*	*08/07/14 11:53*	*08/10/14 22:17*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 8270D/DoD - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-RINSE-01
Date Collected: 07/31/14 10:00
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-5
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	70		40 - 125	08/07/14 11:53	08/10/14 22:17	1
Nitrobenzene-d5 (Surr)	75		40 - 110	08/07/14 11:53	08/10/14 22:17	1
Phenol-d5 (Surr)	18		10 - 115	08/07/14 11:53	08/10/14 22:17	1
Terphenyl-d14 (Surr)	66		50 - 135	08/07/14 11:53	08/10/14 22:17	1
2-Fluorobiphenyl (Surr)	81		50 - 110	08/07/14 11:53	08/10/14 22:17	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-7-01
Date Collected: 07/31/14 09:05
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-1
Matrix: Solid
Percent Solids: 53.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
1,2-Dichlorobenzene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
1,3-Dichlorobenzene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
1,4-Dichlorobenzene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
2,4,5-Trichlorophenol	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
2,4,6-Trichlorophenol	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
2,4-Dichlorophenol	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
2,4-Dimethylphenol	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
2,4-Dinitrophenol	3540	U	8580	3540	1770	ug/Kg	☼	08/11/14 19:55	1
2,4-Dinitrotoluene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
2,6-Dinitrotoluene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
2-Chloronaphthalene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
2-Chlorophenol	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
2-Methylphenol	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
2-Nitroaniline	531	U	8580	531	178	ug/Kg	☼	08/11/14 19:55	1
2-Nitrophenol	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
3 & 4 Methylphenol	531	U	3540	531	357	ug/Kg	☼	08/11/14 19:55	1
3,3'-Dichlorobenzidine	3540	U	8580	3540	1770	ug/Kg	☼	08/11/14 19:55	1
3-Nitroaniline	531	U	8580	531	178	ug/Kg	☼	08/11/14 19:55	1
4,6-Dinitro-2-methylphenol	3540	U	8580	3540	1770	ug/Kg	☼	08/11/14 19:55	1
4-Bromophenyl phenyl ether	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
4-Chloro-3-methylphenol	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
4-Chloroaniline	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
4-Chlorophenyl phenyl ether	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
4-Nitroaniline	3540	U	8580	3540	1770	ug/Kg	☼	08/11/14 19:55	1
4-Nitrophenol	3540	U	8580	3540	1770	ug/Kg	☼	08/11/14 19:55	1
Acenaphthene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Acenaphthylene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Anthracene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Benzo[a]anthracene	**532**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Benzo[a]pyrene	**619**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Benzo[b]fluoranthene	**874**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Benzo[g,h,i]perylene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Benzo[k]fluoranthene	**280**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
bis (2-chloroisopropyl) ether	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Bis(2-chloroethoxy)methane	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Bis(2-chloroethyl)ether	531	U	1770	531	179	ug/Kg	☼	08/11/14 19:55	1
Bis(2-ethylhexyl) phthalate	**4830**		1770	531	243	ug/Kg	☼	08/11/14 19:55	1
Butyl benzyl phthalate	**532**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Chrysene	**711**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Dibenzo(a),h)anthracene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Dibenzofuran	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Diethyl phthalate	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Dimethyl phthalate	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Di-n-butyl phthalate	**674**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Di-n-octyl phthalate	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Fluoranthene	**1400**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Fluorene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Hexachlorobenzene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-7-01
Date Collected: 07/31/14 09:05
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-1
Matrix: Solid
Percent Solids: 53.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Hexachlorocyclopentadiene	3540	U	8580	3540	1770	ug/Kg	☼	08/11/14 19:55	1
Hexachloroethane	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Indeno[1,2,3-cd]pyrene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Nitrobenzene	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
N-Nitrosodiphenylamine	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
N-Nitrosodi-n-propylamine	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Pentachlorophenol	1770	U	8580	1770	1770	ug/Kg	☼	08/11/14 19:55	1
Phenanthrene	**489**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Phenol	531	U	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Pyrene	**1050**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1
Pyridine	531	U	3540	531	357	ug/Kg	☼	08/11/14 19:55	1
Naphthalene	**1150**	**J**	1770	531	178	ug/Kg	☼	08/11/14 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*35 - 125*	*08/11/14 10:56*	*08/11/14 19:55*	*1*
2-Fluorobiphenyl (Surr)	*74*		*45 - 105*	*08/11/14 10:56*	*08/11/14 19:55*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 105*	*08/11/14 10:56*	*08/11/14 19:55*	*1*
Nitrobenzene-d5 (Surr)	*75*		*35 - 100*	*08/11/14 10:56*	*08/11/14 19:55*	*1*
Phenol-d5 (Surr)	*69*		*40 - 100*	*08/11/14 10:56*	*08/11/14 19:55*	*1*
Terphenyl-d14 (Surr)	*64*		*30 - 125*	*08/11/14 10:56*	*08/11/14 19:55*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-7-02
Date Collected: 07/31/14 09:14
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-2
Matrix: Solid
Percent Solids: 50.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
1,2-Dichlorobenzene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
1,3-Dichlorobenzene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
1,4-Dichlorobenzene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
2,4,5-Trichlorophenol	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
2,4,6-Trichlorophenol	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
2,4-Dichlorophenol	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
2,4-Dimethylphenol	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
2,4-Dinitrophenol	3860	U	9350	3860	1930	ug/Kg	☼	08/11/14 20:29	1
2,4-Dinitrotoluene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
2,6-Dinitrotoluene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
2-Chloronaphthalene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
2-Chlorophenol	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
2-Methylphenol	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
2-Nitroaniline	578	U	9350	578	195	ug/Kg	☼	08/11/14 20:29	1
2-Nitrophenol	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
3 & 4 Methylphenol	578	U	3860	578	389	ug/Kg	☼	08/11/14 20:29	1
3,3'-Dichlorobenzidine	3860	U	9350	3860	1930	ug/Kg	☼	08/11/14 20:29	1
3-Nitroaniline	578	U	9350	578	195	ug/Kg	☼	08/11/14 20:29	1
4,6-Dinitro-2-methylphenol	3860	U	9350	3860	1930	ug/Kg	☼	08/11/14 20:29	1
4-Bromophenyl phenyl ether	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
4-Chloro-3-methylphenol	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
4-Chloroaniline	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
4-Chlorophenyl phenyl ether	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
4-Nitroaniline	3860	U	9350	3860	1930	ug/Kg	☼	08/11/14 20:29	1
4-Nitrophenol	3860	U	9350	3860	1930	ug/Kg	☼	08/11/14 20:29	1
Acenaphthene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Acenaphthylene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Anthracene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Benzo[a]anthracene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Benzo[a]pyrene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Benzo[b]fluoranthene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Benzo[g,h,i]perylene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Benzo[k]fluoranthene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
bis (2-chloroisopropyl) ether	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Bis(2-chloroethoxy)methane	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Bis(2-chloroethyl)ether	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Bis(2-ethylhexyl) phthalate	**3600**		1930	578	265	ug/Kg	☼	08/11/14 20:29	1
Butyl benzyl phthalate	**406**	**J**	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Chrysene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Dibenzo(a),h)anthracene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Dibenzofuran	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Diethyl phthalate	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Dimethyl phthalate	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Di-n-butyl phthalate	**569**	**J**	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Di-n-octyl phthalate	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Fluoranthene	**407**	**J**	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Fluorene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Hexachlorobenzene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-7-02
Date Collected: 07/31/14 09:14
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-2
Matrix: Solid
Percent Solids: 50.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Hexachlorocyclopentadiene	3860	U	9350	3860	1930	ug/Kg	☼	08/11/14 20:29	1
Hexachloroethane	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Indeno[1,2,3-cd]pyrene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Nitrobenzene	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
N-Nitrosodiphenylamine	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
N-Nitrosodi-n-propylamine	578	U	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Pentachlorophenol	1930	U	9350	1930	1930	ug/Kg	☼	08/11/14 20:29	1
Phenanthrene	**335**	**J**	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Phenol	**2520**		1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Pyrene	**380**	**J**	1930	578	195	ug/Kg	☼	08/11/14 20:29	1
Pyridine	578	U	3860	578	389	ug/Kg	☼	08/11/14 20:29	1
Naphthalene	**327**	**J**	1930	578	195	ug/Kg	☼	08/11/14 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*86*		*35 - 125*	*08/11/14 10:56*	*08/11/14 20:29*	*1*
2-Fluorobiphenyl (Surr)	*74*		*45 - 105*	*08/11/14 10:56*	*08/11/14 20:29*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 105*	*08/11/14 10:56*	*08/11/14 20:29*	*1*
Nitrobenzene-d5 (Surr)	*76*		*35 - 100*	*08/11/14 10:56*	*08/11/14 20:29*	*1*
Phenol-d5 (Surr)	*70*		*40 - 100*	*08/11/14 10:56*	*08/11/14 20:29*	*1*
Terphenyl-d14 (Surr)	*67*		*30 - 125*	*08/11/14 10:56*	*08/11/14 20:29*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-8-01
Date Collected: 07/31/14 14:07
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-3
Matrix: Solid
Percent Solids: 37.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
1,2-Dichlorobenzene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
1,3-Dichlorobenzene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
1,4-Dichlorobenzene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
2,4,5-Trichlorophenol	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
2,4,6-Trichlorophenol	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
2,4-Dichlorophenol	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
2,4-Dimethylphenol	**1120**	**J**	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
2,4-Dinitrophenol	5130	U	12400	5130	2560	ug/Kg	☼	08/11/14 21:03	1
2,4-Dinitrotoluene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
2,6-Dinitrotoluene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
2-Chloronaphthalene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
2-Chlorophenol	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
2-Methylphenol	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
2-Nitroaniline	769	U	12400	769	259	ug/Kg	☼	08/11/14 21:03	1
2-Nitrophenol	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
3 & 4 Methylphenol	769	U	5130	769	517	ug/Kg	☼	08/11/14 21:03	1
3,3'-Dichlorobenzidine	5130	U	12400	5130	2560	ug/Kg	☼	08/11/14 21:03	1
3-Nitroaniline	769	U	12400	769	259	ug/Kg	☼	08/11/14 21:03	1
4,6-Dinitro-2-methylphenol	5130	U	12400	5130	2560	ug/Kg	☼	08/11/14 21:03	1
4-Bromophenyl phenyl ether	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
4-Chloro-3-methylphenol	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
4-Chloroaniline	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
4-Chlorophenyl phenyl ether	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
4-Nitroaniline	5130	U	12400	5130	2560	ug/Kg	☼	08/11/14 21:03	1
4-Nitrophenol	5130	U	12400	5130	2560	ug/Kg	☼	08/11/14 21:03	1
Acenaphthene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Acenaphthylene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Anthracene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Benzo[a]anthracene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Benzo[a]pyrene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Benzo[b]fluoranthene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Benzo[g,h,i]perylene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Benzo[k]fluoranthene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
bis (2-chloroisopropyl) ether	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Bis(2-chloroethoxy)methane	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Bis(2-chloroethyl)ether	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Bis(2-ethylhexyl) phthalate	**22700**		2560	769	352	ug/Kg	☼	08/11/14 21:03	1
Butyl benzyl phthalate	**1060**	**J**	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Chrysene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Dibenzo(a),h)anthracene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Dibenzofuran	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Diethyl phthalate	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Dimethyl phthalate	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Di-n-butyl phthalate	**1510**	**J**	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Di-n-octyl phthalate	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Fluoranthene	**1270**	**J**	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Fluorene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Hexachlorobenzene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-8-01
Date Collected: 07/31/14 14:07
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-3
Matrix: Solid
Percent Solids: 37.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Hexachlorocyclopentadiene	5130	U	12400	5130	2560	ug/Kg	☼	08/11/14 21:03	1
Hexachloroethane	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Indeno[1,2,3-cd]pyrene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Nitrobenzene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
N-Nitrosodiphenylamine	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
N-Nitrosodi-n-propylamine	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Pentachlorophenol	2560	U	12400	2560	2560	ug/Kg	☼	08/11/14 21:03	1
Phenanthrene	**613**	**J**	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Phenol	**17100**		2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Pyrene	**1350**	**J**	2560	769	259	ug/Kg	☼	08/11/14 21:03	1
Pyridine	769	U	5130	769	517	ug/Kg	☼	08/11/14 21:03	1
Naphthalene	769	U	2560	769	259	ug/Kg	☼	08/11/14 21:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*95*		*35 - 125*	*08/11/14 10:56*	*08/11/14 21:03*	*1*
2-Fluorobiphenyl (Surr)	*73*		*45 - 105*	*08/11/14 10:56*	*08/11/14 21:03*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 105*	*08/11/14 10:56*	*08/11/14 21:03*	*1*
Nitrobenzene-d5 (Surr)	*73*		*35 - 100*	*08/11/14 10:56*	*08/11/14 21:03*	*1*
Phenol-d5 (Surr)	*68*		*40 - 100*	*08/11/14 10:56*	*08/11/14 21:03*	*1*
Terphenyl-d14 (Surr)	*79*		*30 - 125*	*08/11/14 10:56*	*08/11/14 21:03*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-8-02
Date Collected: 07/31/14 14:18
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-4
Matrix: Solid
Percent Solids: 50.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
1,2-Dichlorobenzene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
1,3-Dichlorobenzene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
1,4-Dichlorobenzene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
2,4,5-Trichlorophenol	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
2,4,6-Trichlorophenol	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
2,4-Dichlorophenol	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
2,4-Dimethylphenol	**906**	**J**	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
2,4-Dinitrophenol	3770	U	9130	3770	1880	ug/Kg	☼	08/11/14 21:37	1
2,4-Dinitrotoluene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
2,6-Dinitrotoluene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
2-Chloronaphthalene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
2-Chlorophenol	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
2-Methylphenol	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
2-Nitroaniline	565	U	9130	565	190	ug/Kg	☼	08/11/14 21:37	1
2-Nitrophenol	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
3 & 4 Methylphenol	565	U	3770	565	380	ug/Kg	☼	08/11/14 21:37	1
3,3'-Dichlorobenzidine	3770	U	9130	3770	1880	ug/Kg	☼	08/11/14 21:37	1
3-Nitroaniline	565	U	9130	565	190	ug/Kg	☼	08/11/14 21:37	1
4,6-Dinitro-2-methylphenol	3770	U	9130	3770	1880	ug/Kg	☼	08/11/14 21:37	1
4-Bromophenyl phenyl ether	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
4-Chloro-3-methylphenol	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
4-Chloroaniline	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
4-Chlorophenyl phenyl ether	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
4-Nitroaniline	3770	U	9130	3770	1880	ug/Kg	☼	08/11/14 21:37	1
4-Nitrophenol	3770	U	9130	3770	1880	ug/Kg	☼	08/11/14 21:37	1
Acenaphthene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Acenaphthylene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Anthracene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Benzo[a]anthracene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Benzo[a]pyrene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Benzo[b]fluoranthene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Benzo[g,h,i]perylene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Benzo[k]fluoranthene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
bis (2-chloroisopropyl) ether	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Bis(2-chloroethoxy)methane	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Bis(2-chloroethyl)ether	565	U	1880	565	191	ug/Kg	☼	08/11/14 21:37	1
Bis(2-ethylhexyl) phthalate	**17200**		1880	565	259	ug/Kg	☼	08/11/14 21:37	1
Butyl benzyl phthalate	**316**	**J**	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Chrysene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Dibenzo(a),h)anthracene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Dibenzofuran	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Diethyl phthalate	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Dimethyl phthalate	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Di-n-butyl phthalate	**404**	**J**	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Di-n-octyl phthalate	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Fluoranthene	**337**	**J**	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Fluorene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Hexachlorobenzene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-8-02
Date Collected: 07/31/14 14:18
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-4
Matrix: Solid
Percent Solids: 50.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Hexachlorocyclopentadiene	3770	U	9130	3770	1880	ug/Kg	☼	08/11/14 21:37	1
Hexachloroethane	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Indeno[1,2,3-cd]pyrene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Nitrobenzene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
N-Nitrosodiphenylamine	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
N-Nitrosodi-n-propylamine	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Pentachlorophenol	1880	U	9130	1880	1880	ug/Kg	☼	08/11/14 21:37	1
Phenanthrene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Phenol	**2840**		1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Pyrene	**253**	**J**	1880	565	190	ug/Kg	☼	08/11/14 21:37	1
Pyridine	565	U	3770	565	380	ug/Kg	☼	08/11/14 21:37	1
Naphthalene	565	U	1880	565	190	ug/Kg	☼	08/11/14 21:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*89*		*35 - 125*	*08/11/14 10:56*	*08/11/14 21:37*	*1*
2-Fluorobiphenyl (Surr)	*76*		*45 - 105*	*08/11/14 10:56*	*08/11/14 21:37*	*1*
2-Fluorophenol (Surr)	*67*		*35 - 105*	*08/11/14 10:56*	*08/11/14 21:37*	*1*
Nitrobenzene-d5 (Surr)	*78*		*35 - 100*	*08/11/14 10:56*	*08/11/14 21:37*	*1*
Phenol-d5 (Surr)	*69*		*40 - 100*	*08/11/14 10:56*	*08/11/14 21:37*	*1*
Terphenyl-d14 (Surr)	*72*		*30 - 125*	*08/11/14 10:56*	*08/11/14 21:37*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 6020A DOD - Metals (ICP/MS)

Client Sample ID: IWL-RINSE-01
Date Collected: 07/31/14 10:00
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-5
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Silver	1.00	U	2.00	1.00	0.817	ug/L		08/15/14 20:02	2
Arsenic	3.54	U	10.0	3.54	1.18	ug/L		08/15/14 20:02	2
Barium	**0.568**	**J**	2.00	0.660	0.223	ug/L		08/15/14 20:02	2
Beryllium	0.500	U ^	1.00	0.500	0.350	ug/L		08/15/14 20:02	2
Cadmium	**0.234**	**J**	0.500	0.300	0.100	ug/L		08/15/14 20:02	2
Cobalt	0.660	U	2.00	0.660	0.217	ug/L		08/15/14 20:02	2
Chromium	9.78	U	10.0	9.78	1.00	ug/L		08/15/14 20:02	2
Copper	**0.802**	**J**	3.00	1.35	0.451	ug/L		08/15/14 20:02	2
Iron	**20.5**	**J**	50.0	50.0	20.4	ug/L		08/15/14 20:02	2
Nickel	1.20	U	5.00	1.20	0.400	ug/L		08/15/14 20:02	2
Lead	**0.210**	**J**	3.00	0.510	0.173	ug/L		08/15/14 20:02	2
Antimony	5.00	U	5.00	5.00	1.67	ug/L		08/15/14 20:02	2
Selenium	4.77	U	5.00	4.77	1.59	ug/L		08/15/14 20:02	2
Thallium	1.65	U	2.00	1.65	0.550	ug/L		08/15/14 20:02	2
Vanadium	7.11	U	10.0	7.11	2.37	ug/L		08/15/14 20:02	2
Molybdenum	3.00	U ^	5.00	3.00	1.00	ug/L		08/15/14 20:02	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 6020A DOD - Metals (ICP/MS) - RE

Client Sample ID: IWL-RINSE-01
Date Collected: 07/31/14 10:00
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-5
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Zinc	15.3		10.0	10.0	8.29	ug/L		08/21/14 21:13	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-7-01
Date Collected: 07/31/14 09:05
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-1
Matrix: Solid
Percent Solids: 53.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	4.35		4.26	4.09	1.40	mg/Kg	☼	08/16/14 02:58	10
Arsenic	12.6		8.51	6.64	2.21	mg/Kg	☼	08/16/14 02:58	10
Barium	393		17.0	2.40	0.800	mg/Kg	☼	08/16/14 02:58	10
Beryllium	4.16		0.851	0.664	0.221	mg/Kg	☼	08/16/14 02:58	10
Cadmium	1100		0.511	0.409	0.136	mg/Kg	☼	08/16/14 02:58	10
Chromium	1570		16.2	8.51	3.83	mg/Kg	☼	08/16/14 02:58	10
Cobalt	87.6		1.70	1.10	0.366	mg/Kg	☼	08/16/14 02:58	10
Copper	602		8.51	2.55	0.860	mg/Kg	☼	08/16/14 02:58	10
Lead	434		2.55	2.55	0.851	mg/Kg	☼	08/16/14 02:58	10
Molybdenum	61.3		4.26	3.07	1.06	mg/Kg	☼	08/16/14 02:58	10
Nickel	1210		4.26	2.81	0.911	mg/Kg	☼	08/16/14 02:58	10
Selenium	2.95	J ^	4.26	4.09	1.35	mg/Kg	☼	08/16/14 02:58	10
Silver	31.0	B	3.83	0.613	0.204	mg/Kg	☼	08/16/14 02:58	10
Thallium	1.70	U	8.51	1.70	1.29	mg/Kg	☼	08/16/14 02:58	10
Vanadium	28.3		8.51	8.51	6.26	mg/Kg	☼	08/16/14 02:58	10
Iron	21600		102	42.6	28.1	mg/Kg	☼	08/16/14 02:58	10
Zinc	3130		42.6	34.0	11.3	mg/Kg	☼	08/16/14 02:58	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-7-02
Date Collected: 07/31/14 09:14
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-2
Matrix: Solid
Percent Solids: 50.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	24.7		4.90	4.70	1.61	mg/Kg	☼	08/16/14 03:05	10
Arsenic	21.4		9.80	7.64	2.55	mg/Kg	☼	08/16/14 03:05	10
Barium	1300		19.6	2.76	0.921	mg/Kg	☼	08/16/14 03:05	10
Beryllium	3.23		0.980	0.764	0.255	mg/Kg	☼	08/16/14 03:05	10
Cadmium	1450		0.588	0.470	0.157	mg/Kg	☼	08/16/14 03:05	10
Chromium	2890		18.6	9.80	4.41	mg/Kg	☼	08/16/14 03:05	10
Cobalt	88.7		1.96	1.26	0.421	mg/Kg	☼	08/16/14 03:05	10
Copper	1250		9.80	2.94	0.990	mg/Kg	☼	08/16/14 03:05	10
Lead	944		2.94	2.94	0.980	mg/Kg	☼	08/16/14 03:05	10
Molybdenum	135		4.90	3.53	1.22	mg/Kg	☼	08/16/14 03:05	10
Nickel	3130		4.90	3.23	1.05	mg/Kg	☼	08/16/14 03:05	10
Selenium	1.63	J ^	4.90	4.70	1.55	mg/Kg	☼	08/16/14 03:05	10
Silver	113	B	4.41	0.706	0.235	mg/Kg	☼	08/16/14 03:05	10
Thallium	1.96	U	9.80	1.96	1.49	mg/Kg	☼	08/16/14 03:05	10
Vanadium	37.6		9.80	9.80	7.20	mg/Kg	☼	08/16/14 03:05	10
Iron	32300		118	49.0	32.3	mg/Kg	☼	08/16/14 03:05	10
Zinc	5080		49.0	39.1	13.0	mg/Kg	☼	08/16/14 03:05	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-8-01
Date Collected: 07/31/14 14:07
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-3
Matrix: Solid
Percent Solids: 37.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	15.9		6.41	6.15	2.10	mg/Kg	☼	08/16/14 03:12	10
Arsenic	29.9		12.8	10.0	3.33	mg/Kg	☼	08/16/14 03:12	10
Barium	645		25.6	3.62	1.21	mg/Kg	☼	08/16/14 03:12	10
Beryllium	2.36		1.28	1.00	0.333	mg/Kg	☼	08/16/14 03:12	10
Cadmium	1650		0.769	0.615	0.205	mg/Kg	☼	08/16/14 03:12	10
Chromium	2740		24.4	12.8	5.77	mg/Kg	☼	08/16/14 03:12	10
Cobalt	74.6		2.56	1.65	0.551	mg/Kg	☼	08/16/14 03:12	10
Copper	1550		12.8	3.85	1.29	mg/Kg	☼	08/16/14 03:12	10
Lead	1410		3.85	3.85	1.28	mg/Kg	☼	08/16/14 03:12	10
Molybdenum	119		6.41	4.62	1.59	mg/Kg	☼	08/16/14 03:12	10
Nickel	1130		6.41	4.23	1.37	mg/Kg	☼	08/16/14 03:12	10
Selenium	6.15	U ^	6.41	6.15	2.03	mg/Kg	☼	08/16/14 03:12	10
Silver	46.6	B	5.77	0.923	0.308	mg/Kg	☼	08/16/14 03:12	10
Thallium	2.56	U	12.8	2.56	1.95	mg/Kg	☼	08/16/14 03:12	10
Vanadium	77.3		12.8	12.8	9.42	mg/Kg	☼	08/16/14 03:12	10
Iron	45700		154	64.1	42.3	mg/Kg	☼	08/16/14 03:12	10
Zinc	5830		64.1	51.2	17.1	mg/Kg	☼	08/16/14 03:12	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-8-02
Date Collected: 07/31/14 14:18
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-4
Matrix: Solid
Percent Solids: 50.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	7.64		4.74	4.55	1.55	mg/Kg	☼	08/16/14 03:18	10
Arsenic	19.8		9.48	7.39	2.46	mg/Kg	☼	08/16/14 03:18	10
Barium	346		19.0	2.67	0.891	mg/Kg	☼	08/16/14 03:18	10
Beryllium	0.895	J	0.948	0.739	0.246	mg/Kg	☼	08/16/14 03:18	10
Cadmium	729		0.569	0.455	0.152	mg/Kg	☼	08/16/14 03:18	10
Chromium	1880		18.0	9.48	4.26	mg/Kg	☼	08/16/14 03:18	10
Cobalt	36.9		1.90	1.22	0.408	mg/Kg	☼	08/16/14 03:18	10
Copper	971		9.48	2.84	0.957	mg/Kg	☼	08/16/14 03:18	10
Lead	814		2.84	2.84	0.948	mg/Kg	☼	08/16/14 03:18	10
Molybdenum	44.8		4.74	3.41	1.18	mg/Kg	☼	08/16/14 03:18	10
Nickel	533		4.74	3.13	1.01	mg/Kg	☼	08/16/14 03:18	10
Selenium	2.47	J ^	4.74	4.55	1.50	mg/Kg	☼	08/16/14 03:18	10
Silver	27.7	B	4.26	0.682	0.227	mg/Kg	☼	08/16/14 03:18	10
Thallium	1.90	U	9.48	1.90	1.44	mg/Kg	☼	08/16/14 03:18	10
Vanadium	83.5		9.48	9.48	6.97	mg/Kg	☼	08/16/14 03:18	10
Iron	61100		114	47.4	31.3	mg/Kg	☼	08/16/14 03:18	10
Zinc	3900		47.4	37.8	12.6	mg/Kg	☼	08/16/14 03:18	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 7470A DOD - Mercury (CVAA)

Client Sample ID: IWL-RINSE-01
Date Collected: 07/31/14 10:00
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-5
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.150	U	0.180	0.150	0.0600	ug/L		08/22/14 15:13	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-7-01
Date Collected: 07/31/14 09:05
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-1
Matrix: Solid
Percent Solids: 53.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.61		0.0721	0.0541	0.0198	mg/Kg	☼	08/13/14 18:01	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-7-02
Date Collected: 07/31/14 09:14
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-2
Matrix: Solid
Percent Solids: 50.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.43		0.0726	0.0544	0.0200	mg/Kg	☼	08/13/14 18:07	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-8-01
Date Collected: 07/31/14 14:07
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-3
Matrix: Solid
Percent Solids: 37.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	3.08		0.0938	0.0703	0.0258	mg/Kg	☼	08/13/14 18:09	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7718-1
SDG: 160-7718

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-8-02
Date Collected: 07/31/14 14:18
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7718-4
Matrix: Solid
Percent Solids: 50.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.98		0.0679	0.0509	0.0187	mg/Kg	☼	08/13/14 18:12	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7757-1
TestAmerica Sample Delivery Group: 160-7757
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
8/21/2014 4:43:37 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1007

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number: 7707 5792 0434
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MH1-8-UP-01	8/4/2014	0822	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-8 10' UP INSIDE THE PIPE			N
IWL-MH1-8-ND-02	8/4/2014	0839	2	3	S	10 dy	X	X	X					two-4 oz for voc, two- 8 oz for svoc/metals	IWL-MH1-8 10' DN INSIDE THE PIPE			N
IWL-MH1-09-01	8/4/2014	0913	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-09			N
IWL-MH1-09-02	8/4/2014	0919	2	3	S	10 dy	X	X	X					two-4 oz for voc, two- 8 oz for svoc/metals	IWL-MH1-09			N
IWL-MH1-14-01	8/4/2014	1130	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-MH1-14			N
IWL-MH1-14-02	8/4/2014	1140	2	3	S	10 dy	X	X	X					two-4 oz for voc, two- 8 oz for svoc/metals	IWL-MH1-14			N
IWL-RINSE-02	8/4/2014	1300	5	3	W	10 dy	X	X	X						EQUIPMENT BLK			EB

Relinquished by: (signature)	Date:	Received by (signature)
[signature]	8.4.14	FedEx
Company: Tetra tech	Time: 1500	Company: FedEx
Relinquished by: (signature)	Date: 8.5.14	Received by (signature) [signature]
Company: Fed Ex	Time: 0925	Company: TA STL
Relinquished by: (signature)	Date:	Received by (signature)
Company:	Time:	Company:

Laboratory Instructions/Comments:

Composite Discription:

Sample Condition Upon Receipt (for Laboratory)

Temperature: Sample Condition:

Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1007

160-7757 Chain of Custody

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-8-UP-01
Date Collected: 08/04/14 08:22
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-1
Matrix: Solid
Percent Solids: 62.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	**11.5**	**J**	39.8	7.96	3.43	ug/Kg	☼	08/07/14 14:48	1
1,1,2,2-Tetrachloroethane	7.96	U	39.8	7.96	3.19	ug/Kg	☼	08/07/14 14:48	1
1,1,2-Trichloroethane	7.96	U	39.8	7.96	4.56	ug/Kg	☼	08/07/14 14:48	1
1,1-Dichloroethane	7.96	U	39.8	7.96	3.12	ug/Kg	☼	08/07/14 14:48	1
1,1-Dichloroethene	39.8	U	39.8	39.8	12.8	ug/Kg	☼	08/07/14 14:48	1
1,2-Dichloroethane	7.96	U	39.8	7.96	6.90	ug/Kg	☼	08/07/14 14:48	1
1,2-Dichloropropane	7.96	U	39.8	7.96	3.05	ug/Kg	☼	08/07/14 14:48	1
2-Butanone (MEK)	39.8	U	159	39.8	15.3	ug/Kg	☼	08/07/14 14:48	1
2-Hexanone	39.8	U	79.6	39.8	14.1	ug/Kg	☼	08/07/14 14:48	1
4-Methyl-2-pentanone (MIBK)	39.8	U	159	39.8	5.83	ug/Kg	☼	08/07/14 14:48	1
Acetone	**80.0**	**J**	159	79.6	51.5	ug/Kg	☼	08/07/14 14:48	1
Benzene	7.96	U	39.8	7.96	2.01	ug/Kg	☼	08/07/14 14:48	1
Bromodichloromethane	7.96	U	39.8	7.96	2.02	ug/Kg	☼	08/07/14 14:48	1
Bromoform	7.96	U	39.8	7.96	2.91	ug/Kg	☼	08/07/14 14:48	1
Bromomethane	39.8	U	79.6	39.8	8.75	ug/Kg	☼	08/07/14 14:48	1
Carbon tetrachloride	7.96	U	39.8	7.96	4.08	ug/Kg	☼	08/07/14 14:48	1
Chlorobenzene	7.96	U	39.8	7.96	3.04	ug/Kg	☼	08/07/14 14:48	1
Chloroethane	**56.7**	**J**	79.6	7.96	4.11	ug/Kg	☼	08/07/14 14:48	1
Chloroform	7.96	U	39.8	7.96	2.99	ug/Kg	☼	08/07/14 14:48	1
Chloromethane	39.8	U	79.6	39.8	5.17	ug/Kg	☼	08/07/14 14:48	1
cis-1,2-Dichloroethene	7.96	U	39.8	7.96	4.75	ug/Kg	☼	08/07/14 14:48	1
cis-1,3-Dichloropropene	7.96	U	39.8	7.96	4.74	ug/Kg	☼	08/07/14 14:48	1
Dibromochloromethane	7.96	U	39.8	7.96	3.23	ug/Kg	☼	08/07/14 14:48	1
Ethylbenzene	7.96	U	39.8	7.96	2.38	ug/Kg	☼	08/07/14 14:48	1
Methyl tert-butyl ether	7.96	U	39.8	7.96	3.79	ug/Kg	☼	08/07/14 14:48	1
Methylene Chloride	**15.0**	**J**	79.6	39.8	12.6	ug/Kg	☼	08/07/14 14:48	1
Styrene	7.96	U	39.8	7.96	2.76	ug/Kg	☼	08/07/14 14:48	1
Tetrachloroethene	7.96	U	39.8	7.96	2.56	ug/Kg	☼	08/07/14 14:48	1
Toluene	7.96	U	39.8	7.96	5.57	ug/Kg	☼	08/07/14 14:48	1
trans-1,2-Dichloroethene	7.96	U	39.8	7.96	7.50	ug/Kg	☼	08/07/14 14:48	1
trans-1,3-Dichloropropene	7.96	U	39.8	7.96	2.78	ug/Kg	☼	08/07/14 14:48	1
Trichloroethene	7.96	U	39.8	7.96	3.06	ug/Kg	☼	08/07/14 14:48	1
Vinyl chloride	7.96	U	79.6	7.96	3.41	ug/Kg	☼	08/07/14 14:48	1
Xylenes, Total	39.8	U	79.6	39.8	6.80	ug/Kg	☼	08/07/14 14:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*159*	*X*	*85 - 120*	*08/07/14 09:52*	*08/07/14 14:48*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*71 - 128*	*08/07/14 09:52*	*08/07/14 14:48*	*1*
Toluene-d8 (Surr)	*100*		*85 - 115*	*08/07/14 09:52*	*08/07/14 14:48*	*1*
Dibromofluoromethane (Surr)	*105*		*76 - 126*	*08/07/14 09:52*	*08/07/14 14:48*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-8-ND-02
Date Collected: 08/04/14 08:39
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-2
Matrix: Solid
Percent Solids: 50.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	**11.4**	**J**	48.4	9.67	4.17	ug/Kg	☼	08/07/14 15:13	1
1,1,2,2-Tetrachloroethane	9.67	U	48.4	9.67	3.88	ug/Kg	☼	08/07/14 15:13	1
1,1,2-Trichloroethane	9.67	U	48.4	9.67	5.54	ug/Kg	☼	08/07/14 15:13	1
1,1-Dichloroethane	9.67	U	48.4	9.67	3.79	ug/Kg	☼	08/07/14 15:13	1
1,1-Dichloroethene	48.4	U	48.4	48.4	15.6	ug/Kg	☼	08/07/14 15:13	1
1,2-Dichloroethane	9.67	U	48.4	9.67	8.39	ug/Kg	☼	08/07/14 15:13	1
1,2-Dichloropropane	9.67	U	48.4	9.67	3.70	ug/Kg	☼	08/07/14 15:13	1
2-Butanone (MEK)	48.4	U	193	48.4	18.6	ug/Kg	☼	08/07/14 15:13	1
2-Hexanone	48.4	U	96.7	48.4	17.1	ug/Kg	☼	08/07/14 15:13	1
4-Methyl-2-pentanone (MIBK)	48.4	U	193	48.4	7.08	ug/Kg	☼	08/07/14 15:13	1
Acetone	**65.4**	**J**	193	96.7	62.6	ug/Kg	☼	08/07/14 15:13	1
Benzene	9.67	U	48.4	9.67	2.45	ug/Kg	☼	08/07/14 15:13	1
Bromodichloromethane	9.67	U	48.4	9.67	2.46	ug/Kg	☼	08/07/14 15:13	1
Bromoform	9.67	U	48.4	9.67	3.54	ug/Kg	☼	08/07/14 15:13	1
Bromomethane	48.4	U	96.7	48.4	10.6	ug/Kg	☼	08/07/14 15:13	1
Carbon tetrachloride	9.67	U	48.4	9.67	4.96	ug/Kg	☼	08/07/14 15:13	1
Chlorobenzene	9.67	U	48.4	9.67	3.69	ug/Kg	☼	08/07/14 15:13	1
Chloroethane	**73.1**	**J**	96.7	9.67	4.99	ug/Kg	☼	08/07/14 15:13	1
Chloroform	9.67	U	48.4	9.67	3.64	ug/Kg	☼	08/07/14 15:13	1
Chloromethane	48.4	U	96.7	48.4	6.29	ug/Kg	☼	08/07/14 15:13	1
cis-1,2-Dichloroethene	**11.1**	**J**	48.4	9.67	5.77	ug/Kg	☼	08/07/14 15:13	1
cis-1,3-Dichloropropene	9.67	U	48.4	9.67	5.75	ug/Kg	☼	08/07/14 15:13	1
Dibromochloromethane	9.67	U	48.4	9.67	3.93	ug/Kg	☼	08/07/14 15:13	1
Ethylbenzene	9.67	U	48.4	9.67	2.89	ug/Kg	☼	08/07/14 15:13	1
Methyl tert-butyl ether	9.67	U	48.4	9.67	4.60	ug/Kg	☼	08/07/14 15:13	1
Methylene Chloride	**18.8**	**J**	96.7	48.4	15.3	ug/Kg	☼	08/07/14 15:13	1
Styrene	9.67	U	48.4	9.67	3.36	ug/Kg	☼	08/07/14 15:13	1
Tetrachloroethene	9.67	U	48.4	9.67	3.11	ug/Kg	☼	08/07/14 15:13	1
Toluene	9.67	U	48.4	9.67	6.77	ug/Kg	☼	08/07/14 15:13	1
trans-1,2-Dichloroethene	9.67	U	48.4	9.67	9.12	ug/Kg	☼	08/07/14 15:13	1
trans-1,3-Dichloropropene	9.67	U	48.4	9.67	3.38	ug/Kg	☼	08/07/14 15:13	1
Trichloroethene	9.67	U	48.4	9.67	3.72	ug/Kg	☼	08/07/14 15:13	1
Vinyl chloride	9.67	U	96.7	9.67	4.14	ug/Kg	☼	08/07/14 15:13	1
Xylenes, Total	48.4	U	96.7	48.4	8.26	ug/Kg	☼	08/07/14 15:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*182*	*X*	*85 - 120*	*08/07/14 09:52*	*08/07/14 15:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 128*	*08/07/14 09:52*	*08/07/14 15:13*	*1*
Toluene-d8 (Surr)	*104*		*85 - 115*	*08/07/14 09:52*	*08/07/14 15:13*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 126*	*08/07/14 09:52*	*08/07/14 15:13*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-09-01
Date Collected: 08/04/14 09:13
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-3
Matrix: Solid
Percent Solids: 31.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	**43.8**	**J**	75.1	15.0	6.47	ug/Kg	☼	08/07/14 15:37	1
1,1,2,2-Tetrachloroethane	15.0	U	75.1	15.0	6.02	ug/Kg	☼	08/07/14 15:37	1
1,1,2-Trichloroethane	15.0	U	75.1	15.0	8.60	ug/Kg	☼	08/07/14 15:37	1
1,1-Dichloroethane	**76.7**		75.1	15.0	5.89	ug/Kg	☼	08/07/14 15:37	1
1,1-Dichloroethene	75.1	U	75.1	75.1	24.2	ug/Kg	☼	08/07/14 15:37	1
1,2-Dichloroethane	15.0	U	75.1	15.0	13.0	ug/Kg	☼	08/07/14 15:37	1
1,2-Dichloropropane	15.0	U	75.1	15.0	5.75	ug/Kg	☼	08/07/14 15:37	1
2-Butanone (MEK)	75.1	U	300	75.1	28.8	ug/Kg	☼	08/07/14 15:37	1
2-Hexanone	75.1	U	150	75.1	26.6	ug/Kg	☼	08/07/14 15:37	1
4-Methyl-2-pentanone (MIBK)	75.1	U	300	75.1	11.0	ug/Kg	☼	08/07/14 15:37	1
Acetone	**285**	**J**	300	150	97.1	ug/Kg	☼	08/07/14 15:37	1
Benzene	**6.75**	**J**	75.1	15.0	3.80	ug/Kg	☼	08/07/14 15:37	1
Bromodichloromethane	15.0	U	75.1	15.0	3.81	ug/Kg	☼	08/07/14 15:37	1
Bromoform	15.0	U	75.1	15.0	5.50	ug/Kg	☼	08/07/14 15:37	1
Bromomethane	75.1	U	150	75.1	16.5	ug/Kg	☼	08/07/14 15:37	1
Carbon tetrachloride	15.0	U	75.1	15.0	7.70	ug/Kg	☼	08/07/14 15:37	1
Chlorobenzene	15.0	U	75.1	15.0	5.74	ug/Kg	☼	08/07/14 15:37	1
Chloroethane	**124**	**J**	150	15.0	7.75	ug/Kg	☼	08/07/14 15:37	1
Chloroform	15.0	U	75.1	15.0	5.65	ug/Kg	☼	08/07/14 15:37	1
Chloromethane	75.1	U	150	75.1	9.76	ug/Kg	☼	08/07/14 15:37	1
cis-1,2-Dichloroethene	15.0	U	75.1	15.0	8.96	ug/Kg	☼	08/07/14 15:37	1
cis-1,3-Dichloropropene	15.0	U	75.1	15.0	8.93	ug/Kg	☼	08/07/14 15:37	1
Dibromochloromethane	15.0	U	75.1	15.0	6.10	ug/Kg	☼	08/07/14 15:37	1
Ethylbenzene	15.0	U	75.1	15.0	4.49	ug/Kg	☼	08/07/14 15:37	1
Methyl tert-butyl ether	15.0	U	75.1	15.0	7.15	ug/Kg	☼	08/07/14 15:37	1
Methylene Chloride	**32.5**	**J**	150	75.1	23.7	ug/Kg	☼	08/07/14 15:37	1
Styrene	15.0	U	75.1	15.0	5.21	ug/Kg	☼	08/07/14 15:37	1
Tetrachloroethene	15.0	U	75.1	15.0	4.83	ug/Kg	☼	08/07/14 15:37	1
Toluene	15.0	U	75.1	15.0	10.5	ug/Kg	☼	08/07/14 15:37	1
trans-1,2-Dichloroethene	15.0	U	75.1	15.0	14.2	ug/Kg	☼	08/07/14 15:37	1
trans-1,3-Dichloropropene	15.0	U	75.1	15.0	5.24	ug/Kg	☼	08/07/14 15:37	1
Trichloroethene	15.0	U	75.1	15.0	5.78	ug/Kg	☼	08/07/14 15:37	1
Vinyl chloride	15.0	U	150	15.0	6.43	ug/Kg	☼	08/07/14 15:37	1
Xylenes, Total	75.1	U	150	75.1	12.8	ug/Kg	☼	08/07/14 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*171*	*X*	*85 - 120*	*08/07/14 09:52*	*08/07/14 15:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 128*	*08/07/14 09:52*	*08/07/14 15:37*	*1*
Toluene-d8 (Surr)	*183*	*X*	*85 - 115*	*08/07/14 09:52*	*08/07/14 15:37*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 126*	*08/07/14 09:52*	*08/07/14 15:37*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-09-02
Date Collected: 08/04/14 09:19
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-4
Matrix: Solid
Percent Solids: 35.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	14.2	U	70.9	14.2	6.11	ug/Kg	☼	08/07/14 16:02	1
1,1,2,2-Tetrachloroethane	14.2	U *	70.9	14.2	5.68	ug/Kg	☼	08/07/14 16:02	1
1,1,2-Trichloroethane	14.2	U	70.9	14.2	8.12	ug/Kg	☼	08/07/14 16:02	1
1,1-Dichloroethane	14.2	U	70.9	14.2	5.56	ug/Kg	☼	08/07/14 16:02	1
1,1-Dichloroethene	70.9	U	70.9	70.9	22.8	ug/Kg	☼	08/07/14 16:02	1
1,2-Dichloroethane	14.2	U	70.9	14.2	12.3	ug/Kg	☼	08/07/14 16:02	1
1,2-Dichloropropane	14.2	U	70.9	14.2	5.43	ug/Kg	☼	08/07/14 16:02	1
2-Butanone (MEK)	70.9	U	283	70.9	27.2	ug/Kg	☼	08/07/14 16:02	1
2-Hexanone	70.9	U	142	70.9	25.1	ug/Kg	☼	08/07/14 16:02	1
4-Methyl-2-pentanone (MIBK)	70.9	U	283	70.9	10.4	ug/Kg	☼	08/07/14 16:02	1
Acetone	**211**	**J**	283	142	91.7	ug/Kg	☼	08/07/14 16:02	1
Benzene	14.2	U	70.9	14.2	3.59	ug/Kg	☼	08/07/14 16:02	1
Bromodichloromethane	14.2	U	70.9	14.2	3.60	ug/Kg	☼	08/07/14 16:02	1
Bromoform	14.2	U *	70.9	14.2	5.19	ug/Kg	☼	08/07/14 16:02	1
Bromomethane	70.9	U	142	70.9	15.6	ug/Kg	☼	08/07/14 16:02	1
Carbon tetrachloride	14.2	U	70.9	14.2	7.27	ug/Kg	☼	08/07/14 16:02	1
Chlorobenzene	14.2	U	70.9	14.2	5.41	ug/Kg	☼	08/07/14 16:02	1
Chloroethane	**77.5**	**J**	142	14.2	7.31	ug/Kg	☼	08/07/14 16:02	1
Chloroform	14.2	U	70.9	14.2	5.33	ug/Kg	☼	08/07/14 16:02	1
Chloromethane	70.9	U	142	70.9	9.21	ug/Kg	☼	08/07/14 16:02	1
cis-1,2-Dichloroethene	14.2	U	70.9	14.2	8.46	ug/Kg	☼	08/07/14 16:02	1
cis-1,3-Dichloropropene	14.2	U	70.9	14.2	8.43	ug/Kg	☼	08/07/14 16:02	1
Dibromochloromethane	14.2	U	70.9	14.2	5.75	ug/Kg	☼	08/07/14 16:02	1
Ethylbenzene	**14.1**	**J**	70.9	14.2	4.24	ug/Kg	☼	08/07/14 16:02	1
Methyl tert-butyl ether	14.2	U	70.9	14.2	6.75	ug/Kg	☼	08/07/14 16:02	1
Methylene Chloride	**25.6**	**J**	142	70.9	22.4	ug/Kg	☼	08/07/14 16:02	1
Styrene	14.2	U	70.9	14.2	4.92	ug/Kg	☼	08/07/14 16:02	1
Tetrachloroethene	14.2	U	70.9	14.2	4.56	ug/Kg	☼	08/07/14 16:02	1
Toluene	14.2	U	70.9	14.2	9.92	ug/Kg	☼	08/07/14 16:02	1
trans-1,2-Dichloroethene	14.2	U	70.9	14.2	13.4	ug/Kg	☼	08/07/14 16:02	1
trans-1,3-Dichloropropene	14.2	U	70.9	14.2	4.95	ug/Kg	☼	08/07/14 16:02	1
Trichloroethene	14.2	U	70.9	14.2	5.46	ug/Kg	☼	08/07/14 16:02	1
Vinyl chloride	14.2	U	142	14.2	6.07	ug/Kg	☼	08/07/14 16:02	1
Xylenes, Total	70.9	U	142	70.9	12.1	ug/Kg	☼	08/07/14 16:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*638*	*E * X*	*85 - 120*	*08/07/14 09:52*	*08/07/14 16:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*71 - 128*	*08/07/14 09:52*	*08/07/14 16:02*	*1*
Toluene-d8 (Surr)	*141*	*X*	*85 - 115*	*08/07/14 09:52*	*08/07/14 16:02*	*1*
Dibromofluoromethane (Surr)	*100*		*76 - 126*	*08/07/14 09:52*	*08/07/14 16:02*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-14-01
Date Collected: 08/04/14 11:30
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-5
Matrix: Solid
Percent Solids: 38.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	12.7	U	63.6	12.7	5.48	ug/Kg	☼	08/07/14 16:27	1
1,1,2,2-Tetrachloroethane	12.7	U *	63.6	12.7	5.10	ug/Kg	☼	08/07/14 16:27	1
1,1,2-Trichloroethane	12.7	U *	63.6	12.7	7.29	ug/Kg	☼	08/07/14 16:27	1
1,1-Dichloroethane	12.7	U	63.6	12.7	4.99	ug/Kg	☼	08/07/14 16:27	1
1,1-Dichloroethene	63.6	U	63.6	63.6	20.5	ug/Kg	☼	08/07/14 16:27	1
1,2-Dichloroethane	12.7	U	63.6	12.7	11.0	ug/Kg	☼	08/07/14 16:27	1
1,2-Dichloropropane	12.7	U	63.6	12.7	4.87	ug/Kg	☼	08/07/14 16:27	1
2-Butanone (MEK)	63.6	U	254	63.6	24.4	ug/Kg	☼	08/07/14 16:27	1
2-Hexanone	63.6	U *	127	63.6	22.5	ug/Kg	☼	08/07/14 16:27	1
4-Methyl-2-pentanone (MIBK)	63.6	U *	254	63.6	9.31	ug/Kg	☼	08/07/14 16:27	1
Acetone	**253**	**J**	254	127	82.3	ug/Kg	☼	08/07/14 16:27	1
Benzene	**10.2**	**J**	63.6	12.7	3.22	ug/Kg	☼	08/07/14 16:27	1
Bromodichloromethane	12.7	U	63.6	12.7	3.23	ug/Kg	☼	08/07/14 16:27	1
Bromoform	12.7	U *	63.6	12.7	4.65	ug/Kg	☼	08/07/14 16:27	1
Bromomethane	63.6	U	127	63.6	14.0	ug/Kg	☼	08/07/14 16:27	1
Carbon tetrachloride	12.7	U	63.6	12.7	6.52	ug/Kg	☼	08/07/14 16:27	1
Chlorobenzene	12.7	U *	63.6	12.7	4.86	ug/Kg	☼	08/07/14 16:27	1
Chloroethane	12.7	U	127	12.7	6.56	ug/Kg	☼	08/07/14 16:27	1
Chloroform	12.7	U	63.6	12.7	4.78	ug/Kg	☼	08/07/14 16:27	1
Chloromethane	63.6	U	127	63.6	8.27	ug/Kg	☼	08/07/14 16:27	1
cis-1,2-Dichloroethene	12.7	U	63.6	12.7	7.59	ug/Kg	☼	08/07/14 16:27	1
cis-1,3-Dichloropropene	12.7	U	63.6	12.7	7.57	ug/Kg	☼	08/07/14 16:27	1
Dibromochloromethane	12.7	U *	63.6	12.7	5.16	ug/Kg	☼	08/07/14 16:27	1
Ethylbenzene	**16.0**	**J ***	63.6	12.7	3.80	ug/Kg	☼	08/07/14 16:27	1
Methyl tert-butyl ether	12.7	U	63.6	12.7	6.05	ug/Kg	☼	08/07/14 16:27	1
Methylene Chloride	**27.8**	**J**	127	63.6	20.1	ug/Kg	☼	08/07/14 16:27	1
Styrene	12.7	U *	63.6	12.7	4.41	ug/Kg	☼	08/07/14 16:27	1
Tetrachloroethene	12.7	U *	63.6	12.7	4.09	ug/Kg	☼	08/07/14 16:27	1
Toluene	12.7	U *	63.6	12.7	8.90	ug/Kg	☼	08/07/14 16:27	1
trans-1,2-Dichloroethene	12.7	U	63.6	12.7	12.0	ug/Kg	☼	08/07/14 16:27	1
trans-1,3-Dichloropropene	12.7	U *	63.6	12.7	4.44	ug/Kg	☼	08/07/14 16:27	1
Trichloroethene	12.7	U	63.6	12.7	4.90	ug/Kg	☼	08/07/14 16:27	1
Vinyl chloride	12.7	U	127	12.7	5.44	ug/Kg	☼	08/07/14 16:27	1
Xylenes, Total	63.6	U *	127	63.6	10.9	ug/Kg	☼	08/07/14 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*354*	** X*	*85 - 120*	*08/07/14 09:52*	*08/07/14 16:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 128*	*08/07/14 09:52*	*08/07/14 16:27*	*1*
Toluene-d8 (Surr)	*141*	** X*	*85 - 115*	*08/07/14 09:52*	*08/07/14 16:27*	*1*
Dibromofluoromethane (Surr)	*96*		*76 - 126*	*08/07/14 09:52*	*08/07/14 16:27*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-14-02
Date Collected: 08/04/14 11:40
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-6
Matrix: Solid
Percent Solids: 34.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	14.0	U	70.0	14.0	6.03	ug/Kg	☼	08/07/14 17:17	1
1,1,2,2-Tetrachloroethane	14.0	U *	70.0	14.0	5.61	ug/Kg	☼	08/07/14 17:17	1
1,1,2-Trichloroethane	14.0	U *	70.0	14.0	8.02	ug/Kg	☼	08/07/14 17:17	1
1,1-Dichloroethane	14.0	U	70.0	14.0	5.49	ug/Kg	☼	08/07/14 17:17	1
1,1-Dichloroethene	70.0	U	70.0	70.0	22.5	ug/Kg	☼	08/07/14 17:17	1
1,2-Dichloroethane	14.0	U	70.0	14.0	12.1	ug/Kg	☼	08/07/14 17:17	1
1,2-Dichloropropane	14.0	U	70.0	14.0	5.36	ug/Kg	☼	08/07/14 17:17	1
2-Butanone (MEK)	70.0	U	280	70.0	26.9	ug/Kg	☼	08/07/14 17:17	1
2-Hexanone	70.0	U *	140	70.0	24.8	ug/Kg	☼	08/07/14 17:17	1
4-Methyl-2-pentanone (MIBK)	70.0	U *	280	70.0	10.2	ug/Kg	☼	08/07/14 17:17	1
Acetone	**318**		280	140	90.6	ug/Kg	☼	08/07/14 17:17	1
Benzene	**11.9**	**J**	70.0	14.0	3.54	ug/Kg	☼	08/07/14 17:17	1
Bromodichloromethane	14.0	U	70.0	14.0	3.56	ug/Kg	☼	08/07/14 17:17	1
Bromoform	14.0	U *	70.0	14.0	5.12	ug/Kg	☼	08/07/14 17:17	1
Bromomethane	70.0	U	140	70.0	15.4	ug/Kg	☼	08/07/14 17:17	1
Carbon tetrachloride	14.0	U	70.0	14.0	7.18	ug/Kg	☼	08/07/14 17:17	1
Chlorobenzene	14.0	U *	70.0	14.0	5.35	ug/Kg	☼	08/07/14 17:17	1
Chloroethane	14.0	U	140	14.0	7.22	ug/Kg	☼	08/07/14 17:17	1
Chloroform	14.0	U	70.0	14.0	5.26	ug/Kg	☼	08/07/14 17:17	1
Chloromethane	70.0	U	140	70.0	9.10	ug/Kg	☼	08/07/14 17:17	1
cis-1,2-Dichloroethene	14.0	U	70.0	14.0	8.36	ug/Kg	☼	08/07/14 17:17	1
cis-1,3-Dichloropropene	14.0	U	70.0	14.0	8.33	ug/Kg	☼	08/07/14 17:17	1
Dibromochloromethane	14.0	U *	70.0	14.0	5.68	ug/Kg	☼	08/07/14 17:17	1
Ethylbenzene	**17.3**	**J ***	70.0	14.0	4.19	ug/Kg	☼	08/07/14 17:17	1
Methyl tert-butyl ether	14.0	U	70.0	14.0	6.66	ug/Kg	☼	08/07/14 17:17	1
Methylene Chloride	**25.3**	**J**	140	70.0	22.1	ug/Kg	☼	08/07/14 17:17	1
Styrene	14.0	U *	70.0	14.0	4.86	ug/Kg	☼	08/07/14 17:17	1
Tetrachloroethene	14.0	U *	70.0	14.0	4.51	ug/Kg	☼	08/07/14 17:17	1
Toluene	**11.4**	**J ***	70.0	14.0	9.80	ug/Kg	☼	08/07/14 17:17	1
trans-1,2-Dichloroethene	14.0	U	70.0	14.0	13.2	ug/Kg	☼	08/07/14 17:17	1
trans-1,3-Dichloropropene	14.0	U *	70.0	14.0	4.89	ug/Kg	☼	08/07/14 17:17	1
Trichloroethene	14.0	U	70.0	14.0	5.39	ug/Kg	☼	08/07/14 17:17	1
Vinyl chloride	14.0	U	140	14.0	5.99	ug/Kg	☼	08/07/14 17:17	1
Xylenes, Total	70.0	U *	140	70.0	12.0	ug/Kg	☼	08/07/14 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*	*	*85 - 120*	*08/07/14 09:52*	*08/07/14 17:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 128*	*08/07/14 09:52*	*08/07/14 17:17*	*1*
Toluene-d8 (Surr)	*134*	*X	*85 - 115*	*08/07/14 09:52*	*08/07/14 17:17*	*1*
Dibromofluoromethane (Surr)	*97*		*76 - 126*	*08/07/14 09:52*	*08/07/14 17:17*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-02
Date Collected: 08/04/14 13:00
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.00	U	5.00	1.00	0.291	ug/L		08/08/14 13:16	1
1,1,2,2-Tetrachloroethane	2.00	U	5.00	2.00	0.425	ug/L		08/08/14 13:16	1
1,1,2-Trichloroethane	1.00	U	5.00	1.00	0.573	ug/L		08/08/14 13:16	1
1,1-Dichloroethane	1.00	U	5.00	1.00	0.392	ug/L		08/08/14 13:16	1
1,1-Dichloroethene	1.00	U	5.00	1.00	0.365	ug/L		08/08/14 13:16	1
1,2-Dichloroethane	1.00	U	5.00	1.00	0.372	ug/L		08/08/14 13:16	1
1,2-Dichloropropane	1.00	U	5.00	1.00	0.317	ug/L		08/08/14 13:16	1
2-Butanone (MEK)	5.00	U	20.0	5.00	0.389	ug/L		08/08/14 13:16	1
2-Hexanone	2.00	U	20.0	2.00	0.593	ug/L		08/08/14 13:16	1
4-Methyl-2-pentanone (MIBK)	2.00	U	20.0	2.00	0.326	ug/L		08/08/14 13:16	1
Acetone	10.0	U	20.0	10.0	6.67	ug/L		08/08/14 13:16	1
Benzene	1.00	U	5.00	1.00	0.253	ug/L		08/08/14 13:16	1
Bromoform	1.00	U	5.00	1.00	0.366	ug/L		08/08/14 13:16	1
Bromomethane	2.00	U	10.0	2.00	0.396	ug/L		08/08/14 13:16	1
Carbon tetrachloride	1.00	U	5.00	1.00	0.360	ug/L		08/08/14 13:16	1
Chlorobenzene	1.00	U	5.00	1.00	0.382	ug/L		08/08/14 13:16	1
Dibromochloromethane	1.00	U	5.00	1.00	0.329	ug/L		08/08/14 13:16	1
Chloroethane	1.00	U	10.0	1.00	0.382	ug/L		08/08/14 13:16	1
Chloroform	1.00	U	5.00	1.00	0.147	ug/L		08/08/14 13:16	1
Chloromethane	2.00	U	10.0	2.00	0.553	ug/L		08/08/14 13:16	1
cis-1,2-Dichloroethene	1.00	U	5.00	1.00	0.159	ug/L		08/08/14 13:16	1
cis-1,3-Dichloropropene	1.00	U	5.00	1.00	0.339	ug/L		08/08/14 13:16	1
Bromodichloromethane	2.00	U	5.00	2.00	0.254	ug/L		08/08/14 13:16	1
Ethylbenzene	1.00	U	5.00	1.00	0.299	ug/L		08/08/14 13:16	1
Methyl tert-butyl ether	2.00	U	5.00	2.00	0.401	ug/L		08/08/14 13:16	1
Methylene Chloride	5.00	U	7.50	5.00	1.67	ug/L		08/08/14 13:16	1
Styrene	1.00	U	5.00	1.00	0.347	ug/L		08/08/14 13:16	1
Tetrachloroethene	1.00	U	5.00	1.00	0.280	ug/L		08/08/14 13:16	1
Toluene	1.00	U	5.00	1.00	1.00	ug/L		08/08/14 13:16	1
trans-1,2-Dichloroethene	1.00	U	5.00	1.00	0.178	ug/L		08/08/14 13:16	1
trans-1,3-Dichloropropene	1.00	U	5.00	1.00	0.349	ug/L		08/08/14 13:16	1
Trichloroethene	1.00	U	5.00	1.00	0.290	ug/L		08/08/14 13:16	1
Vinyl chloride	1.00	U	2.00	1.00	0.428	ug/L		08/08/14 13:16	1
Xylenes, Total	5.00	U	10.0	5.00	0.854	ug/L		08/08/14 13:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*75 - 120*		*08/08/14 13:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 120*		*08/08/14 13:16*	*1*
Toluene-d8 (Surr)	*96*		*85 - 120*		*08/08/14 13:16*	*1*
Dibromofluoromethane (Surr)	*107*		*85 - 115*		*08/08/14 13:16*	*1*

Method: 8270D/DoD - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-02
Date Collected: 08/04/14 13:00
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Bis(2-chloroethyl)ether	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Bis(2-ethylhexyl) phthalate	3.11	U	10.4	3.11	1.93	ug/L		08/10/14 22:51	1
4-Bromophenyl phenyl ether	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Butyl benzyl phthalate	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
4-Chloroaniline	3.11	U	10.4	3.11	2.07	ug/L		08/10/14 22:51	1
4-Chloro-3-methylphenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2-Chloronaphthalene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2-Chlorophenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
4-Chlorophenyl phenyl ether	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Dibenzofuran	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Di-n-butyl phthalate	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
1,2-Dichlorobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
1,3-Dichlorobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
1,4-Dichlorobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
3,3'-Dichlorobenzidine	3.11	U	51.8	3.11	1.34	ug/L		08/10/14 22:51	1
2,4-Dichlorophenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Diethyl phthalate	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2,4-Dimethylphenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Dimethyl phthalate	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
4,6-Dinitro-2-methylphenol	3.11	U	51.8	3.11	1.30	ug/L		08/10/14 22:51	1
2,4-Dinitrophenol	10.4	U	51.8	10.4	2.07	ug/L		08/10/14 22:51	1
2,4-Dinitrotoluene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2,6-Dinitrotoluene	3.11	U	10.4	3.11	2.24	ug/L		08/10/14 22:51	1
Di-n-octyl phthalate	10.4	U	15.5	10.4	1.04	ug/L		08/10/14 22:51	1
Hexachlorobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Hexachlorobutadiene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Hexachlorocyclopentadiene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Hexachloroethane	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2-Methylphenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
3 & 4 Methylphenol	3.11	U	20.7	3.11	2.07	ug/L		08/10/14 22:51	1
2-Nitroaniline	3.11	U	10.4	3.11	1.14	ug/L		08/10/14 22:51	1
3-Nitroaniline	10.4	U	10.4	10.4	1.04	ug/L		08/10/14 22:51	1
4-Nitroaniline	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Nitrobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2-Nitrophenol	3.11	U	10.4	3.11	1.57	ug/L		08/10/14 22:51	1
4-Nitrophenol	10.4	U	25.9	10.4	2.07	ug/L		08/10/14 22:51	1
N-Nitrosodiphenylamine	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
N-Nitrosodi-n-propylamine	3.11	U	10.4	3.11	1.55	ug/L		08/10/14 22:51	1
bis (2-chloroisopropyl) ether	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Pentachlorophenol	3.11	U	51.8	3.11	1.32	ug/L		08/10/14 22:51	1
Phenol	3.11	U	15.5	3.11	2.07	ug/L		08/10/14 22:51	1
1,2,4-Trichlorobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2,4,5-Trichlorophenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2,4,6-Trichlorophenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Pyridine	3.11	U	20.7	3.11	2.07	ug/L		08/10/14 22:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*33*		*20 - 110*	*08/07/14 11:53*	*08/10/14 22:51*	*1*

Method: 8270D/DoD - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-RINSE-02
Date Collected: 08/04/14 13:00
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-7
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	63		40 - 125	08/07/14 11:53	08/10/14 22:51	1
Nitrobenzene-d5 (Surr)	74		40 - 110	08/07/14 11:53	08/10/14 22:51	1
Phenol-d5 (Surr)	19		10 - 115	08/07/14 11:53	08/10/14 22:51	1
Terphenyl-d14 (Surr)	69		50 - 135	08/07/14 11:53	08/10/14 22:51	1
2-Fluorobiphenyl (Surr)	77		50 - 110	08/07/14 11:53	08/10/14 22:51	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-8-UP-01
Date Collected: 08/04/14 08:22
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-1
Matrix: Solid
Percent Solids: 62.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
1,2-Dichlorobenzene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
1,3-Dichlorobenzene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
1,4-Dichlorobenzene	**973**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,4,5-Trichlorophenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,4,6-Trichlorophenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,4-Dichlorophenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,4-Dimethylphenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,4-Dinitrophenol	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
2,4-Dinitrotoluene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,6-Dinitrotoluene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2-Chloronaphthalene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2-Chlorophenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2-Methylphenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2-Nitroaniline	473	U	7640	473	159	ug/Kg	☼	08/11/14 16:38	1
2-Nitrophenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
3 & 4 Methylphenol	473	U	3150	473	318	ug/Kg	☼	08/11/14 16:38	1
3,3'-Dichlorobenzidine	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
3-Nitroaniline	473	U	7640	473	159	ug/Kg	☼	08/11/14 16:38	1
4,6-Dinitro-2-methylphenol	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
4-Bromophenyl phenyl ether	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
4-Chloro-3-methylphenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
4-Chloroaniline	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
4-Chlorophenyl phenyl ether	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
4-Nitroaniline	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
4-Nitrophenol	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
Acenaphthene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Acenaphthylene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Anthracene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Benzo[a]anthracene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Benzo[a]pyrene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Benzo[b]fluoranthene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Benzo[g,h,i]perylene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Benzo[k]fluoranthene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
bis (2-chloroisopropyl) ether	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Bis(2-chloroethoxy)methane	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Bis(2-chloroethyl)ether	473	U	1580	473	160	ug/Kg	☼	08/11/14 16:38	1
Bis(2-ethylhexyl) phthalate	**31600**		1580	473	216	ug/Kg	☼	08/11/14 16:38	1
Butyl benzyl phthalate	**937**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Chrysene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Dibenzo(a),h)anthracene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Dibenzofuran	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Diethyl phthalate	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Dimethyl phthalate	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Di-n-butyl phthalate	**1450**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Di-n-octyl phthalate	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Fluoranthene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Fluorene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Hexachlorobenzene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-8-UP-01
Date Collected: 08/04/14 08:22
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-1
Matrix: Solid
Percent Solids: 62.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Hexachlorocyclopentadiene	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
Hexachloroethane	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Indeno[1,2,3-cd]pyrene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Nitrobenzene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
N-Nitrosodiphenylamine	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
N-Nitrosodi-n-propylamine	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Pentachlorophenol	1580	U	7640	1580	1580	ug/Kg	☼	08/11/14 16:38	1
Phenanthrene	**223**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Phenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Pyrene	**254**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Pyridine	473	U	3150	473	318	ug/Kg	☼	08/11/14 16:38	1
Naphthalene	**1480**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*35 - 125*	*08/11/14 10:56*	*08/11/14 16:38*	*1*
2-Fluorobiphenyl (Surr)	*76*		*45 - 105*	*08/11/14 10:56*	*08/11/14 16:38*	*1*
2-Fluorophenol (Surr)	*77*		*35 - 105*	*08/11/14 10:56*	*08/11/14 16:38*	*1*
Nitrobenzene-d5 (Surr)	*78*		*35 - 100*	*08/11/14 10:56*	*08/11/14 16:38*	*1*
Phenol-d5 (Surr)	*74*		*40 - 100*	*08/11/14 10:56*	*08/11/14 16:38*	*1*
Terphenyl-d14 (Surr)	*66*		*30 - 125*	*08/11/14 10:56*	*08/11/14 16:38*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-8-ND-02
Date Collected: 08/04/14 08:39
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-2
Matrix: Solid
Percent Solids: 50.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
1,2-Dichlorobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
1,3-Dichlorobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
1,4-Dichlorobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,4,5-Trichlorophenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,4,6-Trichlorophenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,4-Dichlorophenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,4-Dimethylphenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,4-Dinitrophenol	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
2,4-Dinitrotoluene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,6-Dinitrotoluene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2-Chloronaphthalene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2-Chlorophenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2-Methylphenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2-Nitroaniline	589	U	9530	589	198	ug/Kg	☼	08/11/14 17:12	1
2-Nitrophenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
3 & 4 Methylphenol	589	U	3930	589	397	ug/Kg	☼	08/11/14 17:12	1
3,3'-Dichlorobenzidine	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
3-Nitroaniline	589	U	9530	589	198	ug/Kg	☼	08/11/14 17:12	1
4,6-Dinitro-2-methylphenol	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
4-Bromophenyl phenyl ether	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
4-Chloro-3-methylphenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
4-Chloroaniline	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
4-Chlorophenyl phenyl ether	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
4-Nitroaniline	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
4-Nitrophenol	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
Acenaphthene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Acenaphthylene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Anthracene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Benzo[a]anthracene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Benzo[a]pyrene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Benzo[b]fluoranthene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Benzo[g,h,i]perylene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Benzo[k]fluoranthene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
bis (2-chloroisopropyl) ether	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Bis(2-chloroethoxy)methane	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Bis(2-chloroethyl)ether	589	U	1960	589	199	ug/Kg	☼	08/11/14 17:12	1
Bis(2-ethylhexyl) phthalate	**19500**		1960	589	270	ug/Kg	☼	08/11/14 17:12	1
Butyl benzyl phthalate	**416**	**J**	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Chrysene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Dibenzo(a),h)anthracene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Dibenzofuran	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Diethyl phthalate	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Dimethyl phthalate	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Di-n-butyl phthalate	**1100**	**J**	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Di-n-octyl phthalate	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Fluoranthene	**484**	**J**	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Fluorene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Hexachlorobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-8-ND-02
Date Collected: 08/04/14 08:39
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-2
Matrix: Solid
Percent Solids: 50.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Hexachlorocyclopentadiene	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
Hexachloroethane	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Indeno[1,2,3-cd]pyrene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Nitrobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
N-Nitrosodiphenylamine	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
N-Nitrosodi-n-propylamine	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Pentachlorophenol	1960	U	9530	1960	1960	ug/Kg	☼	08/11/14 17:12	1
Phenanthrene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Phenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Pyrene	**261**	**J**	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Pyridine	589	U	3930	589	397	ug/Kg	☼	08/11/14 17:12	1
Naphthalene	**1240**	**J**	1960	589	198	ug/Kg	☼	08/11/14 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*35 - 125*	*08/11/14 10:56*	*08/11/14 17:12*	*1*
2-Fluorobiphenyl (Surr)	*76*		*45 - 105*	*08/11/14 10:56*	*08/11/14 17:12*	*1*
2-Fluorophenol (Surr)	*75*		*35 - 105*	*08/11/14 10:56*	*08/11/14 17:12*	*1*
Nitrobenzene-d5 (Surr)	*80*		*35 - 100*	*08/11/14 10:56*	*08/11/14 17:12*	*1*
Phenol-d5 (Surr)	*72*		*40 - 100*	*08/11/14 10:56*	*08/11/14 17:12*	*1*
Terphenyl-d14 (Surr)	*70*		*30 - 125*	*08/11/14 10:56*	*08/11/14 17:12*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-09-01
Date Collected: 08/04/14 09:13
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-3
Matrix: Solid
Percent Solids: 31.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
1,2-Dichlorobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
1,3-Dichlorobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
1,4-Dichlorobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,4,5-Trichlorophenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,4,6-Trichlorophenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,4-Dichlorophenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,4-Dimethylphenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,4-Dinitrophenol	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
2,4-Dinitrotoluene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,6-Dinitrotoluene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2-Chloronaphthalene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2-Chlorophenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2-Methylphenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2-Nitroaniline	929	U	15000	929	312	ug/Kg	☼	08/11/14 17:46	1
2-Nitrophenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
3 & 4 Methylphenol	929	U	6190	929	625	ug/Kg	☼	08/11/14 17:46	1
3,3'-Dichlorobenzidine	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
3-Nitroaniline	929	U	15000	929	312	ug/Kg	☼	08/11/14 17:46	1
4,6-Dinitro-2-methylphenol	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
4-Bromophenyl phenyl ether	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
4-Chloro-3-methylphenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
4-Chloroaniline	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
4-Chlorophenyl phenyl ether	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
4-Nitroaniline	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
4-Nitrophenol	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
Acenaphthene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Acenaphthylene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Anthracene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Benzo[a]anthracene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Benzo[a]pyrene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Benzo[b]fluoranthene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Benzo[g,h,i]perylene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Benzo[k]fluoranthene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
bis (2-chloroisopropyl) ether	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Bis(2-chloroethoxy)methane	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Bis(2-chloroethyl)ether	929	U	3100	929	313	ug/Kg	☼	08/11/14 17:46	1
Bis(2-ethylhexyl) phthalate	**12500**		3100	929	425	ug/Kg	☼	08/11/14 17:46	1
Butyl benzyl phthalate	**575**	**J**	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Chrysene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Dibenzo(a),h)anthracene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Dibenzofuran	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Diethyl phthalate	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Dimethyl phthalate	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Di-n-butyl phthalate	**570**	**J**	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Di-n-octyl phthalate	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Fluoranthene	**397**	**J**	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Fluorene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Hexachlorobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-09-01
Date Collected: 08/04/14 09:13
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-3
Matrix: Solid
Percent Solids: 31.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Hexachlorocyclopentadiene	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
Hexachloroethane	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Indeno[1,2,3-cd]pyrene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Nitrobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
N-Nitrosodiphenylamine	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
N-Nitrosodi-n-propylamine	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Pentachlorophenol	3100	U	15000	3100	3100	ug/Kg	☼	08/11/14 17:46	1
Phenanthrene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Phenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Pyrene	**378**	**J**	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Pyridine	929	U	6190	929	625	ug/Kg	☼	08/11/14 17:46	1
Naphthalene	**504**	**J**	3100	929	312	ug/Kg	☼	08/11/14 17:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*73*		*35 - 125*	*08/11/14 10:56*	*08/11/14 17:46*	*1*
2-Fluorobiphenyl (Surr)	*73*		*45 - 105*	*08/11/14 10:56*	*08/11/14 17:46*	*1*
2-Fluorophenol (Surr)	*74*		*35 - 105*	*08/11/14 10:56*	*08/11/14 17:46*	*1*
Nitrobenzene-d5 (Surr)	*91*		*35 - 100*	*08/11/14 10:56*	*08/11/14 17:46*	*1*
Phenol-d5 (Surr)	*73*		*40 - 100*	*08/11/14 10:56*	*08/11/14 17:46*	*1*
Terphenyl-d14 (Surr)	*68*		*30 - 125*	*08/11/14 10:56*	*08/11/14 17:46*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-09-02
Date Collected: 08/04/14 09:19
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-4
Matrix: Solid
Percent Solids: 35.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
1,2-Dichlorobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
1,3-Dichlorobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
1,4-Dichlorobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,4,5-Trichlorophenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,4,6-Trichlorophenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,4-Dichlorophenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,4-Dimethylphenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,4-Dinitrophenol	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
2,4-Dinitrotoluene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,6-Dinitrotoluene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2-Chloronaphthalene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2-Chlorophenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2-Methylphenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2-Nitroaniline	824	U	13300	824	277	ug/Kg	☼	08/11/14 18:21	1
2-Nitrophenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
3 & 4 Methylphenol	824	U	5490	824	554	ug/Kg	☼	08/11/14 18:21	1
3,3'-Dichlorobenzidine	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
3-Nitroaniline	824	U	13300	824	277	ug/Kg	☼	08/11/14 18:21	1
4,6-Dinitro-2-methylphenol	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
4-Bromophenyl phenyl ether	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
4-Chloro-3-methylphenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
4-Chloroaniline	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
4-Chlorophenyl phenyl ether	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
4-Nitroaniline	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
4-Nitrophenol	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
Acenaphthene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Acenaphthylene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Anthracene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Benzo[a]anthracene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Benzo[a]pyrene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Benzo[b]fluoranthene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Benzo[g,h,i]perylene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Benzo[k]fluoranthene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
bis (2-chloroisopropyl) ether	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Bis(2-chloroethoxy)methane	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Bis(2-chloroethyl)ether	824	U	2750	824	278	ug/Kg	☼	08/11/14 18:21	1
Bis(2-ethylhexyl) phthalate	**35100**		2750	824	377	ug/Kg	☼	08/11/14 18:21	1
Butyl benzyl phthalate	**781**	**J**	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Chrysene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Dibenzo(a),h)anthracene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Dibenzofuran	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Diethyl phthalate	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Dimethyl phthalate	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Di-n-butyl phthalate	**1390**	**J**	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Di-n-octyl phthalate	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Fluoranthene	**394**	**J**	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Fluorene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Hexachlorobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-09-02
Date Collected: 08/04/14 09:19
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-4
Matrix: Solid
Percent Solids: 35.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Hexachlorocyclopentadiene	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
Hexachloroethane	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Indeno[1,2,3-cd]pyrene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Nitrobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
N-Nitrosodiphenylamine	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
N-Nitrosodi-n-propylamine	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Pentachlorophenol	2750	U	13300	2750	2750	ug/Kg	☼	08/11/14 18:21	1
Phenanthrene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Phenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Pyrene	**481**	**J**	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Pyridine	824	U	5490	824	554	ug/Kg	☼	08/11/14 18:21	1
Naphthalene	**1480**	**J**	2750	824	277	ug/Kg	☼	08/11/14 18:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*77*		*35 - 125*	*08/11/14 10:56*	*08/11/14 18:21*	*1*
2-Fluorobiphenyl (Surr)	*74*		*45 - 105*	*08/11/14 10:56*	*08/11/14 18:21*	*1*
2-Fluorophenol (Surr)	*78*		*35 - 105*	*08/11/14 10:56*	*08/11/14 18:21*	*1*
Nitrobenzene-d5 (Surr)	*103*	*X*	*35 - 100*	*08/11/14 10:56*	*08/11/14 18:21*	*1*
Phenol-d5 (Surr)	*76*		*40 - 100*	*08/11/14 10:56*	*08/11/14 18:21*	*1*
Terphenyl-d14 (Surr)	*70*		*30 - 125*	*08/11/14 10:56*	*08/11/14 18:21*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-14-01
Date Collected: 08/04/14 11:30
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-5
Matrix: Solid
Percent Solids: 38.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
1,2-Dichlorobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
1,3-Dichlorobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
1,4-Dichlorobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,4,5-Trichlorophenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,4,6-Trichlorophenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,4-Dichlorophenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,4-Dimethylphenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,4-Dinitrophenol	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
2,4-Dinitrotoluene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,6-Dinitrotoluene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2-Chloronaphthalene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2-Chlorophenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2-Methylphenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2-Nitroaniline	766	U	12400	766	258	ug/Kg	☼	08/11/14 18:55	1
2-Nitrophenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
3 & 4 Methylphenol	766	U	5110	766	516	ug/Kg	☼	08/11/14 18:55	1
3,3'-Dichlorobenzidine	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
3-Nitroaniline	766	U	12400	766	258	ug/Kg	☼	08/11/14 18:55	1
4,6-Dinitro-2-methylphenol	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
4-Bromophenyl phenyl ether	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
4-Chloro-3-methylphenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
4-Chloroaniline	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
4-Chlorophenyl phenyl ether	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
4-Nitroaniline	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
4-Nitrophenol	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
Acenaphthene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Acenaphthylene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Anthracene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Benzo[a]anthracene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Benzo[a]pyrene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Benzo[b]fluoranthene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Benzo[g,h,i]perylene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Benzo[k]fluoranthene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
bis (2-chloroisopropyl) ether	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Bis(2-chloroethoxy)methane	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Bis(2-chloroethyl)ether	766	U	2550	766	259	ug/Kg	☼	08/11/14 18:55	1
Bis(2-ethylhexyl) phthalate	**23200**		2550	766	351	ug/Kg	☼	08/11/14 18:55	1
Butyl benzyl phthalate	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Chrysene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Dibenzo(a),h)anthracene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Dibenzofuran	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Diethyl phthalate	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Dimethyl phthalate	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Di-n-butyl phthalate	**759**	**J**	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Di-n-octyl phthalate	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Fluoranthene	**1800**	**J**	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Fluorene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Hexachlorobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-14-01
Date Collected: 08/04/14 11:30
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-5
Matrix: Solid
Percent Solids: 38.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Hexachlorocyclopentadiene	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
Hexachloroethane	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Indeno[1,2,3-cd]pyrene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Nitrobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
N-Nitrosodiphenylamine	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
N-Nitrosodi-n-propylamine	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Pentachlorophenol	2550	U	12400	2550	2550	ug/Kg	☼	08/11/14 18:55	1
Phenanthrene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Phenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Pyrene	**806**	**J**	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Pyridine	766	U	5110	766	516	ug/Kg	☼	08/11/14 18:55	1
Naphthalene	**355**	**J**	2550	766	258	ug/Kg	☼	08/11/14 18:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*78*		*35 - 125*	*08/11/14 10:56*	*08/11/14 18:55*	*1*
2-Fluorobiphenyl (Surr)	*73*		*45 - 105*	*08/11/14 10:56*	*08/11/14 18:55*	*1*
2-Fluorophenol (Surr)	*76*		*35 - 105*	*08/11/14 10:56*	*08/11/14 18:55*	*1*
Nitrobenzene-d5 (Surr)	*80*		*35 - 100*	*08/11/14 10:56*	*08/11/14 18:55*	*1*
Phenol-d5 (Surr)	*75*		*40 - 100*	*08/11/14 10:56*	*08/11/14 18:55*	*1*
Terphenyl-d14 (Surr)	*74*		*30 - 125*	*08/11/14 10:56*	*08/11/14 18:55*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-14-02
Date Collected: 08/04/14 11:40
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-6
Matrix: Solid
Percent Solids: 34.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
1,2-Dichlorobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
1,3-Dichlorobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
1,4-Dichlorobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,4,5-Trichlorophenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,4,6-Trichlorophenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,4-Dichlorophenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,4-Dimethylphenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,4-Dinitrophenol	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
2,4-Dinitrotoluene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,6-Dinitrotoluene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2-Chloronaphthalene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2-Chlorophenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2-Methylphenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2-Nitroaniline	830	U	13400	830	279	ug/Kg	☼	08/11/14 19:28	1
2-Nitrophenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
3 & 4 Methylphenol	830	U	5530	830	558	ug/Kg	☼	08/11/14 19:28	1
3,3'-Dichlorobenzidine	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
3-Nitroaniline	830	U	13400	830	279	ug/Kg	☼	08/11/14 19:28	1
4,6-Dinitro-2-methylphenol	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
4-Bromophenyl phenyl ether	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
4-Chloro-3-methylphenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
4-Chloroaniline	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
4-Chlorophenyl phenyl ether	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
4-Nitroaniline	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
4-Nitrophenol	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
Acenaphthene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Acenaphthylene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Anthracene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Benzo[a]anthracene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Benzo[a]pyrene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Benzo[b]fluoranthene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Benzo[g,h,i]perylene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Benzo[k]fluoranthene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
bis (2-chloroisopropyl) ether	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Bis(2-chloroethoxy)methane	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Bis(2-chloroethyl)ether	830	U	2770	830	280	ug/Kg	☼	08/11/14 19:28	1
Bis(2-ethylhexyl) phthalate	**53200**		2770	830	380	ug/Kg	☼	08/11/14 19:28	1
Butyl benzyl phthalate	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Chrysene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Dibenzo(a),h)anthracene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Dibenzofuran	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Diethyl phthalate	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Dimethyl phthalate	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Di-n-butyl phthalate	**1330**	**J**	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Di-n-octyl phthalate	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Fluoranthene	**2300**	**J**	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Fluorene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Hexachlorobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-14-02
Date Collected: 08/04/14 11:40
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-6
Matrix: Solid
Percent Solids: 34.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Hexachlorocyclopentadiene	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
Hexachloroethane	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Indeno[1,2,3-cd]pyrene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Nitrobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
N-Nitrosodiphenylamine	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
N-Nitrosodi-n-propylamine	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Pentachlorophenol	2770	U	13400	2770	2770	ug/Kg	☼	08/11/14 19:28	1
Phenanthrene	**658**	**J**	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Phenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Pyrene	**1210**	**J**	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Pyridine	830	U	5530	830	558	ug/Kg	☼	08/11/14 19:28	1
Naphthalene	**1010**	**J**	2770	830	279	ug/Kg	☼	08/11/14 19:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*35 - 125*	*08/11/14 10:56*	*08/11/14 19:28*	*1*
2-Fluorobiphenyl (Surr)	*76*		*45 - 105*	*08/11/14 10:56*	*08/11/14 19:28*	*1*
2-Fluorophenol (Surr)	*79*		*35 - 105*	*08/11/14 10:56*	*08/11/14 19:28*	*1*
Nitrobenzene-d5 (Surr)	*88*		*35 - 100*	*08/11/14 10:56*	*08/11/14 19:28*	*1*
Phenol-d5 (Surr)	*78*		*40 - 100*	*08/11/14 10:56*	*08/11/14 19:28*	*1*
Terphenyl-d14 (Surr)	*94*		*30 - 125*	*08/11/14 10:56*	*08/11/14 19:28*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A DOD - Metals (ICP/MS)

Client Sample ID: IWL-RINSE-02
Date Collected: 08/04/14 13:00
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	5.00	U	5.00	5.00	1.67	ug/L		08/13/14 00:40	2
Arsenic	3.54	U	10.0	3.54	1.18	ug/L		08/13/14 00:40	2
Barium	**0.334**	**J**	2.00	0.660	0.223	ug/L		08/13/14 00:40	2
Beryllium	0.500	U ^	1.00	0.500	0.350	ug/L		08/13/14 00:40	2
Cadmium	**0.314**	**J ^**	0.500	0.300	0.100	ug/L		08/13/14 00:40	2
Chromium	9.78	U	10.0	9.78	1.00	ug/L		08/13/14 00:40	2
Cobalt	0.660	U	2.00	0.660	0.217	ug/L		08/13/14 00:40	2
Copper	**1.78**	**J**	3.00	1.35	0.451	ug/L		08/13/14 00:40	2
Iron	50.0	U	50.0	50.0	20.4	ug/L		08/13/14 00:40	2
Lead	**0.394**	**J**	3.00	0.510	0.173	ug/L		08/13/14 00:40	2
Molybdenum	3.00	U	5.00	3.00	1.00	ug/L		08/13/14 00:40	2
Nickel	**0.702**	**J**	5.00	1.20	0.400	ug/L		08/13/14 00:40	2
Selenium	4.77	U ^	5.00	4.77	1.59	ug/L		08/13/14 00:40	2
Silver	1.00	U	2.00	1.00	0.817	ug/L		08/13/14 00:40	2
Thallium	1.65	U	2.00	1.65	0.550	ug/L		08/13/14 00:40	2
Vanadium	7.11	U	10.0	7.11	2.37	ug/L		08/13/14 00:40	2
Zinc	**15.4**	**B**	10.0	10.0	8.29	ug/L		08/13/14 00:40	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-8-UP-01
Date Collected: 08/04/14 08:22
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-1
Matrix: Solid
Percent Solids: 62.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.23	J	3.83	3.68	1.26	mg/Kg	☼	08/17/14 08:09	10
Arsenic	7.00	J	7.67	5.98	1.99	mg/Kg	☼	08/17/14 08:09	10
Barium	149	B	15.3	2.16	0.721	mg/Kg	☼	08/17/14 08:09	10
Beryllium	0.555	J	0.767	0.598	0.199	mg/Kg	☼	08/17/14 08:09	10
Cadmium	759		0.460	0.368	0.123	mg/Kg	☼	08/17/14 08:09	10
Chromium	714		14.6	7.67	3.45	mg/Kg	☼	08/17/14 08:09	10
Cobalt	10.4		1.53	0.989	0.330	mg/Kg	☼	08/17/14 08:09	10
Copper	216		7.67	2.30	0.774	mg/Kg	☼	08/19/14 06:15	10
Lead	225		2.30	2.30	0.767	mg/Kg	☼	08/17/14 08:09	10
Molybdenum	14.2		3.83	2.76	0.951	mg/Kg	☼	08/17/14 08:09	10
Nickel	233		3.83	2.53	0.820	mg/Kg	☼	08/17/14 08:09	10
Selenium	3.68	U	3.83	3.68	1.21	mg/Kg	☼	08/17/14 08:09	10
Silver	9.48	B	3.45	0.552	0.184	mg/Kg	☼	08/17/14 08:09	10
Thallium	1.53	U	7.67	1.53	1.17	mg/Kg	☼	08/17/14 08:09	10
Vanadium	13.9		7.67	7.67	5.64	mg/Kg	☼	08/17/14 08:09	10
Iron	11100		92.0	38.3	25.3	mg/Kg	☼	08/17/14 08:09	10
Zinc	1060		38.3	30.6	10.2	mg/Kg	☼	08/17/14 08:09	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-8-ND-02
Date Collected: 08/04/14 08:39
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-2
Matrix: Solid
Percent Solids: 50.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	4.70		4.65	4.46	1.53	mg/Kg	☼	08/17/14 08:43	10
Arsenic	12.9		9.30	7.25	2.42	mg/Kg	☼	08/17/14 08:43	10
Barium	294	B	18.6	2.62	0.874	mg/Kg	☼	08/17/14 08:43	10
Beryllium	0.951		0.930	0.725	0.242	mg/Kg	☼	08/17/14 08:43	10
Cadmium	1330		0.558	0.446	0.149	mg/Kg	☼	08/17/14 08:43	10
Chromium	1730		17.7	9.30	4.19	mg/Kg	☼	08/17/14 08:43	10
Cobalt	20.7		1.86	1.20	0.400	mg/Kg	☼	08/17/14 08:43	10
Copper	301		9.30	2.79	0.939	mg/Kg	☼	08/19/14 06:49	10
Lead	584		2.79	2.79	0.930	mg/Kg	☼	08/17/14 08:43	10
Molybdenum	30.2		4.65	3.35	1.15	mg/Kg	☼	08/17/14 08:43	10
Nickel	355		4.65	3.07	0.995	mg/Kg	☼	08/17/14 08:43	10
Selenium	4.46	U	4.65	4.46	1.47	mg/Kg	☼	08/17/14 08:43	10
Silver	14.4	B	4.19	0.670	0.223	mg/Kg	☼	08/17/14 08:43	10
Thallium	1.86	U	9.30	1.86	1.41	mg/Kg	☼	08/17/14 08:43	10
Vanadium	37.9		9.30	9.30	6.84	mg/Kg	☼	08/17/14 08:43	10
Iron	31200		112	46.5	30.7	mg/Kg	☼	08/17/14 08:43	10
Zinc	2370		46.5	37.1	12.4	mg/Kg	☼	08/17/14 08:43	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-09-01
Date Collected: 08/04/14 09:13
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-3
Matrix: Solid
Percent Solids: 31.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	9.92		7.41	7.11	2.43	mg/Kg	☼	08/17/14 08:50	10
Arsenic	20.4		14.8	11.6	3.85	mg/Kg	☼	08/17/14 08:50	10
Barium	713	B	29.6	4.18	1.39	mg/Kg	☼	08/17/14 08:50	10
Beryllium	1.68		1.48	1.16	0.385	mg/Kg	☼	08/17/14 08:50	10
Cadmium	878		0.889	0.711	0.237	mg/Kg	☼	08/17/14 08:50	10
Chromium	1750		28.2	14.8	6.67	mg/Kg	☼	08/17/14 08:50	10
Cobalt	48.0		2.96	1.91	0.637	mg/Kg	☼	08/17/14 08:50	10
Copper	465		14.8	4.44	1.50	mg/Kg	☼	08/19/14 06:55	10
Lead	632		4.44	4.44	1.48	mg/Kg	☼	08/17/14 08:50	10
Molybdenum	63.7		7.41	5.33	1.84	mg/Kg	☼	08/17/14 08:50	10
Nickel	1320		7.41	4.89	1.59	mg/Kg	☼	08/17/14 08:50	10
Selenium	7.11	U	7.41	7.11	2.34	mg/Kg	☼	08/17/14 08:50	10
Silver	43.6	B	6.67	1.07	0.356	mg/Kg	☼	08/17/14 08:50	10
Thallium	2.96	U	14.8	2.96	2.25	mg/Kg	☼	08/17/14 08:50	10
Vanadium	28.6		14.8	14.8	10.9	mg/Kg	☼	08/17/14 08:50	10
Iron	26300		178	74.1	48.9	mg/Kg	☼	08/17/14 08:50	10
Zinc	3340		74.1	59.1	19.7	mg/Kg	☼	08/17/14 08:50	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-09-02
Date Collected: 08/04/14 09:19
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-4
Matrix: Solid
Percent Solids: 35.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	18.5		6.19	5.94	2.03	mg/Kg	☼	08/17/14 08:56	10
Arsenic	21.4		12.4	9.65	3.22	mg/Kg	☼	08/17/14 08:56	10
Barium	1030	B	24.7	3.49	1.16	mg/Kg	☼	08/17/14 08:56	10
Beryllium	2.68		1.24	0.965	0.322	mg/Kg	☼	08/17/14 08:56	10
Cadmium	1470		0.742	0.594	0.198	mg/Kg	☼	08/17/14 08:56	10
Chromium	2540		23.5	12.4	5.57	mg/Kg	☼	08/17/14 08:56	10
Cobalt	56.2		2.47	1.60	0.532	mg/Kg	☼	08/17/14 08:56	10
Copper	597		12.4	3.71	1.25	mg/Kg	☼	08/19/14 07:02	10
Lead	918		3.71	3.71	1.24	mg/Kg	☼	08/17/14 08:56	10
Molybdenum	120		6.19	4.45	1.53	mg/Kg	☼	08/17/14 08:56	10
Nickel	1550		6.19	4.08	1.32	mg/Kg	☼	08/17/14 08:56	10
Selenium	2.30	J	6.19	5.94	1.95	mg/Kg	☼	08/17/14 08:56	10
Silver	59.9	B	5.57	0.891	0.297	mg/Kg	☼	08/17/14 08:56	10
Thallium	2.47	U	12.4	2.47	1.88	mg/Kg	☼	08/17/14 08:56	10
Vanadium	35.1		12.4	12.4	9.09	mg/Kg	☼	08/17/14 08:56	10
Iron	32600		148	61.9	40.8	mg/Kg	☼	08/17/14 08:56	10
Zinc	4480		61.9	49.4	16.5	mg/Kg	☼	08/17/14 08:56	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-14-01
Date Collected: 08/04/14 11:30
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-5
Matrix: Solid
Percent Solids: 38.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	8.41		6.26	6.00	2.05	mg/Kg	☼	08/17/14 09:16	10
Arsenic	21.2		12.5	9.76	3.25	mg/Kg	☼	08/17/14 09:16	10
Barium	522	B	25.0	3.53	1.18	mg/Kg	☼	08/17/14 09:16	10
Beryllium	1.07	J	1.25	0.976	0.325	mg/Kg	☼	08/17/14 09:16	10
Cadmium	1090		0.751	0.600	0.200	mg/Kg	☼	08/17/14 09:16	10
Chromium	1830		23.8	12.5	5.63	mg/Kg	☼	08/17/14 09:16	10
Cobalt	18.1		2.50	1.61	0.538	mg/Kg	☼	08/17/14 09:16	10
Copper	652		12.5	3.75	1.26	mg/Kg	☼	08/19/14 07:23	10
Lead	638		3.75	3.75	1.25	mg/Kg	☼	08/17/14 09:16	10
Molybdenum	45.0		6.26	4.50	1.55	mg/Kg	☼	08/17/14 09:16	10
Nickel	477		6.26	4.13	1.34	mg/Kg	☼	08/17/14 09:16	10
Selenium	6.00	U	6.26	6.00	1.98	mg/Kg	☼	08/17/14 09:16	10
Silver	29.1	B	5.63	0.901	0.300	mg/Kg	☼	08/17/14 09:16	10
Thallium	2.50	U	12.5	2.50	1.90	mg/Kg	☼	08/17/14 09:16	10
Vanadium	21.6		12.5	12.5	9.20	mg/Kg	☼	08/17/14 09:16	10
Iron	28500		150	62.6	41.3	mg/Kg	☼	08/17/14 09:16	10
Zinc	2270		62.6	49.9	16.6	mg/Kg	☼	08/17/14 09:16	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-14-02
Date Collected: 08/04/14 11:40
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-6
Matrix: Solid
Percent Solids: 34.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	8.49		7.12	6.84	2.34	mg/Kg	☼	08/17/14 09:23	10
Arsenic	17.3		14.2	11.1	3.70	mg/Kg	☼	08/17/14 09:23	10
Barium	494	B	28.5	4.02	1.34	mg/Kg	☼	08/17/14 09:23	10
Beryllium	1.73		1.42	1.11	0.370	mg/Kg	☼	08/17/14 09:23	10
Cadmium	1890		0.855	0.684	0.228	mg/Kg	☼	08/17/14 09:23	10
Chromium	3780		27.1	14.2	6.41	mg/Kg	☼	08/17/14 09:23	10
Cobalt	24.6		2.85	1.84	0.613	mg/Kg	☼	08/17/14 09:23	10
Copper	1000		14.2	4.27	1.44	mg/Kg	☼	08/19/14 07:29	10
Lead	845		4.27	4.27	1.42	mg/Kg	☼	08/17/14 09:23	10
Molybdenum	76.8		7.12	5.13	1.77	mg/Kg	☼	08/17/14 09:23	10
Nickel	586		7.12	4.70	1.52	mg/Kg	☼	08/17/14 09:23	10
Selenium	6.84	U	7.12	6.84	2.25	mg/Kg	☼	08/17/14 09:23	10
Silver	42.5	B	6.41	1.03	0.342	mg/Kg	☼	08/17/14 09:23	10
Thallium	2.85	U	14.2	2.85	2.17	mg/Kg	☼	08/17/14 09:23	10
Vanadium	22.4		14.2	14.2	10.5	mg/Kg	☼	08/17/14 09:23	10
Iron	22800		171	71.2	47.0	mg/Kg	☼	08/17/14 09:23	10
Zinc	2480		71.2	56.8	18.9	mg/Kg	☼	08/17/14 09:23	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7470A - Mercury (CVAA)

Client Sample ID: IWL-RINSE-02
Date Collected: 08/04/14 13:00
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.150	U	0.180	0.150	0.0600	ug/L		08/12/14 15:09	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-8-UP-01
Date Collected: 08/04/14 08:22
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-1
Matrix: Solid
Percent Solids: 62.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.951		0.0578	0.0434	0.0159	mg/Kg	☼	08/13/14 17:47	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-8-ND-02
Date Collected: 08/04/14 08:39
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-2
Matrix: Solid
Percent Solids: 50.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.884		0.0688	0.0516	0.0189	mg/Kg	☼	08/13/14 17:49	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-09-01
Date Collected: 08/04/14 09:13
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-3
Matrix: Solid
Percent Solids: 31.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.34		0.117	0.0879	0.0322	mg/Kg	☼	08/13/14 17:52	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-09-02
Date Collected: 08/04/14 09:19
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-4
Matrix: Solid
Percent Solids: 35.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	2.47		0.102	0.0766	0.0281	mg/Kg	☼	08/13/14 17:54	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-14-01
Date Collected: 08/04/14 11:30
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-5
Matrix: Solid
Percent Solids: 38.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.88		0.100	0.0752	0.0276	mg/Kg	☼	08/13/14 17:56	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-14-02
Date Collected: 08/04/14 11:40
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-6
Matrix: Solid
Percent Solids: 34.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.59		0.114	0.0854	0.0313	mg/Kg	☼	08/13/14 17:58	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8006-1
TestAmerica Sample Delivery Group: 160-8006
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
9/8/2014 1:45:39 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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Have a Question? Ask The Expert

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC

Chain-of Custody Record

NUMBER: FZ02 - ~~1~~ COC 1010

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Diego Almanza/Wil Solorzano	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED: E 8260C (VOC); E 8270D (SVOCs); E 6020A/7471B (Metals /Hg)

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-BLDG29-SB1-01	8/18/2014	1000	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-BLDG29-SB1	10.5	11.5	N
IWL-BLDG29-SB1-02	8/18/2014	1015	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-BLDG29-SB1	9	10	N
IWL-BLDG29-SB2-01	8/18/2014	1115	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-BLDG29-SB2	9.5	10.5	N
IWL-BLDG29-SB2-02	8/18/2014	1120	4	4	S	10 dy	X	X	X					two-4 oz for voc, two- 8 oz for svoc/metals	IWL-BLDG29-SB2	7.5	8.5	MS
IWL-BLDG29-SB3-01	8/18/2014	1211	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-BLDG29-SB3	19	20	N
IWL-BLDG29-SB3-02	8/18/2014	1220	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-BLDG29-SB3	13	14	N
IWL-SB1-01	8/18/2014	1355	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-SB1-01	14	15	N
IWL-SB1-02	8/18/2014	1400	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-SB1-02	9	10	N
IWL-SB2-01	8/18/2014	1500	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-SB2-01	14	15	N
IWL-SB2-02	8/18/2014	1515	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-SB2-02	12	13	N

Relinquished by: (signature)	Date: 8/18/14	Received by (signature) 8.19.14 1015	Laboratory Instructions/Comments:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - ~~7~~ COC 1010

160-8006 Chain of Custody

TETRA TECH EC, INC

Chain-of Custody Record

NUMBER: FZ02 - 1011

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Diego Almanza/Wil Solorzano	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED

Laboratory Name: Test America St. Louis

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-RINSE-03	8/4/2014	1040	6	3	W	10 dy	X	X	X						EQUIPMENT BLK			EB

Relinquished by: (signature)	Date: 8/18/14	Received by (signature)	Laboratory Instructions/Comments:
Company:	Time:	Company: Astrolin	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1011

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-1
Matrix: Solid
Percent Solids: 90.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**9.28**	**J**	22.2	11.1	7.19	ug/Kg	☼	08/20/14 03:59	1
Benzene	1.11	U	5.55	1.11	0.281	ug/Kg	☼	08/20/14 03:59	1
Bromodichloromethane	1.11	U	5.55	1.11	0.282	ug/Kg	☼	08/20/14 03:59	1
Bromoform	1.11	U	5.55	1.11	0.407	ug/Kg	☼	08/20/14 03:59	1
Bromomethane	5.55	U	11.1	5.55	1.22	ug/Kg	☼	08/20/14 03:59	1
2-Butanone (MEK)	5.55	U	22.2	5.55	2.13	ug/Kg	☼	08/20/14 03:59	1
Carbon tetrachloride	1.11	U	5.55	1.11	0.570	ug/Kg	☼	08/20/14 03:59	1
Chlorobenzene	1.11	U	5.55	1.11	0.424	ug/Kg	☼	08/20/14 03:59	1
Dibromochloromethane	1.11	U	5.55	1.11	0.451	ug/Kg	☼	08/20/14 03:59	1
Chloroethane	1.11	U	11.1	1.11	0.573	ug/Kg	☼	08/20/14 03:59	1
Chloroform	1.11	U	5.55	1.11	0.418	ug/Kg	☼	08/20/14 03:59	1
Chloromethane	5.55	U	11.1	5.55	0.722	ug/Kg	☼	08/20/14 03:59	1
1,1-Dichloroethane	1.11	U	5.55	1.11	0.435	ug/Kg	☼	08/20/14 03:59	1
1,2-Dichloroethane	1.11	U	5.55	1.11	0.963	ug/Kg	☼	08/20/14 03:59	1
cis-1,2-Dichloroethene	1.11	U	5.55	1.11	0.663	ug/Kg	☼	08/20/14 03:59	1
trans-1,2-Dichloroethene	1.11	U	5.55	1.11	1.05	ug/Kg	☼	08/20/14 03:59	1
1,1-Dichloroethene	5.55	U	5.55	5.55	1.79	ug/Kg	☼	08/20/14 03:59	1
1,2-Dichloropropane	1.11	U	5.55	1.11	0.425	ug/Kg	☼	08/20/14 03:59	1
cis-1,3-Dichloropropene	1.11	U	5.55	1.11	0.661	ug/Kg	☼	08/20/14 03:59	1
trans-1,3-Dichloropropene	1.11	U	5.55	1.11	0.388	ug/Kg	☼	08/20/14 03:59	1
Ethylbenzene	1.11	U	5.55	1.11	0.332	ug/Kg	☼	08/20/14 03:59	1
2-Hexanone	5.55	U	11.1	5.55	1.97	ug/Kg	☼	08/20/14 03:59	1
Methylene Chloride	5.55	U	11.1	5.55	1.75	ug/Kg	☼	08/20/14 03:59	1
4-Methyl-2-pentanone (MIBK)	5.55	U	22.2	5.55	0.813	ug/Kg	☼	08/20/14 03:59	1
Methyl tert-butyl ether	1.11	U	5.55	1.11	0.529	ug/Kg	☼	08/20/14 03:59	1
Styrene	1.11	U	5.55	1.11	0.385	ug/Kg	☼	08/20/14 03:59	1
1,1,2,2-Tetrachloroethane	1.11	U	5.55	1.11	0.445	ug/Kg	☼	08/20/14 03:59	1
Tetrachloroethene	1.11	U	5.55	1.11	0.358	ug/Kg	☼	08/20/14 03:59	1
Toluene	1.11	U	5.55	1.11	0.777	ug/Kg	☼	08/20/14 03:59	1
1,1,1-Trichloroethane	1.11	U	5.55	1.11	0.479	ug/Kg	☼	08/20/14 03:59	1
1,1,2-Trichloroethane	1.11	U	5.55	1.11	0.636	ug/Kg	☼	08/20/14 03:59	1
Trichloroethene	1.11	U	5.55	1.11	0.428	ug/Kg	☼	08/20/14 03:59	1
Vinyl chloride	1.11	U	11.1	1.11	0.475	ug/Kg	☼	08/20/14 03:59	1
Xylenes, Total	5.55	U	11.1	5.55	0.949	ug/Kg	☼	08/20/14 03:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*121*	*X*	*85 - 120*	*08/19/14 20:00*	*08/20/14 03:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 128*	*08/19/14 20:00*	*08/20/14 03:59*	*1*
Toluene-d8 (Surr)	*99*		*85 - 115*	*08/19/14 20:00*	*08/20/14 03:59*	*1*
Dibromofluoromethane (Surr)	*90*		*76 - 126*	*08/19/14 20:00*	*08/20/14 03:59*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	10.8	U	21.5	10.8	6.96	ug/Kg	☼	08/20/14 00:40	1
Benzene	1.08	U	5.38	1.08	0.272	ug/Kg	☼	08/20/14 00:40	1
Bromodichloromethane	1.08	U	5.38	1.08	0.273	ug/Kg	☼	08/20/14 00:40	1
Bromoform	1.08	U	5.38	1.08	0.394	ug/Kg	☼	08/20/14 00:40	1
Bromomethane	5.38	U	10.8	5.38	1.18	ug/Kg	☼	08/20/14 00:40	1
2-Butanone (MEK)	5.38	U	21.5	5.38	2.07	ug/Kg	☼	08/20/14 00:40	1
Carbon tetrachloride	1.08	U	5.38	1.08	0.552	ug/Kg	☼	08/20/14 00:40	1
Chlorobenzene	1.08	U	5.38	1.08	0.411	ug/Kg	☼	08/20/14 00:40	1
Dibromochloromethane	1.08	U	5.38	1.08	0.437	ug/Kg	☼	08/20/14 00:40	1
Chloroethane	1.08	U	10.8	1.08	0.555	ug/Kg	☼	08/20/14 00:40	1
Chloroform	1.08	U	5.38	1.08	0.405	ug/Kg	☼	08/20/14 00:40	1
Chloromethane	5.38	U	10.8	5.38	0.699	ug/Kg	☼	08/20/14 00:40	1
1,1-Dichloroethane	1.08	U	5.38	1.08	0.422	ug/Kg	☼	08/20/14 00:40	1
1,2-Dichloroethane	1.08	U	5.38	1.08	0.933	ug/Kg	☼	08/20/14 00:40	1
cis-1,2-Dichloroethene	1.08	U	5.38	1.08	0.642	ug/Kg	☼	08/20/14 00:40	1
trans-1,2-Dichloroethene	1.08	U	5.38	1.08	1.01	ug/Kg	☼	08/20/14 00:40	1
1,1-Dichloroethene	5.38	U	5.38	5.38	1.73	ug/Kg	☼	08/20/14 00:40	1
1,2-Dichloropropane	1.08	U	5.38	1.08	0.412	ug/Kg	☼	08/20/14 00:40	1
cis-1,3-Dichloropropene	1.08	U	5.38	1.08	0.640	ug/Kg	☼	08/20/14 00:40	1
trans-1,3-Dichloropropene	1.08	U	5.38	1.08	0.376	ug/Kg	☼	08/20/14 00:40	1
Ethylbenzene	1.08	U	5.38	1.08	0.322	ug/Kg	☼	08/20/14 00:40	1
2-Hexanone	5.38	U	10.8	5.38	1.90	ug/Kg	☼	08/20/14 00:40	1
Methylene Chloride	5.38	U	10.8	5.38	1.70	ug/Kg	☼	08/20/14 00:40	1
4-Methyl-2-pentanone (MIBK)	5.38	U	21.5	5.38	0.788	ug/Kg	☼	08/20/14 00:40	1
Methyl tert-butyl ether	1.08	U	5.38	1.08	0.512	ug/Kg	☼	08/20/14 00:40	1
Styrene	1.08	U	5.38	1.08	0.373	ug/Kg	☼	08/20/14 00:40	1
1,1,2,2-Tetrachloroethane	1.08	U	5.38	1.08	0.432	ug/Kg	☼	08/20/14 00:40	1
Tetrachloroethene	1.08	U	5.38	1.08	0.346	ug/Kg	☼	08/20/14 00:40	1
Toluene	1.08	U	5.38	1.08	0.753	ug/Kg	☼	08/20/14 00:40	1
1,1,1-Trichloroethane	1.08	U	5.38	1.08	0.464	ug/Kg	☼	08/20/14 00:40	1
1,1,2-Trichloroethane	1.08	U	5.38	1.08	0.617	ug/Kg	☼	08/20/14 00:40	1
Trichloroethene	1.08	U	5.38	1.08	0.414	ug/Kg	☼	08/20/14 00:40	1
Vinyl chloride	1.08	U	10.8	1.08	0.461	ug/Kg	☼	08/20/14 00:40	1
Xylenes, Total	5.38	U	10.8	5.38	0.919	ug/Kg	☼	08/20/14 00:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*85 - 120*	*08/19/14 20:00*	*08/20/14 00:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*71 - 128*	*08/19/14 20:00*	*08/20/14 00:40*	*1*
Toluene-d8 (Surr)	*101*		*85 - 115*	*08/19/14 20:00*	*08/20/14 00:40*	*1*
Dibromofluoromethane (Surr)	*98*		*76 - 126*	*08/19/14 20:00*	*08/20/14 00:40*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-3
Matrix: Solid
Percent Solids: 85.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	11.7	U	23.4	11.7	7.58	ug/Kg	☼	08/20/14 01:05	1
Benzene	1.17	U	5.85	1.17	0.296	ug/Kg	☼	08/20/14 01:05	1
Bromodichloromethane	1.17	U	5.85	1.17	0.297	ug/Kg	☼	08/20/14 01:05	1
Bromoform	1.17	U	5.85	1.17	0.429	ug/Kg	☼	08/20/14 01:05	1
Bromomethane	5.85	U	11.7	5.85	1.29	ug/Kg	☼	08/20/14 01:05	1
2-Butanone (MEK)	5.85	U	23.4	5.85	2.25	ug/Kg	☼	08/20/14 01:05	1
Carbon tetrachloride	1.17	U	5.85	1.17	0.601	ug/Kg	☼	08/20/14 01:05	1
Chlorobenzene	1.17	U	5.85	1.17	0.447	ug/Kg	☼	08/20/14 01:05	1
Dibromochloromethane	1.17	U	5.85	1.17	0.475	ug/Kg	☼	08/20/14 01:05	1
Chloroethane	1.17	U	11.7	1.17	0.604	ug/Kg	☼	08/20/14 01:05	1
Chloroform	1.17	U	5.85	1.17	0.440	ug/Kg	☼	08/20/14 01:05	1
Chloromethane	5.85	U	11.7	5.85	0.761	ug/Kg	☼	08/20/14 01:05	1
1,1-Dichloroethane	1.17	U	5.85	1.17	0.459	ug/Kg	☼	08/20/14 01:05	1
1,2-Dichloroethane	1.17	U	5.85	1.17	1.02	ug/Kg	☼	08/20/14 01:05	1
cis-1,2-Dichloroethene	1.17	U	5.85	1.17	0.699	ug/Kg	☼	08/20/14 01:05	1
trans-1,2-Dichloroethene	1.17	U	5.85	1.17	1.10	ug/Kg	☼	08/20/14 01:05	1
1,1-Dichloroethene	5.85	U	5.85	5.85	1.89	ug/Kg	☼	08/20/14 01:05	1
1,2-Dichloropropane	1.17	U	5.85	1.17	0.448	ug/Kg	☼	08/20/14 01:05	1
cis-1,3-Dichloropropene	1.17	U	5.85	1.17	0.697	ug/Kg	☼	08/20/14 01:05	1
trans-1,3-Dichloropropene	1.17	U	5.85	1.17	0.409	ug/Kg	☼	08/20/14 01:05	1
Ethylbenzene	1.17	U	5.85	1.17	0.350	ug/Kg	☼	08/20/14 01:05	1
2-Hexanone	5.85	U	11.7	5.85	2.07	ug/Kg	☼	08/20/14 01:05	1
Methylene Chloride	5.85	U	11.7	5.85	1.85	ug/Kg	☼	08/20/14 01:05	1
4-Methyl-2-pentanone (MIBK)	5.85	U	23.4	5.85	0.857	ug/Kg	☼	08/20/14 01:05	1
Methyl tert-butyl ether	1.17	U	5.85	1.17	0.557	ug/Kg	☼	08/20/14 01:05	1
Styrene	1.17	U	5.85	1.17	0.406	ug/Kg	☼	08/20/14 01:05	1
1,1,2,2-Tetrachloroethane	1.17	U	5.85	1.17	0.470	ug/Kg	☼	08/20/14 01:05	1
Tetrachloroethene	1.17	U	5.85	1.17	0.377	ug/Kg	☼	08/20/14 01:05	1
Toluene	1.17	U	5.85	1.17	0.820	ug/Kg	☼	08/20/14 01:05	1
1,1,1-Trichloroethane	1.17	U	5.85	1.17	0.505	ug/Kg	☼	08/20/14 01:05	1
1,1,2-Trichloroethane	1.17	U	5.85	1.17	0.671	ug/Kg	☼	08/20/14 01:05	1
Trichloroethene	1.17	U	5.85	1.17	0.451	ug/Kg	☼	08/20/14 01:05	1
Vinyl chloride	1.17	U	11.7	1.17	0.501	ug/Kg	☼	08/20/14 01:05	1
Xylenes, Total	5.85	U	11.7	5.85	1.00	ug/Kg	☼	08/20/14 01:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*85 - 120*	*08/19/14 20:00*	*08/20/14 01:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 128*	*08/19/14 20:00*	*08/20/14 01:05*	*1*
Toluene-d8 (Surr)	*100*		*85 - 115*	*08/19/14 20:00*	*08/20/14 01:05*	*1*
Dibromofluoromethane (Surr)	*58*	*X*	*76 - 126*	*08/19/14 20:00*	*08/20/14 01:05*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-4
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	10.9	U	21.9	10.9	7.08	ug/Kg	☼	08/19/14 23:00	1
Benzene	1.09	U	5.47	1.09	0.277	ug/Kg	☼	08/19/14 23:00	1
Bromodichloromethane	1.09	U	5.47	1.09	0.278	ug/Kg	☼	08/19/14 23:00	1
Bromoform	1.09	U	5.47	1.09	0.400	ug/Kg	☼	08/19/14 23:00	1
Bromomethane	5.47	U	10.9	5.47	1.20	ug/Kg	☼	08/19/14 23:00	1
2-Butanone (MEK)	5.47	U	21.9	5.47	2.10	ug/Kg	☼	08/19/14 23:00	1
Carbon tetrachloride	1.09	U	5.47	1.09	0.561	ug/Kg	☼	08/19/14 23:00	1
Chlorobenzene	1.09	U	5.47	1.09	0.418	ug/Kg	☼	08/19/14 23:00	1
Dibromochloromethane	1.09	U	5.47	1.09	0.444	ug/Kg	☼	08/19/14 23:00	1
Chloroethane	1.09	U	10.9	1.09	0.564	ug/Kg	☼	08/19/14 23:00	1
Chloroform	1.09	U	5.47	1.09	0.411	ug/Kg	☼	08/19/14 23:00	1
Chloromethane	5.47	U	10.9	5.47	0.711	ug/Kg	☼	08/19/14 23:00	1
1,1-Dichloroethane	1.09	U	5.47	1.09	0.429	ug/Kg	☼	08/19/14 23:00	1
1,2-Dichloroethane	1.09	U	5.47	1.09	0.948	ug/Kg	☼	08/19/14 23:00	1
cis-1,2-Dichloroethene	1.09	U	5.47	1.09	0.653	ug/Kg	☼	08/19/14 23:00	1
trans-1,2-Dichloroethene	1.09	U	5.47	1.09	1.03	ug/Kg	☼	08/19/14 23:00	1
1,1-Dichloroethene	5.47	U	5.47	5.47	1.76	ug/Kg	☼	08/19/14 23:00	1
1,2-Dichloropropane	1.09	U	5.47	1.09	0.419	ug/Kg	☼	08/19/14 23:00	1
cis-1,3-Dichloropropene	1.09	U	5.47	1.09	0.651	ug/Kg	☼	08/19/14 23:00	1
trans-1,3-Dichloropropene	1.09	U	5.47	1.09	0.382	ug/Kg	☼	08/19/14 23:00	1
Ethylbenzene	1.09	U	5.47	1.09	0.327	ug/Kg	☼	08/19/14 23:00	1
2-Hexanone	5.47	U	10.9	5.47	1.94	ug/Kg	☼	08/19/14 23:00	1
Methylene Chloride	5.47	U	10.9	5.47	1.73	ug/Kg	☼	08/19/14 23:00	1
4-Methyl-2-pentanone (MIBK)	5.47	U	21.9	5.47	0.801	ug/Kg	☼	08/19/14 23:00	1
Methyl tert-butyl ether	1.09	U	5.47	1.09	0.521	ug/Kg	☼	08/19/14 23:00	1
Styrene	1.09	U	5.47	1.09	0.380	ug/Kg	☼	08/19/14 23:00	1
1,1,2,2-Tetrachloroethane	1.09	U	5.47	1.09	0.439	ug/Kg	☼	08/19/14 23:00	1
Tetrachloroethene	1.09	U	5.47	1.09	0.352	ug/Kg	☼	08/19/14 23:00	1
Toluene	1.09	U	5.47	1.09	0.766	ug/Kg	☼	08/19/14 23:00	1
1,1,1-Trichloroethane	1.09	U	5.47	1.09	0.471	ug/Kg	☼	08/19/14 23:00	1
1,1,2-Trichloroethane	1.09	U	5.47	1.09	0.627	ug/Kg	☼	08/19/14 23:00	1
Trichloroethene	1.09	U	5.47	1.09	0.421	ug/Kg	☼	08/19/14 23:00	1
Vinyl chloride	1.09	U	10.9	1.09	0.468	ug/Kg	☼	08/19/14 23:00	1
Xylenes, Total	5.47	U	10.9	5.47	0.934	ug/Kg	☼	08/19/14 23:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*85 - 120*	*08/19/14 20:00*	*08/19/14 23:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*71 - 128*	*08/19/14 20:00*	*08/19/14 23:00*	*1*
Toluene-d8 (Surr)	*102*		*85 - 115*	*08/19/14 20:00*	*08/19/14 23:00*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 126*	*08/19/14 20:00*	*08/19/14 23:00*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-5
Matrix: Solid
Percent Solids: 83.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	11.9	U	23.9	11.9	7.73	ug/Kg	☼	08/20/14 01:30	1
Benzene	1.19	U	5.97	1.19	0.302	ug/Kg	☼	08/20/14 01:30	1
Bromodichloromethane	1.19	U	5.97	1.19	0.304	ug/Kg	☼	08/20/14 01:30	1
Bromoform	1.19	U	5.97	1.19	0.437	ug/Kg	☼	08/20/14 01:30	1
Bromomethane	5.97	U	11.9	5.97	1.31	ug/Kg	☼	08/20/14 01:30	1
2-Butanone (MEK)	5.97	U	23.9	5.97	2.29	ug/Kg	☼	08/20/14 01:30	1
Carbon tetrachloride	1.19	U	5.97	1.19	0.613	ug/Kg	☼	08/20/14 01:30	1
Chlorobenzene	1.19	U	5.97	1.19	0.456	ug/Kg	☼	08/20/14 01:30	1
Dibromochloromethane	1.19	U	5.97	1.19	0.485	ug/Kg	☼	08/20/14 01:30	1
Chloroethane	1.19	U	11.9	1.19	0.617	ug/Kg	☼	08/20/14 01:30	1
Chloroform	1.19	U	5.97	1.19	0.449	ug/Kg	☼	08/20/14 01:30	1
Chloromethane	5.97	U	11.9	5.97	0.777	ug/Kg	☼	08/20/14 01:30	1
1,1-Dichloroethane	1.19	U	5.97	1.19	0.468	ug/Kg	☼	08/20/14 01:30	1
1,2-Dichloroethane	1.19	U	5.97	1.19	1.04	ug/Kg	☼	08/20/14 01:30	1
cis-1,2-Dichloroethene	1.19	U	5.97	1.19	0.713	ug/Kg	☼	08/20/14 01:30	1
trans-1,2-Dichloroethene	1.19	U	5.97	1.19	1.13	ug/Kg	☼	08/20/14 01:30	1
1,1-Dichloroethene	5.97	U	5.97	5.97	1.92	ug/Kg	☼	08/20/14 01:30	1
1,2-Dichloropropane	1.19	U	5.97	1.19	0.458	ug/Kg	☼	08/20/14 01:30	1
cis-1,3-Dichloropropene	1.19	U	5.97	1.19	0.711	ug/Kg	☼	08/20/14 01:30	1
trans-1,3-Dichloropropene	1.19	U	5.97	1.19	0.417	ug/Kg	☼	08/20/14 01:30	1
Ethylbenzene	1.19	U	5.97	1.19	0.357	ug/Kg	☼	08/20/14 01:30	1
2-Hexanone	5.97	U	11.9	5.97	2.12	ug/Kg	☼	08/20/14 01:30	1
Methylene Chloride	5.97	U	11.9	5.97	1.89	ug/Kg	☼	08/20/14 01:30	1
4-Methyl-2-pentanone (MIBK)	5.97	U	23.9	5.97	0.875	ug/Kg	☼	08/20/14 01:30	1
Methyl tert-butyl ether	1.19	U	5.97	1.19	0.569	ug/Kg	☼	08/20/14 01:30	1
Styrene	1.19	U	5.97	1.19	0.415	ug/Kg	☼	08/20/14 01:30	1
1,1,2,2-Tetrachloroethane	1.19	U	5.97	1.19	0.479	ug/Kg	☼	08/20/14 01:30	1
Tetrachloroethene	1.19	U	5.97	1.19	0.385	ug/Kg	☼	08/20/14 01:30	1
Toluene	1.19	U	5.97	1.19	0.836	ug/Kg	☼	08/20/14 01:30	1
1,1,1-Trichloroethane	1.19	U	5.97	1.19	0.515	ug/Kg	☼	08/20/14 01:30	1
1,1,2-Trichloroethane	1.19	U	5.97	1.19	0.685	ug/Kg	☼	08/20/14 01:30	1
Trichloroethene	1.19	U	5.97	1.19	0.460	ug/Kg	☼	08/20/14 01:30	1
Vinyl chloride	1.19	U	11.9	1.19	0.511	ug/Kg	☼	08/20/14 01:30	1
Xylenes, Total	5.97	U	11.9	5.97	1.02	ug/Kg	☼	08/20/14 01:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*85 - 120*	*08/19/14 20:00*	*08/20/14 01:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 128*	*08/19/14 20:00*	*08/20/14 01:30*	*1*
Toluene-d8 (Surr)	*98*		*85 - 115*	*08/19/14 20:00*	*08/20/14 01:30*	*1*
Dibromofluoromethane (Surr)	*32*	*X*	*76 - 126*	*08/19/14 20:00*	*08/20/14 01:30*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-6
Matrix: Solid
Percent Solids: 85.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	11.6	U	23.3	11.6	7.54	ug/Kg	☼	08/20/14 01:55	1
Benzene	1.16	U	5.82	1.16	0.295	ug/Kg	☼	08/20/14 01:55	1
Bromodichloromethane	1.16	U	5.82	1.16	0.296	ug/Kg	☼	08/20/14 01:55	1
Bromoform	1.16	U	5.82	1.16	0.426	ug/Kg	☼	08/20/14 01:55	1
Bromomethane	5.82	U	11.6	5.82	1.28	ug/Kg	☼	08/20/14 01:55	1
2-Butanone (MEK)	5.82	U	23.3	5.82	2.24	ug/Kg	☼	08/20/14 01:55	1
Carbon tetrachloride	1.16	U	5.82	1.16	0.598	ug/Kg	☼	08/20/14 01:55	1
Chlorobenzene	1.16	U	5.82	1.16	0.445	ug/Kg	☼	08/20/14 01:55	1
Dibromochloromethane	1.16	U	5.82	1.16	0.473	ug/Kg	☼	08/20/14 01:55	1
Chloroethane	1.16	U	11.6	1.16	0.601	ug/Kg	☼	08/20/14 01:55	1
Chloroform	1.16	U	5.82	1.16	0.438	ug/Kg	☼	08/20/14 01:55	1
Chloromethane	5.82	U	11.6	5.82	0.757	ug/Kg	☼	08/20/14 01:55	1
1,1-Dichloroethane	1.16	U	5.82	1.16	0.457	ug/Kg	☼	08/20/14 01:55	1
1,2-Dichloroethane	1.16	U	5.82	1.16	1.01	ug/Kg	☼	08/20/14 01:55	1
cis-1,2-Dichloroethene	1.16	U	5.82	1.16	0.695	ug/Kg	☼	08/20/14 01:55	1
trans-1,2-Dichloroethene	1.16	U	5.82	1.16	1.10	ug/Kg	☼	08/20/14 01:55	1
1,1-Dichloroethene	5.82	U	5.82	5.82	1.88	ug/Kg	☼	08/20/14 01:55	1
1,2-Dichloropropane	1.16	U	5.82	1.16	0.446	ug/Kg	☼	08/20/14 01:55	1
cis-1,3-Dichloropropene	1.16	U	5.82	1.16	0.693	ug/Kg	☼	08/20/14 01:55	1
trans-1,3-Dichloropropene	1.16	U	5.82	1.16	0.407	ug/Kg	☼	08/20/14 01:55	1
Ethylbenzene	1.16	U	5.82	1.16	0.348	ug/Kg	☼	08/20/14 01:55	1
2-Hexanone	5.82	U	11.6	5.82	2.06	ug/Kg	☼	08/20/14 01:55	1
Methylene Chloride	5.82	U	11.6	5.82	1.84	ug/Kg	☼	08/20/14 01:55	1
4-Methyl-2-pentanone (MIBK)	5.82	U	23.3	5.82	0.853	ug/Kg	☼	08/20/14 01:55	1
Methyl tert-butyl ether	1.16	U	5.82	1.16	0.554	ug/Kg	☼	08/20/14 01:55	1
Styrene	1.16	U	5.82	1.16	0.404	ug/Kg	☼	08/20/14 01:55	1
1,1,2,2-Tetrachloroethane	1.16	U	5.82	1.16	0.467	ug/Kg	☼	08/20/14 01:55	1
Tetrachloroethene	1.16	U	5.82	1.16	0.375	ug/Kg	☼	08/20/14 01:55	1
Toluene	1.16	U	5.82	1.16	0.815	ug/Kg	☼	08/20/14 01:55	1
1,1,1-Trichloroethane	1.16	U	5.82	1.16	0.502	ug/Kg	☼	08/20/14 01:55	1
1,1,2-Trichloroethane	1.16	U	5.82	1.16	0.667	ug/Kg	☼	08/20/14 01:55	1
Trichloroethene	1.16	U	5.82	1.16	0.448	ug/Kg	☼	08/20/14 01:55	1
Vinyl chloride	1.16	U	11.6	1.16	0.499	ug/Kg	☼	08/20/14 01:55	1
Xylenes, Total	5.82	U	11.6	5.82	0.995	ug/Kg	☼	08/20/14 01:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*85 - 120*	*08/19/14 20:00*	*08/20/14 01:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 128*	*08/19/14 20:00*	*08/20/14 01:55*	*1*
Toluene-d8 (Surr)	*102*		*85 - 115*	*08/19/14 20:00*	*08/20/14 01:55*	*1*
Dibromofluoromethane (Surr)	*88*		*76 - 126*	*08/19/14 20:00*	*08/20/14 01:55*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-7
Matrix: Solid
Percent Solids: 62.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**20.2**	**J**	31.8	15.9	10.3	ug/Kg	☼	08/20/14 02:20	1
Benzene	1.59	U	7.95	1.59	0.402	ug/Kg	☼	08/20/14 02:20	1
Bromodichloromethane	1.59	U	7.95	1.59	0.404	ug/Kg	☼	08/20/14 02:20	1
Bromoform	1.59	U	7.95	1.59	0.582	ug/Kg	☼	08/20/14 02:20	1
Bromomethane	7.95	U	15.9	7.95	1.75	ug/Kg	☼	08/20/14 02:20	1
2-Butanone (MEK)	7.95	U	31.8	7.95	3.05	ug/Kg	☼	08/20/14 02:20	1
Carbon tetrachloride	1.59	U	7.95	1.59	0.816	ug/Kg	☼	08/20/14 02:20	1
Chlorobenzene	**10.4**		7.95	1.59	0.608	ug/Kg	☼	08/20/14 02:20	1
Dibromochloromethane	1.59	U	7.95	1.59	0.646	ug/Kg	☼	08/20/14 02:20	1
Chloroethane	1.59	U	15.9	1.59	0.821	ug/Kg	☼	08/20/14 02:20	1
Chloroform	1.59	U	7.95	1.59	0.598	ug/Kg	☼	08/20/14 02:20	1
Chloromethane	7.95	U	15.9	7.95	1.03	ug/Kg	☼	08/20/14 02:20	1
1,1-Dichloroethane	1.59	U	7.95	1.59	0.624	ug/Kg	☼	08/20/14 02:20	1
1,2-Dichloroethane	1.59	U	7.95	1.59	1.38	ug/Kg	☼	08/20/14 02:20	1
cis-1,2-Dichloroethene	1.59	U	7.95	1.59	0.950	ug/Kg	☼	08/20/14 02:20	1
trans-1,2-Dichloroethene	1.59	U	7.95	1.59	1.50	ug/Kg	☼	08/20/14 02:20	1
1,1-Dichloroethene	7.95	U	7.95	7.95	2.56	ug/Kg	☼	08/20/14 02:20	1
1,2-Dichloropropane	1.59	U	7.95	1.59	0.609	ug/Kg	☼	08/20/14 02:20	1
cis-1,3-Dichloropropene	1.59	U	7.95	1.59	0.947	ug/Kg	☼	08/20/14 02:20	1
trans-1,3-Dichloropropene	1.59	U	7.95	1.59	0.555	ug/Kg	☼	08/20/14 02:20	1
Ethylbenzene	**1.49**	**J**	7.95	1.59	0.476	ug/Kg	☼	08/20/14 02:20	1
2-Hexanone	7.95	U	15.9	7.95	2.82	ug/Kg	☼	08/20/14 02:20	1
Methylene Chloride	7.95	U	15.9	7.95	2.51	ug/Kg	☼	08/20/14 02:20	1
4-Methyl-2-pentanone (MIBK)	7.95	U	31.8	7.95	1.16	ug/Kg	☼	08/20/14 02:20	1
Methyl tert-butyl ether	1.59	U	7.95	1.59	0.757	ug/Kg	☼	08/20/14 02:20	1
Styrene	1.59	U	7.95	1.59	0.552	ug/Kg	☼	08/20/14 02:20	1
1,1,2,2-Tetrachloroethane	1.59	U	7.95	1.59	0.638	ug/Kg	☼	08/20/14 02:20	1
Tetrachloroethene	1.59	U	7.95	1.59	0.512	ug/Kg	☼	08/20/14 02:20	1
Toluene	1.59	U	7.95	1.59	1.11	ug/Kg	☼	08/20/14 02:20	1
1,1,1-Trichloroethane	1.59	U	7.95	1.59	0.686	ug/Kg	☼	08/20/14 02:20	1
1,1,2-Trichloroethane	1.59	U	7.95	1.59	0.912	ug/Kg	☼	08/20/14 02:20	1
Trichloroethene	1.59	U	7.95	1.59	0.612	ug/Kg	☼	08/20/14 02:20	1
Vinyl chloride	1.59	U	15.9	1.59	0.681	ug/Kg	☼	08/20/14 02:20	1
Xylenes, Total	7.95	U	15.9	7.95	1.36	ug/Kg	☼	08/20/14 02:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*85 - 120*	*08/19/14 20:00*	*08/20/14 02:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 128*	*08/19/14 20:00*	*08/20/14 02:20*	*1*
Toluene-d8 (Surr)	*100*		*85 - 115*	*08/19/14 20:00*	*08/20/14 02:20*	*1*
Dibromofluoromethane (Surr)	*94*		*76 - 126*	*08/19/14 20:00*	*08/20/14 02:20*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-8
Matrix: Solid
Percent Solids: 84.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	11.9	U	23.8	11.9	7.70	ug/Kg	☼	08/20/14 02:45	1
Benzene	1.19	U	5.95	1.19	0.301	ug/Kg	☼	08/20/14 02:45	1
Bromodichloromethane	1.19	U	5.95	1.19	0.302	ug/Kg	☼	08/20/14 02:45	1
Bromoform	1.19	U	5.95	1.19	0.436	ug/Kg	☼	08/20/14 02:45	1
Bromomethane	5.95	U	11.9	5.95	1.31	ug/Kg	☼	08/20/14 02:45	1
2-Butanone (MEK)	5.95	U	23.8	5.95	2.29	ug/Kg	☼	08/20/14 02:45	1
Carbon tetrachloride	1.19	U	5.95	1.19	0.611	ug/Kg	☼	08/20/14 02:45	1
Chlorobenzene	1.19	U	5.95	1.19	0.455	ug/Kg	☼	08/20/14 02:45	1
Dibromochloromethane	1.19	U	5.95	1.19	0.483	ug/Kg	☼	08/20/14 02:45	1
Chloroethane	1.19	U	11.9	1.19	0.614	ug/Kg	☼	08/20/14 02:45	1
Chloroform	1.19	U	5.95	1.19	0.448	ug/Kg	☼	08/20/14 02:45	1
Chloromethane	5.95	U	11.9	5.95	0.774	ug/Kg	☼	08/20/14 02:45	1
1,1-Dichloroethane	1.19	U	5.95	1.19	0.467	ug/Kg	☼	08/20/14 02:45	1
1,2-Dichloroethane	1.19	U	5.95	1.19	1.03	ug/Kg	☼	08/20/14 02:45	1
cis-1,2-Dichloroethene	1.19	U	5.95	1.19	0.711	ug/Kg	☼	08/20/14 02:45	1
trans-1,2-Dichloroethene	1.19	U	5.95	1.19	1.12	ug/Kg	☼	08/20/14 02:45	1
1,1-Dichloroethene	5.95	U	5.95	5.95	1.92	ug/Kg	☼	08/20/14 02:45	1
1,2-Dichloropropane	1.19	U	5.95	1.19	0.456	ug/Kg	☼	08/20/14 02:45	1
cis-1,3-Dichloropropene	1.19	U	5.95	1.19	0.708	ug/Kg	☼	08/20/14 02:45	1
trans-1,3-Dichloropropene	1.19	U	5.95	1.19	0.415	ug/Kg	☼	08/20/14 02:45	1
Ethylbenzene	1.19	U	5.95	1.19	0.356	ug/Kg	☼	08/20/14 02:45	1
2-Hexanone	5.95	U	11.9	5.95	2.11	ug/Kg	☼	08/20/14 02:45	1
Methylene Chloride	5.95	U	11.9	5.95	1.88	ug/Kg	☼	08/20/14 02:45	1
4-Methyl-2-pentanone (MIBK)	5.95	U	23.8	5.95	0.871	ug/Kg	☼	08/20/14 02:45	1
Methyl tert-butyl ether	1.19	U	5.95	1.19	0.567	ug/Kg	☼	08/20/14 02:45	1
Styrene	1.19	U	5.95	1.19	0.413	ug/Kg	☼	08/20/14 02:45	1
1,1,2,2-Tetrachloroethane	1.19	U	5.95	1.19	0.477	ug/Kg	☼	08/20/14 02:45	1
Tetrachloroethene	1.19	U	5.95	1.19	0.383	ug/Kg	☼	08/20/14 02:45	1
Toluene	1.19	U	5.95	1.19	0.833	ug/Kg	☼	08/20/14 02:45	1
1,1,1-Trichloroethane	1.19	U	5.95	1.19	0.513	ug/Kg	☼	08/20/14 02:45	1
1,1,2-Trichloroethane	1.19	U	5.95	1.19	0.682	ug/Kg	☼	08/20/14 02:45	1
Trichloroethene	1.19	U	5.95	1.19	0.458	ug/Kg	☼	08/20/14 02:45	1
Vinyl chloride	1.19	U	11.9	1.19	0.510	ug/Kg	☼	08/20/14 02:45	1
Xylenes, Total	5.95	U	11.9	5.95	1.02	ug/Kg	☼	08/20/14 02:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*85 - 120*	*08/19/14 20:00*	*08/20/14 02:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 128*	*08/19/14 20:00*	*08/20/14 02:45*	*1*
Toluene-d8 (Surr)	*98*		*85 - 115*	*08/19/14 20:00*	*08/20/14 02:45*	*1*
Dibromofluoromethane (Surr)	*92*		*76 - 126*	*08/19/14 20:00*	*08/20/14 02:45*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-9
Matrix: Solid
Percent Solids: 74.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**28.7**		26.7	13.4	8.64	ug/Kg	☼	08/20/14 03:09	1
Benzene	1.34	U	6.68	1.34	0.338	ug/Kg	☼	08/20/14 03:09	1
Bromodichloromethane	1.34	U	6.68	1.34	0.339	ug/Kg	☼	08/20/14 03:09	1
Bromoform	1.34	U	6.68	1.34	0.489	ug/Kg	☼	08/20/14 03:09	1
Bromomethane	6.68	U	13.4	6.68	1.47	ug/Kg	☼	08/20/14 03:09	1
2-Butanone (MEK)	6.68	U	26.7	6.68	2.56	ug/Kg	☼	08/20/14 03:09	1
Carbon tetrachloride	1.34	U	6.68	1.34	0.685	ug/Kg	☼	08/20/14 03:09	1
Chlorobenzene	1.34	U	6.68	1.34	0.510	ug/Kg	☼	08/20/14 03:09	1
Dibromochloromethane	1.34	U	6.68	1.34	0.542	ug/Kg	☼	08/20/14 03:09	1
Chloroethane	1.34	U	13.4	1.34	0.689	ug/Kg	☼	08/20/14 03:09	1
Chloroform	1.34	U	6.68	1.34	0.502	ug/Kg	☼	08/20/14 03:09	1
Chloromethane	6.68	U	13.4	6.68	0.868	ug/Kg	☼	08/20/14 03:09	1
1,1-Dichloroethane	1.34	U	6.68	1.34	0.523	ug/Kg	☼	08/20/14 03:09	1
1,2-Dichloroethane	1.34	U	6.68	1.34	1.16	ug/Kg	☼	08/20/14 03:09	1
cis-1,2-Dichloroethene	1.34	U	6.68	1.34	0.797	ug/Kg	☼	08/20/14 03:09	1
trans-1,2-Dichloroethene	1.34	U	6.68	1.34	1.26	ug/Kg	☼	08/20/14 03:09	1
1,1-Dichloroethene	6.68	U	6.68	6.68	2.15	ug/Kg	☼	08/20/14 03:09	1
1,2-Dichloropropane	1.34	U	6.68	1.34	0.511	ug/Kg	☼	08/20/14 03:09	1
cis-1,3-Dichloropropene	1.34	U	6.68	1.34	0.794	ug/Kg	☼	08/20/14 03:09	1
trans-1,3-Dichloropropene	1.34	U	6.68	1.34	0.466	ug/Kg	☼	08/20/14 03:09	1
Ethylbenzene	1.34	U	6.68	1.34	0.399	ug/Kg	☼	08/20/14 03:09	1
2-Hexanone	6.68	U	13.4	6.68	2.36	ug/Kg	☼	08/20/14 03:09	1
Methylene Chloride	6.68	U	13.4	6.68	2.11	ug/Kg	☼	08/20/14 03:09	1
4-Methyl-2-pentanone (MIBK)	6.68	U	26.7	6.68	0.977	ug/Kg	☼	08/20/14 03:09	1
Methyl tert-butyl ether	1.34	U	6.68	1.34	0.636	ug/Kg	☼	08/20/14 03:09	1
Styrene	1.34	U	6.68	1.34	0.463	ug/Kg	☼	08/20/14 03:09	1
1,1,2,2-Tetrachloroethane	1.34	U	6.68	1.34	0.535	ug/Kg	☼	08/20/14 03:09	1
Tetrachloroethene	1.34	U	6.68	1.34	0.430	ug/Kg	☼	08/20/14 03:09	1
Toluene	1.34	U	6.68	1.34	0.935	ug/Kg	☼	08/20/14 03:09	1
1,1,1-Trichloroethane	1.34	U	6.68	1.34	0.575	ug/Kg	☼	08/20/14 03:09	1
1,1,2-Trichloroethane	1.34	U	6.68	1.34	0.765	ug/Kg	☼	08/20/14 03:09	1
Trichloroethene	1.34	U	6.68	1.34	0.514	ug/Kg	☼	08/20/14 03:09	1
Vinyl chloride	1.34	U	13.4	1.34	0.571	ug/Kg	☼	08/20/14 03:09	1
Xylenes, Total	6.68	U	13.4	6.68	1.14	ug/Kg	☼	08/20/14 03:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*85 - 120*	*08/19/14 20:00*	*08/20/14 03:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 128*	*08/19/14 20:00*	*08/20/14 03:09*	*1*
Toluene-d8 (Surr)	*109*		*85 - 115*	*08/19/14 20:00*	*08/20/14 03:09*	*1*
Dibromofluoromethane (Surr)	*96*		*76 - 126*	*08/19/14 20:00*	*08/20/14 03:09*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-10
Matrix: Solid
Percent Solids: 85.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	11.7	U	23.3	11.7	7.54	ug/Kg	☼	08/20/14 03:34	1
Benzene	1.17	U	5.83	1.17	0.295	ug/Kg	☼	08/20/14 03:34	1
Bromodichloromethane	1.17	U	5.83	1.17	0.296	ug/Kg	☼	08/20/14 03:34	1
Bromoform	1.17	U	5.83	1.17	0.426	ug/Kg	☼	08/20/14 03:34	1
Bromomethane	5.83	U	11.7	5.83	1.28	ug/Kg	☼	08/20/14 03:34	1
2-Butanone (MEK)	5.83	U	23.3	5.83	2.24	ug/Kg	☼	08/20/14 03:34	1
Carbon tetrachloride	1.17	U	5.83	1.17	0.598	ug/Kg	☼	08/20/14 03:34	1
Chlorobenzene	1.17	U	5.83	1.17	0.445	ug/Kg	☼	08/20/14 03:34	1
Dibromochloromethane	1.17	U	5.83	1.17	0.473	ug/Kg	☼	08/20/14 03:34	1
Chloroethane	1.17	U	11.7	1.17	0.601	ug/Kg	☼	08/20/14 03:34	1
Chloroform	1.17	U	5.83	1.17	0.438	ug/Kg	☼	08/20/14 03:34	1
Chloromethane	5.83	U	11.7	5.83	0.757	ug/Kg	☼	08/20/14 03:34	1
1,1-Dichloroethane	1.17	U	5.83	1.17	0.457	ug/Kg	☼	08/20/14 03:34	1
1,2-Dichloroethane	1.17	U	5.83	1.17	1.01	ug/Kg	☼	08/20/14 03:34	1
cis-1,2-Dichloroethene	1.17	U	5.83	1.17	0.696	ug/Kg	☼	08/20/14 03:34	1
trans-1,2-Dichloroethene	1.17	U	5.83	1.17	1.10	ug/Kg	☼	08/20/14 03:34	1
1,1-Dichloroethene	5.83	U	5.83	5.83	1.88	ug/Kg	☼	08/20/14 03:34	1
1,2-Dichloropropane	1.17	U	5.83	1.17	0.446	ug/Kg	☼	08/20/14 03:34	1
cis-1,3-Dichloropropene	1.17	U	5.83	1.17	0.693	ug/Kg	☼	08/20/14 03:34	1
trans-1,3-Dichloropropene	1.17	U	5.83	1.17	0.407	ug/Kg	☼	08/20/14 03:34	1
Ethylbenzene	1.17	U	5.83	1.17	0.348	ug/Kg	☼	08/20/14 03:34	1
2-Hexanone	5.83	U	11.7	5.83	2.06	ug/Kg	☼	08/20/14 03:34	1
Methylene Chloride	5.83	U	11.7	5.83	1.84	ug/Kg	☼	08/20/14 03:34	1
4-Methyl-2-pentanone (MIBK)	5.83	U	23.3	5.83	0.853	ug/Kg	☼	08/20/14 03:34	1
Methyl tert-butyl ether	1.17	U	5.83	1.17	0.555	ug/Kg	☼	08/20/14 03:34	1
Styrene	1.17	U	5.83	1.17	0.404	ug/Kg	☼	08/20/14 03:34	1
1,1,2,2-Tetrachloroethane	1.17	U	5.83	1.17	0.467	ug/Kg	☼	08/20/14 03:34	1
Tetrachloroethene	1.17	U	5.83	1.17	0.375	ug/Kg	☼	08/20/14 03:34	1
Toluene	1.17	U	5.83	1.17	0.816	ug/Kg	☼	08/20/14 03:34	1
1,1,1-Trichloroethane	1.17	U	5.83	1.17	0.502	ug/Kg	☼	08/20/14 03:34	1
1,1,2-Trichloroethane	1.17	U	5.83	1.17	0.668	ug/Kg	☼	08/20/14 03:34	1
Trichloroethene	1.17	U	5.83	1.17	0.449	ug/Kg	☼	08/20/14 03:34	1
Vinyl chloride	1.17	U	11.7	1.17	0.499	ug/Kg	☼	08/20/14 03:34	1
Xylenes, Total	5.83	U	11.7	5.83	0.995	ug/Kg	☼	08/20/14 03:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*85 - 120*	*08/19/14 20:00*	*08/20/14 03:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 128*	*08/19/14 20:00*	*08/20/14 03:34*	*1*
Toluene-d8 (Surr)	*99*		*85 - 115*	*08/19/14 20:00*	*08/20/14 03:34*	*1*
Dibromofluoromethane (Surr)	*95*		*76 - 126*	*08/19/14 20:00*	*08/20/14 03:34*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-11
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.00	U	5.00	1.00	0.291	ug/L		08/20/14 18:21	1
1,1,2,2-Tetrachloroethane	2.00	U	5.00	2.00	0.425	ug/L		08/20/14 18:21	1
1,1,2-Trichloroethane	1.00	U	5.00	1.00	0.573	ug/L		08/20/14 18:21	1
1,1-Dichloroethane	1.00	U	5.00	1.00	0.392	ug/L		08/20/14 18:21	1
1,1-Dichloroethene	1.00	U	5.00	1.00	0.365	ug/L		08/20/14 18:21	1
1,2-Dichloroethane	1.00	U	5.00	1.00	0.372	ug/L		08/20/14 18:21	1
1,2-Dichloropropane	1.00	U	5.00	1.00	0.317	ug/L		08/20/14 18:21	1
2-Butanone (MEK)	5.00	U	20.0	5.00	0.389	ug/L		08/20/14 18:21	1
2-Hexanone	2.00	U	20.0	2.00	0.593	ug/L		08/20/14 18:21	1
4-Methyl-2-pentanone (MIBK)	2.00	U	20.0	2.00	0.326	ug/L		08/20/14 18:21	1
Acetone	**15.1**	**J**	20.0	10.0	6.67	ug/L		08/20/14 18:21	1
Benzene	1.00	U	5.00	1.00	0.253	ug/L		08/20/14 18:21	1
Bromoform	1.00	U	5.00	1.00	0.366	ug/L		08/20/14 18:21	1
Bromomethane	2.00	U	10.0	2.00	0.396	ug/L		08/20/14 18:21	1
Carbon tetrachloride	1.00	U	5.00	1.00	0.360	ug/L		08/20/14 18:21	1
Chlorobenzene	1.00	U	5.00	1.00	0.382	ug/L		08/20/14 18:21	1
Dibromochloromethane	1.00	U	5.00	1.00	0.329	ug/L		08/20/14 18:21	1
Chloroethane	1.00	U	10.0	1.00	0.382	ug/L		08/20/14 18:21	1
Chloroform	1.00	U	5.00	1.00	0.147	ug/L		08/20/14 18:21	1
Chloromethane	2.00	U	10.0	2.00	0.553	ug/L		08/20/14 18:21	1
cis-1,2-Dichloroethene	1.00	U	5.00	1.00	0.159	ug/L		08/20/14 18:21	1
cis-1,3-Dichloropropene	1.00	U	5.00	1.00	0.339	ug/L		08/20/14 18:21	1
Bromodichloromethane	2.00	U	5.00	2.00	0.254	ug/L		08/20/14 18:21	1
Ethylbenzene	1.00	U	5.00	1.00	0.299	ug/L		08/20/14 18:21	1
Methyl tert-butyl ether	2.00	U	5.00	2.00	0.401	ug/L		08/20/14 18:21	1
Methylene Chloride	5.00	U	7.50	5.00	1.67	ug/L		08/20/14 18:21	1
Styrene	1.00	U	5.00	1.00	0.347	ug/L		08/20/14 18:21	1
Tetrachloroethene	1.00	U	5.00	1.00	0.280	ug/L		08/20/14 18:21	1
Toluene	1.00	U	5.00	1.00	1.00	ug/L		08/20/14 18:21	1
trans-1,2-Dichloroethene	1.00	U	5.00	1.00	0.178	ug/L		08/20/14 18:21	1
trans-1,3-Dichloropropene	1.00	U	5.00	1.00	0.349	ug/L		08/20/14 18:21	1
Trichloroethene	1.00	U	5.00	1.00	0.290	ug/L		08/20/14 18:21	1
Vinyl chloride	1.00	U	2.00	1.00	0.428	ug/L		08/20/14 18:21	1
Xylenes, Total	5.00	U	10.0	5.00	0.854	ug/L		08/20/14 18:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*		*08/20/14 18:21*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 120*		*08/20/14 18:21*	*1*
Toluene-d8 (Surr)	*94*		*85 - 120*		*08/20/14 18:21*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*08/20/14 18:21*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-1
Matrix: Solid
Percent Solids: 90.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
1,2-Dichlorobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
1,3-Dichlorobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
1,4-Dichlorobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,4,5-Trichlorophenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,4,6-Trichlorophenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,4-Dichlorophenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,4-Dimethylphenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,4-Dinitrophenol	727	U	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
2,4-Dinitrotoluene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,6-Dinitrotoluene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2-Chloronaphthalene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2-Chlorophenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2-Methylphenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2-Nitroaniline	109	U	1760	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2-Nitrophenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
3 & 4 Methylphenol	109	U	727	109	73.4	ug/Kg	☼	09/01/14 22:49	1
3,3'-Dichlorobenzidine	727	U *	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
3-Nitroaniline	109	U	1760	109	36.7	ug/Kg	☼	09/01/14 22:49	1
4,6-Dinitro-2-methylphenol	727	U	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
4-Bromophenyl phenyl ether	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
4-Chloro-3-methylphenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
4-Chloroaniline	109	U *	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
4-Chlorophenyl phenyl ether	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
4-Nitroaniline	727	U	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
4-Nitrophenol	727	U	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
Acenaphthene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Acenaphthylene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Anthracene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Benzo[a]anthracene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Benzo[a]pyrene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Benzo[b]fluoranthene	109	U *	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Benzo[g,h,i]perylene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Benzo[k]fluoranthene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
bis (2-chloroisopropyl) ether	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Bis(2-chloroethoxy)methane	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Bis(2-chloroethyl)ether	109	U	364	109	36.8	ug/Kg	☼	09/01/14 22:49	1
Bis(2-ethylhexyl) phthalate	109	U	364	109	49.9	ug/Kg	☼	09/01/14 22:49	1
Butyl benzyl phthalate	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Chrysene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Dibenzo(a),h)anthracene	109	U *	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Dibenzofuran	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Diethyl phthalate	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Dimethyl phthalate	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Di-n-butyl phthalate	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Di-n-octyl phthalate	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Fluoranthene	**44.9**	**J**	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Fluorene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Hexachlorobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-1
Matrix: Solid
Percent Solids: 90.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Hexachlorocyclopentadiene	727	U *	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
Hexachloroethane	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Indeno[1,2,3-cd]pyrene	109	U *	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Nitrobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
N-Nitrosodiphenylamine	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
N-Nitrosodi-n-propylamine	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Pentachlorophenol	364	U	1760	364	364	ug/Kg	☼	09/01/14 22:49	1
Phenanthrene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Phenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Pyrene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Pyridine	109	U	727	109	73.4	ug/Kg	☼	09/01/14 22:49	1
Naphthalene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*86*		*35 - 125*	*08/28/14 12:08*	*09/01/14 22:49*	*1*
2-Fluorobiphenyl (Surr)	*90*		*45 - 105*	*08/28/14 12:08*	*09/01/14 22:49*	*1*
2-Fluorophenol (Surr)	*95*		*35 - 105*	*08/28/14 12:08*	*09/01/14 22:49*	*1*
Nitrobenzene-d5 (Surr)	*98*		*35 - 100*	*08/28/14 12:08*	*09/01/14 22:49*	*1*
Phenol-d5 (Surr)	*95*		*40 - 100*	*08/28/14 12:08*	*09/01/14 22:49*	*1*
Terphenyl-d14 (Surr)	*91*		*30 - 125*	*08/28/14 12:08*	*09/01/14 22:49*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
1,2-Dichlorobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
1,3-Dichlorobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
1,4-Dichlorobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,4,5-Trichlorophenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,4,6-Trichlorophenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,4-Dichlorophenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,4-Dimethylphenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,4-Dinitrophenol	705	U	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
2,4-Dinitrotoluene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,6-Dinitrotoluene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2-Chloronaphthalene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2-Chlorophenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2-Methylphenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2-Nitroaniline	106	U	1710	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2-Nitrophenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
3 & 4 Methylphenol	106	U	705	106	71.2	ug/Kg	☼	09/01/14 23:22	1
3,3'-Dichlorobenzidine	705	U *	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
3-Nitroaniline	106	U	1710	106	35.6	ug/Kg	☼	09/01/14 23:22	1
4,6-Dinitro-2-methylphenol	705	U	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
4-Bromophenyl phenyl ether	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
4-Chloro-3-methylphenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
4-Chloroaniline	106	U *	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
4-Chlorophenyl phenyl ether	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
4-Nitroaniline	705	U	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
4-Nitrophenol	705	U	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
Acenaphthene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Acenaphthylene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Anthracene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Benzo[a]anthracene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Benzo[a]pyrene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Benzo[b]fluoranthene	106	U *	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Benzo[g,h,i]perylene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Benzo[k]fluoranthene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
bis (2-chloroisopropyl) ether	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Bis(2-chloroethoxy)methane	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Bis(2-chloroethyl)ether	106	U	353	106	35.7	ug/Kg	☼	09/01/14 23:22	1
Bis(2-ethylhexyl) phthalate	106	U	353	106	48.4	ug/Kg	☼	09/01/14 23:22	1
Butyl benzyl phthalate	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Chrysene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Dibenzo(a),h)anthracene	106	U *	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Dibenzofuran	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Diethyl phthalate	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Dimethyl phthalate	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Di-n-butyl phthalate	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Di-n-octyl phthalate	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Fluoranthene	**62.7**	**J**	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Fluorene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Hexachlorobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Hexachlorocyclopentadiene	705	U *	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
Hexachloroethane	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Indeno[1,2,3-cd]pyrene	106	U *	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Nitrobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
N-Nitrosodiphenylamine	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
N-Nitrosodi-n-propylamine	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Pentachlorophenol	353	U	1710	353	353	ug/Kg	☼	09/01/14 23:22	1
Phenanthrene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Phenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Pyrene	**73.4**	**J**	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Pyridine	106	U	705	106	71.2	ug/Kg	☼	09/01/14 23:22	1
Naphthalene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*86*		*35 - 125*	*08/28/14 12:08*	*09/01/14 23:22*	*1*
2-Fluorobiphenyl (Surr)	*91*		*45 - 105*	*08/28/14 12:08*	*09/01/14 23:22*	*1*
2-Fluorophenol (Surr)	*90*		*35 - 105*	*08/28/14 12:08*	*09/01/14 23:22*	*1*
Nitrobenzene-d5 (Surr)	*94*		*35 - 100*	*08/28/14 12:08*	*09/01/14 23:22*	*1*
Phenol-d5 (Surr)	*88*		*40 - 100*	*08/28/14 12:08*	*09/01/14 23:22*	*1*
Terphenyl-d14 (Surr)	*91*		*30 - 125*	*08/28/14 12:08*	*09/01/14 23:22*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-3
Matrix: Solid
Percent Solids: 85.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
1,2-Dichlorobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
1,3-Dichlorobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
1,4-Dichlorobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,4,5-Trichlorophenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,4,6-Trichlorophenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,4-Dichlorophenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,4-Dimethylphenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,4-Dinitrophenol	764	U	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
2,4-Dinitrotoluene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,6-Dinitrotoluene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2-Chloronaphthalene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2-Chlorophenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2-Methylphenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2-Nitroaniline	115	U	1850	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2-Nitrophenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
3 & 4 Methylphenol	115	U	764	115	77.1	ug/Kg	☼	09/01/14 23:56	1
3,3'-Dichlorobenzidine	764	U *	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
3-Nitroaniline	115	U	1850	115	38.6	ug/Kg	☼	09/01/14 23:56	1
4,6-Dinitro-2-methylphenol	764	U	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
4-Bromophenyl phenyl ether	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
4-Chloro-3-methylphenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
4-Chloroaniline	115	U *	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
4-Chlorophenyl phenyl ether	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
4-Nitroaniline	764	U	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
4-Nitrophenol	764	U	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
Acenaphthene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Acenaphthylene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Anthracene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Benzo[a]anthracene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Benzo[a]pyrene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Benzo[b]fluoranthene	115	U *	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Benzo[g,h,i]perylene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Benzo[k]fluoranthene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
bis (2-chloroisopropyl) ether	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Bis(2-chloroethoxy)methane	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Bis(2-chloroethyl)ether	115	U	382	115	38.7	ug/Kg	☼	09/01/14 23:56	1
Bis(2-ethylhexyl) phthalate	115	U	382	115	52.4	ug/Kg	☼	09/01/14 23:56	1
Butyl benzyl phthalate	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Chrysene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Dibenzo(a),h)anthracene	115	U *	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Dibenzofuran	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Diethyl phthalate	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Dimethyl phthalate	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Di-n-butyl phthalate	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Di-n-octyl phthalate	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Fluoranthene	**74.6**	**J**	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Fluorene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Hexachlorobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-3
Matrix: Solid
Percent Solids: 85.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Hexachlorocyclopentadiene	764	U *	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
Hexachloroethane	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Indeno[1,2,3-cd]pyrene	115	U *	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Nitrobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
N-Nitrosodiphenylamine	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
N-Nitrosodi-n-propylamine	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Pentachlorophenol	382	U	1850	382	382	ug/Kg	☼	09/01/14 23:56	1
Phenanthrene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Phenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Pyrene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Pyridine	115	U	764	115	77.1	ug/Kg	☼	09/01/14 23:56	1
Naphthalene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*35 - 125*	*08/28/14 12:08*	*09/01/14 23:56*	*1*
2-Fluorobiphenyl (Surr)	*94*		*45 - 105*	*08/28/14 12:08*	*09/01/14 23:56*	*1*
2-Fluorophenol (Surr)	*92*		*35 - 105*	*08/28/14 12:08*	*09/01/14 23:56*	*1*
Nitrobenzene-d5 (Surr)	*96*		*35 - 100*	*08/28/14 12:08*	*09/01/14 23:56*	*1*
Phenol-d5 (Surr)	*90*		*40 - 100*	*08/28/14 12:08*	*09/01/14 23:56*	*1*
Terphenyl-d14 (Surr)	*90*		*30 - 125*	*08/28/14 12:08*	*09/01/14 23:56*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-4
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
1,2-Dichlorobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
1,3-Dichlorobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
1,4-Dichlorobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,4,5-Trichlorophenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,4,6-Trichlorophenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,4-Dichlorophenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,4-Dimethylphenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,4-Dinitrophenol	725	U	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
2,4-Dinitrotoluene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,6-Dinitrotoluene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2-Chloronaphthalene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2-Chlorophenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2-Methylphenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2-Nitroaniline	109	U	1760	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2-Nitrophenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
3 & 4 Methylphenol	109	U	725	109	73.1	ug/Kg	☼	09/02/14 00:30	1
3,3'-Dichlorobenzidine	725	U *	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
3-Nitroaniline	109	U	1760	109	36.6	ug/Kg	☼	09/02/14 00:30	1
4,6-Dinitro-2-methylphenol	725	U	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
4-Bromophenyl phenyl ether	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
4-Chloro-3-methylphenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
4-Chloroaniline	109	U *	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
4-Chlorophenyl phenyl ether	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
4-Nitroaniline	725	U	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
4-Nitrophenol	725	U	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
Acenaphthene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Acenaphthylene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Anthracene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Benzo[a]anthracene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Benzo[a]pyrene	**63.9**	**J**	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Benzo[b]fluoranthene	**72.0**	**J ***	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Benzo[g,h,i]perylene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Benzo[k]fluoranthene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
bis (2-chloroisopropyl) ether	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Bis(2-chloroethoxy)methane	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Bis(2-chloroethyl)ether	109	U	362	109	36.7	ug/Kg	☼	09/02/14 00:30	1
Bis(2-ethylhexyl) phthalate	109	U	362	109	49.7	ug/Kg	☼	09/02/14 00:30	1
Butyl benzyl phthalate	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Chrysene	**61.3**	**J**	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Dibenzo(a),h)anthracene	109	U *	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Dibenzofuran	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Diethyl phthalate	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Dimethyl phthalate	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Di-n-butyl phthalate	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Di-n-octyl phthalate	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Fluoranthene	**147**	**J**	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Fluorene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Hexachlorobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-4
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Hexachlorocyclopentadiene	725	U *	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
Hexachloroethane	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Indeno[1,2,3-cd]pyrene	109	U *	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Nitrobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
N-Nitrosodiphenylamine	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
N-Nitrosodi-n-propylamine	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Pentachlorophenol	362	U	1760	362	362	ug/Kg	☼	09/02/14 00:30	1
Phenanthrene	**123**	**J**	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Phenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Pyrene	**184**	**J**	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Pyridine	109	U	725	109	73.1	ug/Kg	☼	09/02/14 00:30	1
Naphthalene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*87*		*35 - 125*	*08/28/14 12:08*	*09/02/14 00:30*	*1*
2-Fluorobiphenyl (Surr)	*97*		*45 - 105*	*08/28/14 12:08*	*09/02/14 00:30*	*1*
2-Fluorophenol (Surr)	*97*		*35 - 105*	*08/28/14 12:08*	*09/02/14 00:30*	*1*
Nitrobenzene-d5 (Surr)	*103*	*X*	*35 - 100*	*08/28/14 12:08*	*09/02/14 00:30*	*1*
Phenol-d5 (Surr)	*95*		*40 - 100*	*08/28/14 12:08*	*09/02/14 00:30*	*1*
Terphenyl-d14 (Surr)	*95*		*30 - 125*	*08/28/14 12:08*	*09/02/14 00:30*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-5
Matrix: Solid
Percent Solids: 83.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
1,2-Dichlorobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
1,3-Dichlorobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
1,4-Dichlorobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,4,5-Trichlorophenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,4,6-Trichlorophenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,4-Dichlorophenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,4-Dimethylphenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,4-Dinitrophenol	792	U	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
2,4-Dinitrotoluene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,6-Dinitrotoluene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2-Chloronaphthalene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2-Chlorophenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2-Methylphenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2-Nitroaniline	119	U	1920	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2-Nitrophenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
3 & 4 Methylphenol	119	U	792	119	79.9	ug/Kg	☼	09/02/14 02:11	1
3,3'-Dichlorobenzidine	792	U *	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
3-Nitroaniline	119	U	1920	119	40.0	ug/Kg	☼	09/02/14 02:11	1
4,6-Dinitro-2-methylphenol	792	U	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
4-Bromophenyl phenyl ether	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
4-Chloro-3-methylphenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
4-Chloroaniline	119	U *	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
4-Chlorophenyl phenyl ether	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
4-Nitroaniline	792	U	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
4-Nitrophenol	792	U	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
Acenaphthene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Acenaphthylene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Anthracene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Benzo[a]anthracene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Benzo[a]pyrene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Benzo[b]fluoranthene	119	U *	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Benzo[g,h,i]perylene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Benzo[k]fluoranthene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
bis (2-chloroisopropyl) ether	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Bis(2-chloroethoxy)methane	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Bis(2-chloroethyl)ether	119	U	396	119	40.1	ug/Kg	☼	09/02/14 02:11	1
Bis(2-ethylhexyl) phthalate	119	U	396	119	54.4	ug/Kg	☼	09/02/14 02:11	1
Butyl benzyl phthalate	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Chrysene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Dibenzo(a),h)anthracene	119	U *	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Dibenzofuran	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Diethyl phthalate	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Dimethyl phthalate	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Di-n-butyl phthalate	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Di-n-octyl phthalate	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Fluoranthene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Fluorene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Hexachlorobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-5
Matrix: Solid
Percent Solids: 83.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Hexachlorocyclopentadiene	792	U *	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
Hexachloroethane	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Indeno[1,2,3-cd]pyrene	119	U *	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Nitrobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
N-Nitrosodiphenylamine	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
N-Nitrosodi-n-propylamine	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Pentachlorophenol	396	U	1920	396	396	ug/Kg	☼	09/02/14 02:11	1
Phenanthrene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Phenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Pyrene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Pyridine	119	U	792	119	79.9	ug/Kg	☼	09/02/14 02:11	1
Naphthalene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*72*		*35 - 125*	*08/28/14 12:08*	*09/02/14 02:11*	*1*
2-Fluorobiphenyl (Surr)	*87*		*45 - 105*	*08/28/14 12:08*	*09/02/14 02:11*	*1*
2-Fluorophenol (Surr)	*83*		*35 - 105*	*08/28/14 12:08*	*09/02/14 02:11*	*1*
Nitrobenzene-d5 (Surr)	*88*		*35 - 100*	*08/28/14 12:08*	*09/02/14 02:11*	*1*
Phenol-d5 (Surr)	*80*		*40 - 100*	*08/28/14 12:08*	*09/02/14 02:11*	*1*
Terphenyl-d14 (Surr)	*81*		*30 - 125*	*08/28/14 12:08*	*09/02/14 02:11*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-6
Matrix: Solid
Percent Solids: 85.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
1,2-Dichlorobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
1,3-Dichlorobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
1,4-Dichlorobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,4,5-Trichlorophenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,4,6-Trichlorophenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,4-Dichlorophenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,4-Dimethylphenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,4-Dinitrophenol	767	U	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
2,4-Dinitrotoluene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,6-Dinitrotoluene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2-Chloronaphthalene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2-Chlorophenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2-Methylphenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2-Nitroaniline	115	U	1860	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2-Nitrophenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
3 & 4 Methylphenol	115	U	767	115	77.4	ug/Kg	☼	09/02/14 02:44	1
3,3'-Dichlorobenzidine	767	U *	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
3-Nitroaniline	115	U	1860	115	38.7	ug/Kg	☼	09/02/14 02:44	1
4,6-Dinitro-2-methylphenol	767	U	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
4-Bromophenyl phenyl ether	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
4-Chloro-3-methylphenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
4-Chloroaniline	115	U *	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
4-Chlorophenyl phenyl ether	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
4-Nitroaniline	767	U	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
4-Nitrophenol	767	U	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
Acenaphthene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Acenaphthylene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Anthracene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Benzo[a]anthracene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Benzo[a]pyrene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Benzo[b]fluoranthene	115	U *	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Benzo[g,h,i]perylene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Benzo[k]fluoranthene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
bis (2-chloroisopropyl) ether	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Bis(2-chloroethoxy)methane	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Bis(2-chloroethyl)ether	115	U	384	115	38.8	ug/Kg	☼	09/02/14 02:44	1
Bis(2-ethylhexyl) phthalate	115	U	384	115	52.7	ug/Kg	☼	09/02/14 02:44	1
Butyl benzyl phthalate	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Chrysene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Dibenzo(a),h)anthracene	115	U *	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Dibenzofuran	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Diethyl phthalate	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Dimethyl phthalate	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Di-n-butyl phthalate	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Di-n-octyl phthalate	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Fluoranthene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Fluorene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Hexachlorobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-6
Matrix: Solid
Percent Solids: 85.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Hexachlorocyclopentadiene	767	U *	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
Hexachloroethane	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Indeno[1,2,3-cd]pyrene	115	U *	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Nitrobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
N-Nitrosodiphenylamine	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
N-Nitrosodi-n-propylamine	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Pentachlorophenol	384	U	1860	384	384	ug/Kg	☼	09/02/14 02:44	1
Phenanthrene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Phenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Pyrene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Pyridine	115	U	767	115	77.4	ug/Kg	☼	09/02/14 02:44	1
Naphthalene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*74*		*35 - 125*	*08/28/14 12:08*	*09/02/14 02:44*	*1*
2-Fluorobiphenyl (Surr)	*91*		*45 - 105*	*08/28/14 12:08*	*09/02/14 02:44*	*1*
2-Fluorophenol (Surr)	*89*		*35 - 105*	*08/28/14 12:08*	*09/02/14 02:44*	*1*
Nitrobenzene-d5 (Surr)	*93*		*35 - 100*	*08/28/14 12:08*	*09/02/14 02:44*	*1*
Phenol-d5 (Surr)	*85*		*40 - 100*	*08/28/14 12:08*	*09/02/14 02:44*	*1*
Terphenyl-d14 (Surr)	*87*		*30 - 125*	*08/28/14 12:08*	*09/02/14 02:44*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-7
Matrix: Solid
Percent Solids: 62.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
1,2-Dichlorobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
1,3-Dichlorobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
1,4-Dichlorobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,4,5-Trichlorophenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,4,6-Trichlorophenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,4-Dichlorophenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,4-Dimethylphenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,4-Dinitrophenol	1040	U	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
2,4-Dinitrotoluene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,6-Dinitrotoluene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2-Chloronaphthalene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2-Chlorophenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2-Methylphenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2-Nitroaniline	157	U	2530	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2-Nitrophenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
3 & 4 Methylphenol	157	U	1040	157	105	ug/Kg	☼	09/02/14 03:18	1
3,3'-Dichlorobenzidine	1040	U *	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
3-Nitroaniline	157	U	2530	157	52.7	ug/Kg	☼	09/02/14 03:18	1
4,6-Dinitro-2-methylphenol	1040	U	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
4-Bromophenyl phenyl ether	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
4-Chloro-3-methylphenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
4-Chloroaniline	157	U *	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
4-Chlorophenyl phenyl ether	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
4-Nitroaniline	1040	U	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
4-Nitrophenol	1040	U	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
Acenaphthene	**79.9**	**J**	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Acenaphthylene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Anthracene	**101**	**J**	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Benzo[a]anthracene	**689**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Benzo[a]pyrene	**2600**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Benzo[b]fluoranthene	**2300**	*	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Benzo[g,h,i]perylene	**2070**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Benzo[k]fluoranthene	**884**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
bis (2-chloroisopropyl) ether	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Bis(2-chloroethoxy)methane	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Bis(2-chloroethyl)ether	157	U	522	157	52.8	ug/Kg	☼	09/02/14 03:18	1
Bis(2-ethylhexyl) phthalate	157	U	522	157	71.7	ug/Kg	☼	09/02/14 03:18	1
Butyl benzyl phthalate	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Chrysene	**836**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Dibenzo(a),h)anthracene	**231**	**J ***	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Dibenzofuran	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Diethyl phthalate	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Dimethyl phthalate	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Di-n-butyl phthalate	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Di-n-octyl phthalate	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Fluoranthene	**1300**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Fluorene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Hexachlorobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-7
Matrix: Solid
Percent Solids: 62.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Hexachlorocyclopentadiene	1040	U *	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
Hexachloroethane	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Indeno[1,2,3-cd]pyrene	**1570**	*****	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Nitrobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
N-Nitrosodiphenylamine	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
N-Nitrosodi-n-propylamine	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Pentachlorophenol	522	U	2530	522	522	ug/Kg	☼	09/02/14 03:18	1
Phenanthrene	**356**	**J**	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Phenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Pyrene	**6480**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Pyridine	157	U	1040	157	105	ug/Kg	☼	09/02/14 03:18	1
Naphthalene	**111**	**J**	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*35 - 125*	*08/28/14 12:08*	*09/02/14 03:18*	*1*
2-Fluorobiphenyl (Surr)	*98*		*45 - 105*	*08/28/14 12:08*	*09/02/14 03:18*	*1*
2-Fluorophenol (Surr)	*95*		*35 - 105*	*08/28/14 12:08*	*09/02/14 03:18*	*1*
Nitrobenzene-d5 (Surr)	*101*	*X*	*35 - 100*	*08/28/14 12:08*	*09/02/14 03:18*	*1*
Phenol-d5 (Surr)	*93*		*40 - 100*	*08/28/14 12:08*	*09/02/14 03:18*	*1*
Terphenyl-d14 (Surr)	*89*		*30 - 125*	*08/28/14 12:08*	*09/02/14 03:18*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-8
Matrix: Solid
Percent Solids: 84.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
1,2-Dichlorobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
1,3-Dichlorobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
1,4-Dichlorobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,4,5-Trichlorophenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,4,6-Trichlorophenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,4-Dichlorophenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,4-Dimethylphenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,4-Dinitrophenol	780	U	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
2,4-Dinitrotoluene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,6-Dinitrotoluene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2-Chloronaphthalene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2-Chlorophenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2-Methylphenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2-Nitroaniline	117	U	1890	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2-Nitrophenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
3 & 4 Methylphenol	117	U	780	117	78.7	ug/Kg	☼	09/02/14 03:51	1
3,3'-Dichlorobenzidine	780	U *	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
3-Nitroaniline	117	U	1890	117	39.3	ug/Kg	☼	09/02/14 03:51	1
4,6-Dinitro-2-methylphenol	780	U	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
4-Bromophenyl phenyl ether	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
4-Chloro-3-methylphenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
4-Chloroaniline	117	U *	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
4-Chlorophenyl phenyl ether	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
4-Nitroaniline	780	U	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
4-Nitrophenol	780	U	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
Acenaphthene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Acenaphthylene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Anthracene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Benzo[a]anthracene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Benzo[a]pyrene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Benzo[b]fluoranthene	117	U *	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Benzo[g,h,i]perylene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Benzo[k]fluoranthene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
bis (2-chloroisopropyl) ether	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Bis(2-chloroethoxy)methane	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Bis(2-chloroethyl)ether	117	U	390	117	39.5	ug/Kg	☼	09/02/14 03:51	1
Bis(2-ethylhexyl) phthalate	117	U	390	117	53.5	ug/Kg	☼	09/02/14 03:51	1
Butyl benzyl phthalate	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Chrysene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Dibenzo(a),h)anthracene	117	U *	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Dibenzofuran	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Diethyl phthalate	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Dimethyl phthalate	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Di-n-butyl phthalate	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Di-n-octyl phthalate	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Fluoranthene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Fluorene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Hexachlorobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-8
Matrix: Solid
Percent Solids: 84.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Hexachlorocyclopentadiene	780	U *	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
Hexachloroethane	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Indeno[1,2,3-cd]pyrene	117	U *	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Nitrobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
N-Nitrosodiphenylamine	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
N-Nitrosodi-n-propylamine	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Pentachlorophenol	390	U	1890	390	390	ug/Kg	☼	09/02/14 03:51	1
Phenanthrene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Phenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Pyrene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Pyridine	117	U	780	117	78.7	ug/Kg	☼	09/02/14 03:51	1
Naphthalene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*80*		*35 - 125*	*08/28/14 12:08*	*09/02/14 03:51*	*1*
2-Fluorobiphenyl (Surr)	*91*		*45 - 105*	*08/28/14 12:08*	*09/02/14 03:51*	*1*
2-Fluorophenol (Surr)	*89*		*35 - 105*	*08/28/14 12:08*	*09/02/14 03:51*	*1*
Nitrobenzene-d5 (Surr)	*93*		*35 - 100*	*08/28/14 12:08*	*09/02/14 03:51*	*1*
Phenol-d5 (Surr)	*86*		*40 - 100*	*08/28/14 12:08*	*09/02/14 03:51*	*1*
Terphenyl-d14 (Surr)	*87*		*30 - 125*	*08/28/14 12:08*	*09/02/14 03:51*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-9
Matrix: Solid
Percent Solids: 74.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
1,2-Dichlorobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
1,3-Dichlorobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
1,4-Dichlorobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,4,5-Trichlorophenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,4,6-Trichlorophenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,4-Dichlorophenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,4-Dimethylphenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,4-Dinitrophenol	888	U	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
2,4-Dinitrotoluene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,6-Dinitrotoluene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2-Chloronaphthalene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2-Chlorophenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2-Methylphenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2-Nitroaniline	133	U	2150	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2-Nitrophenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
3 & 4 Methylphenol	133	U	888	133	89.6	ug/Kg	☼	09/02/14 04:25	1
3,3'-Dichlorobenzidine	888	U *	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
3-Nitroaniline	133	U	2150	133	44.8	ug/Kg	☼	09/02/14 04:25	1
4,6-Dinitro-2-methylphenol	888	U	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
4-Bromophenyl phenyl ether	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
4-Chloro-3-methylphenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
4-Chloroaniline	133	U *	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
4-Chlorophenyl phenyl ether	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
4-Nitroaniline	888	U	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
4-Nitrophenol	888	U	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
Acenaphthene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Acenaphthylene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Anthracene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Benzo[a]anthracene	**329**	**J**	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Benzo[a]pyrene	**847**		444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Benzo[b]fluoranthene	**805**	*****	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Benzo[g,h,i]perylene	**643**		444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Benzo[k]fluoranthene	**281**	**J**	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
bis (2-chloroisopropyl) ether	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Bis(2-chloroethoxy)methane	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Bis(2-chloroethyl)ether	133	U	444	133	44.9	ug/Kg	☼	09/02/14 04:25	1
Bis(2-ethylhexyl) phthalate	133	U	444	133	60.9	ug/Kg	☼	09/02/14 04:25	1
Butyl benzyl phthalate	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Chrysene	**290**	**J**	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Dibenzo(a),h)anthracene	133	U *	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Dibenzofuran	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Diethyl phthalate	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Dimethyl phthalate	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Di-n-butyl phthalate	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Di-n-octyl phthalate	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Fluoranthene	**486**		444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Fluorene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Hexachlorobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-9
Matrix: Solid
Percent Solids: 74.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Hexachlorocyclopentadiene	888	U *	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
Hexachloroethane	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Indeno[1,2,3-cd]pyrene	**435**	**J ***	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Nitrobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
N-Nitrosodiphenylamine	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
N-Nitrosodi-n-propylamine	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Pentachlorophenol	444	U	2150	444	444	ug/Kg	☼	09/02/14 04:25	1
Phenanthrene	**185**	**J**	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Phenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Pyrene	**2380**		444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Pyridine	133	U	888	133	89.6	ug/Kg	☼	09/02/14 04:25	1
Naphthalene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*80*		*35 - 125*	*08/28/14 12:08*	*09/02/14 04:25*	*1*
2-Fluorobiphenyl (Surr)	*95*		*45 - 105*	*08/28/14 12:08*	*09/02/14 04:25*	*1*
2-Fluorophenol (Surr)	*91*		*35 - 105*	*08/28/14 12:08*	*09/02/14 04:25*	*1*
Nitrobenzene-d5 (Surr)	*100*		*35 - 100*	*08/28/14 12:08*	*09/02/14 04:25*	*1*
Phenol-d5 (Surr)	*88*		*40 - 100*	*08/28/14 12:08*	*09/02/14 04:25*	*1*
Terphenyl-d14 (Surr)	*87*		*30 - 125*	*08/28/14 12:08*	*09/02/14 04:25*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-10
Matrix: Solid
Percent Solids: 85.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
1,2-Dichlorobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
1,3-Dichlorobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
1,4-Dichlorobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,4,5-Trichlorophenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,4,6-Trichlorophenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,4-Dichlorophenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,4-Dimethylphenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,4-Dinitrophenol	772	U	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
2,4-Dinitrotoluene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,6-Dinitrotoluene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2-Chloronaphthalene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2-Chlorophenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2-Methylphenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2-Nitroaniline	116	U	1870	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2-Nitrophenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
3 & 4 Methylphenol	116	U	772	116	77.9	ug/Kg	☼	09/02/14 04:58	1
3,3'-Dichlorobenzidine	772	U *	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
3-Nitroaniline	116	U	1870	116	39.0	ug/Kg	☼	09/02/14 04:58	1
4,6-Dinitro-2-methylphenol	772	U	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
4-Bromophenyl phenyl ether	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
4-Chloro-3-methylphenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
4-Chloroaniline	116	U *	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
4-Chlorophenyl phenyl ether	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
4-Nitroaniline	772	U	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
4-Nitrophenol	772	U	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
Acenaphthene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Acenaphthylene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Anthracene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Benzo[a]anthracene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Benzo[a]pyrene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Benzo[b]fluoranthene	116	U *	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Benzo[g,h,i]perylene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Benzo[k]fluoranthene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
bis (2-chloroisopropyl) ether	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Bis(2-chloroethoxy)methane	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Bis(2-chloroethyl)ether	116	U	386	116	39.1	ug/Kg	☼	09/02/14 04:58	1
Bis(2-ethylhexyl) phthalate	116	U	386	116	53.0	ug/Kg	☼	09/02/14 04:58	1
Butyl benzyl phthalate	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Chrysene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Dibenzo(a),h)anthracene	116	U *	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Dibenzofuran	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Diethyl phthalate	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Dimethyl phthalate	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Di-n-butyl phthalate	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Di-n-octyl phthalate	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Fluoranthene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Fluorene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Hexachlorobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-10
Matrix: Solid
Percent Solids: 85.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Hexachlorocyclopentadiene	772	U *	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
Hexachloroethane	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Indeno[1,2,3-cd]pyrene	116	U *	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Nitrobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
N-Nitrosodiphenylamine	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
N-Nitrosodi-n-propylamine	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Pentachlorophenol	386	U	1870	386	386	ug/Kg	☼	09/02/14 04:58	1
Phenanthrene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Phenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Pyrene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Pyridine	116	U	772	116	77.9	ug/Kg	☼	09/02/14 04:58	1
Naphthalene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*78*		*35 - 125*	*08/28/14 12:08*	*09/02/14 04:58*	*1*
2-Fluorobiphenyl (Surr)	*93*		*45 - 105*	*08/28/14 12:08*	*09/02/14 04:58*	*1*
2-Fluorophenol (Surr)	*90*		*35 - 105*	*08/28/14 12:08*	*09/02/14 04:58*	*1*
Nitrobenzene-d5 (Surr)	*95*		*35 - 100*	*08/28/14 12:08*	*09/02/14 04:58*	*1*
Phenol-d5 (Surr)	*86*		*40 - 100*	*08/28/14 12:08*	*09/02/14 04:58*	*1*
Terphenyl-d14 (Surr)	*88*		*30 - 125*	*08/28/14 12:08*	*09/02/14 04:58*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-11
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Bis(2-chloroethyl)ether	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Bis(2-ethylhexyl) phthalate	2.88	U	9.59	2.88	1.78	ug/L		09/02/14 17:16	1
4-Bromophenyl phenyl ether	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Butyl benzyl phthalate	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
4-Chloroaniline	2.88	U	9.59	2.88	1.92	ug/L		09/02/14 17:16	1
4-Chloro-3-methylphenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2-Chloronaphthalene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2-Chlorophenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
4-Chlorophenyl phenyl ether	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Dibenzofuran	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Di-n-butyl phthalate	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
1,2-Dichlorobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
1,3-Dichlorobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
1,4-Dichlorobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
3,3'-Dichlorobenzidine	2.88	U	48.0	2.88	1.24	ug/L		09/02/14 17:16	1
2,4-Dichlorophenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Diethyl phthalate	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2,4-Dimethylphenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Dimethyl phthalate	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
4,6-Dinitro-2-methylphenol	2.88	U *	48.0	2.88	1.21	ug/L		09/02/14 17:16	1
2,4-Dinitrophenol	9.59	U *	48.0	9.59	1.92	ug/L		09/02/14 17:16	1
2,4-Dinitrotoluene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2,6-Dinitrotoluene	2.88	U	9.59	2.88	2.07	ug/L		09/02/14 17:16	1
Di-n-octyl phthalate	9.59	U	14.4	9.59	0.959	ug/L		09/02/14 17:16	1
Hexachlorobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Hexachlorobutadiene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Hexachlorocyclopentadiene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Hexachloroethane	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2-Methylphenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
3 & 4 Methylphenol	2.88	U	19.2	2.88	1.92	ug/L		09/02/14 17:16	1
2-Nitroaniline	2.88	U	9.59	2.88	1.06	ug/L		09/02/14 17:16	1
3-Nitroaniline	9.59	U	9.59	9.59	0.959	ug/L		09/02/14 17:16	1
4-Nitroaniline	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Nitrobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2-Nitrophenol	2.88	U *	9.59	2.88	1.46	ug/L		09/02/14 17:16	1
4-Nitrophenol	9.59	U *	24.0	9.59	1.92	ug/L		09/02/14 17:16	1
N-Nitrosodiphenylamine	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
N-Nitrosodi-n-propylamine	2.88	U	9.59	2.88	1.44	ug/L		09/02/14 17:16	1
bis (2-chloroisopropyl) ether	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Pentachlorophenol	2.88	U *	48.0	2.88	1.22	ug/L		09/02/14 17:16	1
Phenol	2.88	U	14.4	2.88	1.92	ug/L		09/02/14 17:16	1
1,2,4-Trichlorobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2,4,5-Trichlorophenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2,4,6-Trichlorophenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Pyridine	2.88	U	19.2	2.88	1.92	ug/L		09/02/14 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*37*		*20 - 110*	*08/22/14 11:44*	*09/02/14 17:16*	*1*
2,4,6-Tribromophenol (Surr)	*68*		*40 - 125*	*08/22/14 11:44*	*09/02/14 17:16*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-11
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	81		40 - 110	08/22/14 11:44	09/02/14 17:16	1
Phenol-d5 (Surr)	22		10 - 115	08/22/14 11:44	09/02/14 17:16	1
Terphenyl-d14 (Surr)	72		50 - 135	08/22/14 11:44	09/02/14 17:16	1
2-Fluorobiphenyl (Surr)	77		50 - 110	08/22/14 11:44	09/02/14 17:16	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-1
Matrix: Solid
Percent Solids: 90.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.38	U	2.48	2.38	0.813	mg/Kg	☼	09/03/14 05:51	10
Arsenic	**3.91**	**J**	4.96	3.87	1.29	mg/Kg	☼	09/03/14 05:51	10
Barium	**21.6**	**B**	9.92	1.40	0.466	mg/Kg	☼	09/03/14 05:51	10
Beryllium	**0.237**	**J**	0.496	0.387	0.129	mg/Kg	☼	09/03/14 05:51	10
Cadmium	**0.137**	**J**	0.298	0.238	0.0794	mg/Kg	☼	09/03/14 05:51	10
Chromium	**34.5**		9.42	4.96	2.23	mg/Kg	☼	09/03/14 05:51	10
Cobalt	**9.24**		0.992	0.640	0.213	mg/Kg	☼	09/03/14 05:51	10
Copper	**5.73**		4.96	1.49	0.501	mg/Kg	☼	09/03/14 05:51	10
Lead	**4.45**		1.49	1.49	0.496	mg/Kg	☼	09/03/14 05:51	10
Molybdenum	1.79	U ^	2.48	1.79	0.615	mg/Kg	☼	09/03/14 05:51	10
Nickel	**48.7**		2.48	1.64	0.531	mg/Kg	☼	09/03/14 05:51	10
Selenium	**1.62**	**J ^**	2.48	2.38	0.784	mg/Kg	☼	09/03/14 05:51	10
Silver	**0.123**	**J**	2.23	0.357	0.119	mg/Kg	☼	09/03/14 05:51	10
Thallium	0.992	U	4.96	0.992	0.754	mg/Kg	☼	09/03/14 05:51	10
Vanadium	**27.2**		4.96	4.96	3.65	mg/Kg	☼	09/03/14 05:51	10
Iron	**16800**		59.5	24.8	16.4	mg/Kg	☼	09/03/14 05:51	10
Zinc	**29.4**		24.8	19.8	6.60	mg/Kg	☼	09/03/14 05:51	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.31	U	2.41	2.31	0.790	mg/Kg	☼	09/03/14 05:58	10
Arsenic	**6.39**		4.82	3.76	1.25	mg/Kg	☼	09/03/14 05:58	10
Barium	**24.4**	**B**	9.63	1.36	0.453	mg/Kg	☼	09/03/14 05:58	10
Beryllium	**0.170**	**J**	0.482	0.376	0.125	mg/Kg	☼	09/03/14 05:58	10
Cadmium	**1.18**		0.289	0.231	0.0771	mg/Kg	☼	09/03/14 05:58	10
Chromium	**41.2**		9.15	4.82	2.17	mg/Kg	☼	09/03/14 05:58	10
Cobalt	**8.77**		0.963	0.621	0.207	mg/Kg	☼	09/03/14 05:58	10
Copper	**7.90**		4.82	1.44	0.486	mg/Kg	☼	09/03/14 05:58	10
Lead	**4.64**		1.44	1.44	0.482	mg/Kg	☼	09/03/14 05:58	10
Molybdenum	**0.681**	**J ^**	2.41	1.73	0.597	mg/Kg	☼	09/03/14 05:58	10
Nickel	**43.1**		2.41	1.59	0.515	mg/Kg	☼	09/03/14 05:58	10
Selenium	**0.847**	**J ^**	2.41	2.31	0.761	mg/Kg	☼	09/03/14 05:58	10
Silver	0.347	U	2.17	0.347	0.116	mg/Kg	☼	09/03/14 05:58	10
Thallium	0.963	U	4.82	0.963	0.732	mg/Kg	☼	09/03/14 05:58	10
Vanadium	**29.7**		4.82	4.82	3.54	mg/Kg	☼	09/03/14 05:58	10
Iron	**17000**		57.8	24.1	15.9	mg/Kg	☼	09/03/14 05:58	10
Zinc	**29.4**		24.1	19.2	6.41	mg/Kg	☼	09/03/14 05:58	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-3
Matrix: Solid
Percent Solids: 85.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.45	U	2.55	2.45	0.837	mg/Kg	☼	09/03/14 06:05	10
Arsenic	**3.60**	**J**	5.10	3.98	1.33	mg/Kg	☼	09/03/14 06:05	10
Barium	**45.6**	**B**	10.2	1.44	0.480	mg/Kg	☼	09/03/14 06:05	10
Beryllium	**0.205**	**J**	0.510	0.398	0.133	mg/Kg	☼	09/03/14 06:05	10
Cadmium	0.245	U	0.306	0.245	0.0816	mg/Kg	☼	09/03/14 06:05	10
Chromium	**34.4**		9.69	5.10	2.30	mg/Kg	☼	09/03/14 06:05	10
Cobalt	**9.79**		1.02	0.658	0.219	mg/Kg	☼	09/03/14 06:05	10
Copper	**6.59**		5.10	1.53	0.515	mg/Kg	☼	09/03/14 06:05	10
Lead	**4.05**		1.53	1.53	0.510	mg/Kg	☼	09/03/14 06:05	10
Molybdenum	1.84	U ^	2.55	1.84	0.633	mg/Kg	☼	09/03/14 06:05	10
Nickel	**45.2**		2.55	1.68	0.546	mg/Kg	☼	09/03/14 06:05	10
Selenium	2.45	U ^	2.55	2.45	0.806	mg/Kg	☼	09/03/14 06:05	10
Silver	0.367	U	2.30	0.367	0.122	mg/Kg	☼	09/03/14 06:05	10
Thallium	1.02	U	5.10	1.02	0.775	mg/Kg	☼	09/03/14 06:05	10
Vanadium	**30.8**		5.10	5.10	3.75	mg/Kg	☼	09/03/14 06:05	10
Iron	**17000**		61.2	25.5	16.8	mg/Kg	☼	09/03/14 06:05	10
Zinc	**32.4**		25.5	20.4	6.78	mg/Kg	☼	09/03/14 06:05	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-4
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.50	U	2.60	2.50	0.853	mg/Kg	☼	09/03/14 06:11	10
Arsenic	**3.16**	**J**	5.20	4.06	1.35	mg/Kg	☼	09/03/14 06:11	10
Barium	**21.1**	**B**	10.4	1.47	0.489	mg/Kg	☼	09/03/14 06:11	10
Beryllium	**0.150**	**J**	0.520	0.406	0.135	mg/Kg	☼	09/03/14 06:11	10
Cadmium	**0.156**	**J**	0.312	0.250	0.0832	mg/Kg	☼	09/03/14 06:11	10
Chromium	**23.2**		9.88	5.20	2.34	mg/Kg	☼	09/03/14 06:11	10
Cobalt	**5.80**		1.04	0.671	0.224	mg/Kg	☼	09/03/14 06:11	10
Copper	**5.49**		5.20	1.56	0.525	mg/Kg	☼	09/03/14 06:11	10
Lead	**5.69**		1.56	1.56	0.520	mg/Kg	☼	09/03/14 06:11	10
Molybdenum	1.87	U ^	2.60	1.87	0.645	mg/Kg	☼	09/03/14 06:11	10
Nickel	**28.6**		2.60	1.72	0.556	mg/Kg	☼	09/03/14 06:11	10
Selenium	2.50	U ^	2.60	2.50	0.822	mg/Kg	☼	09/03/14 06:11	10
Silver	0.374	U	2.34	0.374	0.125	mg/Kg	☼	09/03/14 06:11	10
Thallium	1.04	U	5.20	1.04	0.790	mg/Kg	☼	09/03/14 06:11	10
Vanadium	**20.9**		5.20	5.20	3.82	mg/Kg	☼	09/03/14 06:11	10
Iron	**10900**		62.4	26.0	17.2	mg/Kg	☼	09/03/14 06:11	10
Zinc	**30.1**		26.0	20.7	6.92	mg/Kg	☼	09/03/14 06:11	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-5
Matrix: Solid
Percent Solids: 83.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.54	U	2.65	2.54	0.868	mg/Kg	☼	09/03/14 06:59	10
Arsenic	**5.89**		5.29	4.13	1.38	mg/Kg	☼	09/03/14 06:59	10
Barium	**21.6**	**B**	10.6	1.49	0.498	mg/Kg	☼	09/03/14 06:59	10
Beryllium	**0.176**	**J**	0.529	0.413	0.138	mg/Kg	☼	09/03/14 06:59	10
Cadmium	0.254	U	0.318	0.254	0.0847	mg/Kg	☼	09/03/14 06:59	10
Chromium	**35.4**		10.1	5.29	2.38	mg/Kg	☼	09/03/14 06:59	10
Cobalt	**7.46**		1.06	0.683	0.228	mg/Kg	☼	09/03/14 06:59	10
Copper	**5.71**		5.29	1.59	0.535	mg/Kg	☼	09/03/14 06:59	10
Lead	**3.89**		1.59	1.59	0.529	mg/Kg	☼	09/03/14 06:59	10
Molybdenum	1.91	U ^	2.65	1.91	0.657	mg/Kg	☼	09/03/14 06:59	10
Nickel	**45.6**		2.65	1.75	0.567	mg/Kg	☼	09/03/14 06:59	10
Selenium	2.54	U ^	2.65	2.54	0.837	mg/Kg	☼	09/03/14 06:59	10
Silver	0.381	U	2.38	0.381	0.127	mg/Kg	☼	09/03/14 06:59	10
Thallium	1.06	U	5.29	1.06	0.805	mg/Kg	☼	09/03/14 06:59	10
Vanadium	**24.9**		5.29	5.29	3.89	mg/Kg	☼	09/03/14 06:59	10
Iron	**14500**		63.5	26.5	17.5	mg/Kg	☼	09/03/14 06:59	10
Zinc	**26.3**	**J**	26.5	21.1	7.04	mg/Kg	☼	09/03/14 06:59	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-6
Matrix: Solid
Percent Solids: 85.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.34	U	2.44	2.34	0.800	mg/Kg	☼	09/03/14 07:05	10
Arsenic	**3.92**	**J**	4.88	3.80	1.27	mg/Kg	☼	09/03/14 07:05	10
Barium	**14.3**	**B**	9.75	1.37	0.458	mg/Kg	☼	09/03/14 07:05	10
Beryllium	**0.164**	**J**	0.488	0.380	0.127	mg/Kg	☼	09/03/14 07:05	10
Cadmium	0.234	U	0.293	0.234	0.0780	mg/Kg	☼	09/03/14 07:05	10
Chromium	**31.5**		9.26	4.88	2.19	mg/Kg	☼	09/03/14 07:05	10
Cobalt	**7.67**		0.975	0.629	0.210	mg/Kg	☼	09/03/14 07:05	10
Copper	**4.81**	**J**	4.88	1.46	0.492	mg/Kg	☼	09/03/14 07:05	10
Lead	**4.76**		1.46	1.46	0.488	mg/Kg	☼	09/03/14 07:05	10
Molybdenum	1.76	U ^	2.44	1.76	0.605	mg/Kg	☼	09/03/14 07:05	10
Nickel	**35.1**		2.44	1.61	0.522	mg/Kg	☼	09/03/14 07:05	10
Selenium	2.34	U ^	2.44	2.34	0.770	mg/Kg	☼	09/03/14 07:05	10
Silver	0.351	U	2.19	0.351	0.117	mg/Kg	☼	09/03/14 07:05	10
Thallium	0.975	U	4.88	0.975	0.741	mg/Kg	☼	09/03/14 07:05	10
Vanadium	**25.5**		4.88	4.88	3.58	mg/Kg	☼	09/03/14 07:05	10
Iron	**14700**		58.5	24.4	16.1	mg/Kg	☼	09/03/14 07:05	10
Zinc	**26.5**		24.4	19.5	6.48	mg/Kg	☼	09/03/14 07:05	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-7
Matrix: Solid
Percent Solids: 62.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	3.71	U	3.87	3.71	1.27	mg/Kg	☼	09/03/14 07:12	10
Arsenic	**16.7**		7.73	6.03	2.01	mg/Kg	☼	09/03/14 07:12	10
Barium	**73.9**	**B**	15.5	2.18	0.727	mg/Kg	☼	09/03/14 07:12	10
Beryllium	**0.772**	**J**	0.773	0.603	0.201	mg/Kg	☼	09/03/14 07:12	10
Cadmium	**0.484**		0.464	0.371	0.124	mg/Kg	☼	09/03/14 07:12	10
Chromium	**103**		14.7	7.73	3.48	mg/Kg	☼	09/03/14 07:12	10
Cobalt	**19.7**		1.55	0.997	0.332	mg/Kg	☼	09/03/14 07:12	10
Copper	**66.6**		7.73	2.32	0.781	mg/Kg	☼	09/03/14 07:12	10
Lead	**40.2**		2.32	2.32	0.773	mg/Kg	☼	09/03/14 07:12	10
Molybdenum	**1.03**	**J ^**	3.87	2.78	0.959	mg/Kg	☼	09/03/14 07:12	10
Nickel	**112**		3.87	2.55	0.827	mg/Kg	☼	09/03/14 07:12	10
Selenium	**2.40**	**J ^**	3.87	3.71	1.22	mg/Kg	☼	09/03/14 07:12	10
Silver	**0.199**	**J**	3.48	0.557	0.186	mg/Kg	☼	09/03/14 07:12	10
Thallium	1.55	U	7.73	1.55	1.18	mg/Kg	☼	09/03/14 07:12	10
Vanadium	**87.4**		7.73	7.73	5.68	mg/Kg	☼	09/03/14 07:12	10
Iron	**48700**		92.8	38.7	25.5	mg/Kg	☼	09/03/14 07:12	10
Zinc	**155**		38.7	30.8	10.3	mg/Kg	☼	09/03/14 07:12	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-8
Matrix: Solid
Percent Solids: 84.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.72	U	2.83	2.72	0.928	mg/Kg	☼	09/03/14 07:19	10
Arsenic	**2.29**	**J**	5.66	4.41	1.47	mg/Kg	☼	09/03/14 07:19	10
Barium	**51.0**	**B**	11.3	1.60	0.532	mg/Kg	☼	09/03/14 07:19	10
Beryllium	**0.175**	**J**	0.566	0.441	0.147	mg/Kg	☼	09/03/14 07:19	10
Cadmium	0.272	U	0.340	0.272	0.0906	mg/Kg	☼	09/03/14 07:19	10
Chromium	**37.3**		10.8	5.66	2.55	mg/Kg	☼	09/03/14 07:19	10
Cobalt	**5.26**		1.13	0.730	0.243	mg/Kg	☼	09/03/14 07:19	10
Copper	**7.47**		5.66	1.70	0.572	mg/Kg	☼	09/03/14 07:19	10
Lead	**3.10**		1.70	1.70	0.566	mg/Kg	☼	09/03/14 07:19	10
Molybdenum	2.04	U ^	2.83	2.04	0.702	mg/Kg	☼	09/03/14 07:19	10
Nickel	**34.7**		2.83	1.87	0.606	mg/Kg	☼	09/03/14 07:19	10
Selenium	2.72	U ^	2.83	2.72	0.894	mg/Kg	☼	09/03/14 07:19	10
Silver	0.407	U	2.55	0.407	0.136	mg/Kg	☼	09/03/14 07:19	10
Thallium	1.13	U	5.66	1.13	0.860	mg/Kg	☼	09/03/14 07:19	10
Vanadium	**23.6**		5.66	5.66	4.16	mg/Kg	☼	09/03/14 07:19	10
Iron	**11300**		67.9	28.3	18.7	mg/Kg	☼	09/03/14 07:19	10
Zinc	**23.1**	**J**	28.3	22.6	7.53	mg/Kg	☼	09/03/14 07:19	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-9
Matrix: Solid
Percent Solids: 74.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	3.15	U	3.28	3.15	1.08	mg/Kg	☼	09/03/14 07:26	10
Arsenic	**8.84**		6.56	5.11	1.70	mg/Kg	☼	09/03/14 07:26	10
Barium	**75.9**	**B**	13.1	1.85	0.616	mg/Kg	☼	09/03/14 07:26	10
Beryllium	**0.374**	**J**	0.656	0.511	0.170	mg/Kg	☼	09/03/14 07:26	10
Cadmium	**0.317**	**J**	0.393	0.315	0.105	mg/Kg	☼	09/03/14 07:26	10
Chromium	**66.1**		12.5	6.56	2.95	mg/Kg	☼	09/03/14 07:26	10
Cobalt	**13.7**		1.31	0.846	0.282	mg/Kg	☼	09/03/14 07:26	10
Copper	**30.0**		6.56	1.97	0.662	mg/Kg	☼	09/03/14 07:26	10
Lead	**14.0**		1.97	1.97	0.656	mg/Kg	☼	09/03/14 07:26	10
Molybdenum	**0.901**	**J ^**	3.28	2.36	0.813	mg/Kg	☼	09/03/14 07:26	10
Nickel	**72.3**		3.28	2.16	0.701	mg/Kg	☼	09/03/14 07:26	10
Selenium	3.15	U ^	3.28	3.15	1.04	mg/Kg	☼	09/03/14 07:26	10
Silver	0.472	U	2.95	0.472	0.157	mg/Kg	☼	09/03/14 07:26	10
Thallium	1.31	U	6.56	1.31	0.996	mg/Kg	☼	09/03/14 07:26	10
Vanadium	**51.8**		6.56	6.56	4.82	mg/Kg	☼	09/03/14 07:26	10
Iron	**27300**		78.7	32.8	21.6	mg/Kg	☼	09/03/14 07:26	10
Zinc	**63.8**		32.8	26.2	8.72	mg/Kg	☼	09/03/14 07:26	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-10
Matrix: Solid
Percent Solids: 85.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.71	U	2.82	2.71	0.926	mg/Kg	☼	09/03/14 07:32	10
Arsenic	**2.63**	**J**	5.64	4.40	1.47	mg/Kg	☼	09/03/14 07:32	10
Barium	**37.0**	**B**	11.3	1.59	0.531	mg/Kg	☼	09/03/14 07:32	10
Beryllium	**0.159**	**J**	0.564	0.440	0.147	mg/Kg	☼	09/03/14 07:32	10
Cadmium	0.271	U	0.339	0.271	0.0903	mg/Kg	☼	09/03/14 07:32	10
Chromium	**35.8**		10.7	5.64	2.54	mg/Kg	☼	09/03/14 07:32	10
Cobalt	**5.82**		1.13	0.728	0.243	mg/Kg	☼	09/03/14 07:32	10
Copper	**7.34**		5.64	1.69	0.570	mg/Kg	☼	09/03/14 07:32	10
Lead	**2.54**		1.69	1.69	0.564	mg/Kg	☼	09/03/14 07:32	10
Molybdenum	2.03	U ^	2.82	2.03	0.700	mg/Kg	☼	09/03/14 07:32	10
Nickel	**38.0**		2.82	1.86	0.604	mg/Kg	☼	09/03/14 07:32	10
Selenium	2.71	U ^	2.82	2.71	0.892	mg/Kg	☼	09/03/14 07:32	10
Silver	0.406	U	2.54	0.406	0.135	mg/Kg	☼	09/03/14 07:32	10
Thallium	1.13	U	5.64	1.13	0.858	mg/Kg	☼	09/03/14 07:32	10
Vanadium	**23.5**		5.64	5.64	4.15	mg/Kg	☼	09/03/14 07:32	10
Iron	**11300**		67.7	28.2	18.6	mg/Kg	☼	09/03/14 07:32	10
Zinc	**23.8**	**J**	28.2	22.5	7.51	mg/Kg	☼	09/03/14 07:32	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-11
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Silver	1.00	U	2.00	1.00	0.817	ug/L		09/03/14 05:17	2
Arsenic	3.54	U	10.0	3.54	1.18	ug/L		09/03/14 05:17	2
Barium	**0.430**	**J B**	2.00	0.660	0.223	ug/L		09/03/14 05:17	2
Beryllium	0.500	U	1.00	0.500	0.350	ug/L		09/03/14 05:17	2
Cadmium	0.300	U	0.500	0.300	0.100	ug/L		09/03/14 05:17	2
Cobalt	0.660	U	2.00	0.660	0.217	ug/L		09/03/14 05:17	2
Chromium	9.78	U	10.0	9.78	1.00	ug/L		09/03/14 05:17	2
Copper	1.35	U	3.00	1.35	0.451	ug/L		09/03/14 05:17	2
Iron	**22.1**	**J**	50.0	50.0	20.4	ug/L		09/03/14 05:17	2
Nickel	1.20	U	5.00	1.20	0.400	ug/L		09/03/14 05:17	2
Lead	0.510	U	3.00	0.510	0.173	ug/L		09/03/14 05:17	2
Antimony	5.00	U	5.00	5.00	1.67	ug/L		09/03/14 05:17	2
Selenium	4.77	U ^	5.00	4.77	1.59	ug/L		09/03/14 05:17	2
Thallium	**0.600**	**J**	2.00	1.65	0.550	ug/L		09/03/14 05:17	2
Vanadium	7.11	U	10.0	7.11	2.37	ug/L		09/03/14 05:17	2
Molybdenum	3.00	U ^	5.00	3.00	1.00	ug/L		09/03/14 05:17	2
Zinc	10.0	U	10.0	10.0	8.29	ug/L		09/03/14 05:17	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7470A - Mercury (CVAA)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-11
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.150	U	0.180	0.150	0.0600	ug/L		08/22/14 12:59	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-1
Matrix: Solid
Percent Solids: 90.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0290	U	0.0387	0.0290	0.0106	mg/Kg	☼	08/28/14 15:32	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0291	U	0.0388	0.0291	0.0107	mg/Kg	☼	08/28/14 15:34	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-3
Matrix: Solid
Percent Solids: 85.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0311	U L	0.0415	0.0311	0.0114	mg/Kg	☼	08/28/14 15:37	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-4
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0125	J	0.0435	0.0326	0.0120	mg/Kg	☼	08/28/14 15:40	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-5
Matrix: Solid
Percent Solids: 83.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0313	U	0.0417	0.0313	0.0115	mg/Kg	☼	08/28/14 15:51	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-6
Matrix: Solid
Percent Solids: 85.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0332	U	0.0442	0.0332	0.0122	mg/Kg	☼	08/28/14 15:59	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-7
Matrix: Solid
Percent Solids: 62.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.351		0.0612	0.0459	0.0168	mg/Kg	☼	08/28/14 16:01	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-8
Matrix: Solid
Percent Solids: 84.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0324	U	0.0432	0.0324	0.0119	mg/Kg	☼	08/28/14 16:04	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-9
Matrix: Solid
Percent Solids: 74.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0819		0.0529	0.0397	0.0146	mg/Kg	☼	08/28/14 16:07	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-10
Matrix: Solid
Percent Solids: 85.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0318	U	0.0424	0.0318	0.0117	mg/Kg	☼	08/28/14 16:10	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8110-1
TestAmerica Sample Delivery Group: 160-8110
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
9/23/2014 11:36:44 AM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1012

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number: 7709 5369 1016
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOC)	EPA 8081 A (PEST)	EPA 5035/8015B TPH PURGE	EPA 8015 TPH DIESEL/MOTOR OIL	EPA 8081 (PCBs	EPA 6020B/7000 METAL/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MHs	8/26/2014	1000	8	3	S	10DY	X	X	X	X	X	X	X	Sediment accumulated during investigation	Pad F			N
IWL-BLDG29-EXCAVATION	8/26/2014	1030	8	3	S	10DY	X	X	X	X	X	X	X	Soil accumulated during investigation	Site 17 asphalt berm area			N

160-8110 Chain of Custody

Relinquished by: (signature)	Date: 8-26-14	Received by (signature): FedEx	Laboratory instructions/Comments: Run STLC-Cr only
Company: Tetra tech	Time: 1400	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature): 8/27/14	Composite Discription:
Company:	Time:	Company: TA 0935	
Relinquished by: (signature)	Date:	Received by (signature):	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1012

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	**5.56**	**J**	6.40	1.28	0.551	ug/Kg	☼	08/28/14 11:06	1
1,1,2,2-Tetrachloroethane	1.28	U *	6.40	1.28	0.513	ug/Kg	☼	08/28/14 11:06	1
1,1,2-Trichloroethane	1.28	U *	6.40	1.28	0.733	ug/Kg	☼	08/28/14 11:06	1
1,1-Dichloroethane	1.28	U	6.40	1.28	0.501	ug/Kg	☼	08/28/14 11:06	1
1,1-Dichloroethene	6.40	U	6.40	6.40	2.06	ug/Kg	☼	08/28/14 11:06	1
1,2-Dichloroethane	1.28	U	6.40	1.28	1.11	ug/Kg	☼	08/28/14 11:06	1
1,2-Dichloropropane	1.28	U	6.40	1.28	0.490	ug/Kg	☼	08/28/14 11:06	1
2-Butanone (MEK)	6.40	U	25.6	6.40	2.46	ug/Kg	☼	08/28/14 11:06	1
2-Hexanone	6.40	U *	12.8	6.40	2.26	ug/Kg	☼	08/28/14 11:06	1
4-Methyl-2-pentanone (MIBK)	6.40	U *	25.6	6.40	0.936	ug/Kg	☼	08/28/14 11:06	1
Acetone	12.8	U	25.6	12.8	8.28	ug/Kg	☼	08/28/14 11:06	1
Benzene	1.28	U	6.40	1.28	0.324	ug/Kg	☼	08/28/14 11:06	1
Bromodichloromethane	1.28	U	6.40	1.28	0.325	ug/Kg	☼	08/28/14 11:06	1
Bromoform	1.28	U *	6.40	1.28	0.468	ug/Kg	☼	08/28/14 11:06	1
Bromomethane	6.40	U	12.8	6.40	1.41	ug/Kg	☼	08/28/14 11:06	1
Carbon tetrachloride	1.28	U	6.40	1.28	0.656	ug/Kg	☼	08/28/14 11:06	1
Chlorobenzene	1.28	U *	6.40	1.28	0.489	ug/Kg	☼	08/28/14 11:06	1
Chloroethane	1.28	U	12.8	1.28	0.660	ug/Kg	☼	08/28/14 11:06	1
Chloroform	1.28	U	6.40	1.28	0.481	ug/Kg	☼	08/28/14 11:06	1
Chloromethane	6.40	U	12.8	6.40	0.832	ug/Kg	☼	08/28/14 11:06	1
cis-1,2-Dichloroethene	1.28	U	6.40	1.28	0.764	ug/Kg	☼	08/28/14 11:06	1
cis-1,3-Dichloropropene	1.28	U	6.40	1.28	0.761	ug/Kg	☼	08/28/14 11:06	1
Dibromochloromethane	1.28	U *	6.40	1.28	0.519	ug/Kg	☼	08/28/14 11:06	1
Ethylbenzene	1.28	U *	6.40	1.28	0.383	ug/Kg	☼	08/28/14 11:06	1
Methyl tert-butyl ether	1.28	U	6.40	1.28	0.609	ug/Kg	☼	08/28/14 11:06	1
Methylene Chloride	6.40	U	12.8	6.40	2.02	ug/Kg	☼	08/28/14 11:06	1
Styrene	1.28	U *	6.40	1.28	0.444	ug/Kg	☼	08/28/14 11:06	1
Tetrachloroethene	1.28	U *	6.40	1.28	0.412	ug/Kg	☼	08/28/14 11:06	1
Toluene	1.28	U *	6.40	1.28	0.896	ug/Kg	☼	08/28/14 11:06	1
trans-1,2-Dichloroethene	1.28	U	6.40	1.28	1.21	ug/Kg	☼	08/28/14 11:06	1
trans-1,3-Dichloropropene	1.28	U *	6.40	1.28	0.446	ug/Kg	☼	08/28/14 11:06	1
Trichloroethene	1.28	U	6.40	1.28	0.493	ug/Kg	☼	08/28/14 11:06	1
Vinyl chloride	1.28	U	12.8	1.28	0.548	ug/Kg	☼	08/28/14 11:06	1
Xylenes, Total	6.40	U *	12.8	6.40	1.09	ug/Kg	☼	08/28/14 11:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*124*		*71 - 128*	*08/27/14 20:59*	*08/28/14 11:06*	*1*
4-Bromofluorobenzene (Surr)	*152*	** X*	*85 - 120*	*08/27/14 20:59*	*08/28/14 11:06*	*1*
Dibromofluoromethane (Surr)	*117*		*76 - 126*	*08/27/14 20:59*	*08/28/14 11:06*	*1*
Toluene-d8 (Surr)	*125*	** X*	*85 - 115*	*08/27/14 20:59*	*08/28/14 11:06*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.17	U	5.87	1.17	0.506	ug/Kg	☼	08/28/14 10:41	1
1,1,2,2-Tetrachloroethane	1.17	U	5.87	1.17	0.471	ug/Kg	☼	08/28/14 10:41	1
1,1,2-Trichloroethane	1.17	U	5.87	1.17	0.673	ug/Kg	☼	08/28/14 10:41	1
1,1-Dichloroethane	1.17	U	5.87	1.17	0.460	ug/Kg	☼	08/28/14 10:41	1
1,1-Dichloroethene	5.87	U	5.87	5.87	1.89	ug/Kg	☼	08/28/14 10:41	1
1,2-Dichloroethane	1.17	U	5.87	1.17	1.02	ug/Kg	☼	08/28/14 10:41	1
1,2-Dichloropropane	1.17	U	5.87	1.17	0.450	ug/Kg	☼	08/28/14 10:41	1
2-Butanone (MEK)	5.87	U	23.5	5.87	2.25	ug/Kg	☼	08/28/14 10:41	1
2-Hexanone	5.87	U	11.7	5.87	2.08	ug/Kg	☼	08/28/14 10:41	1
4-Methyl-2-pentanone (MIBK)	5.87	U	23.5	5.87	0.859	ug/Kg	☼	08/28/14 10:41	1
Acetone	**10.3**	**J**	23.5	11.7	7.59	ug/Kg	☼	08/28/14 10:41	1
Benzene	1.17	U	5.87	1.17	0.297	ug/Kg	☼	08/28/14 10:41	1
Bromodichloromethane	1.17	U	5.87	1.17	0.298	ug/Kg	☼	08/28/14 10:41	1
Bromoform	1.17	U	5.87	1.17	0.430	ug/Kg	☼	08/28/14 10:41	1
Bromomethane	5.87	U	11.7	5.87	1.29	ug/Kg	☼	08/28/14 10:41	1
Carbon tetrachloride	1.17	U	5.87	1.17	0.602	ug/Kg	☼	08/28/14 10:41	1
Chlorobenzene	1.17	U	5.87	1.17	0.448	ug/Kg	☼	08/28/14 10:41	1
Chloroethane	1.17	U	11.7	1.17	0.606	ug/Kg	☼	08/28/14 10:41	1
Chloroform	1.17	U	5.87	1.17	0.441	ug/Kg	☼	08/28/14 10:41	1
Chloromethane	5.87	U	11.7	5.87	0.763	ug/Kg	☼	08/28/14 10:41	1
cis-1,2-Dichloroethene	1.17	U	5.87	1.17	0.701	ug/Kg	☼	08/28/14 10:41	1
cis-1,3-Dichloropropene	1.17	U	5.87	1.17	0.698	ug/Kg	☼	08/28/14 10:41	1
Dibromochloromethane	1.17	U	5.87	1.17	0.477	ug/Kg	☼	08/28/14 10:41	1
Ethylbenzene	1.17	U	5.87	1.17	0.351	ug/Kg	☼	08/28/14 10:41	1
Methyl tert-butyl ether	1.17	U	5.87	1.17	0.559	ug/Kg	☼	08/28/14 10:41	1
Methylene Chloride	5.87	U	11.7	5.87	1.85	ug/Kg	☼	08/28/14 10:41	1
Styrene	1.17	U	5.87	1.17	0.407	ug/Kg	☼	08/28/14 10:41	1
Tetrachloroethene	1.17	U	5.87	1.17	0.378	ug/Kg	☼	08/28/14 10:41	1
Toluene	1.17	U	5.87	1.17	0.822	ug/Kg	☼	08/28/14 10:41	1
trans-1,2-Dichloroethene	1.17	U	5.87	1.17	1.11	ug/Kg	☼	08/28/14 10:41	1
trans-1,3-Dichloropropene	1.17	U	5.87	1.17	0.410	ug/Kg	☼	08/28/14 10:41	1
Trichloroethene	1.17	U	5.87	1.17	0.452	ug/Kg	☼	08/28/14 10:41	1
Vinyl chloride	1.17	U	11.7	1.17	0.502	ug/Kg	☼	08/28/14 10:41	1
Xylenes, Total	5.87	U	11.7	5.87	1.00	ug/Kg	☼	08/28/14 10:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*71 - 128*	*08/27/14 20:59*	*08/28/14 10:41*	*1*
4-Bromofluorobenzene (Surr)	*120*		*85 - 120*	*08/27/14 20:59*	*08/28/14 10:41*	*1*
Dibromofluoromethane (Surr)	*108*		*76 - 126*	*08/27/14 20:59*	*08/28/14 10:41*	*1*
Toluene-d8 (Surr)	*110*		*85 - 115*	*08/27/14 20:59*	*08/28/14 10:41*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
1,2-Dichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
1,3-Dichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
1,4-Dichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4,5-Trichlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4,6-Trichlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4-Dichlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4-Dimethylphenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4-Dinitrophenol	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
2,4-Dinitrotoluene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,6-Dinitrotoluene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Chloronaphthalene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Chlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Methylphenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Nitroaniline	104	U	1690	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Nitrophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
3 & 4 Methylphenol	104	U	696	104	70.2	ug/Kg	☼	09/08/14 13:01	1
3,3'-Dichlorobenzidine	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
3-Nitroaniline	104	U	1690	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4,6-Dinitro-2-methylphenol	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
4-Bromophenyl phenyl ether	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Chloro-3-methylphenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Chloroaniline	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Chlorophenyl phenyl ether	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Nitroaniline	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
4-Nitrophenol	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
Acenaphthene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Acenaphthylene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Anthracene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[a]anthracene	**189**	**J**	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[a]pyrene	**229**	**J**	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[b]fluoranthene	**401**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[g,h,i]perylene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[k]fluoranthene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
bis (2-chloroisopropyl) ether	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Bis(2-chloroethoxy)methane	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Bis(2-chloroethyl)ether	104	U	348	104	35.2	ug/Kg	☼	09/08/14 13:01	1
Butyl benzyl phthalate	**1140**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Chrysene	**357**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Dibenzo(a),h)anthracene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Dibenzofuran	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Diethyl phthalate	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Dimethyl phthalate	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Di-n-butyl phthalate	**1190**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Di-n-octyl phthalate	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Fluorene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Hexachlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Hexachlorobutadiene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Hexachlorocyclopentadiene	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachloroethane	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Indeno[1,2,3-cd]pyrene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Nitrobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
N-Nitrosodiphenylamine	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
N-Nitrosodi-n-propylamine	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Pentachlorophenol	348	U	1690	348	348	ug/Kg	☼	09/08/14 13:01	1
Phenanthrene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Phenol	**1000**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Pyrene	**1010**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Pyridine	104	U	696	104	70.2	ug/Kg	☼	09/08/14 13:01	1
Naphthalene	**1900**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*85*		*35 - 125*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
2-Fluorobiphenyl (Surr)	*82*		*45 - 105*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
2-Fluorophenol (Surr)	*84*		*35 - 105*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
Nitrobenzene-d5 (Surr)	*92*		*35 - 100*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
Phenol-d5 (Surr)	*82*		*40 - 100*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
Terphenyl-d14 (Surr)	*90*		*30 - 125*	*09/06/14 09:34*	*09/08/14 13:01*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
1,2-Dichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
1,3-Dichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
1,4-Dichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4,5-Trichlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4,6-Trichlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4-Dichlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4-Dimethylphenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4-Dinitrophenol	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
2,4-Dinitrotoluene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,6-Dinitrotoluene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Chloronaphthalene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Chlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Methylphenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Nitroaniline	100	U	1620	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Nitrophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
3 & 4 Methylphenol	100	U	667	100	67.3	ug/Kg	☼	09/08/14 14:43	1
3,3'-Dichlorobenzidine	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
3-Nitroaniline	100	U	1620	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4,6-Dinitro-2-methylphenol	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
4-Bromophenyl phenyl ether	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Chloro-3-methylphenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Chloroaniline	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Chlorophenyl phenyl ether	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Nitroaniline	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
4-Nitrophenol	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
Acenaphthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Acenaphthylene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Anthracene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[a]anthracene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[a]pyrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[b]fluoranthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[g,h,i]perylene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[k]fluoranthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
bis (2-chloroisopropyl) ether	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Bis(2-chloroethoxy)methane	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Bis(2-chloroethyl)ether	100	U	334	100	33.8	ug/Kg	☼	09/08/14 14:43	1
Bis(2-ethylhexyl) phthalate	100	U	334	100	45.8	ug/Kg	☼	09/08/14 14:43	1
Butyl benzyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Chrysene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Dibenzo(a),h)anthracene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Dibenzofuran	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Diethyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Dimethyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Di-n-butyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Di-n-octyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Fluoranthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Fluorene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Hexachlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Hexachlorocyclopentadiene	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
Hexachloroethane	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Indeno[1,2,3-cd]pyrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Nitrobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
N-Nitrosodiphenylamine	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
N-Nitrosodi-n-propylamine	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Pentachlorophenol	334	U	1620	334	334	ug/Kg	☼	09/08/14 14:43	1
Phenanthrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Phenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Pyrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Pyridine	100	U	667	100	67.3	ug/Kg	☼	09/08/14 14:43	1
Naphthalene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*90*		*35 - 125*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
2-Fluorobiphenyl (Surr)	*87*		*45 - 105*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
2-Fluorophenol (Surr)	*84*		*35 - 105*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
Nitrobenzene-d5 (Surr)	*87*		*35 - 100*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
Phenol-d5 (Surr)	*85*		*40 - 100*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
Terphenyl-d14 (Surr)	*105*		*30 - 125*	*09/06/14 09:34*	*09/08/14 14:43*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	30800		1740	522	239	ug/Kg	☼	09/09/14 21:12	5
Fluoranthene	13300		1740	522	176	ug/Kg	☼	09/09/14 21:12	5

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B GRO - Gasoline Range Organics (GRO)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	0.148		0.120	0.0301	0.0120	mg/Kg	☼	09/08/14 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*79*		*44 - 147*	*08/28/14 08:52*	*09/08/14 20:29*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B GRO - Gasoline Range Organics (GRO)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	0.0417	J	0.140	0.0350	0.0140	mg/Kg	☼	09/08/14 21:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*118*		*44 - 147*	*08/28/14 08:52*	*09/08/14 21:03*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B DRO - Diesel Range Organics (DRO) (GC) - DL

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	10300		4220	84.4	56.2	mg/Kg	☼	09/09/14 14:33	80
Motor Oil Range Organics [C28-C40]	9290		4220	84.4	108	mg/Kg	☼	09/09/14 14:33	80

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*49 - 133*	*09/08/14 07:40*	*09/09/14 14:33*	*80*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B DRO - Diesel Range Organics (DRO) (GC) - DL

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.01	U	101	2.01	1.34	mg/Kg	☼	09/09/14 14:59	4
Motor Oil Range Organics [C28-C40]	**75.7**	**J**	101	2.01	2.56	mg/Kg	☼	09/09/14 14:59	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*95*		*49 - 133*	*09/08/14 07:40*	*09/09/14 14:59*	*4*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aldrin	0.358	U	1.79	0.358	0.603	ug/Kg	☼	09/09/14 04:06	1
alpha-BHC	0.358	U	1.79	0.358	0.306	ug/Kg	☼	09/09/14 04:06	1
beta-BHC	0.358	U	1.79	0.358	0.484	ug/Kg	☼	09/09/14 04:06	1
delta-BHC	0.358	U	1.79	0.358	0.360	ug/Kg	☼	09/09/14 04:06	1
gamma-BHC (Lindane)	0.358	U	1.79	0.358	0.504	ug/Kg	☼	09/09/14 04:06	1
4,4'-DDD	**3.49**	**p**	1.79	0.358	0.365	ug/Kg	☼	09/09/14 04:06	1
4,4'-DDE	**5.25**	**p**	1.79	0.706	0.547	ug/Kg	☼	09/09/14 04:06	1
4,4'-DDT	0.706	U	1.79	0.706	0.662	ug/Kg	☼	09/09/14 04:06	1
Dieldrin	0.358	U	1.79	0.358	0.227	ug/Kg	☼	09/09/14 04:06	1
Endosulfan I	**1.00**	**J p**	1.79	0.706	0.600	ug/Kg	☼	09/09/14 04:06	1
Endosulfan II	0.358	U	1.79	0.358	0.308	ug/Kg	☼	09/09/14 04:06	1
Endosulfan sulfate	0.706	U	1.79	0.706	0.358	ug/Kg	☼	09/09/14 04:06	1
Endrin	0.358	U	1.79	0.358	0.337	ug/Kg	☼	09/09/14 04:06	1
Endrin aldehyde	**8.37**		1.79	0.706	0.410	ug/Kg	☼	09/09/14 04:06	1
Endrin ketone	0.706	U	1.79	0.706	0.439	ug/Kg	☼	09/09/14 04:06	1
Heptachlor	0.358	U	1.79	0.358	0.299	ug/Kg	☼	09/09/14 04:06	1
Heptachlor epoxide	0.706	U	1.79	0.706	0.500	ug/Kg	☼	09/09/14 04:06	1
Methoxychlor	1.79	U	3.48	1.79	0.757	ug/Kg	☼	09/09/14 04:06	1
Toxaphene	35.8	U	70.6	35.8	16.0	ug/Kg	☼	09/09/14 04:06	1
Technical Chlordane	7.06	U	17.9	7.06	3.94	ug/Kg	☼	09/09/14 04:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*55 - 130*	*09/08/14 12:23*	*09/09/14 04:06*	*1*
Tetrachloro-m-xylene	*0*	*X*	*70 - 125*	*09/08/14 12:23*	*09/09/14 04:06*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aldrin	0.343	U	1.71	0.343	0.576	ug/Kg	☼	09/09/14 06:05	1
alpha-BHC	0.343	U	1.71	0.343	0.292	ug/Kg	☼	09/09/14 06:05	1
beta-BHC	0.343	U	1.71	0.343	0.462	ug/Kg	☼	09/09/14 06:05	1
delta-BHC	0.343	U	1.71	0.343	0.345	ug/Kg	☼	09/09/14 06:05	1
gamma-BHC (Lindane)	0.343	U	1.71	0.343	0.482	ug/Kg	☼	09/09/14 06:05	1
4,4'-DDD	0.343	U	1.71	0.343	0.349	ug/Kg	☼	09/09/14 06:05	1
4,4'-DDE	**0.707**	**J p**	1.71	0.675	0.523	ug/Kg	☼	09/09/14 06:05	1
4,4'-DDT	**1.16**	**J p**	1.71	0.675	0.633	ug/Kg	☼	09/09/14 06:05	1
Dieldrin	**0.579**	**J**	1.71	0.343	0.217	ug/Kg	☼	09/09/14 06:05	1
Endosulfan I	0.675	U	1.71	0.675	0.574	ug/Kg	☼	09/09/14 06:05	1
Endosulfan II	0.343	U	1.71	0.343	0.294	ug/Kg	☼	09/09/14 06:05	1
Endosulfan sulfate	0.675	U	1.71	0.675	0.343	ug/Kg	☼	09/09/14 06:05	1
Endrin	0.343	U	1.71	0.343	0.322	ug/Kg	☼	09/09/14 06:05	1
Endrin aldehyde	0.675	U	1.71	0.675	0.392	ug/Kg	☼	09/09/14 06:05	1
Endrin ketone	0.675	U	1.71	0.675	0.420	ug/Kg	☼	09/09/14 06:05	1
Heptachlor	0.343	U	1.71	0.343	0.286	ug/Kg	☼	09/09/14 06:05	1
Heptachlor epoxide	0.675	U	1.71	0.675	0.479	ug/Kg	☼	09/09/14 06:05	1
Methoxychlor	1.71	U	3.32	1.71	0.724	ug/Kg	☼	09/09/14 06:05	1
Toxaphene	34.3	U	67.5	34.3	15.3	ug/Kg	☼	09/09/14 06:05	1
Technical Chlordane	6.75	U	17.1	6.75	3.77	ug/Kg	☼	09/09/14 06:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*121*		*55 - 130*	*09/08/14 12:23*	*09/09/14 06:05*	*1*
Tetrachloro-m-xylene	*87*		*70 - 125*	*09/08/14 12:23*	*09/09/14 06:05*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor 1016	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1221	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1232	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1242	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1248	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1254	**8.42**	**J**	33.3	10.1	8.09	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1260	**15.8**	**J**	33.3	10.1	8.09	ug/Kg	☼	09/09/14 11:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*78*		*60 - 125*	*09/08/14 09:34*	*09/09/14 11:41*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - DL

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor 1016	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1221	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1232	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1242	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1248	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1254	**458**		344	104	83.6	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1260	**480**		344	104	83.6	ug/Kg	☼	09/09/14 12:30	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*0*	*D*	*60 - 125*	*09/08/14 09:34*	*09/09/14 12:30*	*10*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	3.41		2.22	2.13	0.729	mg/Kg	☼	09/16/14 00:20	10
Arsenic	6.95		4.45	3.47	1.16	mg/Kg	☼	09/16/14 00:20	10
Barium	204		8.89	1.25	0.418	mg/Kg	☼	09/16/14 00:20	10
Beryllium	0.587		0.445	0.347	0.116	mg/Kg	☼	09/16/14 00:20	10
Cadmium	352		0.267	0.213	0.0711	mg/Kg	☼	09/16/14 00:20	10
Chromium	1090		8.45	4.45	2.00	mg/Kg	☼	09/16/14 00:20	10
Cobalt	41.9		0.889	0.574	0.191	mg/Kg	☼	09/16/14 00:20	10
Copper	347		4.45	1.33	0.449	mg/Kg	☼	09/16/14 00:20	10
Lead	459		1.33	1.33	0.445	mg/Kg	☼	09/16/14 00:20	10
Molybdenum	27.3		2.22	1.60	0.551	mg/Kg	☼	09/16/14 00:20	10
Nickel	422		2.22	1.47	0.476	mg/Kg	☼	09/16/14 00:20	10
Selenium	0.825	J	2.22	2.13	0.703	mg/Kg	☼	09/16/14 00:20	10
Silver	23.0		2.00	0.320	0.107	mg/Kg	☼	09/16/14 00:20	10
Thallium	0.889	U	4.45	0.889	0.676	mg/Kg	☼	09/16/14 00:20	10
Vanadium	28.7		4.45	4.45	3.27	mg/Kg	☼	09/16/14 00:20	10
Iron	24500		53.4	22.2	14.7	mg/Kg	☼	09/16/14 00:20	10
Zinc	1240		22.2	17.7	5.91	mg/Kg	☼	09/16/14 00:20	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.34	U	2.43	2.34	0.798	mg/Kg	☼	09/16/14 00:53	10
Arsenic	**4.02**	**J**	4.87	3.80	1.27	mg/Kg	☼	09/16/14 00:53	10
Barium	**48.2**		9.74	1.37	0.458	mg/Kg	☼	09/16/14 00:53	10
Beryllium	**0.204**	**J**	0.487	0.380	0.127	mg/Kg	☼	09/16/14 00:53	10
Cadmium	**0.392**		0.292	0.234	0.0779	mg/Kg	☼	09/16/14 00:53	10
Chromium	**33.5**		9.25	4.87	2.19	mg/Kg	☼	09/16/14 00:53	10
Cobalt	**7.27**		0.974	0.628	0.209	mg/Kg	☼	09/16/14 00:53	10
Copper	**14.7**		4.87	1.46	0.492	mg/Kg	☼	09/16/14 00:53	10
Lead	**27.9**		1.46	1.46	0.487	mg/Kg	☼	09/16/14 00:53	10
Molybdenum	1.75	U	2.43	1.75	0.604	mg/Kg	☼	09/16/14 00:53	10
Nickel	**33.9**		2.43	1.61	0.521	mg/Kg	☼	09/16/14 00:53	10
Selenium	2.34	U	2.43	2.34	0.769	mg/Kg	☼	09/16/14 00:53	10
Silver	**0.228**	**J**	2.19	0.350	0.117	mg/Kg	☼	09/16/14 00:53	10
Thallium	0.974	U	4.87	0.974	0.740	mg/Kg	☼	09/16/14 00:53	10
Vanadium	**28.9**		4.87	4.87	3.58	mg/Kg	☼	09/16/14 00:53	10
Iron	**14500**		58.4	24.3	16.1	mg/Kg	☼	09/16/14 00:53	10
Zinc	**59.5**		24.3	19.4	6.47	mg/Kg	☼	09/16/14 00:53	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.42		0.0413	0.0310	0.0113	mg/Kg	☼	09/08/14 13:46	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0761		0.0356	0.0267	0.00979	mg/Kg	☼	09/08/14 13:55	1

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8110-2
TestAmerica Sample Delivery Group: 160-8110
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
10/6/2014 3:47:50 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

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Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1012

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number: 7709 5369 1016
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOC)	EPA 8081 A (PEST)	EPA 5035/8015B TPH PURGE	EPA 8015 TPH DIESEL/MOTOR OIL	EPA 8081 (PCBs	EPA 6020B/7000 METAL/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MHs	8/26/2014	1000	8	3	S	10DY	X	X	X	X	X	X	X	Sediment accumulated during investigation	Pad F			N
IWL-BLDG29-EXCAVATION	8/26/2014	1030	8	3	S	10DY	X	X	X	X	X	X	X	Soil accumulated during investigation	Site 17 asphalt berm area			N

160-8110 Chain of Custody

Relinquished by: (signature)	Date: 8-26-14	Received by (signature) FedEx	Laboratory Instructions/Comments: Run STLC-Cr only
Company: Tetra tech	Time: 1400	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature) 8/27/14	Composite Discription:
Company:	Time:	Company: TT 0935	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1012

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-2
SDG: 160-8110

Method: 6010C DOD - Metals (ICP) - TCLP

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Cadmium	2060		12.5	7.50	0.840	ug/L		10/03/14 14:58	1
Chromium	20.5	J B	25.0	25.0	8.38	ug/L		10/03/14 14:58	1
Lead	21.8	J B ^	250	10.0	1.50	ug/L		10/03/14 14:58	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-2
SDG: 160-8110

Method: 6010C DOD - Metals (ICP) - STLC Citrate

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Chromium	10500	B	250	125	84.0	ug/L		10/06/14 12:35	5
Copper	123	J	625	125	52.5	ug/L		10/06/14 12:35	5
Nickel	9280		1000	500	64.0	ug/L		10/06/14 12:35	5
Lead	2810		250	50.0	15.0	ug/L		10/06/14 12:35	5

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8112-1
TestAmerica Sample Delivery Group: 160-8112
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
9/16/2014 3:26:50 PM

Erika Gish, Project Manager II
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erika.gish@testamericainc.com

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Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - COC # 1011

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Wil Solorzano	Airbill Number: 7709 5369 106
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-RINSE-04	8/26/2014	0910	6	3	W	10 dy	X	X	X						SAMPLE COLLECTED FROM AUGER			EQK
IWL-PS1-VAULT-UP-01	8/18/2014	0920	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	Pump Station 1			N

160-8112 Chain of Custody

Relinquished by: (signature)	Date: 8/26/14	Received by (signature) FedEx	Laboratory Instructions/Comments:
Company: Tetratech	Time: 1400	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature) 8/27/14	Composite Discription:
Company:	Time:	Company: TA 0935	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - COC # 1011

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.00	U	5.00	1.00	0.291	ug/L		08/29/14 11:30	1
1,1,2,2-Tetrachloroethane	2.00	U	5.00	2.00	0.425	ug/L		08/29/14 11:30	1
1,1,2-Trichloroethane	1.00	U	5.00	1.00	0.573	ug/L		08/29/14 11:30	1
1,1-Dichloroethane	1.00	U	5.00	1.00	0.392	ug/L		08/29/14 11:30	1
1,1-Dichloroethene	1.00	U	5.00	1.00	0.365	ug/L		08/29/14 11:30	1
1,2-Dichloroethane	1.00	U	5.00	1.00	0.372	ug/L		08/29/14 11:30	1
1,2-Dichloropropane	1.00	U	5.00	1.00	0.317	ug/L		08/29/14 11:30	1
2-Butanone (MEK)	5.00	U	20.0	5.00	0.389	ug/L		08/29/14 11:30	1
2-Hexanone	2.00	U	20.0	2.00	0.593	ug/L		08/29/14 11:30	1
4-Methyl-2-pentanone (MIBK)	2.00	U	20.0	2.00	0.326	ug/L		08/29/14 11:30	1
Acetone	**10.5**	**J**	20.0	10.0	6.67	ug/L		08/29/14 11:30	1
Benzene	1.00	U	5.00	1.00	0.253	ug/L		08/29/14 11:30	1
Bromoform	1.00	U	5.00	1.00	0.366	ug/L		08/29/14 11:30	1
Bromomethane	2.00	U	10.0	2.00	0.396	ug/L		08/29/14 11:30	1
Carbon tetrachloride	1.00	U	5.00	1.00	0.360	ug/L		08/29/14 11:30	1
Chlorobenzene	1.00	U	5.00	1.00	0.382	ug/L		08/29/14 11:30	1
Dibromochloromethane	1.00	U	5.00	1.00	0.329	ug/L		08/29/14 11:30	1
Chloroethane	1.00	U	10.0	1.00	0.382	ug/L		08/29/14 11:30	1
Chloroform	1.00	U	5.00	1.00	0.147	ug/L		08/29/14 11:30	1
Chloromethane	2.00	U	10.0	2.00	0.553	ug/L		08/29/14 11:30	1
cis-1,2-Dichloroethene	1.00	U	5.00	1.00	0.159	ug/L		08/29/14 11:30	1
cis-1,3-Dichloropropene	1.00	U	5.00	1.00	0.339	ug/L		08/29/14 11:30	1
Bromodichloromethane	2.00	U	5.00	2.00	0.254	ug/L		08/29/14 11:30	1
Ethylbenzene	1.00	U	5.00	1.00	0.299	ug/L		08/29/14 11:30	1
Methyl tert-butyl ether	2.00	U	5.00	2.00	0.401	ug/L		08/29/14 11:30	1
Methylene Chloride	5.00	U	7.50	5.00	1.67	ug/L		08/29/14 11:30	1
Styrene	1.00	U	5.00	1.00	0.347	ug/L		08/29/14 11:30	1
Tetrachloroethene	1.00	U	5.00	1.00	0.280	ug/L		08/29/14 11:30	1
Toluene	1.00	U	5.00	1.00	1.00	ug/L		08/29/14 11:30	1
trans-1,2-Dichloroethene	1.00	U	5.00	1.00	0.178	ug/L		08/29/14 11:30	1
trans-1,3-Dichloropropene	1.00	U	5.00	1.00	0.349	ug/L		08/29/14 11:30	1
Trichloroethene	1.00	U	5.00	1.00	0.290	ug/L		08/29/14 11:30	1
Vinyl chloride	1.00	U	2.00	1.00	0.428	ug/L		08/29/14 11:30	1
Xylenes, Total	5.00	U	10.0	5.00	0.854	ug/L		08/29/14 11:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*75 - 120*		*08/29/14 11:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 120*		*08/29/14 11:30*	*1*
Toluene-d8 (Surr)	*108*		*85 - 120*		*08/29/14 11:30*	*1*
Dibromofluoromethane (Surr)	*109*		*85 - 115*		*08/29/14 11:30*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-4
Matrix: Solid
Percent Solids: 30.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**2150**	**J B**	3320	416	283	ug/Kg	☼	08/29/14 16:04	1
Benzene	166	U	831	166	32.9	ug/Kg	☼	08/29/14 16:04	1
Bromodichloromethane	166	U	831	166	35.8	ug/Kg	☼	08/29/14 16:04	1
Bromoform	166	U	831	166	54.0	ug/Kg	☼	08/29/14 16:04	1
Bromomethane	166	U	1660	166	80.3	ug/Kg	☼	08/29/14 16:04	1
2-Butanone (MEK)	416	U	1660	416	220	ug/Kg	☼	08/29/14 16:04	1
Carbon tetrachloride	166	U	831	166	58.0	ug/Kg	☼	08/29/14 16:04	1
Chlorobenzene	166	U	831	166	34.4	ug/Kg	☼	08/29/14 16:04	1
Dibromochloromethane	166	U	831	166	33.6	ug/Kg	☼	08/29/14 16:04	1
Chloroethane	166	U	1660	166	44.4	ug/Kg	☼	08/29/14 16:04	1
Chloroform	166	U	831	166	34.9	ug/Kg	☼	08/29/14 16:04	1
Chloromethane	166	U	1660	166	83.1	ug/Kg	☼	08/29/14 16:04	1
1,1-Dichloroethane	166	U	831	166	33.6	ug/Kg	☼	08/29/14 16:04	1
1,2-Dichloroethane	166	U	831	166	36.8	ug/Kg	☼	08/29/14 16:04	1
cis-1,2-Dichloroethene	**586**	**J**	831	166	34.7	ug/Kg	☼	08/29/14 16:04	1
trans-1,2-Dichloroethene	166	U	1660	166	27.0	ug/Kg	☼	08/29/14 16:04	1
1,1-Dichloroethene	166	U	831	166	80.5	ug/Kg	☼	08/29/14 16:04	1
1,2-Dichloropropane	166	U	831	166	52.1	ug/Kg	☼	08/29/14 16:04	1
cis-1,3-Dichloropropene	166	U	1660	166	21.3	ug/Kg	☼	08/29/14 16:04	1
trans-1,3-Dichloropropene	166	U	831	166	32.1	ug/Kg	☼	08/29/14 16:04	1
Ethylbenzene	**39.4**	**J**	831	166	27.6	ug/Kg	☼	08/29/14 16:04	1
2-Hexanone	166	U	1660	166	41.9	ug/Kg	☼	08/29/14 16:04	1
Methylene Chloride	**469**	**J B**	831	416	168	ug/Kg	☼	08/29/14 16:04	1
4-Methyl-2-pentanone (MIBK)	166	U	3320	166	67.7	ug/Kg	☼	08/29/14 16:04	1
Methyl tert-butyl ether	166	U	831	166	32.8	ug/Kg	☼	08/29/14 16:04	1
Styrene	166	U	831	166	47.8	ug/Kg	☼	08/29/14 16:04	1
1,1,2,2-Tetrachloroethane	166	U	831	166	50.4	ug/Kg	☼	08/29/14 16:04	1
Tetrachloroethene	166	U	831	166	66.7	ug/Kg	☼	08/29/14 16:04	1
Toluene	166	U	831	166	42.5	ug/Kg	☼	08/29/14 16:04	1
1,1,1-Trichloroethane	166	U	831	166	33.2	ug/Kg	☼	08/29/14 16:04	1
1,1,2-Trichloroethane	166	U	831	166	98.8	ug/Kg	☼	08/29/14 16:04	1
Trichloroethene	166	U	831	166	58.5	ug/Kg	☼	08/29/14 16:04	1
Vinyl chloride	166	U	1660	166	91.8	ug/Kg	☼	08/29/14 16:04	1
Xylenes, Total	**232**	**J**	2490	166	96.6	ug/Kg	☼	08/29/14 16:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*56*	*X*	*85 - 120*	*08/29/14 13:41*	*08/29/14 16:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*64*	*X*	*71 - 128*	*08/29/14 13:41*	*08/29/14 16:04*	*1*
Toluene-d8 (Surr)	*53*	*X*	*85 - 115*	*08/29/14 13:41*	*08/29/14 16:04*	*1*
Dibromofluoromethane (Surr)	*59*	*X*	*76 - 126*	*08/29/14 13:41*	*08/29/14 16:04*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Bis(2-chloroethyl)ether	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Bis(2-ethylhexyl) phthalate	2.84	U	9.47	2.84	1.76	ug/L		09/05/14 20:08	1
4-Bromophenyl phenyl ether	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Butyl benzyl phthalate	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
4-Chloroaniline	2.84	U	9.47	2.84	1.89	ug/L		09/05/14 20:08	1
4-Chloro-3-methylphenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2-Chloronaphthalene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2-Chlorophenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
4-Chlorophenyl phenyl ether	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Dibenzofuran	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Di-n-butyl phthalate	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
1,2-Dichlorobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
1,3-Dichlorobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
1,4-Dichlorobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
3,3'-Dichlorobenzidine	2.84	U	47.3	2.84	1.22	ug/L		09/05/14 20:08	1
2,4-Dichlorophenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Diethyl phthalate	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2,4-Dimethylphenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Dimethyl phthalate	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
4,6-Dinitro-2-methylphenol	2.84	U	47.3	2.84	1.19	ug/L		09/05/14 20:08	1
2,4-Dinitrophenol	9.47	U	47.3	9.47	1.89	ug/L		09/05/14 20:08	1
2,4-Dinitrotoluene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2,6-Dinitrotoluene	2.84	U	9.47	2.84	2.05	ug/L		09/05/14 20:08	1
Di-n-octyl phthalate	9.47	U	14.2	9.47	0.947	ug/L		09/05/14 20:08	1
Hexachlorobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Hexachlorobutadiene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Hexachlorocyclopentadiene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Hexachloroethane	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2-Methylphenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
3 & 4 Methylphenol	2.84	U	18.9	2.84	1.89	ug/L		09/05/14 20:08	1
2-Nitroaniline	2.84	U	9.47	2.84	1.04	ug/L		09/05/14 20:08	1
3-Nitroaniline	9.47	U	9.47	9.47	0.947	ug/L		09/05/14 20:08	1
4-Nitroaniline	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Nitrobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2-Nitrophenol	2.84	U	9.47	2.84	1.44	ug/L		09/05/14 20:08	1
4-Nitrophenol	9.47	U	23.7	9.47	1.89	ug/L		09/05/14 20:08	1
N-Nitrosodiphenylamine	2.84	U *	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
N-Nitrosodi-n-propylamine	2.84	U	9.47	2.84	1.42	ug/L		09/05/14 20:08	1
bis (2-chloroisopropyl) ether	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Pentachlorophenol	2.84	U	47.3	2.84	1.20	ug/L		09/05/14 20:08	1
Phenol	2.84	U	14.2	2.84	1.89	ug/L		09/05/14 20:08	1
1,2,4-Trichlorobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2,4,5-Trichlorophenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2,4,6-Trichlorophenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Pyridine	2.84	U	18.9	2.84	1.89	ug/L		09/05/14 20:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*37*		*20 - 110*	*09/02/14 15:15*	*09/05/14 20:08*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	76		40 - 125	09/02/14 15:15	09/05/14 20:08	1
Nitrobenzene-d5 (Surr)	83		40 - 110	09/02/14 15:15	09/05/14 20:08	1
Phenol-d5 (Surr)	22		10 - 115	09/02/14 15:15	09/05/14 20:08	1
Terphenyl-d14 (Surr)	84		50 - 135	09/02/14 15:15	09/05/14 20:08	1
2-Fluorobiphenyl (Surr)	83		50 - 110	09/02/14 15:15	09/05/14 20:08	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-4
Matrix: Solid
Percent Solids: 30.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
1,2-Dichlorobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
1,3-Dichlorobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
1,4-Dichlorobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,4,5-Trichlorophenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,4,6-Trichlorophenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,4-Dichlorophenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,4-Dimethylphenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,4-Dinitrophenol	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
2,4-Dinitrotoluene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,6-Dinitrotoluene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2-Chloronaphthalene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2-Chlorophenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2-Methylphenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2-Nitroaniline	1920	U	31000	1920	645	ug/Kg	☼	09/10/14 14:35	1
2-Nitrophenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
3 & 4 Methylphenol	1920	U	12800	1920	1290	ug/Kg	☼	09/10/14 14:35	1
3,3'-Dichlorobenzidine	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
3-Nitroaniline	1920	U	31000	1920	645	ug/Kg	☼	09/10/14 14:35	1
4,6-Dinitro-2-methylphenol	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
4-Bromophenyl phenyl ether	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
4-Chloro-3-methylphenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
4-Chloroaniline	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
4-Chlorophenyl phenyl ether	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
4-Nitroaniline	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
4-Nitrophenol	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
Acenaphthene	**1250**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Acenaphthylene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Anthracene	**1490**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Benzo[a]anthracene	**3750**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Benzo[a]pyrene	**3060**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Benzo[b]fluoranthene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Benzo[g,h,i]perylene	**1920**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Benzo[k]fluoranthene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
bis (2-chloroisopropyl) ether	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Bis(2-chloroethoxy)methane	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Bis(2-chloroethyl)ether	1920	U	6400	1920	647	ug/Kg	☼	09/10/14 14:35	1
Bis(2-ethylhexyl) phthalate	**174000**		6400	1920	878	ug/Kg	☼	09/10/14 14:35	1
Butyl benzyl phthalate	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Chrysene	**4800**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Dibenzo(a),h)anthracene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Dibenzofuran	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Diethyl phthalate	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Dimethyl phthalate	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Di-n-butyl phthalate	**1370**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Di-n-octyl phthalate	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Fluoranthene	**8900**		6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Fluorene	**1740**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Hexachlorobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-4
Matrix: Solid
Percent Solids: 30.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Hexachlorocyclopentadiene	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
Hexachloroethane	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Indeno[1,2,3-cd]pyrene	**1910**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Nitrobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
N-Nitrosodiphenylamine	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
N-Nitrosodi-n-propylamine	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Pentachlorophenol	6400	U	31000	6400	6400	ug/Kg	☼	09/10/14 14:35	1
Phenanthrene	**8610**		6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Phenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Pyrene	**8310**		6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Pyridine	1920	U	12800	1920	1290	ug/Kg	☼	09/10/14 14:35	1
Naphthalene	**18800**		6400	1920	645	ug/Kg	☼	09/10/14 14:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*87*		*35 - 125*	*09/09/14 08:57*	*09/10/14 14:35*	*1*
2-Fluorobiphenyl (Surr)	*92*		*45 - 105*	*09/09/14 08:57*	*09/10/14 14:35*	*1*
2-Fluorophenol (Surr)	*89*		*35 - 105*	*09/09/14 08:57*	*09/10/14 14:35*	*1*
Nitrobenzene-d5 (Surr)	*108*	*X*	*35 - 100*	*09/09/14 08:57*	*09/10/14 14:35*	*1*
Phenol-d5 (Surr)	*84*		*40 - 100*	*09/09/14 08:57*	*09/10/14 14:35*	*1*
Terphenyl-d14 (Surr)	*83*		*30 - 125*	*09/09/14 08:57*	*09/10/14 14:35*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Silver	1.00	U	2.00	1.00	0.817	ug/L		09/15/14 23:19	2
Arsenic	3.54	U	10.0	3.54	1.18	ug/L		09/15/14 23:19	2
Barium	**22.1**		2.00	0.660	0.223	ug/L		09/15/14 23:19	2
Beryllium	0.500	U	1.00	0.500	0.350	ug/L		09/15/14 23:19	2
Cadmium	**0.706**		0.500	0.300	0.100	ug/L		09/15/14 23:19	2
Cobalt	**0.264**	**J**	2.00	0.660	0.217	ug/L		09/15/14 23:19	2
Chromium	**2.34**	**J**	10.0	9.78	1.00	ug/L		09/15/14 23:19	2
Copper	**1.50**	**J**	3.00	1.35	0.451	ug/L		09/15/14 23:19	2
Iron	**87.4**		50.0	50.0	20.4	ug/L		09/15/14 23:19	2
Nickel	**1.14**	**J B**	5.00	1.20	0.400	ug/L		09/15/14 23:19	2
Lead	**3.00**		3.00	0.510	0.173	ug/L		09/15/14 23:19	2
Antimony	5.00	U	5.00	5.00	1.67	ug/L		09/15/14 23:19	2
Selenium	4.77	U	5.00	4.77	1.59	ug/L		09/15/14 23:19	2
Thallium	1.65	U	2.00	1.65	0.550	ug/L		09/15/14 23:19	2
Vanadium	**2.37**	**J**	10.0	7.11	2.37	ug/L		09/15/14 23:19	2
Molybdenum	3.00	U	5.00	3.00	1.00	ug/L		09/15/14 23:19	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-4
Matrix: Solid
Percent Solids: 30.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	8.47		1.64	1.57	0.538	mg/Kg	☼	09/16/14 01:27	2
Arsenic	12.6		3.28	2.56	0.853	mg/Kg	☼	09/16/14 01:27	2
Barium	834		6.56	0.925	0.308	mg/Kg	☼	09/16/14 01:27	2
Beryllium	0.493		0.328	0.256	0.0853	mg/Kg	☼	09/16/14 01:27	2
Cadmium	195		0.197	0.157	0.0525	mg/Kg	☼	09/16/14 01:27	2
Chromium	1280		6.23	3.28	1.48	mg/Kg	☼	09/16/14 01:27	2
Cobalt	14.8		0.656	0.423	0.141	mg/Kg	☼	09/16/14 01:27	2
Copper	609		3.28	0.984	0.331	mg/Kg	☼	09/16/14 01:27	2
Lead	885		0.984	0.984	0.328	mg/Kg	☼	09/16/14 01:27	2
Molybdenum	78.0		1.64	1.18	0.407	mg/Kg	☼	09/16/14 01:27	2
Nickel	103		1.64	1.08	0.351	mg/Kg	☼	09/16/14 01:27	2
Selenium	1.13	J	1.64	1.57	0.518	mg/Kg	☼	09/16/14 01:27	2
Silver	10.6		1.48	0.236	0.0787	mg/Kg	☼	09/16/14 01:27	2
Thallium	0.656	U	3.28	0.656	0.499	mg/Kg	☼	09/16/14 01:27	2
Vanadium	34.9		3.28	3.28	2.41	mg/Kg	☼	09/16/14 01:27	2
Iron	27400		39.4	16.4	10.8	mg/Kg	☼	09/16/14 01:27	2
Zinc	2160		16.4	13.1	4.36	mg/Kg	☼	09/16/14 01:27	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 6020A - Metals (ICP/MS) - RE

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Zinc	22.1		10.0	10.0	8.29	ug/L		09/15/14 04:42	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 7470A - Mercury (CVAA)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.150	U	0.180	0.150	0.0600	ug/L		09/02/14 16:36	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-4
Matrix: Solid
Percent Solids: 30.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.97		0.116	0.0869	0.0319	mg/Kg	☼	09/08/14 13:57	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-14-01
Date Collected: 08/04/14 11:30
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-5
Matrix: Solid
Percent Solids: 38.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	12.7	U	63.6	12.7	5.48	ug/Kg	☼	08/07/14 16:27	1
1,1,2,2-Tetrachloroethane	12.7	U *	63.6	12.7	5.10	ug/Kg	☼	08/07/14 16:27	1
1,1,2-Trichloroethane	12.7	U *	63.6	12.7	7.29	ug/Kg	☼	08/07/14 16:27	1
1,1-Dichloroethane	12.7	U	63.6	12.7	4.99	ug/Kg	☼	08/07/14 16:27	1
1,1-Dichloroethene	63.6	U	63.6	63.6	20.5	ug/Kg	☼	08/07/14 16:27	1
1,2-Dichloroethane	12.7	U	63.6	12.7	11.0	ug/Kg	☼	08/07/14 16:27	1
1,2-Dichloropropane	12.7	U	63.6	12.7	4.87	ug/Kg	☼	08/07/14 16:27	1
2-Butanone (MEK)	63.6	U	254	63.6	24.4	ug/Kg	☼	08/07/14 16:27	1
2-Hexanone	63.6	U *	127	63.6	22.5	ug/Kg	☼	08/07/14 16:27	1
4-Methyl-2-pentanone (MIBK)	63.6	U *	254	63.6	9.31	ug/Kg	☼	08/07/14 16:27	1
Acetone	**253**	**J**	254	127	82.3	ug/Kg	☼	08/07/14 16:27	1
Benzene	**10.2**	**J**	63.6	12.7	3.22	ug/Kg	☼	08/07/14 16:27	1
Bromodichloromethane	12.7	U	63.6	12.7	3.23	ug/Kg	☼	08/07/14 16:27	1
Bromoform	12.7	U *	63.6	12.7	4.65	ug/Kg	☼	08/07/14 16:27	1
Bromomethane	63.6	U	127	63.6	14.0	ug/Kg	☼	08/07/14 16:27	1
Carbon tetrachloride	12.7	U	63.6	12.7	6.52	ug/Kg	☼	08/07/14 16:27	1
Chlorobenzene	12.7	U *	63.6	12.7	4.86	ug/Kg	☼	08/07/14 16:27	1
Chloroethane	12.7	U	127	12.7	6.56	ug/Kg	☼	08/07/14 16:27	1
Chloroform	12.7	U	63.6	12.7	4.78	ug/Kg	☼	08/07/14 16:27	1
Chloromethane	63.6	U	127	63.6	8.27	ug/Kg	☼	08/07/14 16:27	1
cis-1,2-Dichloroethene	12.7	U	63.6	12.7	7.59	ug/Kg	☼	08/07/14 16:27	1
cis-1,3-Dichloropropene	12.7	U	63.6	12.7	7.57	ug/Kg	☼	08/07/14 16:27	1
Dibromochloromethane	12.7	U *	63.6	12.7	5.16	ug/Kg	☼	08/07/14 16:27	1
Ethylbenzene	**16.0**	**J ***	63.6	12.7	3.80	ug/Kg	☼	08/07/14 16:27	1
Methyl tert-butyl ether	12.7	U	63.6	12.7	6.05	ug/Kg	☼	08/07/14 16:27	1
Methylene Chloride	**27.8**	**J**	127	63.6	20.1	ug/Kg	☼	08/07/14 16:27	1
Styrene	12.7	U *	63.6	12.7	4.41	ug/Kg	☼	08/07/14 16:27	1
Tetrachloroethene	12.7	U *	63.6	12.7	4.09	ug/Kg	☼	08/07/14 16:27	1
Toluene	12.7	U *	63.6	12.7	8.90	ug/Kg	☼	08/07/14 16:27	1
trans-1,2-Dichloroethene	12.7	U	63.6	12.7	12.0	ug/Kg	☼	08/07/14 16:27	1
trans-1,3-Dichloropropene	12.7	U *	63.6	12.7	4.44	ug/Kg	☼	08/07/14 16:27	1
Trichloroethene	12.7	U	63.6	12.7	4.90	ug/Kg	☼	08/07/14 16:27	1
Vinyl chloride	12.7	U	127	12.7	5.44	ug/Kg	☼	08/07/14 16:27	1
Xylenes, Total	63.6	U *	127	63.6	10.9	ug/Kg	☼	08/07/14 16:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*354*	** X*	*85 - 120*	*08/07/14 09:52*	*08/07/14 16:27*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*71 - 128*	*08/07/14 09:52*	*08/07/14 16:27*	*1*
Toluene-d8 (Surr)	*141*	** X*	*85 - 115*	*08/07/14 09:52*	*08/07/14 16:27*	*1*
Dibromofluoromethane (Surr)	*96*		*76 - 126*	*08/07/14 09:52*	*08/07/14 16:27*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-14-02
Date Collected: 08/04/14 11:40
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-6
Matrix: Solid
Percent Solids: 34.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	14.0	U	70.0	14.0	6.03	ug/Kg	☼	08/07/14 17:17	1
1,1,2,2-Tetrachloroethane	14.0	U *	70.0	14.0	5.61	ug/Kg	☼	08/07/14 17:17	1
1,1,2-Trichloroethane	14.0	U *	70.0	14.0	8.02	ug/Kg	☼	08/07/14 17:17	1
1,1-Dichloroethane	14.0	U	70.0	14.0	5.49	ug/Kg	☼	08/07/14 17:17	1
1,1-Dichloroethene	70.0	U	70.0	70.0	22.5	ug/Kg	☼	08/07/14 17:17	1
1,2-Dichloroethane	14.0	U	70.0	14.0	12.1	ug/Kg	☼	08/07/14 17:17	1
1,2-Dichloropropane	14.0	U	70.0	14.0	5.36	ug/Kg	☼	08/07/14 17:17	1
2-Butanone (MEK)	70.0	U	280	70.0	26.9	ug/Kg	☼	08/07/14 17:17	1
2-Hexanone	70.0	U *	140	70.0	24.8	ug/Kg	☼	08/07/14 17:17	1
4-Methyl-2-pentanone (MIBK)	70.0	U *	280	70.0	10.2	ug/Kg	☼	08/07/14 17:17	1
Acetone	**318**		280	140	90.6	ug/Kg	☼	08/07/14 17:17	1
Benzene	**11.9**	**J**	70.0	14.0	3.54	ug/Kg	☼	08/07/14 17:17	1
Bromodichloromethane	14.0	U	70.0	14.0	3.56	ug/Kg	☼	08/07/14 17:17	1
Bromoform	14.0	U *	70.0	14.0	5.12	ug/Kg	☼	08/07/14 17:17	1
Bromomethane	70.0	U	140	70.0	15.4	ug/Kg	☼	08/07/14 17:17	1
Carbon tetrachloride	14.0	U	70.0	14.0	7.18	ug/Kg	☼	08/07/14 17:17	1
Chlorobenzene	14.0	U *	70.0	14.0	5.35	ug/Kg	☼	08/07/14 17:17	1
Chloroethane	14.0	U	140	14.0	7.22	ug/Kg	☼	08/07/14 17:17	1
Chloroform	14.0	U	70.0	14.0	5.26	ug/Kg	☼	08/07/14 17:17	1
Chloromethane	70.0	U	140	70.0	9.10	ug/Kg	☼	08/07/14 17:17	1
cis-1,2-Dichloroethene	14.0	U	70.0	14.0	8.36	ug/Kg	☼	08/07/14 17:17	1
cis-1,3-Dichloropropene	14.0	U	70.0	14.0	8.33	ug/Kg	☼	08/07/14 17:17	1
Dibromochloromethane	14.0	U *	70.0	14.0	5.68	ug/Kg	☼	08/07/14 17:17	1
Ethylbenzene	**17.3**	**J ***	70.0	14.0	4.19	ug/Kg	☼	08/07/14 17:17	1
Methyl tert-butyl ether	14.0	U	70.0	14.0	6.66	ug/Kg	☼	08/07/14 17:17	1
Methylene Chloride	**25.3**	**J**	140	70.0	22.1	ug/Kg	☼	08/07/14 17:17	1
Styrene	14.0	U *	70.0	14.0	4.86	ug/Kg	☼	08/07/14 17:17	1
Tetrachloroethene	14.0	U *	70.0	14.0	4.51	ug/Kg	☼	08/07/14 17:17	1
Toluene	**11.4**	**J ***	70.0	14.0	9.80	ug/Kg	☼	08/07/14 17:17	1
trans-1,2-Dichloroethene	14.0	U	70.0	14.0	13.2	ug/Kg	☼	08/07/14 17:17	1
trans-1,3-Dichloropropene	14.0	U *	70.0	14.0	4.89	ug/Kg	☼	08/07/14 17:17	1
Trichloroethene	14.0	U	70.0	14.0	5.39	ug/Kg	☼	08/07/14 17:17	1
Vinyl chloride	14.0	U	140	14.0	5.99	ug/Kg	☼	08/07/14 17:17	1
Xylenes, Total	70.0	U *	140	70.0	12.0	ug/Kg	☼	08/07/14 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*	*	*85 - 120*	*08/07/14 09:52*	*08/07/14 17:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*71 - 128*	*08/07/14 09:52*	*08/07/14 17:17*	*1*
Toluene-d8 (Surr)	*134*	*X	*85 - 115*	*08/07/14 09:52*	*08/07/14 17:17*	*1*
Dibromofluoromethane (Surr)	*97*		*76 - 126*	*08/07/14 09:52*	*08/07/14 17:17*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-02
Date Collected: 08/04/14 13:00
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.00	U	5.00	1.00	0.291	ug/L		08/08/14 13:16	1
1,1,2,2-Tetrachloroethane	2.00	U	5.00	2.00	0.425	ug/L		08/08/14 13:16	1
1,1,2-Trichloroethane	1.00	U	5.00	1.00	0.573	ug/L		08/08/14 13:16	1
1,1-Dichloroethane	1.00	U	5.00	1.00	0.392	ug/L		08/08/14 13:16	1
1,1-Dichloroethene	1.00	U	5.00	1.00	0.365	ug/L		08/08/14 13:16	1
1,2-Dichloroethane	1.00	U	5.00	1.00	0.372	ug/L		08/08/14 13:16	1
1,2-Dichloropropane	1.00	U	5.00	1.00	0.317	ug/L		08/08/14 13:16	1
2-Butanone (MEK)	5.00	U	20.0	5.00	0.389	ug/L		08/08/14 13:16	1
2-Hexanone	2.00	U	20.0	2.00	0.593	ug/L		08/08/14 13:16	1
4-Methyl-2-pentanone (MIBK)	2.00	U	20.0	2.00	0.326	ug/L		08/08/14 13:16	1
Acetone	10.0	U	20.0	10.0	6.67	ug/L		08/08/14 13:16	1
Benzene	1.00	U	5.00	1.00	0.253	ug/L		08/08/14 13:16	1
Bromoform	1.00	U	5.00	1.00	0.366	ug/L		08/08/14 13:16	1
Bromomethane	2.00	U	10.0	2.00	0.396	ug/L		08/08/14 13:16	1
Carbon tetrachloride	1.00	U	5.00	1.00	0.360	ug/L		08/08/14 13:16	1
Chlorobenzene	1.00	U	5.00	1.00	0.382	ug/L		08/08/14 13:16	1
Dibromochloromethane	1.00	U	5.00	1.00	0.329	ug/L		08/08/14 13:16	1
Chloroethane	1.00	U	10.0	1.00	0.382	ug/L		08/08/14 13:16	1
Chloroform	1.00	U	5.00	1.00	0.147	ug/L		08/08/14 13:16	1
Chloromethane	2.00	U	10.0	2.00	0.553	ug/L		08/08/14 13:16	1
cis-1,2-Dichloroethene	1.00	U	5.00	1.00	0.159	ug/L		08/08/14 13:16	1
cis-1,3-Dichloropropene	1.00	U	5.00	1.00	0.339	ug/L		08/08/14 13:16	1
Bromodichloromethane	2.00	U	5.00	2.00	0.254	ug/L		08/08/14 13:16	1
Ethylbenzene	1.00	U	5.00	1.00	0.299	ug/L		08/08/14 13:16	1
Methyl tert-butyl ether	2.00	U	5.00	2.00	0.401	ug/L		08/08/14 13:16	1
Methylene Chloride	5.00	U	7.50	5.00	1.67	ug/L		08/08/14 13:16	1
Styrene	1.00	U	5.00	1.00	0.347	ug/L		08/08/14 13:16	1
Tetrachloroethene	1.00	U	5.00	1.00	0.280	ug/L		08/08/14 13:16	1
Toluene	1.00	U	5.00	1.00	1.00	ug/L		08/08/14 13:16	1
trans-1,2-Dichloroethene	1.00	U	5.00	1.00	0.178	ug/L		08/08/14 13:16	1
trans-1,3-Dichloropropene	1.00	U	5.00	1.00	0.349	ug/L		08/08/14 13:16	1
Trichloroethene	1.00	U	5.00	1.00	0.290	ug/L		08/08/14 13:16	1
Vinyl chloride	1.00	U	2.00	1.00	0.428	ug/L		08/08/14 13:16	1
Xylenes, Total	5.00	U	10.0	5.00	0.854	ug/L		08/08/14 13:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*75 - 120*		*08/08/14 13:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 120*		*08/08/14 13:16*	*1*
Toluene-d8 (Surr)	*96*		*85 - 120*		*08/08/14 13:16*	*1*
Dibromofluoromethane (Surr)	*107*		*85 - 115*		*08/08/14 13:16*	*1*

Method: 8270D/DoD - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-02
Date Collected: 08/04/14 13:00
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Bis(2-chloroethyl)ether	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Bis(2-ethylhexyl) phthalate	3.11	U	10.4	3.11	1.93	ug/L		08/10/14 22:51	1
4-Bromophenyl phenyl ether	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Butyl benzyl phthalate	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
4-Chloroaniline	3.11	U	10.4	3.11	2.07	ug/L		08/10/14 22:51	1
4-Chloro-3-methylphenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2-Chloronaphthalene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2-Chlorophenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
4-Chlorophenyl phenyl ether	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Dibenzofuran	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Di-n-butyl phthalate	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
1,2-Dichlorobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
1,3-Dichlorobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
1,4-Dichlorobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
3,3'-Dichlorobenzidine	3.11	U	51.8	3.11	1.34	ug/L		08/10/14 22:51	1
2,4-Dichlorophenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Diethyl phthalate	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2,4-Dimethylphenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Dimethyl phthalate	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
4,6-Dinitro-2-methylphenol	3.11	U	51.8	3.11	1.30	ug/L		08/10/14 22:51	1
2,4-Dinitrophenol	10.4	U	51.8	10.4	2.07	ug/L		08/10/14 22:51	1
2,4-Dinitrotoluene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2,6-Dinitrotoluene	3.11	U	10.4	3.11	2.24	ug/L		08/10/14 22:51	1
Di-n-octyl phthalate	10.4	U	15.5	10.4	1.04	ug/L		08/10/14 22:51	1
Hexachlorobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Hexachlorobutadiene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Hexachlorocyclopentadiene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Hexachloroethane	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2-Methylphenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
3 & 4 Methylphenol	3.11	U	20.7	3.11	2.07	ug/L		08/10/14 22:51	1
2-Nitroaniline	3.11	U	10.4	3.11	1.14	ug/L		08/10/14 22:51	1
3-Nitroaniline	10.4	U	10.4	10.4	1.04	ug/L		08/10/14 22:51	1
4-Nitroaniline	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Nitrobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2-Nitrophenol	3.11	U	10.4	3.11	1.57	ug/L		08/10/14 22:51	1
4-Nitrophenol	10.4	U	25.9	10.4	2.07	ug/L		08/10/14 22:51	1
N-Nitrosodiphenylamine	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
N-Nitrosodi-n-propylamine	3.11	U	10.4	3.11	1.55	ug/L		08/10/14 22:51	1
bis (2-chloroisopropyl) ether	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Pentachlorophenol	3.11	U	51.8	3.11	1.32	ug/L		08/10/14 22:51	1
Phenol	3.11	U	15.5	3.11	2.07	ug/L		08/10/14 22:51	1
1,2,4-Trichlorobenzene	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2,4,5-Trichlorophenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
2,4,6-Trichlorophenol	3.11	U	10.4	3.11	1.04	ug/L		08/10/14 22:51	1
Pyridine	3.11	U	20.7	3.11	2.07	ug/L		08/10/14 22:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*33*		*20 - 110*	*08/07/14 11:53*	*08/10/14 22:51*	*1*

Method: 8270D/DoD - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-RINSE-02
Date Collected: 08/04/14 13:00
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-7
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	63		40 - 125	08/07/14 11:53	08/10/14 22:51	1
Nitrobenzene-d5 (Surr)	74		40 - 110	08/07/14 11:53	08/10/14 22:51	1
Phenol-d5 (Surr)	19		10 - 115	08/07/14 11:53	08/10/14 22:51	1
Terphenyl-d14 (Surr)	69		50 - 135	08/07/14 11:53	08/10/14 22:51	1
2-Fluorobiphenyl (Surr)	77		50 - 110	08/07/14 11:53	08/10/14 22:51	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-8-UP-01
Date Collected: 08/04/14 08:22
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-1
Matrix: Solid
Percent Solids: 62.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
1,2-Dichlorobenzene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
1,3-Dichlorobenzene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
1,4-Dichlorobenzene	**973**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,4,5-Trichlorophenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,4,6-Trichlorophenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,4-Dichlorophenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,4-Dimethylphenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,4-Dinitrophenol	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
2,4-Dinitrotoluene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2,6-Dinitrotoluene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2-Chloronaphthalene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2-Chlorophenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2-Methylphenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
2-Nitroaniline	473	U	7640	473	159	ug/Kg	☼	08/11/14 16:38	1
2-Nitrophenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
3 & 4 Methylphenol	473	U	3150	473	318	ug/Kg	☼	08/11/14 16:38	1
3,3'-Dichlorobenzidine	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
3-Nitroaniline	473	U	7640	473	159	ug/Kg	☼	08/11/14 16:38	1
4,6-Dinitro-2-methylphenol	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
4-Bromophenyl phenyl ether	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
4-Chloro-3-methylphenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
4-Chloroaniline	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
4-Chlorophenyl phenyl ether	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
4-Nitroaniline	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
4-Nitrophenol	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
Acenaphthene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Acenaphthylene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Anthracene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Benzo[a]anthracene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Benzo[a]pyrene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Benzo[b]fluoranthene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Benzo[g,h,i]perylene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Benzo[k]fluoranthene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
bis (2-chloroisopropyl) ether	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Bis(2-chloroethoxy)methane	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Bis(2-chloroethyl)ether	473	U	1580	473	160	ug/Kg	☼	08/11/14 16:38	1
Bis(2-ethylhexyl) phthalate	**31600**		1580	473	216	ug/Kg	☼	08/11/14 16:38	1
Butyl benzyl phthalate	**937**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Chrysene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Dibenzo(a),h)anthracene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Dibenzofuran	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Diethyl phthalate	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Dimethyl phthalate	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Di-n-butyl phthalate	**1450**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Di-n-octyl phthalate	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Fluoranthene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Fluorene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Hexachlorobenzene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-8-UP-01
Date Collected: 08/04/14 08:22
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-1
Matrix: Solid
Percent Solids: 62.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Hexachlorocyclopentadiene	3150	U	7640	3150	1580	ug/Kg	☼	08/11/14 16:38	1
Hexachloroethane	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Indeno[1,2,3-cd]pyrene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Nitrobenzene	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
N-Nitrosodiphenylamine	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
N-Nitrosodi-n-propylamine	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Pentachlorophenol	1580	U	7640	1580	1580	ug/Kg	☼	08/11/14 16:38	1
Phenanthrene	**223**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Phenol	473	U	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Pyrene	**254**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1
Pyridine	473	U	3150	473	318	ug/Kg	☼	08/11/14 16:38	1
Naphthalene	**1480**	**J**	1580	473	159	ug/Kg	☼	08/11/14 16:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*35 - 125*	*08/11/14 10:56*	*08/11/14 16:38*	*1*
2-Fluorobiphenyl (Surr)	*76*		*45 - 105*	*08/11/14 10:56*	*08/11/14 16:38*	*1*
2-Fluorophenol (Surr)	*77*		*35 - 105*	*08/11/14 10:56*	*08/11/14 16:38*	*1*
Nitrobenzene-d5 (Surr)	*78*		*35 - 100*	*08/11/14 10:56*	*08/11/14 16:38*	*1*
Phenol-d5 (Surr)	*74*		*40 - 100*	*08/11/14 10:56*	*08/11/14 16:38*	*1*
Terphenyl-d14 (Surr)	*66*		*30 - 125*	*08/11/14 10:56*	*08/11/14 16:38*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-8-ND-02
Date Collected: 08/04/14 08:39
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-2
Matrix: Solid
Percent Solids: 50.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
1,2-Dichlorobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
1,3-Dichlorobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
1,4-Dichlorobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,4,5-Trichlorophenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,4,6-Trichlorophenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,4-Dichlorophenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,4-Dimethylphenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,4-Dinitrophenol	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
2,4-Dinitrotoluene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2,6-Dinitrotoluene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2-Chloronaphthalene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2-Chlorophenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2-Methylphenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
2-Nitroaniline	589	U	9530	589	198	ug/Kg	☼	08/11/14 17:12	1
2-Nitrophenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
3 & 4 Methylphenol	589	U	3930	589	397	ug/Kg	☼	08/11/14 17:12	1
3,3'-Dichlorobenzidine	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
3-Nitroaniline	589	U	9530	589	198	ug/Kg	☼	08/11/14 17:12	1
4,6-Dinitro-2-methylphenol	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
4-Bromophenyl phenyl ether	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
4-Chloro-3-methylphenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
4-Chloroaniline	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
4-Chlorophenyl phenyl ether	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
4-Nitroaniline	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
4-Nitrophenol	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
Acenaphthene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Acenaphthylene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Anthracene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Benzo[a]anthracene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Benzo[a]pyrene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Benzo[b]fluoranthene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Benzo[g,h,i]perylene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Benzo[k]fluoranthene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
bis (2-chloroisopropyl) ether	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Bis(2-chloroethoxy)methane	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Bis(2-chloroethyl)ether	589	U	1960	589	199	ug/Kg	☼	08/11/14 17:12	1
Bis(2-ethylhexyl) phthalate	**19500**		1960	589	270	ug/Kg	☼	08/11/14 17:12	1
Butyl benzyl phthalate	**416**	**J**	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Chrysene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Dibenzo(a),h)anthracene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Dibenzofuran	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Diethyl phthalate	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Dimethyl phthalate	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Di-n-butyl phthalate	**1100**	**J**	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Di-n-octyl phthalate	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Fluoranthene	**484**	**J**	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Fluorene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Hexachlorobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-8-ND-02
Date Collected: 08/04/14 08:39
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-2
Matrix: Solid
Percent Solids: 50.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Hexachlorocyclopentadiene	3930	U	9530	3930	1960	ug/Kg	☼	08/11/14 17:12	1
Hexachloroethane	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Indeno[1,2,3-cd]pyrene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Nitrobenzene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
N-Nitrosodiphenylamine	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
N-Nitrosodi-n-propylamine	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Pentachlorophenol	1960	U	9530	1960	1960	ug/Kg	☼	08/11/14 17:12	1
Phenanthrene	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Phenol	589	U	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Pyrene	**261**	**J**	1960	589	198	ug/Kg	☼	08/11/14 17:12	1
Pyridine	589	U	3930	589	397	ug/Kg	☼	08/11/14 17:12	1
Naphthalene	**1240**	**J**	1960	589	198	ug/Kg	☼	08/11/14 17:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*76*		*35 - 125*	*08/11/14 10:56*	*08/11/14 17:12*	*1*
2-Fluorobiphenyl (Surr)	*76*		*45 - 105*	*08/11/14 10:56*	*08/11/14 17:12*	*1*
2-Fluorophenol (Surr)	*75*		*35 - 105*	*08/11/14 10:56*	*08/11/14 17:12*	*1*
Nitrobenzene-d5 (Surr)	*80*		*35 - 100*	*08/11/14 10:56*	*08/11/14 17:12*	*1*
Phenol-d5 (Surr)	*72*		*40 - 100*	*08/11/14 10:56*	*08/11/14 17:12*	*1*
Terphenyl-d14 (Surr)	*70*		*30 - 125*	*08/11/14 10:56*	*08/11/14 17:12*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-09-01
Date Collected: 08/04/14 09:13
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-3
Matrix: Solid
Percent Solids: 31.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
1,2-Dichlorobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
1,3-Dichlorobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
1,4-Dichlorobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,4,5-Trichlorophenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,4,6-Trichlorophenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,4-Dichlorophenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,4-Dimethylphenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,4-Dinitrophenol	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
2,4-Dinitrotoluene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2,6-Dinitrotoluene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2-Chloronaphthalene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2-Chlorophenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2-Methylphenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
2-Nitroaniline	929	U	15000	929	312	ug/Kg	☼	08/11/14 17:46	1
2-Nitrophenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
3 & 4 Methylphenol	929	U	6190	929	625	ug/Kg	☼	08/11/14 17:46	1
3,3'-Dichlorobenzidine	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
3-Nitroaniline	929	U	15000	929	312	ug/Kg	☼	08/11/14 17:46	1
4,6-Dinitro-2-methylphenol	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
4-Bromophenyl phenyl ether	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
4-Chloro-3-methylphenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
4-Chloroaniline	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
4-Chlorophenyl phenyl ether	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
4-Nitroaniline	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
4-Nitrophenol	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
Acenaphthene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Acenaphthylene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Anthracene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Benzo[a]anthracene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Benzo[a]pyrene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Benzo[b]fluoranthene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Benzo[g,h,i]perylene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Benzo[k]fluoranthene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
bis (2-chloroisopropyl) ether	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Bis(2-chloroethoxy)methane	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Bis(2-chloroethyl)ether	929	U	3100	929	313	ug/Kg	☼	08/11/14 17:46	1
Bis(2-ethylhexyl) phthalate	**12500**		3100	929	425	ug/Kg	☼	08/11/14 17:46	1
Butyl benzyl phthalate	**575**	**J**	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Chrysene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Dibenzo(a),h)anthracene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Dibenzofuran	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Diethyl phthalate	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Dimethyl phthalate	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Di-n-butyl phthalate	**570**	**J**	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Di-n-octyl phthalate	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Fluoranthene	**397**	**J**	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Fluorene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Hexachlorobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-09-01
Date Collected: 08/04/14 09:13
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-3
Matrix: Solid
Percent Solids: 31.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Hexachlorocyclopentadiene	6190	U	15000	6190	3100	ug/Kg	☼	08/11/14 17:46	1
Hexachloroethane	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Indeno[1,2,3-cd]pyrene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Nitrobenzene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
N-Nitrosodiphenylamine	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
N-Nitrosodi-n-propylamine	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Pentachlorophenol	3100	U	15000	3100	3100	ug/Kg	☼	08/11/14 17:46	1
Phenanthrene	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Phenol	929	U	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Pyrene	**378**	**J**	3100	929	312	ug/Kg	☼	08/11/14 17:46	1
Pyridine	929	U	6190	929	625	ug/Kg	☼	08/11/14 17:46	1
Naphthalene	**504**	**J**	3100	929	312	ug/Kg	☼	08/11/14 17:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*73*		*35 - 125*	*08/11/14 10:56*	*08/11/14 17:46*	*1*
2-Fluorobiphenyl (Surr)	*73*		*45 - 105*	*08/11/14 10:56*	*08/11/14 17:46*	*1*
2-Fluorophenol (Surr)	*74*		*35 - 105*	*08/11/14 10:56*	*08/11/14 17:46*	*1*
Nitrobenzene-d5 (Surr)	*91*		*35 - 100*	*08/11/14 10:56*	*08/11/14 17:46*	*1*
Phenol-d5 (Surr)	*73*		*40 - 100*	*08/11/14 10:56*	*08/11/14 17:46*	*1*
Terphenyl-d14 (Surr)	*68*		*30 - 125*	*08/11/14 10:56*	*08/11/14 17:46*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-09-02
Date Collected: 08/04/14 09:19
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-4
Matrix: Solid
Percent Solids: 35.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
1,2-Dichlorobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
1,3-Dichlorobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
1,4-Dichlorobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,4,5-Trichlorophenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,4,6-Trichlorophenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,4-Dichlorophenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,4-Dimethylphenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,4-Dinitrophenol	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
2,4-Dinitrotoluene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2,6-Dinitrotoluene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2-Chloronaphthalene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2-Chlorophenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2-Methylphenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
2-Nitroaniline	824	U	13300	824	277	ug/Kg	☼	08/11/14 18:21	1
2-Nitrophenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
3 & 4 Methylphenol	824	U	5490	824	554	ug/Kg	☼	08/11/14 18:21	1
3,3'-Dichlorobenzidine	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
3-Nitroaniline	824	U	13300	824	277	ug/Kg	☼	08/11/14 18:21	1
4,6-Dinitro-2-methylphenol	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
4-Bromophenyl phenyl ether	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
4-Chloro-3-methylphenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
4-Chloroaniline	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
4-Chlorophenyl phenyl ether	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
4-Nitroaniline	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
4-Nitrophenol	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
Acenaphthene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Acenaphthylene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Anthracene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Benzo[a]anthracene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Benzo[a]pyrene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Benzo[b]fluoranthene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Benzo[g,h,i]perylene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Benzo[k]fluoranthene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
bis (2-chloroisopropyl) ether	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Bis(2-chloroethoxy)methane	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Bis(2-chloroethyl)ether	824	U	2750	824	278	ug/Kg	☼	08/11/14 18:21	1
Bis(2-ethylhexyl) phthalate	**35100**		2750	824	377	ug/Kg	☼	08/11/14 18:21	1
Butyl benzyl phthalate	**781**	**J**	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Chrysene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Dibenzo(a),h)anthracene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Dibenzofuran	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Diethyl phthalate	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Dimethyl phthalate	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Di-n-butyl phthalate	**1390**	**J**	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Di-n-octyl phthalate	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Fluoranthene	**394**	**J**	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Fluorene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Hexachlorobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-09-02
Date Collected: 08/04/14 09:19
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-4
Matrix: Solid
Percent Solids: 35.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Hexachlorocyclopentadiene	5490	U	13300	5490	2750	ug/Kg	☼	08/11/14 18:21	1
Hexachloroethane	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Indeno[1,2,3-cd]pyrene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Nitrobenzene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
N-Nitrosodiphenylamine	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
N-Nitrosodi-n-propylamine	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Pentachlorophenol	2750	U	13300	2750	2750	ug/Kg	☼	08/11/14 18:21	1
Phenanthrene	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Phenol	824	U	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Pyrene	**481**	**J**	2750	824	277	ug/Kg	☼	08/11/14 18:21	1
Pyridine	824	U	5490	824	554	ug/Kg	☼	08/11/14 18:21	1
Naphthalene	**1480**	**J**	2750	824	277	ug/Kg	☼	08/11/14 18:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*77*		*35 - 125*	*08/11/14 10:56*	*08/11/14 18:21*	*1*
2-Fluorobiphenyl (Surr)	*74*		*45 - 105*	*08/11/14 10:56*	*08/11/14 18:21*	*1*
2-Fluorophenol (Surr)	*78*		*35 - 105*	*08/11/14 10:56*	*08/11/14 18:21*	*1*
Nitrobenzene-d5 (Surr)	*103*	*X*	*35 - 100*	*08/11/14 10:56*	*08/11/14 18:21*	*1*
Phenol-d5 (Surr)	*76*		*40 - 100*	*08/11/14 10:56*	*08/11/14 18:21*	*1*
Terphenyl-d14 (Surr)	*70*		*30 - 125*	*08/11/14 10:56*	*08/11/14 18:21*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-14-01
Date Collected: 08/04/14 11:30
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-5
Matrix: Solid
Percent Solids: 38.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
1,2-Dichlorobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
1,3-Dichlorobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
1,4-Dichlorobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,4,5-Trichlorophenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,4,6-Trichlorophenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,4-Dichlorophenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,4-Dimethylphenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,4-Dinitrophenol	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
2,4-Dinitrotoluene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2,6-Dinitrotoluene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2-Chloronaphthalene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2-Chlorophenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2-Methylphenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
2-Nitroaniline	766	U	12400	766	258	ug/Kg	☼	08/11/14 18:55	1
2-Nitrophenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
3 & 4 Methylphenol	766	U	5110	766	516	ug/Kg	☼	08/11/14 18:55	1
3,3'-Dichlorobenzidine	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
3-Nitroaniline	766	U	12400	766	258	ug/Kg	☼	08/11/14 18:55	1
4,6-Dinitro-2-methylphenol	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
4-Bromophenyl phenyl ether	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
4-Chloro-3-methylphenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
4-Chloroaniline	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
4-Chlorophenyl phenyl ether	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
4-Nitroaniline	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
4-Nitrophenol	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
Acenaphthene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Acenaphthylene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Anthracene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Benzo[a]anthracene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Benzo[a]pyrene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Benzo[b]fluoranthene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Benzo[g,h,i]perylene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Benzo[k]fluoranthene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
bis (2-chloroisopropyl) ether	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Bis(2-chloroethoxy)methane	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Bis(2-chloroethyl)ether	766	U	2550	766	259	ug/Kg	☼	08/11/14 18:55	1
Bis(2-ethylhexyl) phthalate	**23200**		2550	766	351	ug/Kg	☼	08/11/14 18:55	1
Butyl benzyl phthalate	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Chrysene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Dibenzo(a),h)anthracene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Dibenzofuran	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Diethyl phthalate	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Dimethyl phthalate	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Di-n-butyl phthalate	**759**	**J**	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Di-n-octyl phthalate	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Fluoranthene	**1800**	**J**	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Fluorene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Hexachlorobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-14-01
Date Collected: 08/04/14 11:30
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-5
Matrix: Solid
Percent Solids: 38.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Hexachlorocyclopentadiene	5110	U	12400	5110	2550	ug/Kg	☼	08/11/14 18:55	1
Hexachloroethane	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Indeno[1,2,3-cd]pyrene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Nitrobenzene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
N-Nitrosodiphenylamine	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
N-Nitrosodi-n-propylamine	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Pentachlorophenol	2550	U	12400	2550	2550	ug/Kg	☼	08/11/14 18:55	1
Phenanthrene	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Phenol	766	U	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Pyrene	**806**	**J**	2550	766	258	ug/Kg	☼	08/11/14 18:55	1
Pyridine	766	U	5110	766	516	ug/Kg	☼	08/11/14 18:55	1
Naphthalene	**355**	**J**	2550	766	258	ug/Kg	☼	08/11/14 18:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*78*		*35 - 125*	*08/11/14 10:56*	*08/11/14 18:55*	*1*
2-Fluorobiphenyl (Surr)	*73*		*45 - 105*	*08/11/14 10:56*	*08/11/14 18:55*	*1*
2-Fluorophenol (Surr)	*76*		*35 - 105*	*08/11/14 10:56*	*08/11/14 18:55*	*1*
Nitrobenzene-d5 (Surr)	*80*		*35 - 100*	*08/11/14 10:56*	*08/11/14 18:55*	*1*
Phenol-d5 (Surr)	*75*		*40 - 100*	*08/11/14 10:56*	*08/11/14 18:55*	*1*
Terphenyl-d14 (Surr)	*74*		*30 - 125*	*08/11/14 10:56*	*08/11/14 18:55*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MH1-14-02
Date Collected: 08/04/14 11:40
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-6
Matrix: Solid
Percent Solids: 34.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
1,2-Dichlorobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
1,3-Dichlorobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
1,4-Dichlorobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,4,5-Trichlorophenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,4,6-Trichlorophenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,4-Dichlorophenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,4-Dimethylphenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,4-Dinitrophenol	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
2,4-Dinitrotoluene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2,6-Dinitrotoluene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2-Chloronaphthalene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2-Chlorophenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2-Methylphenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
2-Nitroaniline	830	U	13400	830	279	ug/Kg	☼	08/11/14 19:28	1
2-Nitrophenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
3 & 4 Methylphenol	830	U	5530	830	558	ug/Kg	☼	08/11/14 19:28	1
3,3'-Dichlorobenzidine	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
3-Nitroaniline	830	U	13400	830	279	ug/Kg	☼	08/11/14 19:28	1
4,6-Dinitro-2-methylphenol	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
4-Bromophenyl phenyl ether	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
4-Chloro-3-methylphenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
4-Chloroaniline	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
4-Chlorophenyl phenyl ether	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
4-Nitroaniline	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
4-Nitrophenol	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
Acenaphthene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Acenaphthylene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Anthracene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Benzo[a]anthracene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Benzo[a]pyrene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Benzo[b]fluoranthene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Benzo[g,h,i]perylene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Benzo[k]fluoranthene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
bis (2-chloroisopropyl) ether	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Bis(2-chloroethoxy)methane	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Bis(2-chloroethyl)ether	830	U	2770	830	280	ug/Kg	☼	08/11/14 19:28	1
Bis(2-ethylhexyl) phthalate	**53200**		2770	830	380	ug/Kg	☼	08/11/14 19:28	1
Butyl benzyl phthalate	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Chrysene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Dibenzo(a),h)anthracene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Dibenzofuran	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Diethyl phthalate	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Dimethyl phthalate	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Di-n-butyl phthalate	**1330**	**J**	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Di-n-octyl phthalate	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Fluoranthene	**2300**	**J**	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Fluorene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Hexachlorobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MH1-14-02
Date Collected: 08/04/14 11:40
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-6
Matrix: Solid
Percent Solids: 34.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Hexachlorocyclopentadiene	5530	U	13400	5530	2770	ug/Kg	☼	08/11/14 19:28	1
Hexachloroethane	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Indeno[1,2,3-cd]pyrene	830	U *	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Nitrobenzene	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
N-Nitrosodiphenylamine	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
N-Nitrosodi-n-propylamine	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Pentachlorophenol	2770	U	13400	2770	2770	ug/Kg	☼	08/11/14 19:28	1
Phenanthrene	**658**	**J**	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Phenol	830	U	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Pyrene	**1210**	**J**	2770	830	279	ug/Kg	☼	08/11/14 19:28	1
Pyridine	830	U	5530	830	558	ug/Kg	☼	08/11/14 19:28	1
Naphthalene	**1010**	**J**	2770	830	279	ug/Kg	☼	08/11/14 19:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*35 - 125*	*08/11/14 10:56*	*08/11/14 19:28*	*1*
2-Fluorobiphenyl (Surr)	*76*		*45 - 105*	*08/11/14 10:56*	*08/11/14 19:28*	*1*
2-Fluorophenol (Surr)	*79*		*35 - 105*	*08/11/14 10:56*	*08/11/14 19:28*	*1*
Nitrobenzene-d5 (Surr)	*88*		*35 - 100*	*08/11/14 10:56*	*08/11/14 19:28*	*1*
Phenol-d5 (Surr)	*78*		*40 - 100*	*08/11/14 10:56*	*08/11/14 19:28*	*1*
Terphenyl-d14 (Surr)	*94*		*30 - 125*	*08/11/14 10:56*	*08/11/14 19:28*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A DOD - Metals (ICP/MS)

Client Sample ID: IWL-RINSE-02
Date Collected: 08/04/14 13:00
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	5.00	U	5.00	5.00	1.67	ug/L		08/13/14 00:40	2
Arsenic	3.54	U	10.0	3.54	1.18	ug/L		08/13/14 00:40	2
Barium	**0.334**	**J**	2.00	0.660	0.223	ug/L		08/13/14 00:40	2
Beryllium	0.500	U ^	1.00	0.500	0.350	ug/L		08/13/14 00:40	2
Cadmium	**0.314**	**J ^**	0.500	0.300	0.100	ug/L		08/13/14 00:40	2
Chromium	9.78	U	10.0	9.78	1.00	ug/L		08/13/14 00:40	2
Cobalt	0.660	U	2.00	0.660	0.217	ug/L		08/13/14 00:40	2
Copper	**1.78**	**J**	3.00	1.35	0.451	ug/L		08/13/14 00:40	2
Iron	50.0	U	50.0	50.0	20.4	ug/L		08/13/14 00:40	2
Lead	**0.394**	**J**	3.00	0.510	0.173	ug/L		08/13/14 00:40	2
Molybdenum	3.00	U	5.00	3.00	1.00	ug/L		08/13/14 00:40	2
Nickel	**0.702**	**J**	5.00	1.20	0.400	ug/L		08/13/14 00:40	2
Selenium	4.77	U ^	5.00	4.77	1.59	ug/L		08/13/14 00:40	2
Silver	1.00	U	2.00	1.00	0.817	ug/L		08/13/14 00:40	2
Thallium	1.65	U	2.00	1.65	0.550	ug/L		08/13/14 00:40	2
Vanadium	7.11	U	10.0	7.11	2.37	ug/L		08/13/14 00:40	2
Zinc	**15.4**	**B**	10.0	10.0	8.29	ug/L		08/13/14 00:40	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-8-UP-01
Date Collected: 08/04/14 08:22
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-1
Matrix: Solid
Percent Solids: 62.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.23	J	3.83	3.68	1.26	mg/Kg	☼	08/17/14 08:09	10
Arsenic	7.00	J	7.67	5.98	1.99	mg/Kg	☼	08/17/14 08:09	10
Barium	149	B	15.3	2.16	0.721	mg/Kg	☼	08/17/14 08:09	10
Beryllium	0.555	J	0.767	0.598	0.199	mg/Kg	☼	08/17/14 08:09	10
Cadmium	759		0.460	0.368	0.123	mg/Kg	☼	08/17/14 08:09	10
Chromium	714		14.6	7.67	3.45	mg/Kg	☼	08/17/14 08:09	10
Cobalt	10.4		1.53	0.989	0.330	mg/Kg	☼	08/17/14 08:09	10
Copper	216		7.67	2.30	0.774	mg/Kg	☼	08/19/14 06:15	10
Lead	225		2.30	2.30	0.767	mg/Kg	☼	08/17/14 08:09	10
Molybdenum	14.2		3.83	2.76	0.951	mg/Kg	☼	08/17/14 08:09	10
Nickel	233		3.83	2.53	0.820	mg/Kg	☼	08/17/14 08:09	10
Selenium	3.68	U	3.83	3.68	1.21	mg/Kg	☼	08/17/14 08:09	10
Silver	9.48	B	3.45	0.552	0.184	mg/Kg	☼	08/17/14 08:09	10
Thallium	1.53	U	7.67	1.53	1.17	mg/Kg	☼	08/17/14 08:09	10
Vanadium	13.9		7.67	7.67	5.64	mg/Kg	☼	08/17/14 08:09	10
Iron	11100		92.0	38.3	25.3	mg/Kg	☼	08/17/14 08:09	10
Zinc	1060		38.3	30.6	10.2	mg/Kg	☼	08/17/14 08:09	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-8-ND-02
Date Collected: 08/04/14 08:39
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-2
Matrix: Solid
Percent Solids: 50.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	4.70		4.65	4.46	1.53	mg/Kg	☼	08/17/14 08:43	10
Arsenic	12.9		9.30	7.25	2.42	mg/Kg	☼	08/17/14 08:43	10
Barium	294	B	18.6	2.62	0.874	mg/Kg	☼	08/17/14 08:43	10
Beryllium	0.951		0.930	0.725	0.242	mg/Kg	☼	08/17/14 08:43	10
Cadmium	1330		0.558	0.446	0.149	mg/Kg	☼	08/17/14 08:43	10
Chromium	1730		17.7	9.30	4.19	mg/Kg	☼	08/17/14 08:43	10
Cobalt	20.7		1.86	1.20	0.400	mg/Kg	☼	08/17/14 08:43	10
Copper	301		9.30	2.79	0.939	mg/Kg	☼	08/19/14 06:49	10
Lead	584		2.79	2.79	0.930	mg/Kg	☼	08/17/14 08:43	10
Molybdenum	30.2		4.65	3.35	1.15	mg/Kg	☼	08/17/14 08:43	10
Nickel	355		4.65	3.07	0.995	mg/Kg	☼	08/17/14 08:43	10
Selenium	4.46	U	4.65	4.46	1.47	mg/Kg	☼	08/17/14 08:43	10
Silver	14.4	B	4.19	0.670	0.223	mg/Kg	☼	08/17/14 08:43	10
Thallium	1.86	U	9.30	1.86	1.41	mg/Kg	☼	08/17/14 08:43	10
Vanadium	37.9		9.30	9.30	6.84	mg/Kg	☼	08/17/14 08:43	10
Iron	31200		112	46.5	30.7	mg/Kg	☼	08/17/14 08:43	10
Zinc	2370		46.5	37.1	12.4	mg/Kg	☼	08/17/14 08:43	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-09-01
Date Collected: 08/04/14 09:13
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-3
Matrix: Solid
Percent Solids: 31.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	9.92		7.41	7.11	2.43	mg/Kg	☼	08/17/14 08:50	10
Arsenic	20.4		14.8	11.6	3.85	mg/Kg	☼	08/17/14 08:50	10
Barium	713	B	29.6	4.18	1.39	mg/Kg	☼	08/17/14 08:50	10
Beryllium	1.68		1.48	1.16	0.385	mg/Kg	☼	08/17/14 08:50	10
Cadmium	878		0.889	0.711	0.237	mg/Kg	☼	08/17/14 08:50	10
Chromium	1750		28.2	14.8	6.67	mg/Kg	☼	08/17/14 08:50	10
Cobalt	48.0		2.96	1.91	0.637	mg/Kg	☼	08/17/14 08:50	10
Copper	465		14.8	4.44	1.50	mg/Kg	☼	08/19/14 06:55	10
Lead	632		4.44	4.44	1.48	mg/Kg	☼	08/17/14 08:50	10
Molybdenum	63.7		7.41	5.33	1.84	mg/Kg	☼	08/17/14 08:50	10
Nickel	1320		7.41	4.89	1.59	mg/Kg	☼	08/17/14 08:50	10
Selenium	7.11	U	7.41	7.11	2.34	mg/Kg	☼	08/17/14 08:50	10
Silver	43.6	B	6.67	1.07	0.356	mg/Kg	☼	08/17/14 08:50	10
Thallium	2.96	U	14.8	2.96	2.25	mg/Kg	☼	08/17/14 08:50	10
Vanadium	28.6		14.8	14.8	10.9	mg/Kg	☼	08/17/14 08:50	10
Iron	26300		178	74.1	48.9	mg/Kg	☼	08/17/14 08:50	10
Zinc	3340		74.1	59.1	19.7	mg/Kg	☼	08/17/14 08:50	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-09-02
Date Collected: 08/04/14 09:19
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-4
Matrix: Solid
Percent Solids: 35.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	18.5		6.19	5.94	2.03	mg/Kg	☼	08/17/14 08:56	10
Arsenic	21.4		12.4	9.65	3.22	mg/Kg	☼	08/17/14 08:56	10
Barium	1030	B	24.7	3.49	1.16	mg/Kg	☼	08/17/14 08:56	10
Beryllium	2.68		1.24	0.965	0.322	mg/Kg	☼	08/17/14 08:56	10
Cadmium	1470		0.742	0.594	0.198	mg/Kg	☼	08/17/14 08:56	10
Chromium	2540		23.5	12.4	5.57	mg/Kg	☼	08/17/14 08:56	10
Cobalt	56.2		2.47	1.60	0.532	mg/Kg	☼	08/17/14 08:56	10
Copper	597		12.4	3.71	1.25	mg/Kg	☼	08/19/14 07:02	10
Lead	918		3.71	3.71	1.24	mg/Kg	☼	08/17/14 08:56	10
Molybdenum	120		6.19	4.45	1.53	mg/Kg	☼	08/17/14 08:56	10
Nickel	1550		6.19	4.08	1.32	mg/Kg	☼	08/17/14 08:56	10
Selenium	2.30	J	6.19	5.94	1.95	mg/Kg	☼	08/17/14 08:56	10
Silver	59.9	B	5.57	0.891	0.297	mg/Kg	☼	08/17/14 08:56	10
Thallium	2.47	U	12.4	2.47	1.88	mg/Kg	☼	08/17/14 08:56	10
Vanadium	35.1		12.4	12.4	9.09	mg/Kg	☼	08/17/14 08:56	10
Iron	32600		148	61.9	40.8	mg/Kg	☼	08/17/14 08:56	10
Zinc	4480		61.9	49.4	16.5	mg/Kg	☼	08/17/14 08:56	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-14-01
Date Collected: 08/04/14 11:30
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-5
Matrix: Solid
Percent Solids: 38.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	8.41		6.26	6.00	2.05	mg/Kg	☼	08/17/14 09:16	10
Arsenic	21.2		12.5	9.76	3.25	mg/Kg	☼	08/17/14 09:16	10
Barium	522	B	25.0	3.53	1.18	mg/Kg	☼	08/17/14 09:16	10
Beryllium	1.07	J	1.25	0.976	0.325	mg/Kg	☼	08/17/14 09:16	10
Cadmium	1090		0.751	0.600	0.200	mg/Kg	☼	08/17/14 09:16	10
Chromium	1830		23.8	12.5	5.63	mg/Kg	☼	08/17/14 09:16	10
Cobalt	18.1		2.50	1.61	0.538	mg/Kg	☼	08/17/14 09:16	10
Copper	652		12.5	3.75	1.26	mg/Kg	☼	08/19/14 07:23	10
Lead	638		3.75	3.75	1.25	mg/Kg	☼	08/17/14 09:16	10
Molybdenum	45.0		6.26	4.50	1.55	mg/Kg	☼	08/17/14 09:16	10
Nickel	477		6.26	4.13	1.34	mg/Kg	☼	08/17/14 09:16	10
Selenium	6.00	U	6.26	6.00	1.98	mg/Kg	☼	08/17/14 09:16	10
Silver	29.1	B	5.63	0.901	0.300	mg/Kg	☼	08/17/14 09:16	10
Thallium	2.50	U	12.5	2.50	1.90	mg/Kg	☼	08/17/14 09:16	10
Vanadium	21.6		12.5	12.5	9.20	mg/Kg	☼	08/17/14 09:16	10
Iron	28500		150	62.6	41.3	mg/Kg	☼	08/17/14 09:16	10
Zinc	2270		62.6	49.9	16.6	mg/Kg	☼	08/17/14 09:16	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MH1-14-02
Date Collected: 08/04/14 11:40
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-6
Matrix: Solid
Percent Solids: 34.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	8.49		7.12	6.84	2.34	mg/Kg	☼	08/17/14 09:23	10
Arsenic	17.3		14.2	11.1	3.70	mg/Kg	☼	08/17/14 09:23	10
Barium	494	B	28.5	4.02	1.34	mg/Kg	☼	08/17/14 09:23	10
Beryllium	1.73		1.42	1.11	0.370	mg/Kg	☼	08/17/14 09:23	10
Cadmium	1890		0.855	0.684	0.228	mg/Kg	☼	08/17/14 09:23	10
Chromium	3780		27.1	14.2	6.41	mg/Kg	☼	08/17/14 09:23	10
Cobalt	24.6		2.85	1.84	0.613	mg/Kg	☼	08/17/14 09:23	10
Copper	1000		14.2	4.27	1.44	mg/Kg	☼	08/19/14 07:29	10
Lead	845		4.27	4.27	1.42	mg/Kg	☼	08/17/14 09:23	10
Molybdenum	76.8		7.12	5.13	1.77	mg/Kg	☼	08/17/14 09:23	10
Nickel	586		7.12	4.70	1.52	mg/Kg	☼	08/17/14 09:23	10
Selenium	6.84	U	7.12	6.84	2.25	mg/Kg	☼	08/17/14 09:23	10
Silver	42.5	B	6.41	1.03	0.342	mg/Kg	☼	08/17/14 09:23	10
Thallium	2.85	U	14.2	2.85	2.17	mg/Kg	☼	08/17/14 09:23	10
Vanadium	22.4		14.2	14.2	10.5	mg/Kg	☼	08/17/14 09:23	10
Iron	22800		171	71.2	47.0	mg/Kg	☼	08/17/14 09:23	10
Zinc	2480		71.2	56.8	18.9	mg/Kg	☼	08/17/14 09:23	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7470A - Mercury (CVAA)

Client Sample ID: IWL-RINSE-02
Date Collected: 08/04/14 13:00
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-7
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.150	U	0.180	0.150	0.0600	ug/L		08/12/14 15:09	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-8-UP-01
Date Collected: 08/04/14 08:22
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-1
Matrix: Solid
Percent Solids: 62.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.951		0.0578	0.0434	0.0159	mg/Kg	☼	08/13/14 17:47	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-8-ND-02
Date Collected: 08/04/14 08:39
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-2
Matrix: Solid
Percent Solids: 50.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.884		0.0688	0.0516	0.0189	mg/Kg	☼	08/13/14 17:49	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-09-01
Date Collected: 08/04/14 09:13
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-3
Matrix: Solid
Percent Solids: 31.4

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.34		0.117	0.0879	0.0322	mg/Kg	☼	08/13/14 17:52	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-09-02
Date Collected: 08/04/14 09:19
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-4
Matrix: Solid
Percent Solids: 35.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	2.47		0.102	0.0766	0.0281	mg/Kg	☼	08/13/14 17:54	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-14-01
Date Collected: 08/04/14 11:30
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-5
Matrix: Solid
Percent Solids: 38.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.88		0.100	0.0752	0.0276	mg/Kg	☼	08/13/14 17:56	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7757-1
SDG: 160-7757

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MH1-14-02
Date Collected: 08/04/14 11:40
Date Received: 08/05/14 09:25

Lab Sample ID: 160-7757-6
Matrix: Solid
Percent Solids: 34.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.59		0.114	0.0854	0.0313	mg/Kg	☼	08/13/14 17:58	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8006-1
TestAmerica Sample Delivery Group: 160-8006
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
9/8/2014 1:45:39 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC

Chain-of Custody Record

NUMBER: FZ02 - ~~1~~ COC 1010

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Diego Almanza/Wil Solorzano	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED: E 8260C (VOC); E 8270D (SVOCs); E 6020A/7471B (Metals /Hg)

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-BLDG29-SB1-01	8/18/2014	1000	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-BLDG29-SB1	10.5	11.5	N
IWL-BLDG29-SB1-02	8/18/2014	1015	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-BLDG29-SB1	9	10	N
IWL-BLDG29-SB2-01	8/18/2014	1115	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-BLDG29-SB2	9.5	10.5	N
IWL-BLDG29-SB2-02	8/18/2014	1120	4	4	S	10 dy	X	X	X					two-4 oz for voc, two- 8 oz for svoc/metals	IWL-BLDG29-SB2	7.5	8.5	MS
IWL-BLDG29-SB3-01	8/18/2014	1211	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-BLDG29-SB3	19	20	N
IWL-BLDG29-SB3-02	8/18/2014	1220	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-BLDG29-SB3	13	14	N
IWL-SB1-01	8/18/2014	1355	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-SB1-01	14	15	N
IWL-SB1-02	8/18/2014	1400	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-SB1-02	9	10	N
IWL-SB2-01	8/18/2014	1500	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-SB2-01	14	15	N
IWL-SB2-02	8/18/2014	1515	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	IWL-SB2-02	12	13	N

Relinquished by: (signature)	Date: 8/18/14	Received by (signature) 8.19.14 1015	Laboratory Instructions/Comments:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - ~~7~~ COC 1010

160-8006 Chain of Custody

TETRA TECH EC, INC

Chain-of Custody Record

NUMBER: FZ02 - 1011

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Diego Almanza/Wil Solorzano	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED

Laboratory Name: Test America St. Louis

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-RINSE-03	8/4/2014	1040	6	3	W	10 dy	X	X	X						EQUIPMENT BLK			EB

Relinquished by: (signature)	Date: 8/18/14	Received by (signature)	Laboratory Instructions/Comments:
Company:	Time:	Company: Astrolin	
Relinquished by: (signature)	Date:	Received by (signature)	Composite Discription:
Company:	Time:	Company:	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1011

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-1
Matrix: Solid
Percent Solids: 90.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**9.28**	**J**	22.2	11.1	7.19	ug/Kg	☼	08/20/14 03:59	1
Benzene	1.11	U	5.55	1.11	0.281	ug/Kg	☼	08/20/14 03:59	1
Bromodichloromethane	1.11	U	5.55	1.11	0.282	ug/Kg	☼	08/20/14 03:59	1
Bromoform	1.11	U	5.55	1.11	0.407	ug/Kg	☼	08/20/14 03:59	1
Bromomethane	5.55	U	11.1	5.55	1.22	ug/Kg	☼	08/20/14 03:59	1
2-Butanone (MEK)	5.55	U	22.2	5.55	2.13	ug/Kg	☼	08/20/14 03:59	1
Carbon tetrachloride	1.11	U	5.55	1.11	0.570	ug/Kg	☼	08/20/14 03:59	1
Chlorobenzene	1.11	U	5.55	1.11	0.424	ug/Kg	☼	08/20/14 03:59	1
Dibromochloromethane	1.11	U	5.55	1.11	0.451	ug/Kg	☼	08/20/14 03:59	1
Chloroethane	1.11	U	11.1	1.11	0.573	ug/Kg	☼	08/20/14 03:59	1
Chloroform	1.11	U	5.55	1.11	0.418	ug/Kg	☼	08/20/14 03:59	1
Chloromethane	5.55	U	11.1	5.55	0.722	ug/Kg	☼	08/20/14 03:59	1
1,1-Dichloroethane	1.11	U	5.55	1.11	0.435	ug/Kg	☼	08/20/14 03:59	1
1,2-Dichloroethane	1.11	U	5.55	1.11	0.963	ug/Kg	☼	08/20/14 03:59	1
cis-1,2-Dichloroethene	1.11	U	5.55	1.11	0.663	ug/Kg	☼	08/20/14 03:59	1
trans-1,2-Dichloroethene	1.11	U	5.55	1.11	1.05	ug/Kg	☼	08/20/14 03:59	1
1,1-Dichloroethene	5.55	U	5.55	5.55	1.79	ug/Kg	☼	08/20/14 03:59	1
1,2-Dichloropropane	1.11	U	5.55	1.11	0.425	ug/Kg	☼	08/20/14 03:59	1
cis-1,3-Dichloropropene	1.11	U	5.55	1.11	0.661	ug/Kg	☼	08/20/14 03:59	1
trans-1,3-Dichloropropene	1.11	U	5.55	1.11	0.388	ug/Kg	☼	08/20/14 03:59	1
Ethylbenzene	1.11	U	5.55	1.11	0.332	ug/Kg	☼	08/20/14 03:59	1
2-Hexanone	5.55	U	11.1	5.55	1.97	ug/Kg	☼	08/20/14 03:59	1
Methylene Chloride	5.55	U	11.1	5.55	1.75	ug/Kg	☼	08/20/14 03:59	1
4-Methyl-2-pentanone (MIBK)	5.55	U	22.2	5.55	0.813	ug/Kg	☼	08/20/14 03:59	1
Methyl tert-butyl ether	1.11	U	5.55	1.11	0.529	ug/Kg	☼	08/20/14 03:59	1
Styrene	1.11	U	5.55	1.11	0.385	ug/Kg	☼	08/20/14 03:59	1
1,1,2,2-Tetrachloroethane	1.11	U	5.55	1.11	0.445	ug/Kg	☼	08/20/14 03:59	1
Tetrachloroethene	1.11	U	5.55	1.11	0.358	ug/Kg	☼	08/20/14 03:59	1
Toluene	1.11	U	5.55	1.11	0.777	ug/Kg	☼	08/20/14 03:59	1
1,1,1-Trichloroethane	1.11	U	5.55	1.11	0.479	ug/Kg	☼	08/20/14 03:59	1
1,1,2-Trichloroethane	1.11	U	5.55	1.11	0.636	ug/Kg	☼	08/20/14 03:59	1
Trichloroethene	1.11	U	5.55	1.11	0.428	ug/Kg	☼	08/20/14 03:59	1
Vinyl chloride	1.11	U	11.1	1.11	0.475	ug/Kg	☼	08/20/14 03:59	1
Xylenes, Total	5.55	U	11.1	5.55	0.949	ug/Kg	☼	08/20/14 03:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*121*	*X*	*85 - 120*	*08/19/14 20:00*	*08/20/14 03:59*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 128*	*08/19/14 20:00*	*08/20/14 03:59*	*1*
Toluene-d8 (Surr)	*99*		*85 - 115*	*08/19/14 20:00*	*08/20/14 03:59*	*1*
Dibromofluoromethane (Surr)	*90*		*76 - 126*	*08/19/14 20:00*	*08/20/14 03:59*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	10.8	U	21.5	10.8	6.96	ug/Kg	☼	08/20/14 00:40	1
Benzene	1.08	U	5.38	1.08	0.272	ug/Kg	☼	08/20/14 00:40	1
Bromodichloromethane	1.08	U	5.38	1.08	0.273	ug/Kg	☼	08/20/14 00:40	1
Bromoform	1.08	U	5.38	1.08	0.394	ug/Kg	☼	08/20/14 00:40	1
Bromomethane	5.38	U	10.8	5.38	1.18	ug/Kg	☼	08/20/14 00:40	1
2-Butanone (MEK)	5.38	U	21.5	5.38	2.07	ug/Kg	☼	08/20/14 00:40	1
Carbon tetrachloride	1.08	U	5.38	1.08	0.552	ug/Kg	☼	08/20/14 00:40	1
Chlorobenzene	1.08	U	5.38	1.08	0.411	ug/Kg	☼	08/20/14 00:40	1
Dibromochloromethane	1.08	U	5.38	1.08	0.437	ug/Kg	☼	08/20/14 00:40	1
Chloroethane	1.08	U	10.8	1.08	0.555	ug/Kg	☼	08/20/14 00:40	1
Chloroform	1.08	U	5.38	1.08	0.405	ug/Kg	☼	08/20/14 00:40	1
Chloromethane	5.38	U	10.8	5.38	0.699	ug/Kg	☼	08/20/14 00:40	1
1,1-Dichloroethane	1.08	U	5.38	1.08	0.422	ug/Kg	☼	08/20/14 00:40	1
1,2-Dichloroethane	1.08	U	5.38	1.08	0.933	ug/Kg	☼	08/20/14 00:40	1
cis-1,2-Dichloroethene	1.08	U	5.38	1.08	0.642	ug/Kg	☼	08/20/14 00:40	1
trans-1,2-Dichloroethene	1.08	U	5.38	1.08	1.01	ug/Kg	☼	08/20/14 00:40	1
1,1-Dichloroethene	5.38	U	5.38	5.38	1.73	ug/Kg	☼	08/20/14 00:40	1
1,2-Dichloropropane	1.08	U	5.38	1.08	0.412	ug/Kg	☼	08/20/14 00:40	1
cis-1,3-Dichloropropene	1.08	U	5.38	1.08	0.640	ug/Kg	☼	08/20/14 00:40	1
trans-1,3-Dichloropropene	1.08	U	5.38	1.08	0.376	ug/Kg	☼	08/20/14 00:40	1
Ethylbenzene	1.08	U	5.38	1.08	0.322	ug/Kg	☼	08/20/14 00:40	1
2-Hexanone	5.38	U	10.8	5.38	1.90	ug/Kg	☼	08/20/14 00:40	1
Methylene Chloride	5.38	U	10.8	5.38	1.70	ug/Kg	☼	08/20/14 00:40	1
4-Methyl-2-pentanone (MIBK)	5.38	U	21.5	5.38	0.788	ug/Kg	☼	08/20/14 00:40	1
Methyl tert-butyl ether	1.08	U	5.38	1.08	0.512	ug/Kg	☼	08/20/14 00:40	1
Styrene	1.08	U	5.38	1.08	0.373	ug/Kg	☼	08/20/14 00:40	1
1,1,2,2-Tetrachloroethane	1.08	U	5.38	1.08	0.432	ug/Kg	☼	08/20/14 00:40	1
Tetrachloroethene	1.08	U	5.38	1.08	0.346	ug/Kg	☼	08/20/14 00:40	1
Toluene	1.08	U	5.38	1.08	0.753	ug/Kg	☼	08/20/14 00:40	1
1,1,1-Trichloroethane	1.08	U	5.38	1.08	0.464	ug/Kg	☼	08/20/14 00:40	1
1,1,2-Trichloroethane	1.08	U	5.38	1.08	0.617	ug/Kg	☼	08/20/14 00:40	1
Trichloroethene	1.08	U	5.38	1.08	0.414	ug/Kg	☼	08/20/14 00:40	1
Vinyl chloride	1.08	U	10.8	1.08	0.461	ug/Kg	☼	08/20/14 00:40	1
Xylenes, Total	5.38	U	10.8	5.38	0.919	ug/Kg	☼	08/20/14 00:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*85 - 120*	*08/19/14 20:00*	*08/20/14 00:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*71 - 128*	*08/19/14 20:00*	*08/20/14 00:40*	*1*
Toluene-d8 (Surr)	*101*		*85 - 115*	*08/19/14 20:00*	*08/20/14 00:40*	*1*
Dibromofluoromethane (Surr)	*98*		*76 - 126*	*08/19/14 20:00*	*08/20/14 00:40*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-3
Matrix: Solid
Percent Solids: 85.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	11.7	U	23.4	11.7	7.58	ug/Kg	☼	08/20/14 01:05	1
Benzene	1.17	U	5.85	1.17	0.296	ug/Kg	☼	08/20/14 01:05	1
Bromodichloromethane	1.17	U	5.85	1.17	0.297	ug/Kg	☼	08/20/14 01:05	1
Bromoform	1.17	U	5.85	1.17	0.429	ug/Kg	☼	08/20/14 01:05	1
Bromomethane	5.85	U	11.7	5.85	1.29	ug/Kg	☼	08/20/14 01:05	1
2-Butanone (MEK)	5.85	U	23.4	5.85	2.25	ug/Kg	☼	08/20/14 01:05	1
Carbon tetrachloride	1.17	U	5.85	1.17	0.601	ug/Kg	☼	08/20/14 01:05	1
Chlorobenzene	1.17	U	5.85	1.17	0.447	ug/Kg	☼	08/20/14 01:05	1
Dibromochloromethane	1.17	U	5.85	1.17	0.475	ug/Kg	☼	08/20/14 01:05	1
Chloroethane	1.17	U	11.7	1.17	0.604	ug/Kg	☼	08/20/14 01:05	1
Chloroform	1.17	U	5.85	1.17	0.440	ug/Kg	☼	08/20/14 01:05	1
Chloromethane	5.85	U	11.7	5.85	0.761	ug/Kg	☼	08/20/14 01:05	1
1,1-Dichloroethane	1.17	U	5.85	1.17	0.459	ug/Kg	☼	08/20/14 01:05	1
1,2-Dichloroethane	1.17	U	5.85	1.17	1.02	ug/Kg	☼	08/20/14 01:05	1
cis-1,2-Dichloroethene	1.17	U	5.85	1.17	0.699	ug/Kg	☼	08/20/14 01:05	1
trans-1,2-Dichloroethene	1.17	U	5.85	1.17	1.10	ug/Kg	☼	08/20/14 01:05	1
1,1-Dichloroethene	5.85	U	5.85	5.85	1.89	ug/Kg	☼	08/20/14 01:05	1
1,2-Dichloropropane	1.17	U	5.85	1.17	0.448	ug/Kg	☼	08/20/14 01:05	1
cis-1,3-Dichloropropene	1.17	U	5.85	1.17	0.697	ug/Kg	☼	08/20/14 01:05	1
trans-1,3-Dichloropropene	1.17	U	5.85	1.17	0.409	ug/Kg	☼	08/20/14 01:05	1
Ethylbenzene	1.17	U	5.85	1.17	0.350	ug/Kg	☼	08/20/14 01:05	1
2-Hexanone	5.85	U	11.7	5.85	2.07	ug/Kg	☼	08/20/14 01:05	1
Methylene Chloride	5.85	U	11.7	5.85	1.85	ug/Kg	☼	08/20/14 01:05	1
4-Methyl-2-pentanone (MIBK)	5.85	U	23.4	5.85	0.857	ug/Kg	☼	08/20/14 01:05	1
Methyl tert-butyl ether	1.17	U	5.85	1.17	0.557	ug/Kg	☼	08/20/14 01:05	1
Styrene	1.17	U	5.85	1.17	0.406	ug/Kg	☼	08/20/14 01:05	1
1,1,2,2-Tetrachloroethane	1.17	U	5.85	1.17	0.470	ug/Kg	☼	08/20/14 01:05	1
Tetrachloroethene	1.17	U	5.85	1.17	0.377	ug/Kg	☼	08/20/14 01:05	1
Toluene	1.17	U	5.85	1.17	0.820	ug/Kg	☼	08/20/14 01:05	1
1,1,1-Trichloroethane	1.17	U	5.85	1.17	0.505	ug/Kg	☼	08/20/14 01:05	1
1,1,2-Trichloroethane	1.17	U	5.85	1.17	0.671	ug/Kg	☼	08/20/14 01:05	1
Trichloroethene	1.17	U	5.85	1.17	0.451	ug/Kg	☼	08/20/14 01:05	1
Vinyl chloride	1.17	U	11.7	1.17	0.501	ug/Kg	☼	08/20/14 01:05	1
Xylenes, Total	5.85	U	11.7	5.85	1.00	ug/Kg	☼	08/20/14 01:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*85 - 120*	*08/19/14 20:00*	*08/20/14 01:05*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 128*	*08/19/14 20:00*	*08/20/14 01:05*	*1*
Toluene-d8 (Surr)	*100*		*85 - 115*	*08/19/14 20:00*	*08/20/14 01:05*	*1*
Dibromofluoromethane (Surr)	*58*	*X*	*76 - 126*	*08/19/14 20:00*	*08/20/14 01:05*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-4
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	10.9	U	21.9	10.9	7.08	ug/Kg	☼	08/19/14 23:00	1
Benzene	1.09	U	5.47	1.09	0.277	ug/Kg	☼	08/19/14 23:00	1
Bromodichloromethane	1.09	U	5.47	1.09	0.278	ug/Kg	☼	08/19/14 23:00	1
Bromoform	1.09	U	5.47	1.09	0.400	ug/Kg	☼	08/19/14 23:00	1
Bromomethane	5.47	U	10.9	5.47	1.20	ug/Kg	☼	08/19/14 23:00	1
2-Butanone (MEK)	5.47	U	21.9	5.47	2.10	ug/Kg	☼	08/19/14 23:00	1
Carbon tetrachloride	1.09	U	5.47	1.09	0.561	ug/Kg	☼	08/19/14 23:00	1
Chlorobenzene	1.09	U	5.47	1.09	0.418	ug/Kg	☼	08/19/14 23:00	1
Dibromochloromethane	1.09	U	5.47	1.09	0.444	ug/Kg	☼	08/19/14 23:00	1
Chloroethane	1.09	U	10.9	1.09	0.564	ug/Kg	☼	08/19/14 23:00	1
Chloroform	1.09	U	5.47	1.09	0.411	ug/Kg	☼	08/19/14 23:00	1
Chloromethane	5.47	U	10.9	5.47	0.711	ug/Kg	☼	08/19/14 23:00	1
1,1-Dichloroethane	1.09	U	5.47	1.09	0.429	ug/Kg	☼	08/19/14 23:00	1
1,2-Dichloroethane	1.09	U	5.47	1.09	0.948	ug/Kg	☼	08/19/14 23:00	1
cis-1,2-Dichloroethene	1.09	U	5.47	1.09	0.653	ug/Kg	☼	08/19/14 23:00	1
trans-1,2-Dichloroethene	1.09	U	5.47	1.09	1.03	ug/Kg	☼	08/19/14 23:00	1
1,1-Dichloroethene	5.47	U	5.47	5.47	1.76	ug/Kg	☼	08/19/14 23:00	1
1,2-Dichloropropane	1.09	U	5.47	1.09	0.419	ug/Kg	☼	08/19/14 23:00	1
cis-1,3-Dichloropropene	1.09	U	5.47	1.09	0.651	ug/Kg	☼	08/19/14 23:00	1
trans-1,3-Dichloropropene	1.09	U	5.47	1.09	0.382	ug/Kg	☼	08/19/14 23:00	1
Ethylbenzene	1.09	U	5.47	1.09	0.327	ug/Kg	☼	08/19/14 23:00	1
2-Hexanone	5.47	U	10.9	5.47	1.94	ug/Kg	☼	08/19/14 23:00	1
Methylene Chloride	5.47	U	10.9	5.47	1.73	ug/Kg	☼	08/19/14 23:00	1
4-Methyl-2-pentanone (MIBK)	5.47	U	21.9	5.47	0.801	ug/Kg	☼	08/19/14 23:00	1
Methyl tert-butyl ether	1.09	U	5.47	1.09	0.521	ug/Kg	☼	08/19/14 23:00	1
Styrene	1.09	U	5.47	1.09	0.380	ug/Kg	☼	08/19/14 23:00	1
1,1,2,2-Tetrachloroethane	1.09	U	5.47	1.09	0.439	ug/Kg	☼	08/19/14 23:00	1
Tetrachloroethene	1.09	U	5.47	1.09	0.352	ug/Kg	☼	08/19/14 23:00	1
Toluene	1.09	U	5.47	1.09	0.766	ug/Kg	☼	08/19/14 23:00	1
1,1,1-Trichloroethane	1.09	U	5.47	1.09	0.471	ug/Kg	☼	08/19/14 23:00	1
1,1,2-Trichloroethane	1.09	U	5.47	1.09	0.627	ug/Kg	☼	08/19/14 23:00	1
Trichloroethene	1.09	U	5.47	1.09	0.421	ug/Kg	☼	08/19/14 23:00	1
Vinyl chloride	1.09	U	10.9	1.09	0.468	ug/Kg	☼	08/19/14 23:00	1
Xylenes, Total	5.47	U	10.9	5.47	0.934	ug/Kg	☼	08/19/14 23:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*85 - 120*	*08/19/14 20:00*	*08/19/14 23:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*71 - 128*	*08/19/14 20:00*	*08/19/14 23:00*	*1*
Toluene-d8 (Surr)	*102*		*85 - 115*	*08/19/14 20:00*	*08/19/14 23:00*	*1*
Dibromofluoromethane (Surr)	*99*		*76 - 126*	*08/19/14 20:00*	*08/19/14 23:00*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-5
Matrix: Solid
Percent Solids: 83.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	11.9	U	23.9	11.9	7.73	ug/Kg	☼	08/20/14 01:30	1
Benzene	1.19	U	5.97	1.19	0.302	ug/Kg	☼	08/20/14 01:30	1
Bromodichloromethane	1.19	U	5.97	1.19	0.304	ug/Kg	☼	08/20/14 01:30	1
Bromoform	1.19	U	5.97	1.19	0.437	ug/Kg	☼	08/20/14 01:30	1
Bromomethane	5.97	U	11.9	5.97	1.31	ug/Kg	☼	08/20/14 01:30	1
2-Butanone (MEK)	5.97	U	23.9	5.97	2.29	ug/Kg	☼	08/20/14 01:30	1
Carbon tetrachloride	1.19	U	5.97	1.19	0.613	ug/Kg	☼	08/20/14 01:30	1
Chlorobenzene	1.19	U	5.97	1.19	0.456	ug/Kg	☼	08/20/14 01:30	1
Dibromochloromethane	1.19	U	5.97	1.19	0.485	ug/Kg	☼	08/20/14 01:30	1
Chloroethane	1.19	U	11.9	1.19	0.617	ug/Kg	☼	08/20/14 01:30	1
Chloroform	1.19	U	5.97	1.19	0.449	ug/Kg	☼	08/20/14 01:30	1
Chloromethane	5.97	U	11.9	5.97	0.777	ug/Kg	☼	08/20/14 01:30	1
1,1-Dichloroethane	1.19	U	5.97	1.19	0.468	ug/Kg	☼	08/20/14 01:30	1
1,2-Dichloroethane	1.19	U	5.97	1.19	1.04	ug/Kg	☼	08/20/14 01:30	1
cis-1,2-Dichloroethene	1.19	U	5.97	1.19	0.713	ug/Kg	☼	08/20/14 01:30	1
trans-1,2-Dichloroethene	1.19	U	5.97	1.19	1.13	ug/Kg	☼	08/20/14 01:30	1
1,1-Dichloroethene	5.97	U	5.97	5.97	1.92	ug/Kg	☼	08/20/14 01:30	1
1,2-Dichloropropane	1.19	U	5.97	1.19	0.458	ug/Kg	☼	08/20/14 01:30	1
cis-1,3-Dichloropropene	1.19	U	5.97	1.19	0.711	ug/Kg	☼	08/20/14 01:30	1
trans-1,3-Dichloropropene	1.19	U	5.97	1.19	0.417	ug/Kg	☼	08/20/14 01:30	1
Ethylbenzene	1.19	U	5.97	1.19	0.357	ug/Kg	☼	08/20/14 01:30	1
2-Hexanone	5.97	U	11.9	5.97	2.12	ug/Kg	☼	08/20/14 01:30	1
Methylene Chloride	5.97	U	11.9	5.97	1.89	ug/Kg	☼	08/20/14 01:30	1
4-Methyl-2-pentanone (MIBK)	5.97	U	23.9	5.97	0.875	ug/Kg	☼	08/20/14 01:30	1
Methyl tert-butyl ether	1.19	U	5.97	1.19	0.569	ug/Kg	☼	08/20/14 01:30	1
Styrene	1.19	U	5.97	1.19	0.415	ug/Kg	☼	08/20/14 01:30	1
1,1,2,2-Tetrachloroethane	1.19	U	5.97	1.19	0.479	ug/Kg	☼	08/20/14 01:30	1
Tetrachloroethene	1.19	U	5.97	1.19	0.385	ug/Kg	☼	08/20/14 01:30	1
Toluene	1.19	U	5.97	1.19	0.836	ug/Kg	☼	08/20/14 01:30	1
1,1,1-Trichloroethane	1.19	U	5.97	1.19	0.515	ug/Kg	☼	08/20/14 01:30	1
1,1,2-Trichloroethane	1.19	U	5.97	1.19	0.685	ug/Kg	☼	08/20/14 01:30	1
Trichloroethene	1.19	U	5.97	1.19	0.460	ug/Kg	☼	08/20/14 01:30	1
Vinyl chloride	1.19	U	11.9	1.19	0.511	ug/Kg	☼	08/20/14 01:30	1
Xylenes, Total	5.97	U	11.9	5.97	1.02	ug/Kg	☼	08/20/14 01:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*85 - 120*	*08/19/14 20:00*	*08/20/14 01:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 128*	*08/19/14 20:00*	*08/20/14 01:30*	*1*
Toluene-d8 (Surr)	*98*		*85 - 115*	*08/19/14 20:00*	*08/20/14 01:30*	*1*
Dibromofluoromethane (Surr)	*32*	*X*	*76 - 126*	*08/19/14 20:00*	*08/20/14 01:30*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-6
Matrix: Solid
Percent Solids: 85.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	11.6	U	23.3	11.6	7.54	ug/Kg	☼	08/20/14 01:55	1
Benzene	1.16	U	5.82	1.16	0.295	ug/Kg	☼	08/20/14 01:55	1
Bromodichloromethane	1.16	U	5.82	1.16	0.296	ug/Kg	☼	08/20/14 01:55	1
Bromoform	1.16	U	5.82	1.16	0.426	ug/Kg	☼	08/20/14 01:55	1
Bromomethane	5.82	U	11.6	5.82	1.28	ug/Kg	☼	08/20/14 01:55	1
2-Butanone (MEK)	5.82	U	23.3	5.82	2.24	ug/Kg	☼	08/20/14 01:55	1
Carbon tetrachloride	1.16	U	5.82	1.16	0.598	ug/Kg	☼	08/20/14 01:55	1
Chlorobenzene	1.16	U	5.82	1.16	0.445	ug/Kg	☼	08/20/14 01:55	1
Dibromochloromethane	1.16	U	5.82	1.16	0.473	ug/Kg	☼	08/20/14 01:55	1
Chloroethane	1.16	U	11.6	1.16	0.601	ug/Kg	☼	08/20/14 01:55	1
Chloroform	1.16	U	5.82	1.16	0.438	ug/Kg	☼	08/20/14 01:55	1
Chloromethane	5.82	U	11.6	5.82	0.757	ug/Kg	☼	08/20/14 01:55	1
1,1-Dichloroethane	1.16	U	5.82	1.16	0.457	ug/Kg	☼	08/20/14 01:55	1
1,2-Dichloroethane	1.16	U	5.82	1.16	1.01	ug/Kg	☼	08/20/14 01:55	1
cis-1,2-Dichloroethene	1.16	U	5.82	1.16	0.695	ug/Kg	☼	08/20/14 01:55	1
trans-1,2-Dichloroethene	1.16	U	5.82	1.16	1.10	ug/Kg	☼	08/20/14 01:55	1
1,1-Dichloroethene	5.82	U	5.82	5.82	1.88	ug/Kg	☼	08/20/14 01:55	1
1,2-Dichloropropane	1.16	U	5.82	1.16	0.446	ug/Kg	☼	08/20/14 01:55	1
cis-1,3-Dichloropropene	1.16	U	5.82	1.16	0.693	ug/Kg	☼	08/20/14 01:55	1
trans-1,3-Dichloropropene	1.16	U	5.82	1.16	0.407	ug/Kg	☼	08/20/14 01:55	1
Ethylbenzene	1.16	U	5.82	1.16	0.348	ug/Kg	☼	08/20/14 01:55	1
2-Hexanone	5.82	U	11.6	5.82	2.06	ug/Kg	☼	08/20/14 01:55	1
Methylene Chloride	5.82	U	11.6	5.82	1.84	ug/Kg	☼	08/20/14 01:55	1
4-Methyl-2-pentanone (MIBK)	5.82	U	23.3	5.82	0.853	ug/Kg	☼	08/20/14 01:55	1
Methyl tert-butyl ether	1.16	U	5.82	1.16	0.554	ug/Kg	☼	08/20/14 01:55	1
Styrene	1.16	U	5.82	1.16	0.404	ug/Kg	☼	08/20/14 01:55	1
1,1,2,2-Tetrachloroethane	1.16	U	5.82	1.16	0.467	ug/Kg	☼	08/20/14 01:55	1
Tetrachloroethene	1.16	U	5.82	1.16	0.375	ug/Kg	☼	08/20/14 01:55	1
Toluene	1.16	U	5.82	1.16	0.815	ug/Kg	☼	08/20/14 01:55	1
1,1,1-Trichloroethane	1.16	U	5.82	1.16	0.502	ug/Kg	☼	08/20/14 01:55	1
1,1,2-Trichloroethane	1.16	U	5.82	1.16	0.667	ug/Kg	☼	08/20/14 01:55	1
Trichloroethene	1.16	U	5.82	1.16	0.448	ug/Kg	☼	08/20/14 01:55	1
Vinyl chloride	1.16	U	11.6	1.16	0.499	ug/Kg	☼	08/20/14 01:55	1
Xylenes, Total	5.82	U	11.6	5.82	0.995	ug/Kg	☼	08/20/14 01:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*85 - 120*	*08/19/14 20:00*	*08/20/14 01:55*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*71 - 128*	*08/19/14 20:00*	*08/20/14 01:55*	*1*
Toluene-d8 (Surr)	*102*		*85 - 115*	*08/19/14 20:00*	*08/20/14 01:55*	*1*
Dibromofluoromethane (Surr)	*88*		*76 - 126*	*08/19/14 20:00*	*08/20/14 01:55*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-7
Matrix: Solid
Percent Solids: 62.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**20.2**	**J**	31.8	15.9	10.3	ug/Kg	☼	08/20/14 02:20	1
Benzene	1.59	U	7.95	1.59	0.402	ug/Kg	☼	08/20/14 02:20	1
Bromodichloromethane	1.59	U	7.95	1.59	0.404	ug/Kg	☼	08/20/14 02:20	1
Bromoform	1.59	U	7.95	1.59	0.582	ug/Kg	☼	08/20/14 02:20	1
Bromomethane	7.95	U	15.9	7.95	1.75	ug/Kg	☼	08/20/14 02:20	1
2-Butanone (MEK)	7.95	U	31.8	7.95	3.05	ug/Kg	☼	08/20/14 02:20	1
Carbon tetrachloride	1.59	U	7.95	1.59	0.816	ug/Kg	☼	08/20/14 02:20	1
Chlorobenzene	**10.4**		7.95	1.59	0.608	ug/Kg	☼	08/20/14 02:20	1
Dibromochloromethane	1.59	U	7.95	1.59	0.646	ug/Kg	☼	08/20/14 02:20	1
Chloroethane	1.59	U	15.9	1.59	0.821	ug/Kg	☼	08/20/14 02:20	1
Chloroform	1.59	U	7.95	1.59	0.598	ug/Kg	☼	08/20/14 02:20	1
Chloromethane	7.95	U	15.9	7.95	1.03	ug/Kg	☼	08/20/14 02:20	1
1,1-Dichloroethane	1.59	U	7.95	1.59	0.624	ug/Kg	☼	08/20/14 02:20	1
1,2-Dichloroethane	1.59	U	7.95	1.59	1.38	ug/Kg	☼	08/20/14 02:20	1
cis-1,2-Dichloroethene	1.59	U	7.95	1.59	0.950	ug/Kg	☼	08/20/14 02:20	1
trans-1,2-Dichloroethene	1.59	U	7.95	1.59	1.50	ug/Kg	☼	08/20/14 02:20	1
1,1-Dichloroethene	7.95	U	7.95	7.95	2.56	ug/Kg	☼	08/20/14 02:20	1
1,2-Dichloropropane	1.59	U	7.95	1.59	0.609	ug/Kg	☼	08/20/14 02:20	1
cis-1,3-Dichloropropene	1.59	U	7.95	1.59	0.947	ug/Kg	☼	08/20/14 02:20	1
trans-1,3-Dichloropropene	1.59	U	7.95	1.59	0.555	ug/Kg	☼	08/20/14 02:20	1
Ethylbenzene	**1.49**	**J**	7.95	1.59	0.476	ug/Kg	☼	08/20/14 02:20	1
2-Hexanone	7.95	U	15.9	7.95	2.82	ug/Kg	☼	08/20/14 02:20	1
Methylene Chloride	7.95	U	15.9	7.95	2.51	ug/Kg	☼	08/20/14 02:20	1
4-Methyl-2-pentanone (MIBK)	7.95	U	31.8	7.95	1.16	ug/Kg	☼	08/20/14 02:20	1
Methyl tert-butyl ether	1.59	U	7.95	1.59	0.757	ug/Kg	☼	08/20/14 02:20	1
Styrene	1.59	U	7.95	1.59	0.552	ug/Kg	☼	08/20/14 02:20	1
1,1,2,2-Tetrachloroethane	1.59	U	7.95	1.59	0.638	ug/Kg	☼	08/20/14 02:20	1
Tetrachloroethene	1.59	U	7.95	1.59	0.512	ug/Kg	☼	08/20/14 02:20	1
Toluene	1.59	U	7.95	1.59	1.11	ug/Kg	☼	08/20/14 02:20	1
1,1,1-Trichloroethane	1.59	U	7.95	1.59	0.686	ug/Kg	☼	08/20/14 02:20	1
1,1,2-Trichloroethane	1.59	U	7.95	1.59	0.912	ug/Kg	☼	08/20/14 02:20	1
Trichloroethene	1.59	U	7.95	1.59	0.612	ug/Kg	☼	08/20/14 02:20	1
Vinyl chloride	1.59	U	15.9	1.59	0.681	ug/Kg	☼	08/20/14 02:20	1
Xylenes, Total	7.95	U	15.9	7.95	1.36	ug/Kg	☼	08/20/14 02:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*85 - 120*	*08/19/14 20:00*	*08/20/14 02:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*71 - 128*	*08/19/14 20:00*	*08/20/14 02:20*	*1*
Toluene-d8 (Surr)	*100*		*85 - 115*	*08/19/14 20:00*	*08/20/14 02:20*	*1*
Dibromofluoromethane (Surr)	*94*		*76 - 126*	*08/19/14 20:00*	*08/20/14 02:20*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-8
Matrix: Solid
Percent Solids: 84.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	11.9	U	23.8	11.9	7.70	ug/Kg	☼	08/20/14 02:45	1
Benzene	1.19	U	5.95	1.19	0.301	ug/Kg	☼	08/20/14 02:45	1
Bromodichloromethane	1.19	U	5.95	1.19	0.302	ug/Kg	☼	08/20/14 02:45	1
Bromoform	1.19	U	5.95	1.19	0.436	ug/Kg	☼	08/20/14 02:45	1
Bromomethane	5.95	U	11.9	5.95	1.31	ug/Kg	☼	08/20/14 02:45	1
2-Butanone (MEK)	5.95	U	23.8	5.95	2.29	ug/Kg	☼	08/20/14 02:45	1
Carbon tetrachloride	1.19	U	5.95	1.19	0.611	ug/Kg	☼	08/20/14 02:45	1
Chlorobenzene	1.19	U	5.95	1.19	0.455	ug/Kg	☼	08/20/14 02:45	1
Dibromochloromethane	1.19	U	5.95	1.19	0.483	ug/Kg	☼	08/20/14 02:45	1
Chloroethane	1.19	U	11.9	1.19	0.614	ug/Kg	☼	08/20/14 02:45	1
Chloroform	1.19	U	5.95	1.19	0.448	ug/Kg	☼	08/20/14 02:45	1
Chloromethane	5.95	U	11.9	5.95	0.774	ug/Kg	☼	08/20/14 02:45	1
1,1-Dichloroethane	1.19	U	5.95	1.19	0.467	ug/Kg	☼	08/20/14 02:45	1
1,2-Dichloroethane	1.19	U	5.95	1.19	1.03	ug/Kg	☼	08/20/14 02:45	1
cis-1,2-Dichloroethene	1.19	U	5.95	1.19	0.711	ug/Kg	☼	08/20/14 02:45	1
trans-1,2-Dichloroethene	1.19	U	5.95	1.19	1.12	ug/Kg	☼	08/20/14 02:45	1
1,1-Dichloroethene	5.95	U	5.95	5.95	1.92	ug/Kg	☼	08/20/14 02:45	1
1,2-Dichloropropane	1.19	U	5.95	1.19	0.456	ug/Kg	☼	08/20/14 02:45	1
cis-1,3-Dichloropropene	1.19	U	5.95	1.19	0.708	ug/Kg	☼	08/20/14 02:45	1
trans-1,3-Dichloropropene	1.19	U	5.95	1.19	0.415	ug/Kg	☼	08/20/14 02:45	1
Ethylbenzene	1.19	U	5.95	1.19	0.356	ug/Kg	☼	08/20/14 02:45	1
2-Hexanone	5.95	U	11.9	5.95	2.11	ug/Kg	☼	08/20/14 02:45	1
Methylene Chloride	5.95	U	11.9	5.95	1.88	ug/Kg	☼	08/20/14 02:45	1
4-Methyl-2-pentanone (MIBK)	5.95	U	23.8	5.95	0.871	ug/Kg	☼	08/20/14 02:45	1
Methyl tert-butyl ether	1.19	U	5.95	1.19	0.567	ug/Kg	☼	08/20/14 02:45	1
Styrene	1.19	U	5.95	1.19	0.413	ug/Kg	☼	08/20/14 02:45	1
1,1,2,2-Tetrachloroethane	1.19	U	5.95	1.19	0.477	ug/Kg	☼	08/20/14 02:45	1
Tetrachloroethene	1.19	U	5.95	1.19	0.383	ug/Kg	☼	08/20/14 02:45	1
Toluene	1.19	U	5.95	1.19	0.833	ug/Kg	☼	08/20/14 02:45	1
1,1,1-Trichloroethane	1.19	U	5.95	1.19	0.513	ug/Kg	☼	08/20/14 02:45	1
1,1,2-Trichloroethane	1.19	U	5.95	1.19	0.682	ug/Kg	☼	08/20/14 02:45	1
Trichloroethene	1.19	U	5.95	1.19	0.458	ug/Kg	☼	08/20/14 02:45	1
Vinyl chloride	1.19	U	11.9	1.19	0.510	ug/Kg	☼	08/20/14 02:45	1
Xylenes, Total	5.95	U	11.9	5.95	1.02	ug/Kg	☼	08/20/14 02:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*85 - 120*	*08/19/14 20:00*	*08/20/14 02:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*99*		*71 - 128*	*08/19/14 20:00*	*08/20/14 02:45*	*1*
Toluene-d8 (Surr)	*98*		*85 - 115*	*08/19/14 20:00*	*08/20/14 02:45*	*1*
Dibromofluoromethane (Surr)	*92*		*76 - 126*	*08/19/14 20:00*	*08/20/14 02:45*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-9
Matrix: Solid
Percent Solids: 74.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**28.7**		26.7	13.4	8.64	ug/Kg	☼	08/20/14 03:09	1
Benzene	1.34	U	6.68	1.34	0.338	ug/Kg	☼	08/20/14 03:09	1
Bromodichloromethane	1.34	U	6.68	1.34	0.339	ug/Kg	☼	08/20/14 03:09	1
Bromoform	1.34	U	6.68	1.34	0.489	ug/Kg	☼	08/20/14 03:09	1
Bromomethane	6.68	U	13.4	6.68	1.47	ug/Kg	☼	08/20/14 03:09	1
2-Butanone (MEK)	6.68	U	26.7	6.68	2.56	ug/Kg	☼	08/20/14 03:09	1
Carbon tetrachloride	1.34	U	6.68	1.34	0.685	ug/Kg	☼	08/20/14 03:09	1
Chlorobenzene	1.34	U	6.68	1.34	0.510	ug/Kg	☼	08/20/14 03:09	1
Dibromochloromethane	1.34	U	6.68	1.34	0.542	ug/Kg	☼	08/20/14 03:09	1
Chloroethane	1.34	U	13.4	1.34	0.689	ug/Kg	☼	08/20/14 03:09	1
Chloroform	1.34	U	6.68	1.34	0.502	ug/Kg	☼	08/20/14 03:09	1
Chloromethane	6.68	U	13.4	6.68	0.868	ug/Kg	☼	08/20/14 03:09	1
1,1-Dichloroethane	1.34	U	6.68	1.34	0.523	ug/Kg	☼	08/20/14 03:09	1
1,2-Dichloroethane	1.34	U	6.68	1.34	1.16	ug/Kg	☼	08/20/14 03:09	1
cis-1,2-Dichloroethene	1.34	U	6.68	1.34	0.797	ug/Kg	☼	08/20/14 03:09	1
trans-1,2-Dichloroethene	1.34	U	6.68	1.34	1.26	ug/Kg	☼	08/20/14 03:09	1
1,1-Dichloroethene	6.68	U	6.68	6.68	2.15	ug/Kg	☼	08/20/14 03:09	1
1,2-Dichloropropane	1.34	U	6.68	1.34	0.511	ug/Kg	☼	08/20/14 03:09	1
cis-1,3-Dichloropropene	1.34	U	6.68	1.34	0.794	ug/Kg	☼	08/20/14 03:09	1
trans-1,3-Dichloropropene	1.34	U	6.68	1.34	0.466	ug/Kg	☼	08/20/14 03:09	1
Ethylbenzene	1.34	U	6.68	1.34	0.399	ug/Kg	☼	08/20/14 03:09	1
2-Hexanone	6.68	U	13.4	6.68	2.36	ug/Kg	☼	08/20/14 03:09	1
Methylene Chloride	6.68	U	13.4	6.68	2.11	ug/Kg	☼	08/20/14 03:09	1
4-Methyl-2-pentanone (MIBK)	6.68	U	26.7	6.68	0.977	ug/Kg	☼	08/20/14 03:09	1
Methyl tert-butyl ether	1.34	U	6.68	1.34	0.636	ug/Kg	☼	08/20/14 03:09	1
Styrene	1.34	U	6.68	1.34	0.463	ug/Kg	☼	08/20/14 03:09	1
1,1,2,2-Tetrachloroethane	1.34	U	6.68	1.34	0.535	ug/Kg	☼	08/20/14 03:09	1
Tetrachloroethene	1.34	U	6.68	1.34	0.430	ug/Kg	☼	08/20/14 03:09	1
Toluene	1.34	U	6.68	1.34	0.935	ug/Kg	☼	08/20/14 03:09	1
1,1,1-Trichloroethane	1.34	U	6.68	1.34	0.575	ug/Kg	☼	08/20/14 03:09	1
1,1,2-Trichloroethane	1.34	U	6.68	1.34	0.765	ug/Kg	☼	08/20/14 03:09	1
Trichloroethene	1.34	U	6.68	1.34	0.514	ug/Kg	☼	08/20/14 03:09	1
Vinyl chloride	1.34	U	13.4	1.34	0.571	ug/Kg	☼	08/20/14 03:09	1
Xylenes, Total	6.68	U	13.4	6.68	1.14	ug/Kg	☼	08/20/14 03:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*85 - 120*	*08/19/14 20:00*	*08/20/14 03:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 128*	*08/19/14 20:00*	*08/20/14 03:09*	*1*
Toluene-d8 (Surr)	*109*		*85 - 115*	*08/19/14 20:00*	*08/20/14 03:09*	*1*
Dibromofluoromethane (Surr)	*96*		*76 - 126*	*08/19/14 20:00*	*08/20/14 03:09*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-10
Matrix: Solid
Percent Solids: 85.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	11.7	U	23.3	11.7	7.54	ug/Kg	☼	08/20/14 03:34	1
Benzene	1.17	U	5.83	1.17	0.295	ug/Kg	☼	08/20/14 03:34	1
Bromodichloromethane	1.17	U	5.83	1.17	0.296	ug/Kg	☼	08/20/14 03:34	1
Bromoform	1.17	U	5.83	1.17	0.426	ug/Kg	☼	08/20/14 03:34	1
Bromomethane	5.83	U	11.7	5.83	1.28	ug/Kg	☼	08/20/14 03:34	1
2-Butanone (MEK)	5.83	U	23.3	5.83	2.24	ug/Kg	☼	08/20/14 03:34	1
Carbon tetrachloride	1.17	U	5.83	1.17	0.598	ug/Kg	☼	08/20/14 03:34	1
Chlorobenzene	1.17	U	5.83	1.17	0.445	ug/Kg	☼	08/20/14 03:34	1
Dibromochloromethane	1.17	U	5.83	1.17	0.473	ug/Kg	☼	08/20/14 03:34	1
Chloroethane	1.17	U	11.7	1.17	0.601	ug/Kg	☼	08/20/14 03:34	1
Chloroform	1.17	U	5.83	1.17	0.438	ug/Kg	☼	08/20/14 03:34	1
Chloromethane	5.83	U	11.7	5.83	0.757	ug/Kg	☼	08/20/14 03:34	1
1,1-Dichloroethane	1.17	U	5.83	1.17	0.457	ug/Kg	☼	08/20/14 03:34	1
1,2-Dichloroethane	1.17	U	5.83	1.17	1.01	ug/Kg	☼	08/20/14 03:34	1
cis-1,2-Dichloroethene	1.17	U	5.83	1.17	0.696	ug/Kg	☼	08/20/14 03:34	1
trans-1,2-Dichloroethene	1.17	U	5.83	1.17	1.10	ug/Kg	☼	08/20/14 03:34	1
1,1-Dichloroethene	5.83	U	5.83	5.83	1.88	ug/Kg	☼	08/20/14 03:34	1
1,2-Dichloropropane	1.17	U	5.83	1.17	0.446	ug/Kg	☼	08/20/14 03:34	1
cis-1,3-Dichloropropene	1.17	U	5.83	1.17	0.693	ug/Kg	☼	08/20/14 03:34	1
trans-1,3-Dichloropropene	1.17	U	5.83	1.17	0.407	ug/Kg	☼	08/20/14 03:34	1
Ethylbenzene	1.17	U	5.83	1.17	0.348	ug/Kg	☼	08/20/14 03:34	1
2-Hexanone	5.83	U	11.7	5.83	2.06	ug/Kg	☼	08/20/14 03:34	1
Methylene Chloride	5.83	U	11.7	5.83	1.84	ug/Kg	☼	08/20/14 03:34	1
4-Methyl-2-pentanone (MIBK)	5.83	U	23.3	5.83	0.853	ug/Kg	☼	08/20/14 03:34	1
Methyl tert-butyl ether	1.17	U	5.83	1.17	0.555	ug/Kg	☼	08/20/14 03:34	1
Styrene	1.17	U	5.83	1.17	0.404	ug/Kg	☼	08/20/14 03:34	1
1,1,2,2-Tetrachloroethane	1.17	U	5.83	1.17	0.467	ug/Kg	☼	08/20/14 03:34	1
Tetrachloroethene	1.17	U	5.83	1.17	0.375	ug/Kg	☼	08/20/14 03:34	1
Toluene	1.17	U	5.83	1.17	0.816	ug/Kg	☼	08/20/14 03:34	1
1,1,1-Trichloroethane	1.17	U	5.83	1.17	0.502	ug/Kg	☼	08/20/14 03:34	1
1,1,2-Trichloroethane	1.17	U	5.83	1.17	0.668	ug/Kg	☼	08/20/14 03:34	1
Trichloroethene	1.17	U	5.83	1.17	0.449	ug/Kg	☼	08/20/14 03:34	1
Vinyl chloride	1.17	U	11.7	1.17	0.499	ug/Kg	☼	08/20/14 03:34	1
Xylenes, Total	5.83	U	11.7	5.83	0.995	ug/Kg	☼	08/20/14 03:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*85 - 120*	*08/19/14 20:00*	*08/20/14 03:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*71 - 128*	*08/19/14 20:00*	*08/20/14 03:34*	*1*
Toluene-d8 (Surr)	*99*		*85 - 115*	*08/19/14 20:00*	*08/20/14 03:34*	*1*
Dibromofluoromethane (Surr)	*95*		*76 - 126*	*08/19/14 20:00*	*08/20/14 03:34*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-11
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.00	U	5.00	1.00	0.291	ug/L		08/20/14 18:21	1
1,1,2,2-Tetrachloroethane	2.00	U	5.00	2.00	0.425	ug/L		08/20/14 18:21	1
1,1,2-Trichloroethane	1.00	U	5.00	1.00	0.573	ug/L		08/20/14 18:21	1
1,1-Dichloroethane	1.00	U	5.00	1.00	0.392	ug/L		08/20/14 18:21	1
1,1-Dichloroethene	1.00	U	5.00	1.00	0.365	ug/L		08/20/14 18:21	1
1,2-Dichloroethane	1.00	U	5.00	1.00	0.372	ug/L		08/20/14 18:21	1
1,2-Dichloropropane	1.00	U	5.00	1.00	0.317	ug/L		08/20/14 18:21	1
2-Butanone (MEK)	5.00	U	20.0	5.00	0.389	ug/L		08/20/14 18:21	1
2-Hexanone	2.00	U	20.0	2.00	0.593	ug/L		08/20/14 18:21	1
4-Methyl-2-pentanone (MIBK)	2.00	U	20.0	2.00	0.326	ug/L		08/20/14 18:21	1
Acetone	**15.1**	**J**	20.0	10.0	6.67	ug/L		08/20/14 18:21	1
Benzene	1.00	U	5.00	1.00	0.253	ug/L		08/20/14 18:21	1
Bromoform	1.00	U	5.00	1.00	0.366	ug/L		08/20/14 18:21	1
Bromomethane	2.00	U	10.0	2.00	0.396	ug/L		08/20/14 18:21	1
Carbon tetrachloride	1.00	U	5.00	1.00	0.360	ug/L		08/20/14 18:21	1
Chlorobenzene	1.00	U	5.00	1.00	0.382	ug/L		08/20/14 18:21	1
Dibromochloromethane	1.00	U	5.00	1.00	0.329	ug/L		08/20/14 18:21	1
Chloroethane	1.00	U	10.0	1.00	0.382	ug/L		08/20/14 18:21	1
Chloroform	1.00	U	5.00	1.00	0.147	ug/L		08/20/14 18:21	1
Chloromethane	2.00	U	10.0	2.00	0.553	ug/L		08/20/14 18:21	1
cis-1,2-Dichloroethene	1.00	U	5.00	1.00	0.159	ug/L		08/20/14 18:21	1
cis-1,3-Dichloropropene	1.00	U	5.00	1.00	0.339	ug/L		08/20/14 18:21	1
Bromodichloromethane	2.00	U	5.00	2.00	0.254	ug/L		08/20/14 18:21	1
Ethylbenzene	1.00	U	5.00	1.00	0.299	ug/L		08/20/14 18:21	1
Methyl tert-butyl ether	2.00	U	5.00	2.00	0.401	ug/L		08/20/14 18:21	1
Methylene Chloride	5.00	U	7.50	5.00	1.67	ug/L		08/20/14 18:21	1
Styrene	1.00	U	5.00	1.00	0.347	ug/L		08/20/14 18:21	1
Tetrachloroethene	1.00	U	5.00	1.00	0.280	ug/L		08/20/14 18:21	1
Toluene	1.00	U	5.00	1.00	1.00	ug/L		08/20/14 18:21	1
trans-1,2-Dichloroethene	1.00	U	5.00	1.00	0.178	ug/L		08/20/14 18:21	1
trans-1,3-Dichloropropene	1.00	U	5.00	1.00	0.349	ug/L		08/20/14 18:21	1
Trichloroethene	1.00	U	5.00	1.00	0.290	ug/L		08/20/14 18:21	1
Vinyl chloride	1.00	U	2.00	1.00	0.428	ug/L		08/20/14 18:21	1
Xylenes, Total	5.00	U	10.0	5.00	0.854	ug/L		08/20/14 18:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*		*08/20/14 18:21*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 120*		*08/20/14 18:21*	*1*
Toluene-d8 (Surr)	*94*		*85 - 120*		*08/20/14 18:21*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*08/20/14 18:21*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-1
Matrix: Solid
Percent Solids: 90.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
1,2-Dichlorobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
1,3-Dichlorobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
1,4-Dichlorobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,4,5-Trichlorophenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,4,6-Trichlorophenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,4-Dichlorophenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,4-Dimethylphenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,4-Dinitrophenol	727	U	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
2,4-Dinitrotoluene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2,6-Dinitrotoluene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2-Chloronaphthalene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2-Chlorophenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2-Methylphenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2-Nitroaniline	109	U	1760	109	36.7	ug/Kg	☼	09/01/14 22:49	1
2-Nitrophenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
3 & 4 Methylphenol	109	U	727	109	73.4	ug/Kg	☼	09/01/14 22:49	1
3,3'-Dichlorobenzidine	727	U *	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
3-Nitroaniline	109	U	1760	109	36.7	ug/Kg	☼	09/01/14 22:49	1
4,6-Dinitro-2-methylphenol	727	U	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
4-Bromophenyl phenyl ether	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
4-Chloro-3-methylphenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
4-Chloroaniline	109	U *	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
4-Chlorophenyl phenyl ether	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
4-Nitroaniline	727	U	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
4-Nitrophenol	727	U	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
Acenaphthene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Acenaphthylene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Anthracene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Benzo[a]anthracene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Benzo[a]pyrene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Benzo[b]fluoranthene	109	U *	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Benzo[g,h,i]perylene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Benzo[k]fluoranthene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
bis (2-chloroisopropyl) ether	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Bis(2-chloroethoxy)methane	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Bis(2-chloroethyl)ether	109	U	364	109	36.8	ug/Kg	☼	09/01/14 22:49	1
Bis(2-ethylhexyl) phthalate	109	U	364	109	49.9	ug/Kg	☼	09/01/14 22:49	1
Butyl benzyl phthalate	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Chrysene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Dibenzo(a),h)anthracene	109	U *	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Dibenzofuran	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Diethyl phthalate	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Dimethyl phthalate	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Di-n-butyl phthalate	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Di-n-octyl phthalate	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Fluoranthene	**44.9**	**J**	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Fluorene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Hexachlorobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-1
Matrix: Solid
Percent Solids: 90.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Hexachlorocyclopentadiene	727	U *	1760	727	364	ug/Kg	☼	09/01/14 22:49	1
Hexachloroethane	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Indeno[1,2,3-cd]pyrene	109	U *	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Nitrobenzene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
N-Nitrosodiphenylamine	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
N-Nitrosodi-n-propylamine	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Pentachlorophenol	364	U	1760	364	364	ug/Kg	☼	09/01/14 22:49	1
Phenanthrene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Phenol	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Pyrene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1
Pyridine	109	U	727	109	73.4	ug/Kg	☼	09/01/14 22:49	1
Naphthalene	109	U	364	109	36.7	ug/Kg	☼	09/01/14 22:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*86*		*35 - 125*	*08/28/14 12:08*	*09/01/14 22:49*	*1*
2-Fluorobiphenyl (Surr)	*90*		*45 - 105*	*08/28/14 12:08*	*09/01/14 22:49*	*1*
2-Fluorophenol (Surr)	*95*		*35 - 105*	*08/28/14 12:08*	*09/01/14 22:49*	*1*
Nitrobenzene-d5 (Surr)	*98*		*35 - 100*	*08/28/14 12:08*	*09/01/14 22:49*	*1*
Phenol-d5 (Surr)	*95*		*40 - 100*	*08/28/14 12:08*	*09/01/14 22:49*	*1*
Terphenyl-d14 (Surr)	*91*		*30 - 125*	*08/28/14 12:08*	*09/01/14 22:49*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
1,2-Dichlorobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
1,3-Dichlorobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
1,4-Dichlorobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,4,5-Trichlorophenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,4,6-Trichlorophenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,4-Dichlorophenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,4-Dimethylphenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,4-Dinitrophenol	705	U	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
2,4-Dinitrotoluene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2,6-Dinitrotoluene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2-Chloronaphthalene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2-Chlorophenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2-Methylphenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2-Nitroaniline	106	U	1710	106	35.6	ug/Kg	☼	09/01/14 23:22	1
2-Nitrophenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
3 & 4 Methylphenol	106	U	705	106	71.2	ug/Kg	☼	09/01/14 23:22	1
3,3'-Dichlorobenzidine	705	U *	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
3-Nitroaniline	106	U	1710	106	35.6	ug/Kg	☼	09/01/14 23:22	1
4,6-Dinitro-2-methylphenol	705	U	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
4-Bromophenyl phenyl ether	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
4-Chloro-3-methylphenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
4-Chloroaniline	106	U *	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
4-Chlorophenyl phenyl ether	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
4-Nitroaniline	705	U	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
4-Nitrophenol	705	U	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
Acenaphthene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Acenaphthylene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Anthracene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Benzo[a]anthracene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Benzo[a]pyrene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Benzo[b]fluoranthene	106	U *	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Benzo[g,h,i]perylene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Benzo[k]fluoranthene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
bis (2-chloroisopropyl) ether	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Bis(2-chloroethoxy)methane	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Bis(2-chloroethyl)ether	106	U	353	106	35.7	ug/Kg	☼	09/01/14 23:22	1
Bis(2-ethylhexyl) phthalate	106	U	353	106	48.4	ug/Kg	☼	09/01/14 23:22	1
Butyl benzyl phthalate	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Chrysene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Dibenzo(a),h)anthracene	106	U *	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Dibenzofuran	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Diethyl phthalate	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Dimethyl phthalate	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Di-n-butyl phthalate	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Di-n-octyl phthalate	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Fluoranthene	**62.7**	**J**	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Fluorene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Hexachlorobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Hexachlorocyclopentadiene	705	U *	1710	705	353	ug/Kg	☼	09/01/14 23:22	1
Hexachloroethane	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Indeno[1,2,3-cd]pyrene	106	U *	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Nitrobenzene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
N-Nitrosodiphenylamine	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
N-Nitrosodi-n-propylamine	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Pentachlorophenol	353	U	1710	353	353	ug/Kg	☼	09/01/14 23:22	1
Phenanthrene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Phenol	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Pyrene	**73.4**	**J**	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1
Pyridine	106	U	705	106	71.2	ug/Kg	☼	09/01/14 23:22	1
Naphthalene	106	U	353	106	35.6	ug/Kg	☼	09/01/14 23:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*86*		*35 - 125*	*08/28/14 12:08*	*09/01/14 23:22*	*1*
2-Fluorobiphenyl (Surr)	*91*		*45 - 105*	*08/28/14 12:08*	*09/01/14 23:22*	*1*
2-Fluorophenol (Surr)	*90*		*35 - 105*	*08/28/14 12:08*	*09/01/14 23:22*	*1*
Nitrobenzene-d5 (Surr)	*94*		*35 - 100*	*08/28/14 12:08*	*09/01/14 23:22*	*1*
Phenol-d5 (Surr)	*88*		*40 - 100*	*08/28/14 12:08*	*09/01/14 23:22*	*1*
Terphenyl-d14 (Surr)	*91*		*30 - 125*	*08/28/14 12:08*	*09/01/14 23:22*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-3
Matrix: Solid
Percent Solids: 85.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
1,2-Dichlorobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
1,3-Dichlorobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
1,4-Dichlorobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,4,5-Trichlorophenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,4,6-Trichlorophenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,4-Dichlorophenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,4-Dimethylphenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,4-Dinitrophenol	764	U	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
2,4-Dinitrotoluene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2,6-Dinitrotoluene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2-Chloronaphthalene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2-Chlorophenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2-Methylphenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2-Nitroaniline	115	U	1850	115	38.6	ug/Kg	☼	09/01/14 23:56	1
2-Nitrophenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
3 & 4 Methylphenol	115	U	764	115	77.1	ug/Kg	☼	09/01/14 23:56	1
3,3'-Dichlorobenzidine	764	U *	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
3-Nitroaniline	115	U	1850	115	38.6	ug/Kg	☼	09/01/14 23:56	1
4,6-Dinitro-2-methylphenol	764	U	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
4-Bromophenyl phenyl ether	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
4-Chloro-3-methylphenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
4-Chloroaniline	115	U *	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
4-Chlorophenyl phenyl ether	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
4-Nitroaniline	764	U	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
4-Nitrophenol	764	U	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
Acenaphthene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Acenaphthylene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Anthracene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Benzo[a]anthracene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Benzo[a]pyrene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Benzo[b]fluoranthene	115	U *	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Benzo[g,h,i]perylene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Benzo[k]fluoranthene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
bis (2-chloroisopropyl) ether	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Bis(2-chloroethoxy)methane	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Bis(2-chloroethyl)ether	115	U	382	115	38.7	ug/Kg	☼	09/01/14 23:56	1
Bis(2-ethylhexyl) phthalate	115	U	382	115	52.4	ug/Kg	☼	09/01/14 23:56	1
Butyl benzyl phthalate	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Chrysene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Dibenzo(a),h)anthracene	115	U *	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Dibenzofuran	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Diethyl phthalate	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Dimethyl phthalate	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Di-n-butyl phthalate	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Di-n-octyl phthalate	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Fluoranthene	**74.6**	**J**	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Fluorene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Hexachlorobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-3
Matrix: Solid
Percent Solids: 85.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Hexachlorocyclopentadiene	764	U *	1850	764	382	ug/Kg	☼	09/01/14 23:56	1
Hexachloroethane	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Indeno[1,2,3-cd]pyrene	115	U *	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Nitrobenzene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
N-Nitrosodiphenylamine	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
N-Nitrosodi-n-propylamine	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Pentachlorophenol	382	U	1850	382	382	ug/Kg	☼	09/01/14 23:56	1
Phenanthrene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Phenol	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Pyrene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1
Pyridine	115	U	764	115	77.1	ug/Kg	☼	09/01/14 23:56	1
Naphthalene	115	U	382	115	38.6	ug/Kg	☼	09/01/14 23:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*35 - 125*	*08/28/14 12:08*	*09/01/14 23:56*	*1*
2-Fluorobiphenyl (Surr)	*94*		*45 - 105*	*08/28/14 12:08*	*09/01/14 23:56*	*1*
2-Fluorophenol (Surr)	*92*		*35 - 105*	*08/28/14 12:08*	*09/01/14 23:56*	*1*
Nitrobenzene-d5 (Surr)	*96*		*35 - 100*	*08/28/14 12:08*	*09/01/14 23:56*	*1*
Phenol-d5 (Surr)	*90*		*40 - 100*	*08/28/14 12:08*	*09/01/14 23:56*	*1*
Terphenyl-d14 (Surr)	*90*		*30 - 125*	*08/28/14 12:08*	*09/01/14 23:56*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-4
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
1,2-Dichlorobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
1,3-Dichlorobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
1,4-Dichlorobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,4,5-Trichlorophenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,4,6-Trichlorophenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,4-Dichlorophenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,4-Dimethylphenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,4-Dinitrophenol	725	U	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
2,4-Dinitrotoluene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2,6-Dinitrotoluene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2-Chloronaphthalene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2-Chlorophenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2-Methylphenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2-Nitroaniline	109	U	1760	109	36.6	ug/Kg	☼	09/02/14 00:30	1
2-Nitrophenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
3 & 4 Methylphenol	109	U	725	109	73.1	ug/Kg	☼	09/02/14 00:30	1
3,3'-Dichlorobenzidine	725	U *	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
3-Nitroaniline	109	U	1760	109	36.6	ug/Kg	☼	09/02/14 00:30	1
4,6-Dinitro-2-methylphenol	725	U	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
4-Bromophenyl phenyl ether	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
4-Chloro-3-methylphenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
4-Chloroaniline	109	U *	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
4-Chlorophenyl phenyl ether	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
4-Nitroaniline	725	U	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
4-Nitrophenol	725	U	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
Acenaphthene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Acenaphthylene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Anthracene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Benzo[a]anthracene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Benzo[a]pyrene	**63.9**	**J**	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Benzo[b]fluoranthene	**72.0**	**J ***	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Benzo[g,h,i]perylene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Benzo[k]fluoranthene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
bis (2-chloroisopropyl) ether	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Bis(2-chloroethoxy)methane	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Bis(2-chloroethyl)ether	109	U	362	109	36.7	ug/Kg	☼	09/02/14 00:30	1
Bis(2-ethylhexyl) phthalate	109	U	362	109	49.7	ug/Kg	☼	09/02/14 00:30	1
Butyl benzyl phthalate	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Chrysene	**61.3**	**J**	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Dibenzo(a),h)anthracene	109	U *	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Dibenzofuran	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Diethyl phthalate	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Dimethyl phthalate	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Di-n-butyl phthalate	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Di-n-octyl phthalate	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Fluoranthene	**147**	**J**	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Fluorene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Hexachlorobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-4
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Hexachlorocyclopentadiene	725	U *	1760	725	362	ug/Kg	☼	09/02/14 00:30	1
Hexachloroethane	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Indeno[1,2,3-cd]pyrene	109	U *	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Nitrobenzene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
N-Nitrosodiphenylamine	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
N-Nitrosodi-n-propylamine	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Pentachlorophenol	362	U	1760	362	362	ug/Kg	☼	09/02/14 00:30	1
Phenanthrene	**123**	**J**	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Phenol	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Pyrene	**184**	**J**	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1
Pyridine	109	U	725	109	73.1	ug/Kg	☼	09/02/14 00:30	1
Naphthalene	109	U	362	109	36.6	ug/Kg	☼	09/02/14 00:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*87*		*35 - 125*	*08/28/14 12:08*	*09/02/14 00:30*	*1*
2-Fluorobiphenyl (Surr)	*97*		*45 - 105*	*08/28/14 12:08*	*09/02/14 00:30*	*1*
2-Fluorophenol (Surr)	*97*		*35 - 105*	*08/28/14 12:08*	*09/02/14 00:30*	*1*
Nitrobenzene-d5 (Surr)	*103*	*X*	*35 - 100*	*08/28/14 12:08*	*09/02/14 00:30*	*1*
Phenol-d5 (Surr)	*95*		*40 - 100*	*08/28/14 12:08*	*09/02/14 00:30*	*1*
Terphenyl-d14 (Surr)	*95*		*30 - 125*	*08/28/14 12:08*	*09/02/14 00:30*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-5
Matrix: Solid
Percent Solids: 83.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
1,2-Dichlorobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
1,3-Dichlorobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
1,4-Dichlorobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,4,5-Trichlorophenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,4,6-Trichlorophenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,4-Dichlorophenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,4-Dimethylphenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,4-Dinitrophenol	792	U	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
2,4-Dinitrotoluene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2,6-Dinitrotoluene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2-Chloronaphthalene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2-Chlorophenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2-Methylphenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2-Nitroaniline	119	U	1920	119	40.0	ug/Kg	☼	09/02/14 02:11	1
2-Nitrophenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
3 & 4 Methylphenol	119	U	792	119	79.9	ug/Kg	☼	09/02/14 02:11	1
3,3'-Dichlorobenzidine	792	U *	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
3-Nitroaniline	119	U	1920	119	40.0	ug/Kg	☼	09/02/14 02:11	1
4,6-Dinitro-2-methylphenol	792	U	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
4-Bromophenyl phenyl ether	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
4-Chloro-3-methylphenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
4-Chloroaniline	119	U *	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
4-Chlorophenyl phenyl ether	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
4-Nitroaniline	792	U	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
4-Nitrophenol	792	U	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
Acenaphthene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Acenaphthylene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Anthracene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Benzo[a]anthracene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Benzo[a]pyrene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Benzo[b]fluoranthene	119	U *	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Benzo[g,h,i]perylene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Benzo[k]fluoranthene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
bis (2-chloroisopropyl) ether	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Bis(2-chloroethoxy)methane	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Bis(2-chloroethyl)ether	119	U	396	119	40.1	ug/Kg	☼	09/02/14 02:11	1
Bis(2-ethylhexyl) phthalate	119	U	396	119	54.4	ug/Kg	☼	09/02/14 02:11	1
Butyl benzyl phthalate	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Chrysene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Dibenzo(a),h)anthracene	119	U *	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Dibenzofuran	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Diethyl phthalate	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Dimethyl phthalate	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Di-n-butyl phthalate	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Di-n-octyl phthalate	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Fluoranthene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Fluorene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Hexachlorobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-5
Matrix: Solid
Percent Solids: 83.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Hexachlorocyclopentadiene	792	U *	1920	792	396	ug/Kg	☼	09/02/14 02:11	1
Hexachloroethane	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Indeno[1,2,3-cd]pyrene	119	U *	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Nitrobenzene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
N-Nitrosodiphenylamine	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
N-Nitrosodi-n-propylamine	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Pentachlorophenol	396	U	1920	396	396	ug/Kg	☼	09/02/14 02:11	1
Phenanthrene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Phenol	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Pyrene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1
Pyridine	119	U	792	119	79.9	ug/Kg	☼	09/02/14 02:11	1
Naphthalene	119	U	396	119	40.0	ug/Kg	☼	09/02/14 02:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*72*		*35 - 125*	*08/28/14 12:08*	*09/02/14 02:11*	*1*
2-Fluorobiphenyl (Surr)	*87*		*45 - 105*	*08/28/14 12:08*	*09/02/14 02:11*	*1*
2-Fluorophenol (Surr)	*83*		*35 - 105*	*08/28/14 12:08*	*09/02/14 02:11*	*1*
Nitrobenzene-d5 (Surr)	*88*		*35 - 100*	*08/28/14 12:08*	*09/02/14 02:11*	*1*
Phenol-d5 (Surr)	*80*		*40 - 100*	*08/28/14 12:08*	*09/02/14 02:11*	*1*
Terphenyl-d14 (Surr)	*81*		*30 - 125*	*08/28/14 12:08*	*09/02/14 02:11*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-6
Matrix: Solid
Percent Solids: 85.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
1,2-Dichlorobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
1,3-Dichlorobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
1,4-Dichlorobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,4,5-Trichlorophenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,4,6-Trichlorophenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,4-Dichlorophenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,4-Dimethylphenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,4-Dinitrophenol	767	U	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
2,4-Dinitrotoluene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2,6-Dinitrotoluene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2-Chloronaphthalene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2-Chlorophenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2-Methylphenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2-Nitroaniline	115	U	1860	115	38.7	ug/Kg	☼	09/02/14 02:44	1
2-Nitrophenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
3 & 4 Methylphenol	115	U	767	115	77.4	ug/Kg	☼	09/02/14 02:44	1
3,3'-Dichlorobenzidine	767	U *	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
3-Nitroaniline	115	U	1860	115	38.7	ug/Kg	☼	09/02/14 02:44	1
4,6-Dinitro-2-methylphenol	767	U	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
4-Bromophenyl phenyl ether	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
4-Chloro-3-methylphenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
4-Chloroaniline	115	U *	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
4-Chlorophenyl phenyl ether	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
4-Nitroaniline	767	U	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
4-Nitrophenol	767	U	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
Acenaphthene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Acenaphthylene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Anthracene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Benzo[a]anthracene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Benzo[a]pyrene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Benzo[b]fluoranthene	115	U *	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Benzo[g,h,i]perylene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Benzo[k]fluoranthene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
bis (2-chloroisopropyl) ether	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Bis(2-chloroethoxy)methane	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Bis(2-chloroethyl)ether	115	U	384	115	38.8	ug/Kg	☼	09/02/14 02:44	1
Bis(2-ethylhexyl) phthalate	115	U	384	115	52.7	ug/Kg	☼	09/02/14 02:44	1
Butyl benzyl phthalate	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Chrysene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Dibenzo(a),h)anthracene	115	U *	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Dibenzofuran	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Diethyl phthalate	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Dimethyl phthalate	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Di-n-butyl phthalate	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Di-n-octyl phthalate	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Fluoranthene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Fluorene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Hexachlorobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-6
Matrix: Solid
Percent Solids: 85.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Hexachlorocyclopentadiene	767	U *	1860	767	384	ug/Kg	☼	09/02/14 02:44	1
Hexachloroethane	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Indeno[1,2,3-cd]pyrene	115	U *	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Nitrobenzene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
N-Nitrosodiphenylamine	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
N-Nitrosodi-n-propylamine	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Pentachlorophenol	384	U	1860	384	384	ug/Kg	☼	09/02/14 02:44	1
Phenanthrene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Phenol	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Pyrene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1
Pyridine	115	U	767	115	77.4	ug/Kg	☼	09/02/14 02:44	1
Naphthalene	115	U	384	115	38.7	ug/Kg	☼	09/02/14 02:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*74*		*35 - 125*	*08/28/14 12:08*	*09/02/14 02:44*	*1*
2-Fluorobiphenyl (Surr)	*91*		*45 - 105*	*08/28/14 12:08*	*09/02/14 02:44*	*1*
2-Fluorophenol (Surr)	*89*		*35 - 105*	*08/28/14 12:08*	*09/02/14 02:44*	*1*
Nitrobenzene-d5 (Surr)	*93*		*35 - 100*	*08/28/14 12:08*	*09/02/14 02:44*	*1*
Phenol-d5 (Surr)	*85*		*40 - 100*	*08/28/14 12:08*	*09/02/14 02:44*	*1*
Terphenyl-d14 (Surr)	*87*		*30 - 125*	*08/28/14 12:08*	*09/02/14 02:44*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-7
Matrix: Solid
Percent Solids: 62.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
1,2-Dichlorobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
1,3-Dichlorobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
1,4-Dichlorobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,4,5-Trichlorophenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,4,6-Trichlorophenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,4-Dichlorophenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,4-Dimethylphenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,4-Dinitrophenol	1040	U	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
2,4-Dinitrotoluene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2,6-Dinitrotoluene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2-Chloronaphthalene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2-Chlorophenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2-Methylphenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2-Nitroaniline	157	U	2530	157	52.7	ug/Kg	☼	09/02/14 03:18	1
2-Nitrophenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
3 & 4 Methylphenol	157	U	1040	157	105	ug/Kg	☼	09/02/14 03:18	1
3,3'-Dichlorobenzidine	1040	U *	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
3-Nitroaniline	157	U	2530	157	52.7	ug/Kg	☼	09/02/14 03:18	1
4,6-Dinitro-2-methylphenol	1040	U	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
4-Bromophenyl phenyl ether	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
4-Chloro-3-methylphenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
4-Chloroaniline	157	U *	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
4-Chlorophenyl phenyl ether	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
4-Nitroaniline	1040	U	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
4-Nitrophenol	1040	U	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
Acenaphthene	**79.9**	**J**	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Acenaphthylene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Anthracene	**101**	**J**	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Benzo[a]anthracene	**689**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Benzo[a]pyrene	**2600**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Benzo[b]fluoranthene	**2300**	*	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Benzo[g,h,i]perylene	**2070**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Benzo[k]fluoranthene	**884**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
bis (2-chloroisopropyl) ether	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Bis(2-chloroethoxy)methane	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Bis(2-chloroethyl)ether	157	U	522	157	52.8	ug/Kg	☼	09/02/14 03:18	1
Bis(2-ethylhexyl) phthalate	157	U	522	157	71.7	ug/Kg	☼	09/02/14 03:18	1
Butyl benzyl phthalate	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Chrysene	**836**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Dibenzo(a),h)anthracene	**231**	**J ***	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Dibenzofuran	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Diethyl phthalate	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Dimethyl phthalate	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Di-n-butyl phthalate	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Di-n-octyl phthalate	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Fluoranthene	**1300**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Fluorene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Hexachlorobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-7
Matrix: Solid
Percent Solids: 62.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Hexachlorocyclopentadiene	1040	U *	2530	1040	522	ug/Kg	☼	09/02/14 03:18	1
Hexachloroethane	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Indeno[1,2,3-cd]pyrene	**1570**	*****	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Nitrobenzene	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
N-Nitrosodiphenylamine	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
N-Nitrosodi-n-propylamine	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Pentachlorophenol	522	U	2530	522	522	ug/Kg	☼	09/02/14 03:18	1
Phenanthrene	**356**	**J**	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Phenol	157	U	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Pyrene	**6480**		522	157	52.7	ug/Kg	☼	09/02/14 03:18	1
Pyridine	157	U	1040	157	105	ug/Kg	☼	09/02/14 03:18	1
Naphthalene	**111**	**J**	522	157	52.7	ug/Kg	☼	09/02/14 03:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*35 - 125*	*08/28/14 12:08*	*09/02/14 03:18*	*1*
2-Fluorobiphenyl (Surr)	*98*		*45 - 105*	*08/28/14 12:08*	*09/02/14 03:18*	*1*
2-Fluorophenol (Surr)	*95*		*35 - 105*	*08/28/14 12:08*	*09/02/14 03:18*	*1*
Nitrobenzene-d5 (Surr)	*101*	*X*	*35 - 100*	*08/28/14 12:08*	*09/02/14 03:18*	*1*
Phenol-d5 (Surr)	*93*		*40 - 100*	*08/28/14 12:08*	*09/02/14 03:18*	*1*
Terphenyl-d14 (Surr)	*89*		*30 - 125*	*08/28/14 12:08*	*09/02/14 03:18*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-8
Matrix: Solid
Percent Solids: 84.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
1,2-Dichlorobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
1,3-Dichlorobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
1,4-Dichlorobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,4,5-Trichlorophenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,4,6-Trichlorophenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,4-Dichlorophenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,4-Dimethylphenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,4-Dinitrophenol	780	U	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
2,4-Dinitrotoluene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2,6-Dinitrotoluene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2-Chloronaphthalene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2-Chlorophenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2-Methylphenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2-Nitroaniline	117	U	1890	117	39.3	ug/Kg	☼	09/02/14 03:51	1
2-Nitrophenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
3 & 4 Methylphenol	117	U	780	117	78.7	ug/Kg	☼	09/02/14 03:51	1
3,3'-Dichlorobenzidine	780	U *	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
3-Nitroaniline	117	U	1890	117	39.3	ug/Kg	☼	09/02/14 03:51	1
4,6-Dinitro-2-methylphenol	780	U	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
4-Bromophenyl phenyl ether	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
4-Chloro-3-methylphenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
4-Chloroaniline	117	U *	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
4-Chlorophenyl phenyl ether	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
4-Nitroaniline	780	U	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
4-Nitrophenol	780	U	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
Acenaphthene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Acenaphthylene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Anthracene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Benzo[a]anthracene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Benzo[a]pyrene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Benzo[b]fluoranthene	117	U *	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Benzo[g,h,i]perylene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Benzo[k]fluoranthene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
bis (2-chloroisopropyl) ether	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Bis(2-chloroethoxy)methane	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Bis(2-chloroethyl)ether	117	U	390	117	39.5	ug/Kg	☼	09/02/14 03:51	1
Bis(2-ethylhexyl) phthalate	117	U	390	117	53.5	ug/Kg	☼	09/02/14 03:51	1
Butyl benzyl phthalate	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Chrysene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Dibenzo(a),h)anthracene	117	U *	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Dibenzofuran	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Diethyl phthalate	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Dimethyl phthalate	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Di-n-butyl phthalate	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Di-n-octyl phthalate	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Fluoranthene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Fluorene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Hexachlorobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-8
Matrix: Solid
Percent Solids: 84.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Hexachlorocyclopentadiene	780	U *	1890	780	390	ug/Kg	☼	09/02/14 03:51	1
Hexachloroethane	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Indeno[1,2,3-cd]pyrene	117	U *	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Nitrobenzene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
N-Nitrosodiphenylamine	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
N-Nitrosodi-n-propylamine	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Pentachlorophenol	390	U	1890	390	390	ug/Kg	☼	09/02/14 03:51	1
Phenanthrene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Phenol	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Pyrene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1
Pyridine	117	U	780	117	78.7	ug/Kg	☼	09/02/14 03:51	1
Naphthalene	117	U	390	117	39.3	ug/Kg	☼	09/02/14 03:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*80*		*35 - 125*	*08/28/14 12:08*	*09/02/14 03:51*	*1*
2-Fluorobiphenyl (Surr)	*91*		*45 - 105*	*08/28/14 12:08*	*09/02/14 03:51*	*1*
2-Fluorophenol (Surr)	*89*		*35 - 105*	*08/28/14 12:08*	*09/02/14 03:51*	*1*
Nitrobenzene-d5 (Surr)	*93*		*35 - 100*	*08/28/14 12:08*	*09/02/14 03:51*	*1*
Phenol-d5 (Surr)	*86*		*40 - 100*	*08/28/14 12:08*	*09/02/14 03:51*	*1*
Terphenyl-d14 (Surr)	*87*		*30 - 125*	*08/28/14 12:08*	*09/02/14 03:51*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-9
Matrix: Solid
Percent Solids: 74.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
1,2-Dichlorobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
1,3-Dichlorobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
1,4-Dichlorobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,4,5-Trichlorophenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,4,6-Trichlorophenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,4-Dichlorophenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,4-Dimethylphenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,4-Dinitrophenol	888	U	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
2,4-Dinitrotoluene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2,6-Dinitrotoluene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2-Chloronaphthalene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2-Chlorophenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2-Methylphenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2-Nitroaniline	133	U	2150	133	44.8	ug/Kg	☼	09/02/14 04:25	1
2-Nitrophenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
3 & 4 Methylphenol	133	U	888	133	89.6	ug/Kg	☼	09/02/14 04:25	1
3,3'-Dichlorobenzidine	888	U *	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
3-Nitroaniline	133	U	2150	133	44.8	ug/Kg	☼	09/02/14 04:25	1
4,6-Dinitro-2-methylphenol	888	U	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
4-Bromophenyl phenyl ether	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
4-Chloro-3-methylphenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
4-Chloroaniline	133	U *	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
4-Chlorophenyl phenyl ether	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
4-Nitroaniline	888	U	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
4-Nitrophenol	888	U	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
Acenaphthene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Acenaphthylene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Anthracene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Benzo[a]anthracene	**329**	**J**	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Benzo[a]pyrene	**847**		444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Benzo[b]fluoranthene	**805**	*****	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Benzo[g,h,i]perylene	**643**		444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Benzo[k]fluoranthene	**281**	**J**	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
bis (2-chloroisopropyl) ether	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Bis(2-chloroethoxy)methane	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Bis(2-chloroethyl)ether	133	U	444	133	44.9	ug/Kg	☼	09/02/14 04:25	1
Bis(2-ethylhexyl) phthalate	133	U	444	133	60.9	ug/Kg	☼	09/02/14 04:25	1
Butyl benzyl phthalate	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Chrysene	**290**	**J**	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Dibenzo(a),h)anthracene	133	U *	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Dibenzofuran	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Diethyl phthalate	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Dimethyl phthalate	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Di-n-butyl phthalate	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Di-n-octyl phthalate	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Fluoranthene	**486**		444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Fluorene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Hexachlorobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-9
Matrix: Solid
Percent Solids: 74.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Hexachlorocyclopentadiene	888	U *	2150	888	444	ug/Kg	☼	09/02/14 04:25	1
Hexachloroethane	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Indeno[1,2,3-cd]pyrene	**435**	**J ***	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Nitrobenzene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
N-Nitrosodiphenylamine	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
N-Nitrosodi-n-propylamine	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Pentachlorophenol	444	U	2150	444	444	ug/Kg	☼	09/02/14 04:25	1
Phenanthrene	**185**	**J**	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Phenol	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Pyrene	**2380**		444	133	44.8	ug/Kg	☼	09/02/14 04:25	1
Pyridine	133	U	888	133	89.6	ug/Kg	☼	09/02/14 04:25	1
Naphthalene	133	U	444	133	44.8	ug/Kg	☼	09/02/14 04:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*80*		*35 - 125*	*08/28/14 12:08*	*09/02/14 04:25*	*1*
2-Fluorobiphenyl (Surr)	*95*		*45 - 105*	*08/28/14 12:08*	*09/02/14 04:25*	*1*
2-Fluorophenol (Surr)	*91*		*35 - 105*	*08/28/14 12:08*	*09/02/14 04:25*	*1*
Nitrobenzene-d5 (Surr)	*100*		*35 - 100*	*08/28/14 12:08*	*09/02/14 04:25*	*1*
Phenol-d5 (Surr)	*88*		*40 - 100*	*08/28/14 12:08*	*09/02/14 04:25*	*1*
Terphenyl-d14 (Surr)	*87*		*30 - 125*	*08/28/14 12:08*	*09/02/14 04:25*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-10
Matrix: Solid
Percent Solids: 85.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
1,2-Dichlorobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
1,3-Dichlorobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
1,4-Dichlorobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,4,5-Trichlorophenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,4,6-Trichlorophenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,4-Dichlorophenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,4-Dimethylphenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,4-Dinitrophenol	772	U	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
2,4-Dinitrotoluene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2,6-Dinitrotoluene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2-Chloronaphthalene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2-Chlorophenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2-Methylphenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2-Nitroaniline	116	U	1870	116	39.0	ug/Kg	☼	09/02/14 04:58	1
2-Nitrophenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
3 & 4 Methylphenol	116	U	772	116	77.9	ug/Kg	☼	09/02/14 04:58	1
3,3'-Dichlorobenzidine	772	U *	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
3-Nitroaniline	116	U	1870	116	39.0	ug/Kg	☼	09/02/14 04:58	1
4,6-Dinitro-2-methylphenol	772	U	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
4-Bromophenyl phenyl ether	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
4-Chloro-3-methylphenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
4-Chloroaniline	116	U *	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
4-Chlorophenyl phenyl ether	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
4-Nitroaniline	772	U	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
4-Nitrophenol	772	U	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
Acenaphthene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Acenaphthylene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Anthracene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Benzo[a]anthracene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Benzo[a]pyrene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Benzo[b]fluoranthene	116	U *	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Benzo[g,h,i]perylene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Benzo[k]fluoranthene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
bis (2-chloroisopropyl) ether	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Bis(2-chloroethoxy)methane	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Bis(2-chloroethyl)ether	116	U	386	116	39.1	ug/Kg	☼	09/02/14 04:58	1
Bis(2-ethylhexyl) phthalate	116	U	386	116	53.0	ug/Kg	☼	09/02/14 04:58	1
Butyl benzyl phthalate	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Chrysene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Dibenzo(a),h)anthracene	116	U *	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Dibenzofuran	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Diethyl phthalate	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Dimethyl phthalate	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Di-n-butyl phthalate	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Di-n-octyl phthalate	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Fluoranthene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Fluorene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Hexachlorobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-10
Matrix: Solid
Percent Solids: 85.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Hexachlorocyclopentadiene	772	U *	1870	772	386	ug/Kg	☼	09/02/14 04:58	1
Hexachloroethane	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Indeno[1,2,3-cd]pyrene	116	U *	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Nitrobenzene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
N-Nitrosodiphenylamine	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
N-Nitrosodi-n-propylamine	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Pentachlorophenol	386	U	1870	386	386	ug/Kg	☼	09/02/14 04:58	1
Phenanthrene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Phenol	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Pyrene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1
Pyridine	116	U	772	116	77.9	ug/Kg	☼	09/02/14 04:58	1
Naphthalene	116	U	386	116	39.0	ug/Kg	☼	09/02/14 04:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*78*		*35 - 125*	*08/28/14 12:08*	*09/02/14 04:58*	*1*
2-Fluorobiphenyl (Surr)	*93*		*45 - 105*	*08/28/14 12:08*	*09/02/14 04:58*	*1*
2-Fluorophenol (Surr)	*90*		*35 - 105*	*08/28/14 12:08*	*09/02/14 04:58*	*1*
Nitrobenzene-d5 (Surr)	*95*		*35 - 100*	*08/28/14 12:08*	*09/02/14 04:58*	*1*
Phenol-d5 (Surr)	*86*		*40 - 100*	*08/28/14 12:08*	*09/02/14 04:58*	*1*
Terphenyl-d14 (Surr)	*88*		*30 - 125*	*08/28/14 12:08*	*09/02/14 04:58*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-11
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Bis(2-chloroethyl)ether	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Bis(2-ethylhexyl) phthalate	2.88	U	9.59	2.88	1.78	ug/L		09/02/14 17:16	1
4-Bromophenyl phenyl ether	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Butyl benzyl phthalate	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
4-Chloroaniline	2.88	U	9.59	2.88	1.92	ug/L		09/02/14 17:16	1
4-Chloro-3-methylphenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2-Chloronaphthalene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2-Chlorophenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
4-Chlorophenyl phenyl ether	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Dibenzofuran	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Di-n-butyl phthalate	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
1,2-Dichlorobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
1,3-Dichlorobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
1,4-Dichlorobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
3,3'-Dichlorobenzidine	2.88	U	48.0	2.88	1.24	ug/L		09/02/14 17:16	1
2,4-Dichlorophenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Diethyl phthalate	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2,4-Dimethylphenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Dimethyl phthalate	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
4,6-Dinitro-2-methylphenol	2.88	U *	48.0	2.88	1.21	ug/L		09/02/14 17:16	1
2,4-Dinitrophenol	9.59	U *	48.0	9.59	1.92	ug/L		09/02/14 17:16	1
2,4-Dinitrotoluene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2,6-Dinitrotoluene	2.88	U	9.59	2.88	2.07	ug/L		09/02/14 17:16	1
Di-n-octyl phthalate	9.59	U	14.4	9.59	0.959	ug/L		09/02/14 17:16	1
Hexachlorobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Hexachlorobutadiene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Hexachlorocyclopentadiene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Hexachloroethane	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2-Methylphenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
3 & 4 Methylphenol	2.88	U	19.2	2.88	1.92	ug/L		09/02/14 17:16	1
2-Nitroaniline	2.88	U	9.59	2.88	1.06	ug/L		09/02/14 17:16	1
3-Nitroaniline	9.59	U	9.59	9.59	0.959	ug/L		09/02/14 17:16	1
4-Nitroaniline	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Nitrobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2-Nitrophenol	2.88	U *	9.59	2.88	1.46	ug/L		09/02/14 17:16	1
4-Nitrophenol	9.59	U *	24.0	9.59	1.92	ug/L		09/02/14 17:16	1
N-Nitrosodiphenylamine	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
N-Nitrosodi-n-propylamine	2.88	U	9.59	2.88	1.44	ug/L		09/02/14 17:16	1
bis (2-chloroisopropyl) ether	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Pentachlorophenol	2.88	U *	48.0	2.88	1.22	ug/L		09/02/14 17:16	1
Phenol	2.88	U	14.4	2.88	1.92	ug/L		09/02/14 17:16	1
1,2,4-Trichlorobenzene	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2,4,5-Trichlorophenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
2,4,6-Trichlorophenol	2.88	U	9.59	2.88	0.959	ug/L		09/02/14 17:16	1
Pyridine	2.88	U	19.2	2.88	1.92	ug/L		09/02/14 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*37*		*20 - 110*	*08/22/14 11:44*	*09/02/14 17:16*	*1*
2,4,6-Tribromophenol (Surr)	*68*		*40 - 125*	*08/22/14 11:44*	*09/02/14 17:16*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-11
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	81		40 - 110	08/22/14 11:44	09/02/14 17:16	1
Phenol-d5 (Surr)	22		10 - 115	08/22/14 11:44	09/02/14 17:16	1
Terphenyl-d14 (Surr)	72		50 - 135	08/22/14 11:44	09/02/14 17:16	1
2-Fluorobiphenyl (Surr)	77		50 - 110	08/22/14 11:44	09/02/14 17:16	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-1
Matrix: Solid
Percent Solids: 90.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.38	U	2.48	2.38	0.813	mg/Kg	☼	09/03/14 05:51	10
Arsenic	**3.91**	**J**	4.96	3.87	1.29	mg/Kg	☼	09/03/14 05:51	10
Barium	**21.6**	**B**	9.92	1.40	0.466	mg/Kg	☼	09/03/14 05:51	10
Beryllium	**0.237**	**J**	0.496	0.387	0.129	mg/Kg	☼	09/03/14 05:51	10
Cadmium	**0.137**	**J**	0.298	0.238	0.0794	mg/Kg	☼	09/03/14 05:51	10
Chromium	**34.5**		9.42	4.96	2.23	mg/Kg	☼	09/03/14 05:51	10
Cobalt	**9.24**		0.992	0.640	0.213	mg/Kg	☼	09/03/14 05:51	10
Copper	**5.73**		4.96	1.49	0.501	mg/Kg	☼	09/03/14 05:51	10
Lead	**4.45**		1.49	1.49	0.496	mg/Kg	☼	09/03/14 05:51	10
Molybdenum	1.79	U ^	2.48	1.79	0.615	mg/Kg	☼	09/03/14 05:51	10
Nickel	**48.7**		2.48	1.64	0.531	mg/Kg	☼	09/03/14 05:51	10
Selenium	**1.62**	**J ^**	2.48	2.38	0.784	mg/Kg	☼	09/03/14 05:51	10
Silver	**0.123**	**J**	2.23	0.357	0.119	mg/Kg	☼	09/03/14 05:51	10
Thallium	0.992	U	4.96	0.992	0.754	mg/Kg	☼	09/03/14 05:51	10
Vanadium	**27.2**		4.96	4.96	3.65	mg/Kg	☼	09/03/14 05:51	10
Iron	**16800**		59.5	24.8	16.4	mg/Kg	☼	09/03/14 05:51	10
Zinc	**29.4**		24.8	19.8	6.60	mg/Kg	☼	09/03/14 05:51	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.31	U	2.41	2.31	0.790	mg/Kg	☼	09/03/14 05:58	10
Arsenic	**6.39**		4.82	3.76	1.25	mg/Kg	☼	09/03/14 05:58	10
Barium	**24.4**	**B**	9.63	1.36	0.453	mg/Kg	☼	09/03/14 05:58	10
Beryllium	**0.170**	**J**	0.482	0.376	0.125	mg/Kg	☼	09/03/14 05:58	10
Cadmium	**1.18**		0.289	0.231	0.0771	mg/Kg	☼	09/03/14 05:58	10
Chromium	**41.2**		9.15	4.82	2.17	mg/Kg	☼	09/03/14 05:58	10
Cobalt	**8.77**		0.963	0.621	0.207	mg/Kg	☼	09/03/14 05:58	10
Copper	**7.90**		4.82	1.44	0.486	mg/Kg	☼	09/03/14 05:58	10
Lead	**4.64**		1.44	1.44	0.482	mg/Kg	☼	09/03/14 05:58	10
Molybdenum	**0.681**	**J ^**	2.41	1.73	0.597	mg/Kg	☼	09/03/14 05:58	10
Nickel	**43.1**		2.41	1.59	0.515	mg/Kg	☼	09/03/14 05:58	10
Selenium	**0.847**	**J ^**	2.41	2.31	0.761	mg/Kg	☼	09/03/14 05:58	10
Silver	0.347	U	2.17	0.347	0.116	mg/Kg	☼	09/03/14 05:58	10
Thallium	0.963	U	4.82	0.963	0.732	mg/Kg	☼	09/03/14 05:58	10
Vanadium	**29.7**		4.82	4.82	3.54	mg/Kg	☼	09/03/14 05:58	10
Iron	**17000**		57.8	24.1	15.9	mg/Kg	☼	09/03/14 05:58	10
Zinc	**29.4**		24.1	19.2	6.41	mg/Kg	☼	09/03/14 05:58	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-3
Matrix: Solid
Percent Solids: 85.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.45	U	2.55	2.45	0.837	mg/Kg	☼	09/03/14 06:05	10
Arsenic	**3.60**	**J**	5.10	3.98	1.33	mg/Kg	☼	09/03/14 06:05	10
Barium	**45.6**	**B**	10.2	1.44	0.480	mg/Kg	☼	09/03/14 06:05	10
Beryllium	**0.205**	**J**	0.510	0.398	0.133	mg/Kg	☼	09/03/14 06:05	10
Cadmium	0.245	U	0.306	0.245	0.0816	mg/Kg	☼	09/03/14 06:05	10
Chromium	**34.4**		9.69	5.10	2.30	mg/Kg	☼	09/03/14 06:05	10
Cobalt	**9.79**		1.02	0.658	0.219	mg/Kg	☼	09/03/14 06:05	10
Copper	**6.59**		5.10	1.53	0.515	mg/Kg	☼	09/03/14 06:05	10
Lead	**4.05**		1.53	1.53	0.510	mg/Kg	☼	09/03/14 06:05	10
Molybdenum	1.84	U ^	2.55	1.84	0.633	mg/Kg	☼	09/03/14 06:05	10
Nickel	**45.2**		2.55	1.68	0.546	mg/Kg	☼	09/03/14 06:05	10
Selenium	2.45	U ^	2.55	2.45	0.806	mg/Kg	☼	09/03/14 06:05	10
Silver	0.367	U	2.30	0.367	0.122	mg/Kg	☼	09/03/14 06:05	10
Thallium	1.02	U	5.10	1.02	0.775	mg/Kg	☼	09/03/14 06:05	10
Vanadium	**30.8**		5.10	5.10	3.75	mg/Kg	☼	09/03/14 06:05	10
Iron	**17000**		61.2	25.5	16.8	mg/Kg	☼	09/03/14 06:05	10
Zinc	**32.4**		25.5	20.4	6.78	mg/Kg	☼	09/03/14 06:05	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-4
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.50	U	2.60	2.50	0.853	mg/Kg	☼	09/03/14 06:11	10
Arsenic	**3.16**	**J**	5.20	4.06	1.35	mg/Kg	☼	09/03/14 06:11	10
Barium	**21.1**	**B**	10.4	1.47	0.489	mg/Kg	☼	09/03/14 06:11	10
Beryllium	**0.150**	**J**	0.520	0.406	0.135	mg/Kg	☼	09/03/14 06:11	10
Cadmium	**0.156**	**J**	0.312	0.250	0.0832	mg/Kg	☼	09/03/14 06:11	10
Chromium	**23.2**		9.88	5.20	2.34	mg/Kg	☼	09/03/14 06:11	10
Cobalt	**5.80**		1.04	0.671	0.224	mg/Kg	☼	09/03/14 06:11	10
Copper	**5.49**		5.20	1.56	0.525	mg/Kg	☼	09/03/14 06:11	10
Lead	**5.69**		1.56	1.56	0.520	mg/Kg	☼	09/03/14 06:11	10
Molybdenum	1.87	U ^	2.60	1.87	0.645	mg/Kg	☼	09/03/14 06:11	10
Nickel	**28.6**		2.60	1.72	0.556	mg/Kg	☼	09/03/14 06:11	10
Selenium	2.50	U ^	2.60	2.50	0.822	mg/Kg	☼	09/03/14 06:11	10
Silver	0.374	U	2.34	0.374	0.125	mg/Kg	☼	09/03/14 06:11	10
Thallium	1.04	U	5.20	1.04	0.790	mg/Kg	☼	09/03/14 06:11	10
Vanadium	**20.9**		5.20	5.20	3.82	mg/Kg	☼	09/03/14 06:11	10
Iron	**10900**		62.4	26.0	17.2	mg/Kg	☼	09/03/14 06:11	10
Zinc	**30.1**		26.0	20.7	6.92	mg/Kg	☼	09/03/14 06:11	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-5
Matrix: Solid
Percent Solids: 83.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.54	U	2.65	2.54	0.868	mg/Kg	☼	09/03/14 06:59	10
Arsenic	**5.89**		5.29	4.13	1.38	mg/Kg	☼	09/03/14 06:59	10
Barium	**21.6**	**B**	10.6	1.49	0.498	mg/Kg	☼	09/03/14 06:59	10
Beryllium	**0.176**	**J**	0.529	0.413	0.138	mg/Kg	☼	09/03/14 06:59	10
Cadmium	0.254	U	0.318	0.254	0.0847	mg/Kg	☼	09/03/14 06:59	10
Chromium	**35.4**		10.1	5.29	2.38	mg/Kg	☼	09/03/14 06:59	10
Cobalt	**7.46**		1.06	0.683	0.228	mg/Kg	☼	09/03/14 06:59	10
Copper	**5.71**		5.29	1.59	0.535	mg/Kg	☼	09/03/14 06:59	10
Lead	**3.89**		1.59	1.59	0.529	mg/Kg	☼	09/03/14 06:59	10
Molybdenum	1.91	U ^	2.65	1.91	0.657	mg/Kg	☼	09/03/14 06:59	10
Nickel	**45.6**		2.65	1.75	0.567	mg/Kg	☼	09/03/14 06:59	10
Selenium	2.54	U ^	2.65	2.54	0.837	mg/Kg	☼	09/03/14 06:59	10
Silver	0.381	U	2.38	0.381	0.127	mg/Kg	☼	09/03/14 06:59	10
Thallium	1.06	U	5.29	1.06	0.805	mg/Kg	☼	09/03/14 06:59	10
Vanadium	**24.9**		5.29	5.29	3.89	mg/Kg	☼	09/03/14 06:59	10
Iron	**14500**		63.5	26.5	17.5	mg/Kg	☼	09/03/14 06:59	10
Zinc	**26.3**	**J**	26.5	21.1	7.04	mg/Kg	☼	09/03/14 06:59	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-6
Matrix: Solid
Percent Solids: 85.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.34	U	2.44	2.34	0.800	mg/Kg	☼	09/03/14 07:05	10
Arsenic	**3.92**	**J**	4.88	3.80	1.27	mg/Kg	☼	09/03/14 07:05	10
Barium	**14.3**	**B**	9.75	1.37	0.458	mg/Kg	☼	09/03/14 07:05	10
Beryllium	**0.164**	**J**	0.488	0.380	0.127	mg/Kg	☼	09/03/14 07:05	10
Cadmium	0.234	U	0.293	0.234	0.0780	mg/Kg	☼	09/03/14 07:05	10
Chromium	**31.5**		9.26	4.88	2.19	mg/Kg	☼	09/03/14 07:05	10
Cobalt	**7.67**		0.975	0.629	0.210	mg/Kg	☼	09/03/14 07:05	10
Copper	**4.81**	**J**	4.88	1.46	0.492	mg/Kg	☼	09/03/14 07:05	10
Lead	**4.76**		1.46	1.46	0.488	mg/Kg	☼	09/03/14 07:05	10
Molybdenum	1.76	U ^	2.44	1.76	0.605	mg/Kg	☼	09/03/14 07:05	10
Nickel	**35.1**		2.44	1.61	0.522	mg/Kg	☼	09/03/14 07:05	10
Selenium	2.34	U ^	2.44	2.34	0.770	mg/Kg	☼	09/03/14 07:05	10
Silver	0.351	U	2.19	0.351	0.117	mg/Kg	☼	09/03/14 07:05	10
Thallium	0.975	U	4.88	0.975	0.741	mg/Kg	☼	09/03/14 07:05	10
Vanadium	**25.5**		4.88	4.88	3.58	mg/Kg	☼	09/03/14 07:05	10
Iron	**14700**		58.5	24.4	16.1	mg/Kg	☼	09/03/14 07:05	10
Zinc	**26.5**		24.4	19.5	6.48	mg/Kg	☼	09/03/14 07:05	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-7
Matrix: Solid
Percent Solids: 62.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	3.71	U	3.87	3.71	1.27	mg/Kg	☼	09/03/14 07:12	10
Arsenic	**16.7**		7.73	6.03	2.01	mg/Kg	☼	09/03/14 07:12	10
Barium	**73.9**	**B**	15.5	2.18	0.727	mg/Kg	☼	09/03/14 07:12	10
Beryllium	**0.772**	**J**	0.773	0.603	0.201	mg/Kg	☼	09/03/14 07:12	10
Cadmium	**0.484**		0.464	0.371	0.124	mg/Kg	☼	09/03/14 07:12	10
Chromium	**103**		14.7	7.73	3.48	mg/Kg	☼	09/03/14 07:12	10
Cobalt	**19.7**		1.55	0.997	0.332	mg/Kg	☼	09/03/14 07:12	10
Copper	**66.6**		7.73	2.32	0.781	mg/Kg	☼	09/03/14 07:12	10
Lead	**40.2**		2.32	2.32	0.773	mg/Kg	☼	09/03/14 07:12	10
Molybdenum	**1.03**	**J ^**	3.87	2.78	0.959	mg/Kg	☼	09/03/14 07:12	10
Nickel	**112**		3.87	2.55	0.827	mg/Kg	☼	09/03/14 07:12	10
Selenium	**2.40**	**J ^**	3.87	3.71	1.22	mg/Kg	☼	09/03/14 07:12	10
Silver	**0.199**	**J**	3.48	0.557	0.186	mg/Kg	☼	09/03/14 07:12	10
Thallium	1.55	U	7.73	1.55	1.18	mg/Kg	☼	09/03/14 07:12	10
Vanadium	**87.4**		7.73	7.73	5.68	mg/Kg	☼	09/03/14 07:12	10
Iron	**48700**		92.8	38.7	25.5	mg/Kg	☼	09/03/14 07:12	10
Zinc	**155**		38.7	30.8	10.3	mg/Kg	☼	09/03/14 07:12	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-8
Matrix: Solid
Percent Solids: 84.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.72	U	2.83	2.72	0.928	mg/Kg	☼	09/03/14 07:19	10
Arsenic	**2.29**	**J**	5.66	4.41	1.47	mg/Kg	☼	09/03/14 07:19	10
Barium	**51.0**	**B**	11.3	1.60	0.532	mg/Kg	☼	09/03/14 07:19	10
Beryllium	**0.175**	**J**	0.566	0.441	0.147	mg/Kg	☼	09/03/14 07:19	10
Cadmium	0.272	U	0.340	0.272	0.0906	mg/Kg	☼	09/03/14 07:19	10
Chromium	**37.3**		10.8	5.66	2.55	mg/Kg	☼	09/03/14 07:19	10
Cobalt	**5.26**		1.13	0.730	0.243	mg/Kg	☼	09/03/14 07:19	10
Copper	**7.47**		5.66	1.70	0.572	mg/Kg	☼	09/03/14 07:19	10
Lead	**3.10**		1.70	1.70	0.566	mg/Kg	☼	09/03/14 07:19	10
Molybdenum	2.04	U ^	2.83	2.04	0.702	mg/Kg	☼	09/03/14 07:19	10
Nickel	**34.7**		2.83	1.87	0.606	mg/Kg	☼	09/03/14 07:19	10
Selenium	2.72	U ^	2.83	2.72	0.894	mg/Kg	☼	09/03/14 07:19	10
Silver	0.407	U	2.55	0.407	0.136	mg/Kg	☼	09/03/14 07:19	10
Thallium	1.13	U	5.66	1.13	0.860	mg/Kg	☼	09/03/14 07:19	10
Vanadium	**23.6**		5.66	5.66	4.16	mg/Kg	☼	09/03/14 07:19	10
Iron	**11300**		67.9	28.3	18.7	mg/Kg	☼	09/03/14 07:19	10
Zinc	**23.1**	**J**	28.3	22.6	7.53	mg/Kg	☼	09/03/14 07:19	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-9
Matrix: Solid
Percent Solids: 74.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	3.15	U	3.28	3.15	1.08	mg/Kg	☼	09/03/14 07:26	10
Arsenic	**8.84**		6.56	5.11	1.70	mg/Kg	☼	09/03/14 07:26	10
Barium	**75.9**	**B**	13.1	1.85	0.616	mg/Kg	☼	09/03/14 07:26	10
Beryllium	**0.374**	**J**	0.656	0.511	0.170	mg/Kg	☼	09/03/14 07:26	10
Cadmium	**0.317**	**J**	0.393	0.315	0.105	mg/Kg	☼	09/03/14 07:26	10
Chromium	**66.1**		12.5	6.56	2.95	mg/Kg	☼	09/03/14 07:26	10
Cobalt	**13.7**		1.31	0.846	0.282	mg/Kg	☼	09/03/14 07:26	10
Copper	**30.0**		6.56	1.97	0.662	mg/Kg	☼	09/03/14 07:26	10
Lead	**14.0**		1.97	1.97	0.656	mg/Kg	☼	09/03/14 07:26	10
Molybdenum	**0.901**	**J ^**	3.28	2.36	0.813	mg/Kg	☼	09/03/14 07:26	10
Nickel	**72.3**		3.28	2.16	0.701	mg/Kg	☼	09/03/14 07:26	10
Selenium	3.15	U ^	3.28	3.15	1.04	mg/Kg	☼	09/03/14 07:26	10
Silver	0.472	U	2.95	0.472	0.157	mg/Kg	☼	09/03/14 07:26	10
Thallium	1.31	U	6.56	1.31	0.996	mg/Kg	☼	09/03/14 07:26	10
Vanadium	**51.8**		6.56	6.56	4.82	mg/Kg	☼	09/03/14 07:26	10
Iron	**27300**		78.7	32.8	21.6	mg/Kg	☼	09/03/14 07:26	10
Zinc	**63.8**		32.8	26.2	8.72	mg/Kg	☼	09/03/14 07:26	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-10
Matrix: Solid
Percent Solids: 85.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.71	U	2.82	2.71	0.926	mg/Kg	☼	09/03/14 07:32	10
Arsenic	**2.63**	**J**	5.64	4.40	1.47	mg/Kg	☼	09/03/14 07:32	10
Barium	**37.0**	**B**	11.3	1.59	0.531	mg/Kg	☼	09/03/14 07:32	10
Beryllium	**0.159**	**J**	0.564	0.440	0.147	mg/Kg	☼	09/03/14 07:32	10
Cadmium	0.271	U	0.339	0.271	0.0903	mg/Kg	☼	09/03/14 07:32	10
Chromium	**35.8**		10.7	5.64	2.54	mg/Kg	☼	09/03/14 07:32	10
Cobalt	**5.82**		1.13	0.728	0.243	mg/Kg	☼	09/03/14 07:32	10
Copper	**7.34**		5.64	1.69	0.570	mg/Kg	☼	09/03/14 07:32	10
Lead	**2.54**		1.69	1.69	0.564	mg/Kg	☼	09/03/14 07:32	10
Molybdenum	2.03	U ^	2.82	2.03	0.700	mg/Kg	☼	09/03/14 07:32	10
Nickel	**38.0**		2.82	1.86	0.604	mg/Kg	☼	09/03/14 07:32	10
Selenium	2.71	U ^	2.82	2.71	0.892	mg/Kg	☼	09/03/14 07:32	10
Silver	0.406	U	2.54	0.406	0.135	mg/Kg	☼	09/03/14 07:32	10
Thallium	1.13	U	5.64	1.13	0.858	mg/Kg	☼	09/03/14 07:32	10
Vanadium	**23.5**		5.64	5.64	4.15	mg/Kg	☼	09/03/14 07:32	10
Iron	**11300**		67.7	28.2	18.6	mg/Kg	☼	09/03/14 07:32	10
Zinc	**23.8**	**J**	28.2	22.5	7.51	mg/Kg	☼	09/03/14 07:32	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-11
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Silver	1.00	U	2.00	1.00	0.817	ug/L		09/03/14 05:17	2
Arsenic	3.54	U	10.0	3.54	1.18	ug/L		09/03/14 05:17	2
Barium	**0.430**	**J B**	2.00	0.660	0.223	ug/L		09/03/14 05:17	2
Beryllium	0.500	U	1.00	0.500	0.350	ug/L		09/03/14 05:17	2
Cadmium	0.300	U	0.500	0.300	0.100	ug/L		09/03/14 05:17	2
Cobalt	0.660	U	2.00	0.660	0.217	ug/L		09/03/14 05:17	2
Chromium	9.78	U	10.0	9.78	1.00	ug/L		09/03/14 05:17	2
Copper	1.35	U	3.00	1.35	0.451	ug/L		09/03/14 05:17	2
Iron	**22.1**	**J**	50.0	50.0	20.4	ug/L		09/03/14 05:17	2
Nickel	1.20	U	5.00	1.20	0.400	ug/L		09/03/14 05:17	2
Lead	0.510	U	3.00	0.510	0.173	ug/L		09/03/14 05:17	2
Antimony	5.00	U	5.00	5.00	1.67	ug/L		09/03/14 05:17	2
Selenium	4.77	U ^	5.00	4.77	1.59	ug/L		09/03/14 05:17	2
Thallium	**0.600**	**J**	2.00	1.65	0.550	ug/L		09/03/14 05:17	2
Vanadium	7.11	U	10.0	7.11	2.37	ug/L		09/03/14 05:17	2
Molybdenum	3.00	U ^	5.00	3.00	1.00	ug/L		09/03/14 05:17	2
Zinc	10.0	U	10.0	10.0	8.29	ug/L		09/03/14 05:17	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7470A - Mercury (CVAA)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-11
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.150	U	0.180	0.150	0.0600	ug/L		08/22/14 12:59	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-1
Matrix: Solid
Percent Solids: 90.0

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0290	U	0.0387	0.0290	0.0106	mg/Kg	☼	08/28/14 15:32	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-2
Matrix: Solid
Percent Solids: 93.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0291	U	0.0388	0.0291	0.0107	mg/Kg	☼	08/28/14 15:34	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-3
Matrix: Solid
Percent Solids: 85.9

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0311	U L	0.0415	0.0311	0.0114	mg/Kg	☼	08/28/14 15:37	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-4
Matrix: Solid
Percent Solids: 90.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0125	J	0.0435	0.0326	0.0120	mg/Kg	☼	08/28/14 15:40	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-5
Matrix: Solid
Percent Solids: 83.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0313	U	0.0417	0.0313	0.0115	mg/Kg	☼	08/28/14 15:51	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-6
Matrix: Solid
Percent Solids: 85.5

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0332	U	0.0442	0.0332	0.0122	mg/Kg	☼	08/28/14 15:59	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-7
Matrix: Solid
Percent Solids: 62.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.351		0.0612	0.0459	0.0168	mg/Kg	☼	08/28/14 16:01	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-8
Matrix: Solid
Percent Solids: 84.1

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0324	U	0.0432	0.0324	0.0119	mg/Kg	☼	08/28/14 16:04	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-9
Matrix: Solid
Percent Solids: 74.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0819		0.0529	0.0397	0.0146	mg/Kg	☼	08/28/14 16:07	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8006-1
SDG: 160-8006

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8006-10
Matrix: Solid
Percent Solids: 85.3

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0318	U	0.0424	0.0318	0.0117	mg/Kg	☼	08/28/14 16:10	1

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1012

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number: 7709 5369 1016
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOC)	EPA 8081 A (PEST)	EPA 5035/8015B TPH PURGE	EPA 8015 TPH DIESEL/MOTOR OIL	EPA 8081 (PCBs	EPA 6020B/7000 METAL/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MHs	8/26/2014	1000	8	3	S	10DY	X	X	X	X	X	X	X	Sediment accumulated during investigation	Pad F			N
IWL-BLDG29-EXCAVATION	8/26/2014	1030	8	3	S	10DY	X	X	X	X	X	X	X	Soil accumulated during investigation	Site 17 asphalt berm area			N

160-8110 Chain of Custody

Relinquished by: (signature)	Date: 8-26-14	Received by (signature) FedEx	Laboratory Instructions/Comments: Run STLC-Cr only
Company: Tetra tech	Time: 1400	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature) 8/27/14	Composite Discription:
Company:	Time:	Company: TT 0935	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1012

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-2
SDG: 160-8110

Method: 6010C DOD - Metals (ICP) - TCLP

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Cadmium	2060		12.5	7.50	0.840	ug/L		10/03/14 14:58	1
Chromium	20.5	J B	25.0	25.0	8.38	ug/L		10/03/14 14:58	1
Lead	21.8	J B ^	250	10.0	1.50	ug/L		10/03/14 14:58	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-2
SDG: 160-8110

Method: 6010C DOD - Metals (ICP) - STLC Citrate

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Chromium	10500	B	250	125	84.0	ug/L		10/06/14 12:35	5
Copper	123	J	625	125	52.5	ug/L		10/06/14 12:35	5
Nickel	9280		1000	500	64.0	ug/L		10/06/14 12:35	5
Lead	2810		250	50.0	15.0	ug/L		10/06/14 12:35	5

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8112-1
TestAmerica Sample Delivery Group: 160-8112
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
9/16/2014 3:26:50 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - COC # 1011

Project Name: FZ02 - Alameda Site 17	PO Number: 1036773-23
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Wil Solorzano	Airbill Number: 7709 5369 106
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E 8260C (VOC)	E 8270D (SVOCs)	E 6020A/7471B (Metals /Hg)					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-RINSE-04	8/26/2014	0910	6	3	W	10 dy	X	X	X						SAMPLE COLLECTED FROM AUGER			EQK
IWL-PS1-VAULT-UP-01	8/18/2014	0920	2	3	S	10 dy	X	X	X					one-4 oz for voc, one- 8 oz for svoc/metals	Pump Station 1			N

160-8112 Chain of Custody

Relinquished by: (signature)	Date: 8/26/14	Received by (signature) FedEx	Laboratory Instructions/Comments:
Company: Tetratech	Time: 1400	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature) 8/27/14	Composite Discription:
Company:	Time:	Company: TA 0935	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - COC # 1011

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.00	U	5.00	1.00	0.291	ug/L		08/29/14 11:30	1
1,1,2,2-Tetrachloroethane	2.00	U	5.00	2.00	0.425	ug/L		08/29/14 11:30	1
1,1,2-Trichloroethane	1.00	U	5.00	1.00	0.573	ug/L		08/29/14 11:30	1
1,1-Dichloroethane	1.00	U	5.00	1.00	0.392	ug/L		08/29/14 11:30	1
1,1-Dichloroethene	1.00	U	5.00	1.00	0.365	ug/L		08/29/14 11:30	1
1,2-Dichloroethane	1.00	U	5.00	1.00	0.372	ug/L		08/29/14 11:30	1
1,2-Dichloropropane	1.00	U	5.00	1.00	0.317	ug/L		08/29/14 11:30	1
2-Butanone (MEK)	5.00	U	20.0	5.00	0.389	ug/L		08/29/14 11:30	1
2-Hexanone	2.00	U	20.0	2.00	0.593	ug/L		08/29/14 11:30	1
4-Methyl-2-pentanone (MIBK)	2.00	U	20.0	2.00	0.326	ug/L		08/29/14 11:30	1
Acetone	**10.5**	**J**	20.0	10.0	6.67	ug/L		08/29/14 11:30	1
Benzene	1.00	U	5.00	1.00	0.253	ug/L		08/29/14 11:30	1
Bromoform	1.00	U	5.00	1.00	0.366	ug/L		08/29/14 11:30	1
Bromomethane	2.00	U	10.0	2.00	0.396	ug/L		08/29/14 11:30	1
Carbon tetrachloride	1.00	U	5.00	1.00	0.360	ug/L		08/29/14 11:30	1
Chlorobenzene	1.00	U	5.00	1.00	0.382	ug/L		08/29/14 11:30	1
Dibromochloromethane	1.00	U	5.00	1.00	0.329	ug/L		08/29/14 11:30	1
Chloroethane	1.00	U	10.0	1.00	0.382	ug/L		08/29/14 11:30	1
Chloroform	1.00	U	5.00	1.00	0.147	ug/L		08/29/14 11:30	1
Chloromethane	2.00	U	10.0	2.00	0.553	ug/L		08/29/14 11:30	1
cis-1,2-Dichloroethene	1.00	U	5.00	1.00	0.159	ug/L		08/29/14 11:30	1
cis-1,3-Dichloropropene	1.00	U	5.00	1.00	0.339	ug/L		08/29/14 11:30	1
Bromodichloromethane	2.00	U	5.00	2.00	0.254	ug/L		08/29/14 11:30	1
Ethylbenzene	1.00	U	5.00	1.00	0.299	ug/L		08/29/14 11:30	1
Methyl tert-butyl ether	2.00	U	5.00	2.00	0.401	ug/L		08/29/14 11:30	1
Methylene Chloride	5.00	U	7.50	5.00	1.67	ug/L		08/29/14 11:30	1
Styrene	1.00	U	5.00	1.00	0.347	ug/L		08/29/14 11:30	1
Tetrachloroethene	1.00	U	5.00	1.00	0.280	ug/L		08/29/14 11:30	1
Toluene	1.00	U	5.00	1.00	1.00	ug/L		08/29/14 11:30	1
trans-1,2-Dichloroethene	1.00	U	5.00	1.00	0.178	ug/L		08/29/14 11:30	1
trans-1,3-Dichloropropene	1.00	U	5.00	1.00	0.349	ug/L		08/29/14 11:30	1
Trichloroethene	1.00	U	5.00	1.00	0.290	ug/L		08/29/14 11:30	1
Vinyl chloride	1.00	U	2.00	1.00	0.428	ug/L		08/29/14 11:30	1
Xylenes, Total	5.00	U	10.0	5.00	0.854	ug/L		08/29/14 11:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*75 - 120*		*08/29/14 11:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*112*		*70 - 120*		*08/29/14 11:30*	*1*
Toluene-d8 (Surr)	*108*		*85 - 120*		*08/29/14 11:30*	*1*
Dibromofluoromethane (Surr)	*109*		*85 - 115*		*08/29/14 11:30*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-4
Matrix: Solid
Percent Solids: 30.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Acetone	**2150**	**J B**	3320	416	283	ug/Kg	☼	08/29/14 16:04	1
Benzene	166	U	831	166	32.9	ug/Kg	☼	08/29/14 16:04	1
Bromodichloromethane	166	U	831	166	35.8	ug/Kg	☼	08/29/14 16:04	1
Bromoform	166	U	831	166	54.0	ug/Kg	☼	08/29/14 16:04	1
Bromomethane	166	U	1660	166	80.3	ug/Kg	☼	08/29/14 16:04	1
2-Butanone (MEK)	416	U	1660	416	220	ug/Kg	☼	08/29/14 16:04	1
Carbon tetrachloride	166	U	831	166	58.0	ug/Kg	☼	08/29/14 16:04	1
Chlorobenzene	166	U	831	166	34.4	ug/Kg	☼	08/29/14 16:04	1
Dibromochloromethane	166	U	831	166	33.6	ug/Kg	☼	08/29/14 16:04	1
Chloroethane	166	U	1660	166	44.4	ug/Kg	☼	08/29/14 16:04	1
Chloroform	166	U	831	166	34.9	ug/Kg	☼	08/29/14 16:04	1
Chloromethane	166	U	1660	166	83.1	ug/Kg	☼	08/29/14 16:04	1
1,1-Dichloroethane	166	U	831	166	33.6	ug/Kg	☼	08/29/14 16:04	1
1,2-Dichloroethane	166	U	831	166	36.8	ug/Kg	☼	08/29/14 16:04	1
cis-1,2-Dichloroethene	**586**	**J**	831	166	34.7	ug/Kg	☼	08/29/14 16:04	1
trans-1,2-Dichloroethene	166	U	1660	166	27.0	ug/Kg	☼	08/29/14 16:04	1
1,1-Dichloroethene	166	U	831	166	80.5	ug/Kg	☼	08/29/14 16:04	1
1,2-Dichloropropane	166	U	831	166	52.1	ug/Kg	☼	08/29/14 16:04	1
cis-1,3-Dichloropropene	166	U	1660	166	21.3	ug/Kg	☼	08/29/14 16:04	1
trans-1,3-Dichloropropene	166	U	831	166	32.1	ug/Kg	☼	08/29/14 16:04	1
Ethylbenzene	**39.4**	**J**	831	166	27.6	ug/Kg	☼	08/29/14 16:04	1
2-Hexanone	166	U	1660	166	41.9	ug/Kg	☼	08/29/14 16:04	1
Methylene Chloride	**469**	**J B**	831	416	168	ug/Kg	☼	08/29/14 16:04	1
4-Methyl-2-pentanone (MIBK)	166	U	3320	166	67.7	ug/Kg	☼	08/29/14 16:04	1
Methyl tert-butyl ether	166	U	831	166	32.8	ug/Kg	☼	08/29/14 16:04	1
Styrene	166	U	831	166	47.8	ug/Kg	☼	08/29/14 16:04	1
1,1,2,2-Tetrachloroethane	166	U	831	166	50.4	ug/Kg	☼	08/29/14 16:04	1
Tetrachloroethene	166	U	831	166	66.7	ug/Kg	☼	08/29/14 16:04	1
Toluene	166	U	831	166	42.5	ug/Kg	☼	08/29/14 16:04	1
1,1,1-Trichloroethane	166	U	831	166	33.2	ug/Kg	☼	08/29/14 16:04	1
1,1,2-Trichloroethane	166	U	831	166	98.8	ug/Kg	☼	08/29/14 16:04	1
Trichloroethene	166	U	831	166	58.5	ug/Kg	☼	08/29/14 16:04	1
Vinyl chloride	166	U	1660	166	91.8	ug/Kg	☼	08/29/14 16:04	1
Xylenes, Total	**232**	**J**	2490	166	96.6	ug/Kg	☼	08/29/14 16:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*56*	*X*	*85 - 120*	*08/29/14 13:41*	*08/29/14 16:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*64*	*X*	*71 - 128*	*08/29/14 13:41*	*08/29/14 16:04*	*1*
Toluene-d8 (Surr)	*53*	*X*	*85 - 115*	*08/29/14 13:41*	*08/29/14 16:04*	*1*
Dibromofluoromethane (Surr)	*59*	*X*	*76 - 126*	*08/29/14 13:41*	*08/29/14 16:04*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bis(2-chloroethoxy)methane	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Bis(2-chloroethyl)ether	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Bis(2-ethylhexyl) phthalate	2.84	U	9.47	2.84	1.76	ug/L		09/05/14 20:08	1
4-Bromophenyl phenyl ether	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Butyl benzyl phthalate	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
4-Chloroaniline	2.84	U	9.47	2.84	1.89	ug/L		09/05/14 20:08	1
4-Chloro-3-methylphenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2-Chloronaphthalene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2-Chlorophenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
4-Chlorophenyl phenyl ether	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Dibenzofuran	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Di-n-butyl phthalate	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
1,2-Dichlorobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
1,3-Dichlorobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
1,4-Dichlorobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
3,3'-Dichlorobenzidine	2.84	U	47.3	2.84	1.22	ug/L		09/05/14 20:08	1
2,4-Dichlorophenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Diethyl phthalate	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2,4-Dimethylphenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Dimethyl phthalate	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
4,6-Dinitro-2-methylphenol	2.84	U	47.3	2.84	1.19	ug/L		09/05/14 20:08	1
2,4-Dinitrophenol	9.47	U	47.3	9.47	1.89	ug/L		09/05/14 20:08	1
2,4-Dinitrotoluene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2,6-Dinitrotoluene	2.84	U	9.47	2.84	2.05	ug/L		09/05/14 20:08	1
Di-n-octyl phthalate	9.47	U	14.2	9.47	0.947	ug/L		09/05/14 20:08	1
Hexachlorobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Hexachlorobutadiene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Hexachlorocyclopentadiene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Hexachloroethane	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2-Methylphenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
3 & 4 Methylphenol	2.84	U	18.9	2.84	1.89	ug/L		09/05/14 20:08	1
2-Nitroaniline	2.84	U	9.47	2.84	1.04	ug/L		09/05/14 20:08	1
3-Nitroaniline	9.47	U	9.47	9.47	0.947	ug/L		09/05/14 20:08	1
4-Nitroaniline	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Nitrobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2-Nitrophenol	2.84	U	9.47	2.84	1.44	ug/L		09/05/14 20:08	1
4-Nitrophenol	9.47	U	23.7	9.47	1.89	ug/L		09/05/14 20:08	1
N-Nitrosodiphenylamine	2.84	U *	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
N-Nitrosodi-n-propylamine	2.84	U	9.47	2.84	1.42	ug/L		09/05/14 20:08	1
bis (2-chloroisopropyl) ether	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Pentachlorophenol	2.84	U	47.3	2.84	1.20	ug/L		09/05/14 20:08	1
Phenol	2.84	U	14.2	2.84	1.89	ug/L		09/05/14 20:08	1
1,2,4-Trichlorobenzene	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2,4,5-Trichlorophenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
2,4,6-Trichlorophenol	2.84	U	9.47	2.84	0.947	ug/L		09/05/14 20:08	1
Pyridine	2.84	U	18.9	2.84	1.89	ug/L		09/05/14 20:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*37*		*20 - 110*	*09/02/14 15:15*	*09/05/14 20:08*	*1*

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4,6-Tribromophenol (Surr)	76		40 - 125	09/02/14 15:15	09/05/14 20:08	1
Nitrobenzene-d5 (Surr)	83		40 - 110	09/02/14 15:15	09/05/14 20:08	1
Phenol-d5 (Surr)	22		10 - 115	09/02/14 15:15	09/05/14 20:08	1
Terphenyl-d14 (Surr)	84		50 - 135	09/02/14 15:15	09/05/14 20:08	1
2-Fluorobiphenyl (Surr)	83		50 - 110	09/02/14 15:15	09/05/14 20:08	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-4
Matrix: Solid
Percent Solids: 30.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
1,2-Dichlorobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
1,3-Dichlorobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
1,4-Dichlorobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,4,5-Trichlorophenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,4,6-Trichlorophenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,4-Dichlorophenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,4-Dimethylphenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,4-Dinitrophenol	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
2,4-Dinitrotoluene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2,6-Dinitrotoluene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2-Chloronaphthalene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2-Chlorophenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2-Methylphenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
2-Nitroaniline	1920	U	31000	1920	645	ug/Kg	☼	09/10/14 14:35	1
2-Nitrophenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
3 & 4 Methylphenol	1920	U	12800	1920	1290	ug/Kg	☼	09/10/14 14:35	1
3,3'-Dichlorobenzidine	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
3-Nitroaniline	1920	U	31000	1920	645	ug/Kg	☼	09/10/14 14:35	1
4,6-Dinitro-2-methylphenol	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
4-Bromophenyl phenyl ether	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
4-Chloro-3-methylphenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
4-Chloroaniline	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
4-Chlorophenyl phenyl ether	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
4-Nitroaniline	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
4-Nitrophenol	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
Acenaphthene	**1250**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Acenaphthylene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Anthracene	**1490**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Benzo[a]anthracene	**3750**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Benzo[a]pyrene	**3060**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Benzo[b]fluoranthene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Benzo[g,h,i]perylene	**1920**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Benzo[k]fluoranthene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
bis (2-chloroisopropyl) ether	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Bis(2-chloroethoxy)methane	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Bis(2-chloroethyl)ether	1920	U	6400	1920	647	ug/Kg	☼	09/10/14 14:35	1
Bis(2-ethylhexyl) phthalate	**174000**		6400	1920	878	ug/Kg	☼	09/10/14 14:35	1
Butyl benzyl phthalate	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Chrysene	**4800**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Dibenzo(a),h)anthracene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Dibenzofuran	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Diethyl phthalate	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Dimethyl phthalate	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Di-n-butyl phthalate	**1370**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Di-n-octyl phthalate	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Fluoranthene	**8900**		6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Fluorene	**1740**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Hexachlorobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-4
Matrix: Solid
Percent Solids: 30.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Hexachlorocyclopentadiene	12800	U	31000	12800	6400	ug/Kg	☼	09/10/14 14:35	1
Hexachloroethane	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Indeno[1,2,3-cd]pyrene	**1910**	**J**	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Nitrobenzene	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
N-Nitrosodiphenylamine	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
N-Nitrosodi-n-propylamine	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Pentachlorophenol	6400	U	31000	6400	6400	ug/Kg	☼	09/10/14 14:35	1
Phenanthrene	**8610**		6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Phenol	1920	U	6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Pyrene	**8310**		6400	1920	645	ug/Kg	☼	09/10/14 14:35	1
Pyridine	1920	U	12800	1920	1290	ug/Kg	☼	09/10/14 14:35	1
Naphthalene	**18800**		6400	1920	645	ug/Kg	☼	09/10/14 14:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*87*		*35 - 125*	*09/09/14 08:57*	*09/10/14 14:35*	*1*
2-Fluorobiphenyl (Surr)	*92*		*45 - 105*	*09/09/14 08:57*	*09/10/14 14:35*	*1*
2-Fluorophenol (Surr)	*89*		*35 - 105*	*09/09/14 08:57*	*09/10/14 14:35*	*1*
Nitrobenzene-d5 (Surr)	*108*	*X*	*35 - 100*	*09/09/14 08:57*	*09/10/14 14:35*	*1*
Phenol-d5 (Surr)	*84*		*40 - 100*	*09/09/14 08:57*	*09/10/14 14:35*	*1*
Terphenyl-d14 (Surr)	*83*		*30 - 125*	*09/09/14 08:57*	*09/10/14 14:35*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Silver	1.00	U	2.00	1.00	0.817	ug/L		09/15/14 23:19	2
Arsenic	3.54	U	10.0	3.54	1.18	ug/L		09/15/14 23:19	2
Barium	**22.1**		2.00	0.660	0.223	ug/L		09/15/14 23:19	2
Beryllium	0.500	U	1.00	0.500	0.350	ug/L		09/15/14 23:19	2
Cadmium	**0.706**		0.500	0.300	0.100	ug/L		09/15/14 23:19	2
Cobalt	**0.264**	**J**	2.00	0.660	0.217	ug/L		09/15/14 23:19	2
Chromium	**2.34**	**J**	10.0	9.78	1.00	ug/L		09/15/14 23:19	2
Copper	**1.50**	**J**	3.00	1.35	0.451	ug/L		09/15/14 23:19	2
Iron	**87.4**		50.0	50.0	20.4	ug/L		09/15/14 23:19	2
Nickel	**1.14**	**J B**	5.00	1.20	0.400	ug/L		09/15/14 23:19	2
Lead	**3.00**		3.00	0.510	0.173	ug/L		09/15/14 23:19	2
Antimony	5.00	U	5.00	5.00	1.67	ug/L		09/15/14 23:19	2
Selenium	4.77	U	5.00	4.77	1.59	ug/L		09/15/14 23:19	2
Thallium	1.65	U	2.00	1.65	0.550	ug/L		09/15/14 23:19	2
Vanadium	**2.37**	**J**	10.0	7.11	2.37	ug/L		09/15/14 23:19	2
Molybdenum	3.00	U	5.00	3.00	1.00	ug/L		09/15/14 23:19	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-4
Matrix: Solid
Percent Solids: 30.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	8.47		1.64	1.57	0.538	mg/Kg	☼	09/16/14 01:27	2
Arsenic	12.6		3.28	2.56	0.853	mg/Kg	☼	09/16/14 01:27	2
Barium	834		6.56	0.925	0.308	mg/Kg	☼	09/16/14 01:27	2
Beryllium	0.493		0.328	0.256	0.0853	mg/Kg	☼	09/16/14 01:27	2
Cadmium	195		0.197	0.157	0.0525	mg/Kg	☼	09/16/14 01:27	2
Chromium	1280		6.23	3.28	1.48	mg/Kg	☼	09/16/14 01:27	2
Cobalt	14.8		0.656	0.423	0.141	mg/Kg	☼	09/16/14 01:27	2
Copper	609		3.28	0.984	0.331	mg/Kg	☼	09/16/14 01:27	2
Lead	885		0.984	0.984	0.328	mg/Kg	☼	09/16/14 01:27	2
Molybdenum	78.0		1.64	1.18	0.407	mg/Kg	☼	09/16/14 01:27	2
Nickel	103		1.64	1.08	0.351	mg/Kg	☼	09/16/14 01:27	2
Selenium	1.13	J	1.64	1.57	0.518	mg/Kg	☼	09/16/14 01:27	2
Silver	10.6		1.48	0.236	0.0787	mg/Kg	☼	09/16/14 01:27	2
Thallium	0.656	U	3.28	0.656	0.499	mg/Kg	☼	09/16/14 01:27	2
Vanadium	34.9		3.28	3.28	2.41	mg/Kg	☼	09/16/14 01:27	2
Iron	27400		39.4	16.4	10.8	mg/Kg	☼	09/16/14 01:27	2
Zinc	2160		16.4	13.1	4.36	mg/Kg	☼	09/16/14 01:27	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 6020A - Metals (ICP/MS) - RE

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Zinc	22.1		10.0	10.0	8.29	ug/L		09/15/14 04:42	2

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 7470A - Mercury (CVAA)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-3
Matrix: Water

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.150	U	0.180	0.150	0.0600	ug/L		09/02/14 16:36	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8112-1
SDG: 160-8112

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8112-4
Matrix: Solid
Percent Solids: 30.2

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.97		0.116	0.0869	0.0319	mg/Kg	☼	09/08/14 13:57	1

Subappendix D2

Radiological Results

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Table D-2
Industrial Waste Line Sediment and Soil
Radiological Validated Results

Sample ID	Location ID on Figure	Method	EPA 901.1	EPA 901.1	SR-03-RC
		Analyte	Cesium-137	Radium-226	Strontium-90
		Units	pCi/g	pCi/g	pCi/g
		Collection Date			
IWL-BLDG29-SB1-01	BLDG29-SB1	8/18/2014	0.00516 U	0.297	--
IWL-BLDG29-SB1-02	BLDG29-SB1	8/18/2014	-0.00190 U	0.351	--
IWL-BLDG29-SB2-01	BLDG29-SB2	8/18/2014	-0.0312 U	0.482	--
IWL-BLDG29-SB2-02	BLDG29-SB2	8/18/2014	0.00197 U	0.258	--
IWL-BLDG29-SB3-01	BLDG29-SB3	8/18/2014	-0.0112 U	0.279	--
IWL-BLDG29-SB3-02	BLDG29-SB3	8/18/2014	0.0118 U	0.352	--
IWL-MH1-10-01	MH1-10	7/22/2014	0.03	0.522	--
IWL-MH1-10-02	MH1-10	7/22/2014	0.0744	0.522	--
IWL-MH1-11-01	MH1-11	7/23/2014	0.24	1.46	0.17 U
IWL-MH1-11-02	MH1-11	7/23/2014	0.27	1.29	0.0836 U
IWL-MH1-11A-01	MH1-11A	7/23/2014	0.169	0.675	0.0425 U
IWL-MH1-12-01	MH1-12	7/23/2014	0.279	1.29	0.135 U
IWL-MH1-12-02	MH1-12	7/23/2014	0.275	0.94	0.276 U
IWL-MH1-22-01	MH1-22	7/22/2014	0.122	0.783	0.0392 U
IWL-MH1-22-02	MH1-22	7/22/2014	0.0885	0.64	--
IWL-MH1-23-01	MH1-23	7/21/2014	0.239	1.64	0.0688 U
IWL-MH1-23-02	MH1-23	7/21/2014	0.188	1.65	0.344 U
IWL-MH1-24-01	MH1-24	7/21/2014	0.119	0.673	0.126 U
IWL-MH1-24-02	MH1-24	7/21/2014	0.158	0.845	-0.185 U
IWL-MH1-4-ND-01 *	MH1-4-ND *	7/30/2014	0.0199	0.856	--
IWL-MH1-4-UP-01	MH1-4-UP	7/30/2014	0.0879	2.25	--
IWL-MH1-5-DN-01	MH1-5-DN	7/30/2014	0.0843	1.8	--
IWL-MH1-5-UP-01	MH1-5-UP	7/30/2014	0.0269	0.719	--
IWL-MH1-8-DN-01	MH1-8-DN	8/4/2014	0.106	0.704	--
IWL-MH1-8-UP-01	MH1-8-UP	8/4/2014	0.0478	0.773	--
IWL-SB1-01	SB1	8/18/2014	-0.0276 U	0.403	--
IWL-SB1-02	SB1	8/18/2014	0.00165 U	0.375	--
IWL-SB2-01	SB2	8/18/2014	-0.0391 U	0.514	--
IWL-SB2-02	SB2	8/18/2014	-0.00957 U	0.348	--
IWL-SUMPPR-01	SUMPPR	8/4/2014	-0.00352 U	0.219	--
IWL-PS1-VAULT-UP-01	PS1-VAULT-UP	8/26/2014	0.267	1.62 J	-0.0235 U

Notes:
All samples results above based on 21-day ingrowth.
* Sample ID for this sample is listed as "ND" on chain of custody but is the same as "DN" (indicating down) as in other sample IDs listed herein.

Abbreviations and Acronyms:
EPA – U.S. Environmental Protection Agency
ID – identification
MH – manhole
pCi/g – picocuries per gram
SB – soil boring
U – not detected above the stated limit

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7722-1
TestAmerica Sample Delivery Group: 160-7722
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
9/8/2014 1:41:16 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-7722-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech EC, Inc.

Project: Alameda IR Site 17

Report Number: 160-7722-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-7722-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 8/1/2014 9:05 AM; the samples arrived in good condition and properly preserved. The temperature of the cooler at receipt was 20.0º C.

CESIUM 137 AND OTHER GAMMA EMITTERS (GS)

Sample IWL-RINSE-01 (160-7722-14) was analyzed for Cesium 137 and Other Gamma Emitters (GS) in accordance with USEPA Method 901.1. The samples were prepared on 08/21/2014 and analyzed on 08/25/2014.

Count Time:The samples and QC were counted for 60 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples IWL-MH1-24-01 (160-7722-1), IWL-MH1-24-02 (160-7722-2), IWL-MH1-23-01 (160-7722-3), IWL-MH1-23-02 (160-7722-4), IWL-MH1-22-01 (160-7722-5), IWL-MH1-22-02 (160-7722-6), IWL-MH1-10-01 (160-7722-7), IWL-MH1-10-02 (160-7722-8), IWL-MH1-11-01 (160-7722-9), IWL-MH1-11-02 (160-7722-10), IWL-MH1-11A-01 (160-7722-11), IWL-MH1-12-01 (160-7722-12) and IWL-MH1-12-02 (160-7722-13) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA 901.1. The samples were dried on 08/04/2014, prepared on 08/07/2014 and analyzed on 08/28/2014, 08/29/2014, 09/02/2014, 09/03/2014 and 09/05/2014.

Count Time:The samples and QC were counted for 180 mins.

Insufficient sample was provided for the following sample(s) to fill a geometry (e.g. tuna can) calibrated for Ra-226 analysis by gamma spectroscopy: (160-7722-1 DU), IWL-MH1-10-01 (160-7722-7), IWL-MH1-10-02 (160-7722-8), IWL-MH1-11-01 (160-7722-9), IWL-MH1-11-02 (160-7722-10), IWL-MH1-11A-01 (160-7722-11), IWL-MH1-12-01 (160-7722-12), IWL-MH1-12-02 (160-7722-13), IWL-MH1-22-01 (160-7722-5), IWL-MH1-22-02 (160-7722-6), IWL-MH1-23-01 (160-7722-3), IWL-MH1-23-02 (160-7722-4), IWL-MH1-24-01 (160-7722-1), IWL-MH1-24-02 (160-7722-2) a 100mL geometry was used instead.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

RADIUM-226 (GFPC)

Sample IWL-RINSE-01 (160-7722-14) was analyzed for Radium-226 (GFPC) in accordance with EPA Method 903.0. The samples were prepared on 08/06/2014 and analyzed on 08/28/2014.

Count Time:The samples and QC were counted for 200 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TETRATECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1000A

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Chris Carchidi	Airbill Number: 770736331610
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED

Laboratory Name: Test America St. Louis

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	Ra226 Only	E901.1 - CS137	DOE SR90-03-RC MOD *					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MH1-24-01	7/21/2014	1108	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-24			N
IWL-MH1-24-02	7/21/2014	1113	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-24			N
IWL-MH1-23-01	7/21/2014	1423	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-23			N
IWL-MH1-23-02	7/21/2014	1430	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-23			N
IWL-MH1-22-01	7/22/2014	1033	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-22			N
IWL-MH1-22-02	7/22/2014	1040	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-22			N
IWL-MH1-10-01	7/22/2014	1330	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-10			N
IWL-MH1-10-02	7/22/2014	1340	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-10			N
IWL-MH1-11-01	7/23/2014	0903	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-11			N
IWL-MH1-11-02	7/23/2014	0912	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-11			N

Relinquished by: (signature)	Date: 7-31-14	Received by (signature)
Company: BSAS	Time: 1240	Company: Tetra tech
Relinquished by: (signature)	Date: 7-31-14	Received by (signature) FedEx
Company: Tetra tech	Time: 1500	Company: FedE
Relinquished by: (signature)	Date:	Received by (signature) 8/1/14
Company:	Time:	Company: TA 0905

Laboratory Instructions/Comments:

* If Cs137 result is > 0.113 pCi/g, then run sample for Sr90 (DOE SR90-03-RC MOD)

Composite Discription:

Sample Condition Upon Receipt (for Laboratory)

Temperature: Sample Condition:

Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1000A

160-7722 Chain of Custody

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1001A RAD

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Chris Charchidi	Airbill Number: 7707 3633 1610
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

ANALYSES REQUIRED

Laboratory Name: Test America St. Louis

Laboratory ID:

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	Ra226 Only	E901.1-Cs 137	DOE SR90-03-RC MOD *					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MH1-11A-01	7/23/2014	1240	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-11A			N
IWL-MH1-12-01	7/23/2014	1458	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-11A			N
IWL-MH1-12-02	7/23/2014	1510	1	3	S	21 dy	X	X						8 OZ JAR	IWL-MH1-11A			N
IWL-RINSE-01	7/31/2014	1000	5	3	W	21 dy	X	X							EQUIPMENT BLK			N

Relinquished by: (signature)	Date: 7-31-14	Received by (signature)	Laboratory Instructions/Comments: * If Cs137 result is > 0.113 pCi/g, then run sample for Sr90 (DOE SR90-03-RC MOD)
Company: BSRS	Time: 1310	Company: Tetra tech	
Relinquished by: (signature)	Date: 7-31-14	Received by (signature)	Composite Discription:
Company: Tetra tech	Time: 1500	Company: TA	8/1/14 0908
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1001A RAD

Login Sample Receipt Checklist

Client: Tetra Tech EC, Inc.

Job Number: 160-7722-1
SDG Number: 160-7722

Login Number: 7722
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-7722-1	IWL-MH1-24-01	Solid	07/21/14 11:08	08/01/14 09:05
160-7722-2	IWL-MH1-24-02	Solid	07/21/14 11:13	08/01/14 09:05
160-7722-3	IWL-MH1-23-01	Solid	07/21/14 14:23	08/01/14 09:05
160-7722-4	IWL-MH1-23-02	Solid	07/21/14 14:30	08/01/14 09:05
160-7722-5	IWL-MH1-22-01	Solid	07/22/14 10:33	08/01/14 09:05
160-7722-6	IWL-MH1-22-02	Solid	07/22/14 10:40	08/01/14 09:05
160-7722-7	IWL-MH1-10-01	Solid	07/22/14 13:30	08/01/14 09:05
160-7722-8	IWL-MH1-10-02	Solid	07/22/14 13:40	08/01/14 09:05
160-7722-9	IWL-MH1-11-01	Solid	07/23/14 09:03	08/01/14 09:05
160-7722-10	IWL-MH1-11-02	Solid	07/23/14 09:12	08/01/14 09:05
160-7722-11	IWL-MH1-11A-01	Solid	07/23/14 12:40	08/01/14 09:05
160-7722-12	IWL-MH1-12-01	Solid	07/23/14 14:58	08/01/14 09:05
160-7722-13	IWL-MH1-12-02	Solid	07/23/14 15:10	08/01/14 09:05
160-7722-14	IWL-RINSE-01	Water	07/31/14 10:00	08/01/14 09:05

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: IWL-RINSE-01
Date Collected: 07/31/14 10:00
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	3.64	U	6.71	6.72	119	4.82	pCi/L	08/21/14 13:42	08/25/14 21:01	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-24-01
Date Collected: 07/21/14 11:08
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-1
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.673		0.120	0.139	0.200	0.0575	pCi/g	08/07/14 11:37	09/02/14 09:28	1
Cesium-137	0.119		0.0387	0.0407	0.0700	0.0183	pCi/g	08/07/14 11:37	09/02/14 09:28	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-24-02
Date Collected: 07/21/14 11:13
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.845		0.127	0.154	0.200	0.0561	pCi/g	08/07/14 11:37	09/02/14 09:29	1
Cesium-137	0.158		0.0463	0.0491	0.0700	0.0212	pCi/g	08/07/14 11:37	09/02/14 09:29	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-23-01
Date Collected: 07/21/14 14:23
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-3
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.64		0.176	0.237	0.200	0.0675	pCi/g	08/07/14 11:37	08/28/14 15:23	1
Cesium-137	0.239		0.0670	0.0709	0.0700	0.0289	pCi/g	08/07/14 11:37	08/28/14 15:23	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-23-02
Date Collected: 07/21/14 14:30
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-4
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.65		0.223	0.274	0.200	0.0945	pCi/g	08/07/14 11:37	08/28/14 17:04	1
Cesium-137	0.188		0.0673	0.0697	0.0700	0.0395	pCi/g	08/07/14 11:37	08/28/14 17:04	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-22-01
Date Collected: 07/22/14 10:33
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-5
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.783		0.135	0.158	0.200	0.0612	pCi/g	08/07/14 11:37	09/02/14 13:33	1
Cesium-137	0.122		0.0578	0.0592	0.0700	0.0262	pCi/g	08/07/14 11:37	09/02/14 13:33	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-22-02
Date Collected: 07/22/14 10:40
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-6
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.640		0.126	0.142	0.200	0.0609	pCi/g	08/07/14 11:37	09/02/14 20:23	1
Cesium-137	0.0885		0.0428	0.0438	0.0700	0.0302	pCi/g	08/07/14 11:37	09/02/14 20:23	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-10-01
Date Collected: 07/22/14 13:30
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-7
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.522		0.0971	0.111	0.200	0.0476	pCi/g	08/07/14 11:37	09/03/14 02:11	1
Cesium-137	0.0300		0.0331	0.0332	0.0700	0.0258	pCi/g	08/07/14 11:37	09/03/14 02:11	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-10-02
Date Collected: 07/22/14 13:40
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-8
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.522		0.104	0.118	0.200	0.0553	pCi/g	08/07/14 11:37	09/03/14 02:11	1
Cesium-137	0.0744		0.0574	0.0579	0.0700	0.0284	pCi/g	08/07/14 11:37	09/03/14 02:11	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-11-01
Date Collected: 07/23/14 09:03
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-9
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.46		0.172	0.229	0.200	0.0727	pCi/g	08/07/14 11:37	09/03/14 08:54	1
Cesium-137	0.240		0.0608	0.0657	0.0700	0.0260	pCi/g	08/07/14 11:37	09/03/14 08:54	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-11-02
Date Collected: 07/23/14 09:12
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-10
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.29		0.146	0.193	0.200	0.0571	pCi/g	08/07/14 11:37	09/05/14 10:35	1
Cesium-137	0.270		0.0676	0.0726	0.0700	0.0279	pCi/g	08/07/14 11:37	09/05/14 10:35	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-11A-01
Date Collected: 07/23/14 12:40
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-11
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.675		0.154	0.169	0.200	0.0743	pCi/g	08/07/14 11:37	09/03/14 09:44	1
Cesium-137	0.169		0.0586	0.0611	0.0700	0.0274	pCi/g	08/07/14 11:37	09/03/14 09:44	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-12-01
Date Collected: 07/23/14 14:58
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-12
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.29		0.168	0.209	0.200	0.0732	pCi/g	08/07/14 11:37	08/29/14 10:46	1
Cesium-137	0.279		0.0595	0.0654	0.0700	0.0234	pCi/g	08/07/14 11:37	08/29/14 10:46	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-12-02
Date Collected: 07/23/14 15:10
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-13
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.940		0.171	0.194	0.200	0.0810	pCi/g	08/07/14 11:37	08/29/14 09:34	1
Cesium-137	0.275		0.0822	0.0865	0.0700	0.0354	pCi/g	08/07/14 11:37	08/29/14 09:34	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 903.0 - Radium-226 (GFPC)

Client Sample ID: IWL-RINSE-01
Date Collected: 07/31/14 10:00
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-14
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0536	U	0.107	0.107	2.50	0.0763	pCi/L	08/06/14 13:22	08/28/14 11:21	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.4*		*40 - 110*	*08/06/14 13:22*	*08/28/14 11:21*	*1*

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-139391/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 139822 — **Prep Batch: 139391**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.1844	U	3.35	3.35	119	2.72	pCi/L	08/21/14 13:42	08/25/14 21:20	1

Lab Sample ID: LCS 160-139391/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 140027 — **Prep Batch: 139391**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Cesium-137			49800	48960		4910	119	77.4	pCi/L	98	90 - 111		

Lab Sample ID: 160-7722-14 DU — **Client Sample ID: IWL-RINSE-01**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 140027 — **Prep Batch: 139391**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Cesium-137	3.64	U		-0.8349	U	6.40	119	5.15	pCi/L			0.34	1

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-136619/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 141141 — **Prep Batch: 136619**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.08579		0.0607	0.0614	0.200	0.0413	pCi/g	08/07/14 11:37	09/02/14 02:11	1
Cesium-137	0.007709	U	0.0206	0.0206	0.0700	0.0162	pCi/g	08/07/14 11:37	09/02/14 02:11	1

Lab Sample ID: LCS 160-136619/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 141146 — **Prep Batch: 136619**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Cesium-137			35.3	35.17		3.69	0.0700	0.0948	pCi/g	100	87 - 120		

Lab Sample ID: 160-7722-1 DU — **Client Sample ID: IWL-MH1-24-01**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 141141 — **Prep Batch: 136619**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Radium-226	0.673			0.7962		0.150	0.200	0.0583	pCi/g			0.43	1
Cesium-137	0.119			0.1144		0.0569	0.0700	0.0259	pCi/g			0.05	1

QC Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-136079/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 140859 — **Prep Batch: 136079**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02041	U	0.111	0.111	2.50	0.0872	pCi/L	08/06/14 13:22	08/28/14 11:21	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.7*		*40 - 110*	*08/06/14 13:22*	*08/28/14 11:21*	*1*

Lab Sample ID: LCS 160-136079/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 140859 — **Prep Batch: 136079**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Radium-226			11.2	10.37		1.19	2.50	0.103	pCi/L	92	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*89.4*		*40 - 110*

Lab Sample ID: 160-7722-14 DU — **Client Sample ID: IWL-RINSE-01**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 140859 — **Prep Batch: 136079**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Radium-226	0.0536	U		0.07975	U	0.134	2.50	0.0958	pCi/L			0.11	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*85.8*		*40 - 110*

QC Association Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Rad

Leach Batch: 135552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-7722-1	IWL-MH1-24-01	Total/NA	Solid	Dry and Grind	
160-7722-1 DU	IWL-MH1-24-01	Total/NA	Solid	Dry and Grind	
160-7722-2	IWL-MH1-24-02	Total/NA	Solid	Dry and Grind	
160-7722-3	IWL-MH1-23-01	Total/NA	Solid	Dry and Grind	
160-7722-4	IWL-MH1-23-02	Total/NA	Solid	Dry and Grind	
160-7722-5	IWL-MH1-22-01	Total/NA	Solid	Dry and Grind	
160-7722-6	IWL-MH1-22-02	Total/NA	Solid	Dry and Grind	
160-7722-7	IWL-MH1-10-01	Total/NA	Solid	Dry and Grind	
160-7722-8	IWL-MH1-10-02	Total/NA	Solid	Dry and Grind	
160-7722-9	IWL-MH1-11-01	Total/NA	Solid	Dry and Grind	
160-7722-10	IWL-MH1-11-02	Total/NA	Solid	Dry and Grind	
160-7722-11	IWL-MH1-11A-01	Total/NA	Solid	Dry and Grind	
160-7722-12	IWL-MH1-12-01	Total/NA	Solid	Dry and Grind	
160-7722-13	IWL-MH1-12-02	Total/NA	Solid	Dry and Grind	

Prep Batch: 136079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-7722-14	IWL-RINSE-01	Total/NA	Water	PrecSep-21	
160-7722-14 DU	IWL-RINSE-01	Total/NA	Water	PrecSep-21	
LCS 160-136079/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-136079/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Prep Batch: 136619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-7722-1	IWL-MH1-24-01	Total/NA	Solid	Fill_Geo-21	135552
160-7722-1 DU	IWL-MH1-24-01	Total/NA	Solid	Fill_Geo-21	135552
160-7722-2	IWL-MH1-24-02	Total/NA	Solid	Fill_Geo-21	135552
160-7722-3	IWL-MH1-23-01	Total/NA	Solid	Fill_Geo-21	135552
160-7722-4	IWL-MH1-23-02	Total/NA	Solid	Fill_Geo-21	135552
160-7722-5	IWL-MH1-22-01	Total/NA	Solid	Fill_Geo-21	135552
160-7722-6	IWL-MH1-22-02	Total/NA	Solid	Fill_Geo-21	135552
160-7722-7	IWL-MH1-10-01	Total/NA	Solid	Fill_Geo-21	135552
160-7722-8	IWL-MH1-10-02	Total/NA	Solid	Fill_Geo-21	135552
160-7722-9	IWL-MH1-11-01	Total/NA	Solid	Fill_Geo-21	135552
160-7722-10	IWL-MH1-11-02	Total/NA	Solid	Fill_Geo-21	135552
160-7722-11	IWL-MH1-11A-01	Total/NA	Solid	Fill_Geo-21	135552
160-7722-12	IWL-MH1-12-01	Total/NA	Solid	Fill_Geo-21	135552
160-7722-13	IWL-MH1-12-02	Total/NA	Solid	Fill_Geo-21	135552
LCS 160-136619/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-136619/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 139391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-7722-14	IWL-RINSE-01	Total/NA	Water	Fill_Geo-0	
160-7722-14 DU	IWL-RINSE-01	Total/NA	Water	Fill_Geo-0	
LCS 160-139391/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
MB 160-139391/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	

Tracer/Carrier Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-1
SDG: 160-7722

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
		Ba							
Lab Sample ID	Client Sample ID	(40-110)							
160-7722-14	IWL-RINSE-01	89.4							
160-7722-14 DU	IWL-RINSE-01	85.8							
LCS 160-136079/2-A	Lab Control Sample	89.4							
MB 160-136079/1-A	Method Blank	89.7							

Tracer/Carrier Legend

Ba = Ba Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7830-1
TestAmerica Sample Delivery Group: 160-7830
Client Project/Site: Alameda IR Site 17
Revision: 1

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
10/9/2014 4:02:24 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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QC Association Summary 18

Job ID: 160-7830-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech EC, Inc.

Project: Alameda IR Site 17

Report Number: 160-7830-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-7830-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

Revision 1: The sample ID was corrected per the COC for sample: IWL-MH1-4-UP-01 (160-7830-1). The sample collection time was corrected for sample: IWL-SUMPPR-01 (160-7830-7) per the COC. The issues were missed during login review by the PM.

RECEIPT

The samples were received on 8/8/2014 8:05 AM; the samples arrived in good condition, properly preserved. The temperature of the cooler at receipt was 19.0º C.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples IWL-MH1-4-UP-01 (160-7830-1), IWL-MH1-4-ND-01 (160-7830-2), IWL-MH1-5-UP-01 (160-7830-3), IWL-MH1-5-DN-01 (160-7830-4), IWL-MH1-8-UP-01 (160-7830-5), IWL-MH1-8-DN-01 (160-7830-6) and IWL-SUMPPR-01 (160-7830-7) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA 901.1. The samples were dried on 08/08/2014, prepared on 08/13/2014 and analyzed on 09/05/2014, 09/08/2014 and 09/09/2014.

Count Time: All samples and QC were counted for 240 mins.

Insufficient sample was provided for the following sample(s) to fill a geometry (e.g. tuna can) calibrated for Ra-226 analysis by gamma spectroscopy: IWL-MH1-4-ND-01 (160-7830-2), IWL-MH1-5-DN-01 (160-7830-4), IWL-MH1-5-UP-01 (160-7830-3), IWL-MH1-8-DN-01 (160-7830-6), IWL-MH1-8-UP-01 (160-7830-5), IWL-SUMPPR-01 (160-7830-7) a 100mL geometry was used insead.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

160-7830 Chain of Custody

TETRA TECH EC, INC.

1-of Custody Record

NUMBER: FZ02 - 1003A RAD

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Chris Charchidi	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	Ra226 Only	E901.1-Cs 137	DOE SR90-03-RC MOD *					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MH1-4-UP-01	7/30/2014	1500	1	3	W	21 dy	X	X							IWL-MH1-4			N
IWL-MH1-4-ND-01	7/30/2014	1520	1	3	W	21 dy	X	X							IWL-MH1-4			N
IWL-MH1-5-UP-01	7/30/2014	1400	1	3	W	21 dy	X	X							IWL-MH1-5			N
IWL-MH1-5-DN-01	7/30/2014	1430	1	3	W	21 dy	X	X							IWL-MH1-5			N
IWL-MH1-8-UP-01	8/4/2014	0822	1	3	W	21 dy	X	X							IWL-MH1-8			N
IWL-MH1-8-DN-01	8/4/2014	0839	1	3	W	21 dy	X	X							IWL-MH1-8			N
IWL-SUMPPR-01	8/6/2014	1115	1	3	W	21 dy	X	X							BLDG 5			N

Relinquished by: (signature)	Date: 8-7-14	Received by (signature)	Laboratory Instructions/Comments: * If Cs137 result is > 0.113 pCi/g, then run sample for Sr90 (DOE SR90-03-RC MOD)
Company: BSRS	Time: 0755	Company: Tetra tech	
Relinquished by: (signature)	Date: 8-7-14	Received by (signature)	Composite Discription:
Company: Tetra tech	Time: 0900	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature) 8/8/14	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company: 0805	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1003A RAD

Login Sample Receipt Checklist

Client: Tetra Tech EC, Inc.

Job Number: 160-7830-1
SDG Number: 160-7830

Login Number: 7830
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-7830-1	IWL-MH1-4-UP-01	Solid	07/30/14 15:00	08/08/14 08:05
160-7830-2	IWL-MH1-4-ND-01	Solid	07/30/14 15:20	08/08/14 08:05
160-7830-3	IWL-MH1-5-UP-01	Solid	07/30/14 14:00	08/08/14 08:05
160-7830-4	IWL-MH1-5-DN-01	Solid	07/30/14 14:30	08/08/14 08:05
160-7830-5	IWL-MH1-8-UP-01	Solid	08/04/14 08:22	08/08/14 08:05
160-7830-6	IWL-MH1-8-DN-01	Solid	08/04/14 08:39	08/08/14 08:05
160-7830-7	IWL-SUMPPR-01	Solid	08/06/14 11:15	08/08/14 08:05

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-4-UP-01
Date Collected: 07/30/14 15:00
Date Received: 08/08/14 08:05

Lab Sample ID: 160-7830-1
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.25		0.113	0.259	0.200	0.0351	pCi/g	08/13/14 10:33	09/05/14 12:12	1
Cesium-137	0.0879		0.0267	0.0282	0.0700	0.0127	pCi/g	08/13/14 10:33	09/05/14 12:12	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-4-ND-01
Date Collected: 07/30/14 15:20
Date Received: 08/08/14 08:05

Lab Sample ID: 160-7830-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.856		0.0959	0.131	0.200	0.0425	pCi/g	08/13/14 10:33	09/05/14 12:13	1
Cesium-137	0.0199		0.0249	0.0249	0.0700	0.0194	pCi/g	08/13/14 10:33	09/05/14 12:13	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-5-UP-01
Date Collected: 07/30/14 14:00
Date Received: 08/08/14 08:05

Lab Sample ID: 160-7830-3
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.719		0.0948	0.121	0.200	0.0441	pCi/g	08/13/14 10:33	09/05/14 12:41	1
Cesium-137	0.0269		0.0221	0.0223	0.0700	0.0164	pCi/g	08/13/14 10:33	09/05/14 12:41	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-5-DN-01
Date Collected: 07/30/14 14:30
Date Received: 08/08/14 08:05

Lab Sample ID: 160-7830-4
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.80		0.149	0.229	0.200	0.0560	pCi/g	08/13/14 10:33	09/08/14 12:09	1
Cesium-137	0.0843		0.0375	0.0383	0.0700	0.0200	pCi/g	08/13/14 10:33	09/08/14 12:09	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-8-UP-01
Date Collected: 08/04/14 08:22
Date Received: 08/08/14 08:05

Lab Sample ID: 160-7830-5
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.773		0.110	0.136	0.200	0.0532	pCi/g	08/13/14 10:33	09/08/14 16:09	1
Cesium-137	0.0478		0.0307	0.0311	0.0700	0.0222	pCi/g	08/13/14 10:33	09/08/14 16:09	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-MH1-8-DN-01
Date Collected: 08/04/14 08:39
Date Received: 08/08/14 08:05

Lab Sample ID: 160-7830-6
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.704		0.0899	0.116	0.200	0.0447	pCi/g	08/13/14 10:33	09/09/14 18:58	1
Cesium-137	0.106		0.0376	0.0392	0.0700	0.0201	pCi/g	08/13/14 10:33	09/09/14 18:58	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-SUMPPR-01
Date Collected: 08/06/14 11:15
Date Received: 08/08/14 08:05

Lab Sample ID: 160-7830-7
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.219**		0.0562	0.0607	0.200	0.0345	pCi/g	08/13/14 10:33	09/09/14 18:57	1
Cesium-137	-0.00352	U	0.0180	0.0181	0.0700	0.0146	pCi/g	08/13/14 10:33	09/09/14 18:57	1

QC Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-137775/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 142448 — **Prep Batch: 137775**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.006410	U	0.0285	0.0285	0.200	0.0231	pCi/g	08/13/14 10:33	09/08/14 11:45	1
Cesium-137	0.001251	U	0.0141	0.0141	0.0700	0.0127	pCi/g	08/13/14 10:33	09/08/14 11:45	1

Lab Sample ID: LCS 160-137775/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 142437 — **Prep Batch: 137775**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Cesium-137			30.9	29.93		3.12	0.0700	0.0415	pCi/g	97	87 - 120		

Lab Sample ID: 160-7830-1 DU — **Client Sample ID: IWL-MH1-4-UP-01**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 142445 — **Prep Batch: 137775**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Radium-226	2.25			2.326		0.286	0.200	0.0470	pCi/g			0.15	1
Cesium-137	0.0879			0.08479		0.0441	0.0700	0.0254	pCi/g			0.04	1

QC Association Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7830-1
SDG: 160-7830

Rad

Leach Batch: 136875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-7830-1	IWL-MH1-4-UP-01	Total/NA	Solid	Dry and Grind	
160-7830-1 DU	IWL-MH1-4-UP-01	Total/NA	Solid	Dry and Grind	
160-7830-2	IWL-MH1-4-ND-01	Total/NA	Solid	Dry and Grind	
160-7830-3	IWL-MH1-5-UP-01	Total/NA	Solid	Dry and Grind	
160-7830-4	IWL-MH1-5-DN-01	Total/NA	Solid	Dry and Grind	
160-7830-5	IWL-MH1-8-UP-01	Total/NA	Solid	Dry and Grind	
160-7830-6	IWL-MH1-8-DN-01	Total/NA	Solid	Dry and Grind	
160-7830-7	IWL-SUMPPR-01	Total/NA	Solid	Dry and Grind	

Prep Batch: 137775

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-7830-1	IWL-MH1-4-UP-01	Total/NA	Solid	Fill_Geo-21	136875
160-7830-1 DU	IWL-MH1-4-UP-01	Total/NA	Solid	Fill_Geo-21	136875
160-7830-2	IWL-MH1-4-ND-01	Total/NA	Solid	Fill_Geo-21	136875
160-7830-3	IWL-MH1-5-UP-01	Total/NA	Solid	Fill_Geo-21	136875
160-7830-4	IWL-MH1-5-DN-01	Total/NA	Solid	Fill_Geo-21	136875
160-7830-5	IWL-MH1-8-UP-01	Total/NA	Solid	Fill_Geo-21	136875
160-7830-6	IWL-MH1-8-DN-01	Total/NA	Solid	Fill_Geo-21	136875
160-7830-7	IWL-SUMPPR-01	Total/NA	Solid	Fill_Geo-21	136875
LCS 160-137775/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-137775/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8005-1
TestAmerica Sample Delivery Group: 160-8005
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
9/18/2014 2:15:04 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-8005-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech EC, Inc.

Project: Alameda IR Site 17

Report Number: 160-8005-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

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Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-8005-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 8/19/2014 10:15 AM; the samples arrived in good condition, properly preserved. The temperature of the cooler at receipt was 20.1º C.

CESIUM 137 AND OTHER GAMMA EMITTERS (GS)

Sample IWL-RINSE-03 (160-8005-11) was analyzed for Cesium 137 and Other Gamma Emitters (GS) in accordance with USEPA Method 901.1. The samples were prepared and analyzed on 09/15/2014.

Count Time: All samples and QC were counted for 60 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples IWL-BLDG29-SB1-01 (160-8005-1), IWL-BLDG29-SB1-02 (160-8005-2), IWL-BLDG29-SB2-01 (160-8005-3), IWL-BLDG29-SB2-02 (160-8005-4), IWL-BLDG29-SB3-01 (160-8005-5), IWL-BLDG29-SB3-02 (160-8005-6), IWL-SB1-01 (160-8005-7), IWL-SB1-02 (160-8005-8), IWL-SB2-01 (160-8005-9) and IWL-SB2-02 (160-8005-10) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA 901.1. The samples were dried on 08/19/2014, prepared on 08/25/2014 and analyzed on 09/16/2014.

Count Time: All samples and QC were counted for 180 mins.

Insufficient sample was provided for the following sample(s) to fill a geometry (e.g. tuna can) calibrated for Ra-226 analysis by gamma spectroscopy: (160-8005-1 DU), IWL-BLDG29-SB1-01 (160-8005-1), IWL-BLDG29-SB1-02 (160-8005-2), IWL-BLDG29-SB2-01 (160-8005-3), IWL-BLDG29-SB2-02 (160-8005-4), IWL-BLDG29-SB3-01 (160-8005-5), IWL-BLDG29-SB3-02 (160-8005-6), IWL-SB1-01 (160-8005-7), IWL-SB1-02 (160-8005-8), IWL-SB2-01 (160-8005-9), IWL-SB2-02 (160-8005-10). A 100 mL geometry was used.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

RADIUM-226 (GFPC)

Sample IWL-RINSE-03 (160-8005-11) was analyzed for Radium-226 (GFPC) in accordance with EPA Method 903.0. The samples were prepared on 08/25/2014 and analyzed on 09/16/2014.

Count Time: All samples and QC were counted for 200 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TETRA TECH

Chain-of Custody Record

NUMBER: FZ02 - 1003~~A~~ 5A RAD

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Chris Charchidi	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	Ra226 Only	E901.1-Cs 137	DOE SR90-03-RC MOD *					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-BLDG29-SB1-01	8/18/2014	1000	1	3	S	21 dy	X	X						8 OZ JAR	IWL-BLDG29-SB1	10.5	11.5	N
IWL-BLDG29-SB1-02	8/18/2014	1015	1	3	S	21 dy	X	X						8 OZ JAR	IWL-BLDG29-SB1	9	10	N
IWL-BLDG29-SB2-01	8/18/2014	1115	1	3	S	21 dy	X	X						8 OZ JAR	IWL-BLDG29-SB2	9.5	10.5	N
IWL-BLDG29-SB2-02	8/18/2014	1120	1	4	S	21 dy	X	X						8 OZ JAR	IWL-BLDG29-SB2	7.5	8.5	N
IWL-BLDG29-SB3-01	8/18/2014	1211	1	3	S	21 dy	X	X						8 OZ JAR	IWL-BLDG29-SB3	19	20	N
IWL-BLDG29-SB3-02	8/18/2014	1220	1	3	S	21 dy	X	X						8 OZ JAR	IWL-BLDG29-SB3	13	14	N
IWL-SB1-01	8/18/2014	1355	1	3	S	21 dy	X	X						8 OZ JAR	IWL-SB1-01	14	15	N
IWL-SB1-02	8/18/2014	1400	1	3	S	21 dy	X	X						8 OZ JAR	IWL-SB1-02	9	10	N
IWL-SB2-01	8/18/2014	1500	1	3	S	21 dy	X	X						8 OZ JAR	IWL-SB2-01	14	15	N
IWL-SB2-02	8/18/2014	1515	1	3	S	21 dy	X	X						8 OZ JAR	IWL-SB2-02	12	13	N

Relinquished by: (signature)	Date: 8-18-14	Received by (signature): FedEx	Laboratory Instructions/Comments: * If Cs137 result is > 0.113 pCi/g, then run sample for Sr90 (DOE SR90-03-RC MOD)
Company: RSDS	Time: 1609	Company: T.	
Relinquished by: (signature)	Date	Received by (signature): 8.19.14	Composite Description
Company	Time	Company: 1015	
Relinquished by: (signature)	Date	Received by (signature)	Sample Condition Upon Receipt (for Laboratory): Temperature: Sample Condition:
Company:	Time:	Company	Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1003~~A~~ 5A RAD

160-8005 Chain of Custody

TETRA TECH EC, INC

Chain-of Custody Record

NUMBER: FZ02 - 1002~~A~~ 4A RAD

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Chris Charchidi	Airbill Number:
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	Ra226 Only	E901.1-Cs 137	DOE 5R90-03-RC MOD *					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-RINSE-03	8/18/2014	1040	3	3	W	21 dy	X	X							EQUIPMENT BLK	—	—	N

Relinquished by: (signature)	Date: 8-18-14	Received by (signature): FedEx	Laboratory Instructions/Comments: * If Cs137 result is > 0.113 pCi/g, then run sample for Sr90 (DOE 5R90-03-RC MOD)
Company: RSRS	Time: 1610	Company:	
Relinquished by: (signature)	Date:	Received by (signature):	Composite Description:
Company:	Time:	Company: 8.19.14 TETRA TECH	
Relinquished by: (signature)	Date:	Received by (signature):	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments: Piles

FZ02 - 1002~~A~~ 4A RAD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CUR Form #: 3 1 6

Lot #(s): 16a-8005 8006

CONDITION UPON RECEIPT FORM

Client: Tetra Tech

Quote No:

COC/RFA No:

Initiated By: [illegible] Date: 8·19·14 Time: 1015

Shipping Information

Shipper: FedEx UPS DHL Courier Client Other: Multiple Packages: Y N

Shipping # (s):*		Sample Temperature (s):**	
1. 7708·6468·7176	6.	1. 4.8	6.
2. 7708·6468·7371	7.	2. 20.1	7.
3.	8.	3.	8.
4.	9.	4.	9.
5.	10.	5.	10.

*Numbered shipping lines correspond to Numbered Sample Temp lines

**Sample must be received at 4°C ± 2°C- If not, note contents below. Temperature variance does NOT affect the following: Metals-Liquid; Rad tests- Liquid or Solids; Perchlorate

Condition (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

* 1.	Y N BO 8/19/14	Are there custody seals present on the cooler?	8.	Y N	Are there custody seals present on bottles?
2.	Y N N/A	Do custody seals on cooler appear to be tampered with?	9.	Y N N/A	Do custody seals on bottles appear to be tampered with?
3.	Y N	Were contents of cooler frisked after opening, but before unpacking?	10.	Y N N/A	Was sample received with proper pH[1]? (If not, make note below)
4.	Y N	Sample received with Chain of Custody?	11.	Y N N/A	Containers for C-14, H-3 & I-129/131 marked with "Do Not Preserve" label?
5.	Y N N/A	Does the Chain of Custody match sample ID's on the container(s)?	12.	Y N	Sample received in proper containers?
6.	Y N	Was sample received broken?	13.	Y N N/A	Headspace in VOA or TOX liquid samples? (If Yes, note sample ID's below)
7.	Y N	Is sample volume sufficient for analysis?	14.	Y N N/A	Was Internal COC/Workshare received?

[1] For DOE-AL (Pantex, LANL, Sandia) sites, pH of ALL containers received must be verified, EXCEPT VOA, TOX, Oil & Grease and soils.

Notes: * Noticed seals when cleaning cooler. BO 8/19/14

Corrective Action:

- ☐ Client Contact Name: Informed by:
- ☐ Sample(s) processed "as is"
- ☐ Sample(s) on hold until: If released, notify:

Project Management Review: Date:

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED IN. IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR INITIAL AND THE DATE NEXT TO THAT ITEM.

ADMIN-0004 rev13, REVISED 05/27/11 \\Slsvr01\QA\FORMS\ST-LOUIS\ADMIN\Admin-0004 CUR.doc

Login Sample Receipt Checklist

Client: Tetra Tech EC, Inc.

Job Number: 160-8005-1
SDG Number: 160-8005

Login Number: 8005
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-8005-1	IWL-BLDG29-SB1-01	Solid	08/18/14 10:00	08/19/14 10:15
160-8005-2	IWL-BLDG29-SB1-02	Solid	08/18/14 10:15	08/19/14 10:15
160-8005-3	IWL-BLDG29-SB2-01	Solid	08/18/14 11:15	08/19/14 10:15
160-8005-4	IWL-BLDG29-SB2-02	Solid	08/18/14 11:20	08/19/14 10:15
160-8005-5	IWL-BLDG29-SB3-01	Solid	08/18/14 12:11	08/19/14 10:15
160-8005-6	IWL-BLDG29-SB3-02	Solid	08/18/14 12:20	08/19/14 10:15
160-8005-7	IWL-SB1-01	Solid	08/18/14 13:55	08/19/14 10:15
160-8005-8	IWL-SB1-02	Solid	08/18/14 14:00	08/19/14 10:15
160-8005-9	IWL-SB2-01	Solid	08/18/14 15:00	08/19/14 10:15
160-8005-10	IWL-SB2-02	Solid	08/18/14 15:15	08/19/14 10:15
160-8005-11	IWL-RINSE-03	Water	08/18/14 10:40	08/19/14 10:15

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	2.18	U	7.34	7.35	119	5.80	pCi/L	09/15/14 16:54	09/15/14 19:36	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-BLDG29-SB1-01
Date Collected: 08/18/14 10:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-1
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.297**		0.0706	0.0770	0.200	0.0395	pCi/g	08/25/14 13:36	09/16/14 03:07	1
Cesium-137	0.00516	U	0.0231	0.0231	0.0700	0.0187	pCi/g	08/25/14 13:36	09/16/14 03:07	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-BLDG29-SB1-02
Date Collected: 08/18/14 10:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.351**		0.0711	0.0799	0.200	0.0379	pCi/g	08/25/14 13:36	09/16/14 06:23	1
Cesium-137	-0.00190	U	0.0325	0.0325	0.0700	0.0267	pCi/g	08/25/14 13:36	09/16/14 06:23	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-BLDG29-SB2-01
Date Collected: 08/18/14 11:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-3
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.482**		0.0886	0.102	0.200	0.0406	pCi/g	08/25/14 13:36	09/16/14 09:32	1
Cesium-137	-0.0312	U	0.0971	0.0972	0.0700	0.0189	pCi/g	08/25/14 13:36	09/16/14 09:32	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-BLDG29-SB2-02
Date Collected: 08/18/14 11:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-4
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.258**		0.0621	0.0676	0.200	0.0335	pCi/g	08/25/14 13:36	09/16/14 09:34	1
Cesium-137	0.00197	U	0.0187	0.0187	0.0700	0.0152	pCi/g	08/25/14 13:36	09/16/14 09:34	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-BLDG29-SB3-01
Date Collected: 08/18/14 12:11
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-5
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.279**		0.0815	0.0865	0.200	0.0402	pCi/g	08/25/14 13:36	09/16/14 13:52	1
Cesium-137	-0.0112	U	0.0729	0.0729	0.0700	0.0198	pCi/g	08/25/14 13:36	09/16/14 13:52	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-BLDG29-SB3-02
Date Collected: 08/18/14 12:20
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-6
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.352**		0.0724	0.0811	0.200	0.0387	pCi/g	08/25/14 13:36	09/16/14 13:53	1
Cesium-137	0.0118	U	0.0211	0.0211	0.0700	0.0165	pCi/g	08/25/14 13:36	09/16/14 13:53	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-SB1-01
Date Collected: 08/18/14 13:55
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-7
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.403**		0.105	0.113	0.200	0.0559	pCi/g	08/25/14 13:36	09/16/14 17:21	1
Cesium-137	-0.0276	U	0.509	0.509	0.0700	0.0247	pCi/g	08/25/14 13:36	09/16/14 17:21	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-SB1-02
Date Collected: 08/18/14 14:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-8
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.375**		0.0905	0.0985	0.200	0.0436	pCi/g	08/25/14 13:36	09/16/14 17:20	1
Cesium-137	0.00165	U	0.0160	0.0160	0.0700	0.0130	pCi/g	08/25/14 13:36	09/16/14 17:20	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-SB2-01
Date Collected: 08/18/14 15:00
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-9
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.514**		0.103	0.116	0.200	0.0526	pCi/g	08/25/14 13:36	09/16/14 20:42	1
Cesium-137	-0.0391	U	0.210	0.210	0.0700	0.0270	pCi/g	08/25/14 13:36	09/16/14 20:42	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-SB2-02
Date Collected: 08/18/14 15:15
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-10
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.348**		0.0652	0.0746	0.200	0.0340	pCi/g	08/25/14 13:36	09/16/14 20:42	1
Cesium-137	-0.00957	U	0.0229	0.0230	0.0700	0.0183	pCi/g	08/25/14 13:36	09/16/14 20:42	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 903.0 - Radium-226 (GFPC)

Client Sample ID: IWL-RINSE-03
Date Collected: 08/18/14 10:40
Date Received: 08/19/14 10:15

Lab Sample ID: 160-8005-11
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0402		0.0474	0.0476	2.50	0.0307	pCi/L	08/25/14 17:30	09/16/14 06:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.3*		*40 - 110*	*08/25/14 17:30*	*09/16/14 06:31*	*1*

QC Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-143988/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 143946 — **Prep Batch: 143988**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	1.174	U	5.06	5.06	119	3.98	pCi/L	09/15/14 16:54	09/15/14 17:42	1

Lab Sample ID: LCS 160-143988/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 144092 — **Prep Batch: 143988**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Cesium-137			49700	50360		5010	119	86.1	pCi/L	101	90 - 111		

Lab Sample ID: 160-8005-11 DU — **Client Sample ID: IWL-RINSE-03**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 143946 — **Prep Batch: 143988**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Cesium-137	2.18	U		1.652	U	5.47	119	4.25	pCi/L			0.04	1

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-139984/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 143945 — **Prep Batch: 139984**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04336	U	0.0646	0.0647	0.200	0.0475	pCi/g	08/25/14 13:36	09/15/14 20:43	1
Cesium-137	-0.008550	U	0.0222	0.0223	0.0700	0.0175	pCi/g	08/25/14 13:36	09/15/14 20:43	1

Lab Sample ID: LCS 160-139984/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 144270 — **Prep Batch: 139984**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Cesium-137			35.3	36.48		3.82	0.0700	0.101	pCi/g	103	87 - 120		

Lab Sample ID: 160-8005-1 DU — **Client Sample ID: IWL-BLDG29-SB1-01**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 144270 — **Prep Batch: 139984**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Radium-226	0.297			0.2861		0.0768	0.200	0.0397	pCi/g			0.07	1
Cesium-137	0.00516	U		-0.01910	U	0.330	0.0700	0.0200	pCi/g			0.07	1

QC Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-140024/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 144260 — **Prep Batch: 140024**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.06805		0.0534	0.0537	2.50	0.0325	pCi/L	08/25/14 17:30	09/16/14 06:31	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.7*		*40 - 110*	*08/25/14 17:30*	*09/16/14 06:31*	*1*

Lab Sample ID: LCS 160-140024/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 144260 — **Prep Batch: 140024**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Radium-226			11.2	10.53		1.05	2.50	0.0312	pCi/L	94	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*88.5*		*40 - 110*

Lab Sample ID: 160-8005-11 DU — **Client Sample ID: IWL-RINSE-03**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 144260 — **Prep Batch: 140024**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Radium-226	0.0402			-0.006229	U	0.0498	2.50	0.0420	pCi/L			0.48	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*92.9*		*40 - 110*

QC Association Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Rad

Leach Batch: 138855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8005-1	IWL-BLDG29-SB1-01	Total/NA	Solid	Dry and Grind	
160-8005-1 DU	IWL-BLDG29-SB1-01	Total/NA	Solid	Dry and Grind	
160-8005-2	IWL-BLDG29-SB1-02	Total/NA	Solid	Dry and Grind	
160-8005-3	IWL-BLDG29-SB2-01	Total/NA	Solid	Dry and Grind	
160-8005-4	IWL-BLDG29-SB2-02	Total/NA	Solid	Dry and Grind	
160-8005-5	IWL-BLDG29-SB3-01	Total/NA	Solid	Dry and Grind	
160-8005-6	IWL-BLDG29-SB3-02	Total/NA	Solid	Dry and Grind	
160-8005-7	IWL-SB1-01	Total/NA	Solid	Dry and Grind	
160-8005-8	IWL-SB1-02	Total/NA	Solid	Dry and Grind	
160-8005-9	IWL-SB2-01	Total/NA	Solid	Dry and Grind	
160-8005-10	IWL-SB2-02	Total/NA	Solid	Dry and Grind	

Prep Batch: 139984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8005-1	IWL-BLDG29-SB1-01	Total/NA	Solid	Fill_Geo-21	138855
160-8005-1 DU	IWL-BLDG29-SB1-01	Total/NA	Solid	Fill_Geo-21	138855
160-8005-2	IWL-BLDG29-SB1-02	Total/NA	Solid	Fill_Geo-21	138855
160-8005-3	IWL-BLDG29-SB2-01	Total/NA	Solid	Fill_Geo-21	138855
160-8005-4	IWL-BLDG29-SB2-02	Total/NA	Solid	Fill_Geo-21	138855
160-8005-5	IWL-BLDG29-SB3-01	Total/NA	Solid	Fill_Geo-21	138855
160-8005-6	IWL-BLDG29-SB3-02	Total/NA	Solid	Fill_Geo-21	138855
160-8005-7	IWL-SB1-01	Total/NA	Solid	Fill_Geo-21	138855
160-8005-8	IWL-SB1-02	Total/NA	Solid	Fill_Geo-21	138855
160-8005-9	IWL-SB2-01	Total/NA	Solid	Fill_Geo-21	138855
160-8005-10	IWL-SB2-02	Total/NA	Solid	Fill_Geo-21	138855
LCS 160-139984/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-139984/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 140024

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8005-11	IWL-RINSE-03	Total/NA	Water	PrecSep-21	
160-8005-11 DU	IWL-RINSE-03	Total/NA	Water	PrecSep-21	
LCS 160-140024/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-140024/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Prep Batch: 143988

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8005-11	IWL-RINSE-03	Total/NA	Water	Fill_Geo-0	
160-8005-11 DU	IWL-RINSE-03	Total/NA	Water	Fill_Geo-0	
LCS 160-143988/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
MB 160-143988/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	

Tracer/Carrier Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8005-1
SDG: 160-8005

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
		Ba							
Lab Sample ID	Client Sample ID	(40-110)							
160-8005-11	IWL-RINSE-03	95.3							
160-8005-11 DU	IWL-RINSE-03	92.9							
LCS 160-140024/2-A	Lab Control Sample	88.5							
MB 160-140024/1-A	Method Blank	89.7							

Tracer/Carrier Legend

Ba = Ba Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8113-1
TestAmerica Sample Delivery Group: 160-8113
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
9/26/2014 4:42:55 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-8113-1

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech EC, Inc.

Project: Alameda IR Site 17

Report Number: 160-8113-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-8113-1 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 8/27/2014 9:35 AM; the samples arrived in good condition, properly preserved. The temperature of the cooler at receipt was 20.0º C.

CESIUM 137 AND OTHER GAMMA EMITTERS (GS)

Sample IWL-RINSE-04 (160-8113-1) was analyzed for Cesium 137 and Other Gamma Emitters (GS) in accordance with USEPA Method 901.1. The samples were prepared and analyzed on 09/23/2014.

Count Time: All samples and QC were counted for 60 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples IWL-PS1-VAULT-UP-01 (160-8113-2), IWL-MHs (160-8113-3) and IWL-BLDG26-EXCAVATION (160-8113-4) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA 901.1. The samples were leached on 08/27/2014, prepared on 09/03/2014 and analyzed on 09/24/2014.

Count Time: All samples and QC were counted for 180 mins.

There was insufficient sample to fill a tuna can geometry for Radium-226 by gamma spec which could potentially bias the results low due to the loss of Radon into the headspace of the container: (160-8113-2 DU), IWL-PS1-VAULT-UP-01 (160-8113-2). A 100mL solid geometry was used.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

RADIUM-226 (GFPC)

Sample IWL-RINSE-04 (160-8113-1) was analyzed for Radium-226 (GFPC) in accordance with EPA Method 903.0. The samples were prepared on 08/29/2014 and analyzed on 09/23/2014.

Count Time: All samples and QC were counted for 200 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1007A RAD

Project Name	FZ02 - Alameda Site 17
PO Number	1096343-6
Project Location	Alameda, CA
Project Number	FZ02.0202.1000
Sampler Name	Chris Charchidi
Airbill Number	7709 5369 1510
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	Ra226 Only	E901.1-Cs 137	DOE SR90-03-RC MOD *					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-RINSE-04	8/26/2014	0910	3	3	W	21 dy	X	X							EQUIPMENT BLK			EQB
IWL-PS1-VAULT-UP-01	8/26/2014	0920	2	3	W	21 dy	X	X							PS1 10'UPSTREAM			N

CAL

160-8113 Chain of Custody

Relinquished by: (signature)	Date: 8-26-14	Received by (signature) FedEx	Laboratory Instructions/Comments: * If Cs137 result is > 0.113 pCi/g, then run sample for Sr90 (DOE SR90-03-RC MOD)
Company: BSRS	Time: 1507	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature) 8/27/14	Composite Discription:
Company:	Time:	Company: TA 0930	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1007A RAD

Login Sample Receipt Checklist

Client: Tetra Tech EC, Inc.

Job Number: 160-8113-1
SDG Number: 160-8113

Login Number: 8113
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-1
SDG: 160-8113

Method	Method Description	Protocol	Laboratory
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL
901.1	Cesium 137 & Other Gamma Emitters (GS)	EPA	TAL SL
903.0	Radium-226 (GFPC)	EPA	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-1
SDG: 160-8113

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-8113-1	IWL-RINSE-04	Water	08/26/14 09:10	08/27/14 09:35
160-8113-2	IWL-PS1-VAULT-UP-01	Solid	08/26/14 09:20	08/27/14 09:35
160-8113-3	IWL-MHs	Solid	08/25/14 14:05	08/27/14 09:35
160-8113-4	IWL-BLDG26-EXCAVATION	Solid	08/25/14 14:31	08/27/14 09:35

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-1
SDG: 160-8113

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8113-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	-2.36	U	7.65	7.65	119	6.04	pCi/L	09/23/14 16:43	09/23/14 21:27	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-1
SDG: 160-8113

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8113-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.62		0.221	0.278	0.700	0.106	pCi/g	09/03/14 08:44	09/24/14 11:01	1
Cesium-137	0.267		0.0906	0.0947	0.0700	0.0489	pCi/g	09/03/14 08:44	09/24/14 11:01	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-1
SDG: 160-8113

Method: 903.0 - Radium-226 (GFPC)

Client Sample ID: IWL-RINSE-04
Date Collected: 08/26/14 09:10
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8113-1
Matrix: Water

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00233	U	0.0637	0.0637	2.50	0.0521	pCi/L	08/29/14 16:42	09/23/14 07:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.8*		*40 - 110*	*08/29/14 16:42*	*09/23/14 07:41*	*1*

QC Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-1
SDG: 160-8113

Method: 901.1 - Cesium 137 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-145686/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 145626 — **Prep Batch: 145686**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Cesium-137	0.7048	U	6.98	6.98	119	5.62	pCi/L	09/23/14 16:43	09/23/14 22:06	1

Lab Sample ID: LCS 160-145686/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 145498 — **Prep Batch: 145686**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Cesium-137			49700	48840		4900	119	94.3	pCi/L	98	90 - 111		

Lab Sample ID: 160-8113-1 DU — **Client Sample ID: IWL-RINSE-04**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 145498 — **Prep Batch: 145686**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Cesium-137	-2.36	U		-1.102	U	8.61	119	6.93	pCi/L			0.08	1

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-141589/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 145907 — **Prep Batch: 141589**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04927		0.0544	0.0546	0.700	0.0346	pCi/g	09/03/14 08:44	09/24/14 10:55	1
Cesium-137	0.008972	U	0.0242	0.0242	0.0700	0.0190	pCi/g	09/03/14 08:44	09/24/14 10:55	1

Lab Sample ID: LCS 160-141589/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 145726 — **Prep Batch: 141589**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Cesium-137			30.8	30.39		3.18	0.0700	0.0779	pCi/g	99	87 - 120		

Lab Sample ID: 160-8113-2 DU — **Client Sample ID: IWL-PS1-VAULT-UP-01**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 145751 — **Prep Batch: 141589**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Radium-226	1.62			1.470		0.269	0.700	0.114	pCi/g			0.28	1
Cesium-137	0.267			0.3503		0.103	0.0700	0.0378	pCi/g			0.42	1

QC Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-1
SDG: 160-8113

Method: 903.0 - Radium-226 (GFPC)

Lab Sample ID: MB 160-141058/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 145501 — **Prep Batch: 141058**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.03527	U	0.0682	0.0683	2.50	0.0511	pCi/L	08/29/14 16:42	09/23/14 07:41	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*86.1*		*40 - 110*	*08/29/14 16:42*	*09/23/14 07:41*	*1*

Lab Sample ID: LCS 160-141058/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 145501 — **Prep Batch: 141058**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Radium-226			11.2	11.14		1.13	2.50	0.0458	pCi/L	99	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*83.8*		*40 - 110*

Lab Sample ID: 160-8113-1 DU — **Client Sample ID: IWL-RINSE-04**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 145501 — **Prep Batch: 141058**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Radium-226	0.00233	U		0.01620	U	0.0803	2.50	0.0639	pCi/L			0.1	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*80.5*		*40 - 110*

QC Association Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-1
SDG: 160-8113

Rad

Leach Batch: 140446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8113-2	IWL-PS1-VAULT-UP-01	Total/NA	Solid	Dry and Grind	
160-8113-2 DU	IWL-PS1-VAULT-UP-01	Total/NA	Solid	Dry and Grind	
160-8113-3	IWL-MHs	Total/NA	Solid	Dry and Grind	
160-8113-4	IWL-BLDG26-EXCAVATION	Total/NA	Solid	Dry and Grind	

Prep Batch: 141058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8113-1	IWL-RINSE-04	Total/NA	Water	PrecSep-21	
160-8113-1 DU	IWL-RINSE-04	Total/NA	Water	PrecSep-21	
LCS 160-141058/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
MB 160-141058/1-A	Method Blank	Total/NA	Water	PrecSep-21	

Prep Batch: 141589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8113-2	IWL-PS1-VAULT-UP-01	Total/NA	Solid	Fill_Geo-21	140446
160-8113-2 DU	IWL-PS1-VAULT-UP-01	Total/NA	Solid	Fill_Geo-21	140446
160-8113-3	IWL-MHs	Total/NA	Solid	Fill_Geo-21	140446
160-8113-4	IWL-BLDG26-EXCAVATION	Total/NA	Solid	Fill_Geo-21	140446
LCS 160-141589/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
MB 160-141589/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	

Prep Batch: 145686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8113-1	IWL-RINSE-04	Total/NA	Water	Fill_Geo-0	
160-8113-1 DU	IWL-RINSE-04	Total/NA	Water	Fill_Geo-0	
LCS 160-145686/2-A	Lab Control Sample	Total/NA	Water	Fill_Geo-0	
MB 160-145686/1-A	Method Blank	Total/NA	Water	Fill_Geo-0	

Tracer/Carrier Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-1
SDG: 160-8113

Method: 903.0 - Radium-226 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
		Ba							
Lab Sample ID	Client Sample ID	(40-110)							
160-8113-1	IWL-RINSE-04	88.8							
160-8113-1 DU	IWL-RINSE-04	80.5							
LCS 160-141058/2-A	Lab Control Sample	83.8							
MB 160-141058/1-A	Method Blank	86.1							

Tracer/Carrier Legend

Ba = Ba Carrier

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-7722-2
TestAmerica Sample Delivery Group: 160-7722
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
10/8/2014 11:41:12 AM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-7722-2

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech EC, Inc.

Project: Alameda IR Site 17

Report Number: 160-7722-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-7722-2 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 8/1/2014 9:05 AM; the samples arrived in good condition, properly preserved. The temperature of the cooler at receipt was 20.0º C.

STRONTIUM-90 (GFPC)

Samples IWL-MH1-24-01 (160-7722-1), IWL-MH1-24-02 (160-7722-2), IWL-MH1-23-01 (160-7722-3), IWL-MH1-23-02 (160-7722-4), IWL-MH1-22-01 (160-7722-5), IWL-MH1-11-01 (160-7722-9), IWL-MH1-11-02 (160-7722-10), IWL-MH1-11A-01 (160-7722-11), IWL-MH1-12-01 (160-7722-12) and IWL-MH1-12-02 (160-7722-13) were analyzed for Strontium-90 (GFPC) in accordance with SR-03-RC. The samples were leached on 09/09/2014, prepared on 09/09/2014 and 09/26/2014 and analyzed on 09/22/2014 and 10/07/2014.

Count Time: All samples and QC were counted for 400 mins.

No additional analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Gish, Erika

From: Sudoko, Sabina [Sabina.Sudoko@tetratech.com]
Sent: Monday, September 08, 2014 3:38 PM
To: Gish, Erika
Subject: FZ02 - Alameda - Sr90 Contingent Analysis - 160-7722-1
Importance: High

Erika,

Please have the lab do sr90 contingent analysis on samples listed below as indicated on the COC

160-7722-1 (IWL-NH1-24-01)
160-7722-2 (IWL-MH1-24-02)
160-7722-3 (IWL-MH1-23-01)
160-7722-4 (IWL-MH1-23-02)
160-7722-5 (IWL-MH1-22-01)
160-7722-9 (IWL-MH1-11-01)
160-7752-10 (IWL-MH1-11-02)
160-7722-11 (IWL-MH1-11A-01)
160-7722-12 (IWL-MH1-12-01)
160-7722-13 (IWL-MH1-12-02)

Thank you,

Sabina R. Sudoko | Chemist
Direct **+1 (949) 809-5022** | Business **+1 (949) 809-5000** | sabina.sudoko@tetratech.com

Tetra Tech EC, Inc.
17885 Von Karman Ave. Suite 500, Irvine, CA 92614-5227 | tetratech.com

Login Sample Receipt Checklist

Client: Tetra Tech EC, Inc.

Job Number: 160-7722-2
SDG Number: 160-7722

Login Number: 7722
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method	Method Description	Protocol	Laboratory
SR-03-RC	Strontium-90 (GFPC)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-7722-1	IWL-MH1-24-01	Solid	07/21/14 11:08	08/01/14 09:05
160-7722-2	IWL-MH1-24-02	Solid	07/21/14 11:13	08/01/14 09:05
160-7722-3	IWL-MH1-23-01	Solid	07/21/14 14:23	08/01/14 09:05
160-7722-4	IWL-MH1-23-02	Solid	07/21/14 14:30	08/01/14 09:05
160-7722-5	IWL-MH1-22-01	Solid	07/22/14 10:33	08/01/14 09:05
160-7722-9	IWL-MH1-11-01	Solid	07/23/14 09:03	08/01/14 09:05
160-7722-10	IWL-MH1-11-02	Solid	07/23/14 09:12	08/01/14 09:05
160-7722-11	IWL-MH1-11A-01	Solid	07/23/14 12:40	08/01/14 09:05
160-7722-12	IWL-MH1-12-01	Solid	07/23/14 14:58	08/01/14 09:05
160-7722-13	IWL-MH1-12-02	Solid	07/23/14 15:10	08/01/14 09:05

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-MH1-24-01
Date Collected: 07/21/14 11:08
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-1
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.126		0.131	0.132	0.320	0.102	pCi/g	09/09/14 17:32	09/22/14 17:10	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*88.6*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:10*	*1*
Y Carrier	*90.8*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:10*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-MH1-24-02
Date Collected: 07/21/14 11:13
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.185	U	0.143	0.144	0.320	0.125	pCi/g	09/09/14 17:32	09/22/14 17:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*89.4*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:11*	*1*
Y Carrier	*88.2*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:11*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-MH1-23-01
Date Collected: 07/21/14 14:23
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-3
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0688	U	0.136	0.136	0.320	0.108	pCi/g	09/09/14 17:32	09/22/14 17:11	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*83.1*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:11*	*1*
Y Carrier	*92.7*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:11*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-MH1-23-02
Date Collected: 07/21/14 14:30
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-4
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.344		0.152	0.154	0.320	0.108	pCi/g	09/09/14 17:32	09/22/14 17:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*77.7*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:12*	*1*
Y Carrier	*93.1*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:12*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-MH1-22-01
Date Collected: 07/22/14 10:33
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-5
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0392	U	0.0984	0.0984	0.320	0.0786	pCi/g	09/09/14 17:32	09/22/14 17:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*89.3*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:12*	*1*
Y Carrier	*97.9*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:12*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-MH1-11-01
Date Collected: 07/23/14 09:03
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-9
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.170		0.118	0.118	0.320	0.0871	pCi/g	09/09/14 17:32	09/22/14 17:12	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*83.9*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:12*	*1*
Y Carrier	*93.5*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:12*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-MH1-11-02
Date Collected: 07/23/14 09:12
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-10
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0836	U	0.151	0.151	0.320	0.120	pCi/g	09/26/14 07:20	10/07/14 17:22	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*77.5*		*40 - 110*	*09/26/14 07:20*	*10/07/14 17:22*	*1*
Y Carrier	*92.7*		*40 - 110*	*09/26/14 07:20*	*10/07/14 17:22*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-MH1-11A-01
Date Collected: 07/23/14 12:40
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-11
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.0425	U	0.131	0.131	0.320	0.105	pCi/g	09/09/14 17:32	09/22/14 17:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*74.5*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:13*	*1*
Y Carrier	*92.3*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:13*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-MH1-12-01
Date Collected: 07/23/14 14:58
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-12
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.135		0.123	0.123	0.320	0.0938	pCi/g	09/09/14 17:32	09/22/14 17:13	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*84.2*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:13*	*1*
Y Carrier	*94.6*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:13*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-MH1-12-02
Date Collected: 07/23/14 15:10
Date Received: 08/01/14 09:05

Lab Sample ID: 160-7722-13
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.276		0.138	0.140	0.320	0.0995	pCi/g	09/09/14 17:32	09/22/14 17:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*82.1*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:15*	*1*
Y Carrier	*93.5*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:15*	*1*

QC Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Lab Sample ID: MB 160-142856/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 145417 — **Prep Batch: 142856**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.1872		0.127	0.128	0.320	0.0947	pCi/g	09/09/14 17:32	09/22/14 17:10	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*88.2*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:10*	*1*
Y Carrier	*90.5*		*40 - 110*	*09/09/14 17:32*	*09/22/14 17:10*	*1*

Lab Sample ID: LCS 160-142856/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 145417 — **Prep Batch: 142856**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Strontium-90			9.01	9.461		0.871	0.320	0.0950	pCi/g	105	88 - 136		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*88.5*		*40 - 110*
Y Carrier	*91.6*		*40 - 110*

Lab Sample ID: 160-7722-1 DU — **Client Sample ID: IWL-MH1-24-01**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 145417 — **Prep Batch: 142856**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Strontium-90	0.126			0.07486	U	0.131	0.320	0.104	pCi/g			0.19	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Sr Carrier	*88.0*		*40 - 110*
Y Carrier	*94.2*		*40 - 110*

Lab Sample ID: MB 160-146142/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 147843 — **Prep Batch: 146142**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.1137		0.136	0.136	0.320	0.106	pCi/g	09/26/14 07:20	10/07/14 17:22	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*84.7*		*40 - 110*	*09/26/14 07:20*	*10/07/14 17:22*	*1*
Y Carrier	*93.1*		*40 - 110*	*09/26/14 07:20*	*10/07/14 17:22*	*1*

Method: SR-03-RC - Strontium-90 (GFPC) (Continued)

Lab Sample ID: LCS 160-146142/2-A
Matrix: Solid
Analysis Batch: 147843

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 146142

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Strontium-90			9.00	9.267		0.865	0.320	0.108	pCi/g	103	88 - 136		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*85.9*		*40 - 110*
Y Carrier	*91.6*		*40 - 110*

Lab Sample ID: 160-7722-10 DU
Matrix: Solid
Analysis Batch: 147855

Client Sample ID: IWL-MH1-11-02
Prep Type: Total/NA
Prep Batch: 146142

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Strontium-90	0.0836	U		0.3543		0.156	0.320	0.108	pCi/g			0.88	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Sr Carrier	*80.3*		*40 - 110*
Y Carrier	*89.0*		*40 - 110*

QC Association Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Rad

Leach Batch: 142655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-7722-1	IWL-MH1-24-01	Total/NA	Solid	Dry and Grind	
160-7722-1 DU	IWL-MH1-24-01	Total/NA	Solid	Dry and Grind	
160-7722-2	IWL-MH1-24-02	Total/NA	Solid	Dry and Grind	
160-7722-3	IWL-MH1-23-01	Total/NA	Solid	Dry and Grind	
160-7722-4	IWL-MH1-23-02	Total/NA	Solid	Dry and Grind	
160-7722-5	IWL-MH1-22-01	Total/NA	Solid	Dry and Grind	
160-7722-9	IWL-MH1-11-01	Total/NA	Solid	Dry and Grind	
160-7722-10	IWL-MH1-11-02	Total/NA	Solid	Dry and Grind	
160-7722-10 DU	IWL-MH1-11-02	Total/NA	Solid	Dry and Grind	
160-7722-11	IWL-MH1-11A-01	Total/NA	Solid	Dry and Grind	
160-7722-12	IWL-MH1-12-01	Total/NA	Solid	Dry and Grind	
160-7722-13	IWL-MH1-12-02	Total/NA	Solid	Dry and Grind	

Prep Batch: 142856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-7722-1	IWL-MH1-24-01	Total/NA	Solid	DPS-7	142655
160-7722-1 DU	IWL-MH1-24-01	Total/NA	Solid	DPS-7	142655
160-7722-2	IWL-MH1-24-02	Total/NA	Solid	DPS-7	142655
160-7722-3	IWL-MH1-23-01	Total/NA	Solid	DPS-7	142655
160-7722-4	IWL-MH1-23-02	Total/NA	Solid	DPS-7	142655
160-7722-5	IWL-MH1-22-01	Total/NA	Solid	DPS-7	142655
160-7722-9	IWL-MH1-11-01	Total/NA	Solid	DPS-7	142655
160-7722-11	IWL-MH1-11A-01	Total/NA	Solid	DPS-7	142655
160-7722-12	IWL-MH1-12-01	Total/NA	Solid	DPS-7	142655
160-7722-13	IWL-MH1-12-02	Total/NA	Solid	DPS-7	142655
LCS 160-142856/2-A	Lab Control Sample	Total/NA	Solid	DPS-7	
MB 160-142856/1-A	Method Blank	Total/NA	Solid	DPS-7	

Prep Batch: 146142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-7722-10	IWL-MH1-11-02	Total/NA	Solid	DPS-7	142655
160-7722-10 DU	IWL-MH1-11-02	Total/NA	Solid	DPS-7	142655
LCS 160-146142/2-A	Lab Control Sample	Total/NA	Solid	DPS-7	
MB 160-146142/1-A	Method Blank	Total/NA	Solid	DPS-7	

Tracer/Carrier Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-7722-2
SDG: 160-7722

Method: SR-03-RC - Strontium-90 (GFPC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	Client Sample ID	Sr (C) (40-110)	Y (40-110)						
160-7722-1	IWL-MH1-24-01	88.6	90.8						
160-7722-1 DU	IWL-MH1-24-01	88.0	94.2						
160-7722-2	IWL-MH1-24-02	89.4	88.2						
160-7722-3	IWL-MH1-23-01	83.1	92.7						
160-7722-4	IWL-MH1-23-02	77.7	93.1						
160-7722-5	IWL-MH1-22-01	89.3	97.9						
160-7722-9	IWL-MH1-11-01	83.9	93.5						
160-7722-10	IWL-MH1-11-02	77.5	92.7						
160-7722-10 DU	IWL-MH1-11-02	80.3	89.0						
160-7722-11	IWL-MH1-11A-01	74.5	92.3						
160-7722-12	IWL-MH1-12-01	84.2	94.6						
160-7722-13	IWL-MH1-12-02	82.1	93.5						
LCS 160-142856/2-A	Lab Control Sample	88.5	91.6						
LCS 160-146142/2-A	Lab Control Sample	85.9	91.6						
MB 160-142856/1-A	Method Blank	88.2	90.5						
MB 160-146142/1-A	Method Blank	84.7	93.1						

Tracer/Carrier Legend

Sr (C) = Sr Carrier

Y = Y Carrier

Subappendix D3

Waste Characterization Data for Sediment Removed from Manholes

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Table D-3
Industrial Waste Line
Waste Characterization Results for Sample IWL-MHs

Method	Analyte	Units	If greater than TTLC criteria listed below, then indicates California (non-RCRA) Hazardous	Run STLC if result is greater than value listed below unless result is above TTLC criteria	Run TCLP if result is greater than value listed below	Sample: IWL-MHs Date Collected: 8/26/2014	Evaluation for Disposal Purposes
901.1	Cesium-137	pCi/g	--			0.0447	
901.1	Radium-226	pCi/g	1.0 above background (where background is 0.56 pCi/g) [a]			1.04	
6020A	Antimony	mg/kg	500	150	--	3.41	
6020A	Arsenic	mg/kg	500	50	100	6.95	
6020A	Barium	mg/kg	10,000	1,000	2,000	204	
6020A	Beryllium	mg/kg	75	7.5	--	0.587	
6020A	Cadmium	mg/kg	100	10	20	352	Result above TTLC which indicates California (or non-RCRA) Hazardous; but TCLP still needs to be performed.
6010C	TCLP Cadmium	mg/L	--	--	--	2.06	Result is above TCLP cadmium limit of 1 mg/L which indicates RCRA Hazardous.
6020A	Chromium	mg/kg	2,500	50	100	1090	Run STLC and TCLP
6010C	STLC Chromium	mg/L	--	--	--	10.5 B	Result is above STLC chromium limit of 5 mg/L which indicates California (non-RCRA) Hazardous.
6010C	TCLP Chromium	mg/L	--	--	--	0.0205 JB	Result is below TCLP chromium limit of 5 mg/L.
6020A	Cobalt	mg/kg	8,000	800	--	41.9	
6020A	Copper	mg/kg	2,500	250	--	347	Run STLC
6010C	STLC Copper	mg/L	--	--	--	0.123 J	Result is below STLC copper limit of 25 mg/L.
6020A	Iron	mg/kg	--	--	--	24500	
6020A	Lead	mg/kg	1,000	50	100	459	Run STLC and TCLP
6010C	STLC Lead	mg/L	--	--	--	2.81	Result is below the STLC lead limit of 5 mg/L.
6010C	TCLP Lead	mg/L	--	--	--	0.0218 JB *	Result is below the TCLP lead limit of 5 mg/L.
6020A	Molybdenum	mg/kg	3,500	--	--	27.3	
6020A	Nickel	mg/kg	2,000	200	--	422	Run STLC
6010C	STLC Nickel	mg/L	--	--	--	9.28	Result is below the STLC nickel limit of 20 mg/L.
6020A	Selenium	mg/kg	100	10	20	0.825 J	
6020A	Silver	mg/kg	500	50	100	23	
6020A	Thallium	mg/kg	700	70	--	0.889 U	
6020A	Vanadium	mg/kg	2,400	240	--	28.7	
6020A	Zinc	mg/kg	5,000	2,500	--	1240	
7471B	Mercury	mg/kg	20	2	4	1.42	
8015B DRO	Diesel Range Organics [C10-C28]	mg/kg	--	--	--	10300	
8015B DRO	Motor Oil Range Organics [C28-C40]	mg/kg	--	--	--	9290	

Table D-3
Industrial Waste Line
Waste Characterization Results for Sample IWL-MHs

Method	Analyte	Units	If greater than TTLC criteria listed below, then indicates California (non-RCRA) Hazardous	Run STLC if result is greater than value listed below unless result is above TTLC criteria	Run TCLP if result is greater than value listed below	Sample: IWL-MHs Date Collected: 8/26/2014	Evaluation for Disposal Purposes
8015B GRO	Gasoline Range Organics (C6-C12)	mg/kg	--	--	--	0.148	
8081B	4,4'-DDD	µg/kg	1,000	--	--	3.49 p	
8081B	4,4'-DDE	µg/kg	1,000	--	--	5.25 p	
8081B	4,4'-DDT	µg/kg	1,000	--	--	0.706 U	
8081B	Aldrin	µg/kg	1,400	--	--	0.358 U	
8081B	alpha-BHC	µg/kg	--	--	--	0.358 U	
8081B	beta-BHC	µg/kg	--	--	--	0.358 U	
8081B	delta-BHC	µg/kg	--	--	--	0.358 U	
8081B	Dieldrin	µg/kg	8,000	--	--	0.358 U	
8081B	Endosulfan I	µg/kg	--	--	--	1.00 J p	
8081B	Endosulfan II	µg/kg	--	--	--	0.358 U	
8081B	Endosulfan sulfate	µg/kg	--	--	--	0.706 U	
8081B	Endrin	µg/kg	200	--	400	0.358 U	
8081B	Endrin aldehyde	µg/kg	--	--	--	8.37	
8081B	Endrin ketone	µg/kg	--	--	--	0.706 U	
8081B	gamma-BHC (Lindane)	µg/kg	4,000	--	8,000	0.358 U	
8081B	Heptachlor	µg/kg	4,700	--	160	0.358 U	
8081B	Heptachlor epoxide	µg/kg	--	--	160	0.706 U	
8081B	Methoxychlor	µg/kg	100,000	--	200,000	1.79 U	
8081B	Technical Chlordane	µg/kg	2,500	--	600	7.06 U	
8081B	Toxaphene	µg/kg	5,000	--	10,000	35.8 U	
8082A	Aroclor 1016	µg/kg	50,000	--	--	167 U	
8082A	Aroclor 1221	µg/kg		--	--	167 U	
8082A	Aroclor 1232	µg/kg		--	--	167 U	
8082A	Aroclor 1242	µg/kg		--	--	167 U	
8082A	Aroclor 1248	µg/kg		--	--	167 U	
8082A	Aroclor 1254	µg/kg		--	--	458	
8082A	Aroclor 1260	µg/kg		--	--	480	
8260C	1,1,1-Trichloroethane	µg/kg	--	--	--	5.56 J	
8260C	1,1,2,2-Tetrachloroethane	µg/kg	--	--	--	1.28 U *	
8260C	1,1,2-Trichloroethane	µg/kg	--	--	--	1.28 U *	
8260C	1,1-Dichloroethane	µg/kg	--	--	--	1.28 U	
8260C	1,1-Dichloroethene	µg/kg	--	--	14,000	6.40 U	
8260C	1,2-Dichloroethane	µg/kg	--	--	10,000	1.28 U	
8260C	1,2-Dichloropropane	µg/kg	--	--	--	1.28 U	
8260C	2-Butanone (MEK)	µg/kg	--	--	4,000,000	6.40 U	
8260C	2-Hexanone	µg/kg	--	--	--	6.40 U *	
8260C	4-Methyl-2-pentanone (MIBK)	µg/kg	--	--	--	6.40 U *	
8260C	Acetone	µg/kg	--	--	--	12.8 U	
8260C	Benzene	µg/kg	--	--	10,000	1.28 U	
8260C	Bromodichloromethane	µg/kg	--	--	--	1.28 U	
8260C	Bromoform	µg/kg	--	--	--	1.28 U *	
8260C	Bromomethane	µg/kg	--	--	--	6.40 U	
8260C	Carbon tetrachloride	µg/kg	--	--	10,000	1.28 U	
8260C	Chlorobenzene	µg/kg	--	--	2,000,000	1.28 U *	

Table D-3
Industrial Waste Line
Waste Characterization Results for Sample IWL-MHs

Method	Analyte	Units	If greater than TTLC criteria listed below, then indicates California (non-RCRA) Hazardous	Run STLC if result is greater than value listed below unless result is above TTLC criteria	Run TCLP if result is greater than value listed below	Sample: IWL-MHs Date Collected: 8/26/2014	Evaluation for Disposal Purposes
8260C	Chloroethane	µg/kg	--	--	--	1.28 U	
8260C	Chloroform	µg/kg	--	--	120,000	1.28 U	
8260C	Chloromethane	µg/kg	--	--	--	6.40 U	
8260C	cis-1,2-Dichloroethene	µg/kg	--	--	--	1.28 U	
8260C	cis-1,3-Dichloropropene	µg/kg	--	--	--	1.28 U	
8260C	Dibromochloromethane	µg/kg	--	--	--	1.28 U *	
8260C	Ethylbenzene	µg/kg	--	--	--	1.28 U *	
8260C	Methyl tert-butyl ether	µg/kg	--	--	--	1.28 U	
8260C	Methylene Chloride	µg/kg	--	--	--	6.40 U	
8260C	Styrene	µg/kg	--	--	--	1.28 U *	
8260C	Tetrachloroethene	µg/kg	--	--	14,000	1.28 U *	
8260C	Toluene	µg/kg	--	--	--	1.28 U *	
8260C	trans-1,2-Dichloroethene	µg/kg	--	--	--	1.28 U	
8260C	trans-1,3-Dichloropropene	µg/kg	--	--	--	1.28 U *	
8260C	Trichloroethene	µg/kg	2,040,000	--	10,000	1.28 U	
8260C	Vinyl chloride	µg/kg	--	--	4,000	1.28 U	
8260C	Xylenes, Total	µg/kg	--	--	--	6.40 U *	
8270D	1,2,4-Trichlorobenzene	µg/kg	--	--	--	104 U	
8270D	1,2-Dichlorobenzene	µg/kg	--	--	--	104 U	
8270D	1,3-Dichlorobenzene	µg/kg	--	--	--	104 U	
8270D	1,4-Dichlorobenzene	µg/kg	--	--	150,000	104 U	
8270D	2,4,5-Trichlorophenol	µg/kg	--	--	8,000,000	104 U	
8270D	2,4,6-Trichlorophenol	µg/kg	--	--	40,000	104 U	
8270D	2,4-Dichlorophenol	µg/kg	--	--	--	104 U	
8270D	2,4-Dimethylphenol	µg/kg	--	--	--	104 U	
8270D	2,4-Dinitrophenol	µg/kg	--	--	--	696 U	
8270D	2,4-Dinitrotoluene	µg/kg	--	--	2,600	104 U	
8270D	2,6-Dinitrotoluene	µg/kg	--	--	--	104 U	
8270D	2-Chloronaphthalene	µg/kg	--	--	--	104 U	
8270D	2-Chlorophenol	µg/kg	--	--	--	104 U	
8270D	2-Methylphenol	µg/kg	--	--	4,000,000	104 U	
8270D	2-Nitroaniline	µg/kg	--	--	--	104 U	
8270D	2-Nitrophenol	µg/kg	--	--	--	104 U	
8270D	3 & 4 Methylphenol	µg/kg	--	--	4,000,000	104 U	
8270D	3,3'-Dichlorobenzidine	µg/kg	--	--	--	696 U	
8270D	3-Nitroaniline	µg/kg	--	--	--	104 U	
8270D	4,6-Dinitro-2-methylphenol	µg/kg	--	--	--	696 U	
8270D	4-Bromophenyl phenyl ether	µg/kg	--	--	--	104 U	
8270D	4-Chloro-3-methylphenol	µg/kg	--	--	--	104 U	
8270D	4-Chloroaniline	µg/kg	--	--	--	104 U	
8270D	4-Chlorophenyl phenyl ether	µg/kg	--	--	--	104 U	
8270D	4-Nitroaniline	µg/kg	--	--	--	696 U	
8270D	4-Nitrophenol	µg/kg	--	--	--	696 U	
8270D	Acenaphthene	µg/kg	--	--	--	104 U	
8270D	Acenaphthylene	µg/kg	--	--	--	104 U	
8270D	Anthracene	µg/kg	--	--	--	104 U	
8270D	Benzo[a]anthracene	µg/kg	--	--	--	189 J	

Table D-3
Industrial Waste Line
Waste Characterization Results for Sample IWL-MHs

Method	Analyte	Units	If greater than TTLC criteria listed below, then indicates California (non-RCRA) Hazardous	Run STLC if result is greater than value listed below unless result is above TTLC criteria	Run TCLP if result is greater than value listed below	Sample: IWL-MHs Date Collected: 8/26/2014	Evaluation for Disposal Purposes
8270D	Benzo[a]pyrene	µg/kg	--	--	--	229 J	
8270D	Benzo[b]fluoranthene	µg/kg	--	--	--	401	
8270D	Benzo[g,h,i]perylene	µg/kg	--	--	--	104 U	
8270D	Benzo[k]fluoranthene	µg/kg	--	--	--	104 U	
8270D	bis (2-chloroisopropyl) ether	µg/kg	--	--	--	104 U	
8270D	Bis(2-chloroethoxy)methane	µg/kg	--	--	--	104 U	
8270D	Bis(2-chloroethyl)ether	µg/kg	--	--	--	104 U	
8270D	Bis(2-ethylhexyl) phthalate	µg/kg	--	--	--	30800	
8270D	Butyl benzyl phthalate	µg/kg	--	--	--	1140	
8270D	Chrysene	µg/kg	--	--	--	357	
8270D	Dibenzo(a),h)anthracene	µg/kg	--	--	--	104 U	
8270D	Dibenzofuran	µg/kg	--	--	--	104 U	
8270D	Diethyl phthalate	µg/kg	--	--	--	104 U	
8270D	Dimethyl phthalate	µg/kg	--	--	--	104 U	
8270D	Di-n-butyl phthalate	µg/kg	--	--	--	1190	
8270D	Di-n-octyl phthalate	µg/kg	--	--	--	104 U	
8270D	Fluoranthene	µg/kg	--	--	--	13300	
8270D	Fluorene	µg/kg	--	--	--	104 U	
8270D	Hexachlorobenzene	µg/kg	--	--	2,600	104 U	
8270D	Hexachlorobutadiene	µg/kg	--	--	10,000	104 U	
8270D	Hexachlorocyclopentadiene	µg/kg	--	--	--	696 U	
8270D	Hexachloroethane	µg/kg	--	--	60,000	104 U	
8270D	Indeno[1,2,3-cd]pyrene	µg/kg	--	--	--	104 U	
8270D	Naphthalene	µg/kg	--	--	--	1900	
8270D	Nitrobenzene	µg/kg	--	--	40,000	104 U	
8270D	N-Nitrosodi-n-propylamine	µg/kg	--	--	--	104 U	
8270D	N-Nitrosodiphenylamine	µg/kg	--	--	--	104 U	
8270D	Pentachlorophenol	µg/kg	17,000	--	2,000,000	348 U	
8270D	Phenanthrene	µg/kg	--	--	--	104 U	
8270D	Phenol	µg/kg	--	--	--	1000	
8270D	Pyrene	µg/kg	--	--	--	1010	
8270D	Pyridine	µg/kg	--	--	100,000	104 U	

Table D-3
Industrial Waste Line
Waste Characterization Results for Sample IWL-MHs

Notes:
[a] Criteria not based on TTLC/STLC/TCLP but based on Alameda criteria for radiological analyses.
* One or more QC criteria is out of range.

Abbreviations and Acronyms:
B – contamination in method blank
J – estimated value
µg/kg – micrograms per kilogram
mg/kg – milligrams per kilogram
p – the %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
pCi/g – picocuries per gram
RCRA – Resource Conservation and Recovery Act
STLC – soluble threshold limit concentration
TCLP – toxicity characteristic leaching procedure
TTLC – total threshold limit concentration
U – analyte is not detected above listed value

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8113-2
TestAmerica Sample Delivery Group: 160-8113
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
10/13/2014 9:43:11 AM

Erika Gish, Project Manager II
(314)298-8566
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LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8110-1
TestAmerica Sample Delivery Group: 160-8110
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
9/23/2014 11:36:44 AM

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Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1012

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number: 7709 5369 1016
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOC)	EPA 8081 A (PEST)	EPA 5035/8015B TPH PURGE	EPA 8015 TPH DIESEL/MOTOR OIL	EPA 8081 (PCBs	EPA 6020B/7000 METAL/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MHs	8/26/2014	1000	8	3	S	10DY	X	X	X	X	X	X	X	Sediment accumulated during investigation	Pad F			N
IWL-BLDG29-EXCAVATION	8/26/2014	1030	8	3	S	10DY	X	X	X	X	X	X	X	Soil accumulated during investigation	Site 17 asphalt berm area			N

160-8110 Chain of Custody

Relinquished by: (signature)	Date: 8-26-14	Received by (signature): FedEx	Laboratory instructions/Comments: Run STLC-Cr only
Company: Tetra tech	Time: 1400	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature): 8/27/14	Composite Discription:
Company:	Time:	Company: TA 0935	
Relinquished by: (signature)	Date:	Received by (signature):	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1012

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	**5.56**	**J**	6.40	1.28	0.551	ug/Kg	☼	08/28/14 11:06	1
1,1,2,2-Tetrachloroethane	1.28	U *	6.40	1.28	0.513	ug/Kg	☼	08/28/14 11:06	1
1,1,2-Trichloroethane	1.28	U *	6.40	1.28	0.733	ug/Kg	☼	08/28/14 11:06	1
1,1-Dichloroethane	1.28	U	6.40	1.28	0.501	ug/Kg	☼	08/28/14 11:06	1
1,1-Dichloroethene	6.40	U	6.40	6.40	2.06	ug/Kg	☼	08/28/14 11:06	1
1,2-Dichloroethane	1.28	U	6.40	1.28	1.11	ug/Kg	☼	08/28/14 11:06	1
1,2-Dichloropropane	1.28	U	6.40	1.28	0.490	ug/Kg	☼	08/28/14 11:06	1
2-Butanone (MEK)	6.40	U	25.6	6.40	2.46	ug/Kg	☼	08/28/14 11:06	1
2-Hexanone	6.40	U *	12.8	6.40	2.26	ug/Kg	☼	08/28/14 11:06	1
4-Methyl-2-pentanone (MIBK)	6.40	U *	25.6	6.40	0.936	ug/Kg	☼	08/28/14 11:06	1
Acetone	12.8	U	25.6	12.8	8.28	ug/Kg	☼	08/28/14 11:06	1
Benzene	1.28	U	6.40	1.28	0.324	ug/Kg	☼	08/28/14 11:06	1
Bromodichloromethane	1.28	U	6.40	1.28	0.325	ug/Kg	☼	08/28/14 11:06	1
Bromoform	1.28	U *	6.40	1.28	0.468	ug/Kg	☼	08/28/14 11:06	1
Bromomethane	6.40	U	12.8	6.40	1.41	ug/Kg	☼	08/28/14 11:06	1
Carbon tetrachloride	1.28	U	6.40	1.28	0.656	ug/Kg	☼	08/28/14 11:06	1
Chlorobenzene	1.28	U *	6.40	1.28	0.489	ug/Kg	☼	08/28/14 11:06	1
Chloroethane	1.28	U	12.8	1.28	0.660	ug/Kg	☼	08/28/14 11:06	1
Chloroform	1.28	U	6.40	1.28	0.481	ug/Kg	☼	08/28/14 11:06	1
Chloromethane	6.40	U	12.8	6.40	0.832	ug/Kg	☼	08/28/14 11:06	1
cis-1,2-Dichloroethene	1.28	U	6.40	1.28	0.764	ug/Kg	☼	08/28/14 11:06	1
cis-1,3-Dichloropropene	1.28	U	6.40	1.28	0.761	ug/Kg	☼	08/28/14 11:06	1
Dibromochloromethane	1.28	U *	6.40	1.28	0.519	ug/Kg	☼	08/28/14 11:06	1
Ethylbenzene	1.28	U *	6.40	1.28	0.383	ug/Kg	☼	08/28/14 11:06	1
Methyl tert-butyl ether	1.28	U	6.40	1.28	0.609	ug/Kg	☼	08/28/14 11:06	1
Methylene Chloride	6.40	U	12.8	6.40	2.02	ug/Kg	☼	08/28/14 11:06	1
Styrene	1.28	U *	6.40	1.28	0.444	ug/Kg	☼	08/28/14 11:06	1
Tetrachloroethene	1.28	U *	6.40	1.28	0.412	ug/Kg	☼	08/28/14 11:06	1
Toluene	1.28	U *	6.40	1.28	0.896	ug/Kg	☼	08/28/14 11:06	1
trans-1,2-Dichloroethene	1.28	U	6.40	1.28	1.21	ug/Kg	☼	08/28/14 11:06	1
trans-1,3-Dichloropropene	1.28	U *	6.40	1.28	0.446	ug/Kg	☼	08/28/14 11:06	1
Trichloroethene	1.28	U	6.40	1.28	0.493	ug/Kg	☼	08/28/14 11:06	1
Vinyl chloride	1.28	U	12.8	1.28	0.548	ug/Kg	☼	08/28/14 11:06	1
Xylenes, Total	6.40	U *	12.8	6.40	1.09	ug/Kg	☼	08/28/14 11:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*124*		*71 - 128*	*08/27/14 20:59*	*08/28/14 11:06*	*1*
4-Bromofluorobenzene (Surr)	*152*	** X*	*85 - 120*	*08/27/14 20:59*	*08/28/14 11:06*	*1*
Dibromofluoromethane (Surr)	*117*		*76 - 126*	*08/27/14 20:59*	*08/28/14 11:06*	*1*
Toluene-d8 (Surr)	*125*	** X*	*85 - 115*	*08/27/14 20:59*	*08/28/14 11:06*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.17	U	5.87	1.17	0.506	ug/Kg	☼	08/28/14 10:41	1
1,1,2,2-Tetrachloroethane	1.17	U	5.87	1.17	0.471	ug/Kg	☼	08/28/14 10:41	1
1,1,2-Trichloroethane	1.17	U	5.87	1.17	0.673	ug/Kg	☼	08/28/14 10:41	1
1,1-Dichloroethane	1.17	U	5.87	1.17	0.460	ug/Kg	☼	08/28/14 10:41	1
1,1-Dichloroethene	5.87	U	5.87	5.87	1.89	ug/Kg	☼	08/28/14 10:41	1
1,2-Dichloroethane	1.17	U	5.87	1.17	1.02	ug/Kg	☼	08/28/14 10:41	1
1,2-Dichloropropane	1.17	U	5.87	1.17	0.450	ug/Kg	☼	08/28/14 10:41	1
2-Butanone (MEK)	5.87	U	23.5	5.87	2.25	ug/Kg	☼	08/28/14 10:41	1
2-Hexanone	5.87	U	11.7	5.87	2.08	ug/Kg	☼	08/28/14 10:41	1
4-Methyl-2-pentanone (MIBK)	5.87	U	23.5	5.87	0.859	ug/Kg	☼	08/28/14 10:41	1
Acetone	**10.3**	**J**	23.5	11.7	7.59	ug/Kg	☼	08/28/14 10:41	1
Benzene	1.17	U	5.87	1.17	0.297	ug/Kg	☼	08/28/14 10:41	1
Bromodichloromethane	1.17	U	5.87	1.17	0.298	ug/Kg	☼	08/28/14 10:41	1
Bromoform	1.17	U	5.87	1.17	0.430	ug/Kg	☼	08/28/14 10:41	1
Bromomethane	5.87	U	11.7	5.87	1.29	ug/Kg	☼	08/28/14 10:41	1
Carbon tetrachloride	1.17	U	5.87	1.17	0.602	ug/Kg	☼	08/28/14 10:41	1
Chlorobenzene	1.17	U	5.87	1.17	0.448	ug/Kg	☼	08/28/14 10:41	1
Chloroethane	1.17	U	11.7	1.17	0.606	ug/Kg	☼	08/28/14 10:41	1
Chloroform	1.17	U	5.87	1.17	0.441	ug/Kg	☼	08/28/14 10:41	1
Chloromethane	5.87	U	11.7	5.87	0.763	ug/Kg	☼	08/28/14 10:41	1
cis-1,2-Dichloroethene	1.17	U	5.87	1.17	0.701	ug/Kg	☼	08/28/14 10:41	1
cis-1,3-Dichloropropene	1.17	U	5.87	1.17	0.698	ug/Kg	☼	08/28/14 10:41	1
Dibromochloromethane	1.17	U	5.87	1.17	0.477	ug/Kg	☼	08/28/14 10:41	1
Ethylbenzene	1.17	U	5.87	1.17	0.351	ug/Kg	☼	08/28/14 10:41	1
Methyl tert-butyl ether	1.17	U	5.87	1.17	0.559	ug/Kg	☼	08/28/14 10:41	1
Methylene Chloride	5.87	U	11.7	5.87	1.85	ug/Kg	☼	08/28/14 10:41	1
Styrene	1.17	U	5.87	1.17	0.407	ug/Kg	☼	08/28/14 10:41	1
Tetrachloroethene	1.17	U	5.87	1.17	0.378	ug/Kg	☼	08/28/14 10:41	1
Toluene	1.17	U	5.87	1.17	0.822	ug/Kg	☼	08/28/14 10:41	1
trans-1,2-Dichloroethene	1.17	U	5.87	1.17	1.11	ug/Kg	☼	08/28/14 10:41	1
trans-1,3-Dichloropropene	1.17	U	5.87	1.17	0.410	ug/Kg	☼	08/28/14 10:41	1
Trichloroethene	1.17	U	5.87	1.17	0.452	ug/Kg	☼	08/28/14 10:41	1
Vinyl chloride	1.17	U	11.7	1.17	0.502	ug/Kg	☼	08/28/14 10:41	1
Xylenes, Total	5.87	U	11.7	5.87	1.00	ug/Kg	☼	08/28/14 10:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*71 - 128*	*08/27/14 20:59*	*08/28/14 10:41*	*1*
4-Bromofluorobenzene (Surr)	*120*		*85 - 120*	*08/27/14 20:59*	*08/28/14 10:41*	*1*
Dibromofluoromethane (Surr)	*108*		*76 - 126*	*08/27/14 20:59*	*08/28/14 10:41*	*1*
Toluene-d8 (Surr)	*110*		*85 - 115*	*08/27/14 20:59*	*08/28/14 10:41*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
1,2-Dichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
1,3-Dichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
1,4-Dichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4,5-Trichlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4,6-Trichlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4-Dichlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4-Dimethylphenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4-Dinitrophenol	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
2,4-Dinitrotoluene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,6-Dinitrotoluene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Chloronaphthalene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Chlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Methylphenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Nitroaniline	104	U	1690	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Nitrophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
3 & 4 Methylphenol	104	U	696	104	70.2	ug/Kg	☼	09/08/14 13:01	1
3,3'-Dichlorobenzidine	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
3-Nitroaniline	104	U	1690	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4,6-Dinitro-2-methylphenol	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
4-Bromophenyl phenyl ether	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Chloro-3-methylphenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Chloroaniline	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Chlorophenyl phenyl ether	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Nitroaniline	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
4-Nitrophenol	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
Acenaphthene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Acenaphthylene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Anthracene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[a]anthracene	**189**	**J**	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[a]pyrene	**229**	**J**	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[b]fluoranthene	**401**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[g,h,i]perylene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[k]fluoranthene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
bis (2-chloroisopropyl) ether	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Bis(2-chloroethoxy)methane	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Bis(2-chloroethyl)ether	104	U	348	104	35.2	ug/Kg	☼	09/08/14 13:01	1
Butyl benzyl phthalate	**1140**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Chrysene	**357**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Dibenzo(a),h)anthracene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Dibenzofuran	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Diethyl phthalate	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Dimethyl phthalate	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Di-n-butyl phthalate	**1190**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Di-n-octyl phthalate	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Fluorene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Hexachlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Hexachlorobutadiene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Hexachlorocyclopentadiene	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachloroethane	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Indeno[1,2,3-cd]pyrene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Nitrobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
N-Nitrosodiphenylamine	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
N-Nitrosodi-n-propylamine	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Pentachlorophenol	348	U	1690	348	348	ug/Kg	☼	09/08/14 13:01	1
Phenanthrene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Phenol	**1000**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Pyrene	**1010**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Pyridine	104	U	696	104	70.2	ug/Kg	☼	09/08/14 13:01	1
Naphthalene	**1900**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*85*		*35 - 125*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
2-Fluorobiphenyl (Surr)	*82*		*45 - 105*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
2-Fluorophenol (Surr)	*84*		*35 - 105*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
Nitrobenzene-d5 (Surr)	*92*		*35 - 100*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
Phenol-d5 (Surr)	*82*		*40 - 100*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
Terphenyl-d14 (Surr)	*90*		*30 - 125*	*09/06/14 09:34*	*09/08/14 13:01*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
1,2-Dichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
1,3-Dichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
1,4-Dichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4,5-Trichlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4,6-Trichlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4-Dichlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4-Dimethylphenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4-Dinitrophenol	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
2,4-Dinitrotoluene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,6-Dinitrotoluene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Chloronaphthalene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Chlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Methylphenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Nitroaniline	100	U	1620	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Nitrophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
3 & 4 Methylphenol	100	U	667	100	67.3	ug/Kg	☼	09/08/14 14:43	1
3,3'-Dichlorobenzidine	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
3-Nitroaniline	100	U	1620	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4,6-Dinitro-2-methylphenol	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
4-Bromophenyl phenyl ether	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Chloro-3-methylphenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Chloroaniline	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Chlorophenyl phenyl ether	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Nitroaniline	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
4-Nitrophenol	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
Acenaphthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Acenaphthylene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Anthracene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[a]anthracene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[a]pyrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[b]fluoranthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[g,h,i]perylene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[k]fluoranthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
bis (2-chloroisopropyl) ether	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Bis(2-chloroethoxy)methane	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Bis(2-chloroethyl)ether	100	U	334	100	33.8	ug/Kg	☼	09/08/14 14:43	1
Bis(2-ethylhexyl) phthalate	100	U	334	100	45.8	ug/Kg	☼	09/08/14 14:43	1
Butyl benzyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Chrysene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Dibenzo(a),h)anthracene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Dibenzofuran	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Diethyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Dimethyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Di-n-butyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Di-n-octyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Fluoranthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Fluorene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Hexachlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Hexachlorocyclopentadiene	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
Hexachloroethane	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Indeno[1,2,3-cd]pyrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Nitrobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
N-Nitrosodiphenylamine	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
N-Nitrosodi-n-propylamine	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Pentachlorophenol	334	U	1620	334	334	ug/Kg	☼	09/08/14 14:43	1
Phenanthrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Phenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Pyrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Pyridine	100	U	667	100	67.3	ug/Kg	☼	09/08/14 14:43	1
Naphthalene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*90*		*35 - 125*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
2-Fluorobiphenyl (Surr)	*87*		*45 - 105*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
2-Fluorophenol (Surr)	*84*		*35 - 105*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
Nitrobenzene-d5 (Surr)	*87*		*35 - 100*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
Phenol-d5 (Surr)	*85*		*40 - 100*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
Terphenyl-d14 (Surr)	*105*		*30 - 125*	*09/06/14 09:34*	*09/08/14 14:43*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	30800		1740	522	239	ug/Kg	☼	09/09/14 21:12	5
Fluoranthene	13300		1740	522	176	ug/Kg	☼	09/09/14 21:12	5

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B GRO - Gasoline Range Organics (GRO)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	0.148		0.120	0.0301	0.0120	mg/Kg	☼	09/08/14 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*79*		*44 - 147*	*08/28/14 08:52*	*09/08/14 20:29*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B GRO - Gasoline Range Organics (GRO)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	0.0417	J	0.140	0.0350	0.0140	mg/Kg	☼	09/08/14 21:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*118*		*44 - 147*	*08/28/14 08:52*	*09/08/14 21:03*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B DRO - Diesel Range Organics (DRO) (GC) - DL

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	10300		4220	84.4	56.2	mg/Kg	☼	09/09/14 14:33	80
Motor Oil Range Organics [C28-C40]	9290		4220	84.4	108	mg/Kg	☼	09/09/14 14:33	80

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*49 - 133*	*09/08/14 07:40*	*09/09/14 14:33*	*80*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B DRO - Diesel Range Organics (DRO) (GC) - DL

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.01	U	101	2.01	1.34	mg/Kg	☼	09/09/14 14:59	4
Motor Oil Range Organics [C28-C40]	**75.7**	**J**	101	2.01	2.56	mg/Kg	☼	09/09/14 14:59	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*95*		*49 - 133*	*09/08/14 07:40*	*09/09/14 14:59*	*4*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aldrin	0.358	U	1.79	0.358	0.603	ug/Kg	☼	09/09/14 04:06	1
alpha-BHC	0.358	U	1.79	0.358	0.306	ug/Kg	☼	09/09/14 04:06	1
beta-BHC	0.358	U	1.79	0.358	0.484	ug/Kg	☼	09/09/14 04:06	1
delta-BHC	0.358	U	1.79	0.358	0.360	ug/Kg	☼	09/09/14 04:06	1
gamma-BHC (Lindane)	0.358	U	1.79	0.358	0.504	ug/Kg	☼	09/09/14 04:06	1
4,4'-DDD	**3.49**	**p**	1.79	0.358	0.365	ug/Kg	☼	09/09/14 04:06	1
4,4'-DDE	**5.25**	**p**	1.79	0.706	0.547	ug/Kg	☼	09/09/14 04:06	1
4,4'-DDT	0.706	U	1.79	0.706	0.662	ug/Kg	☼	09/09/14 04:06	1
Dieldrin	0.358	U	1.79	0.358	0.227	ug/Kg	☼	09/09/14 04:06	1
Endosulfan I	**1.00**	**J p**	1.79	0.706	0.600	ug/Kg	☼	09/09/14 04:06	1
Endosulfan II	0.358	U	1.79	0.358	0.308	ug/Kg	☼	09/09/14 04:06	1
Endosulfan sulfate	0.706	U	1.79	0.706	0.358	ug/Kg	☼	09/09/14 04:06	1
Endrin	0.358	U	1.79	0.358	0.337	ug/Kg	☼	09/09/14 04:06	1
Endrin aldehyde	**8.37**		1.79	0.706	0.410	ug/Kg	☼	09/09/14 04:06	1
Endrin ketone	0.706	U	1.79	0.706	0.439	ug/Kg	☼	09/09/14 04:06	1
Heptachlor	0.358	U	1.79	0.358	0.299	ug/Kg	☼	09/09/14 04:06	1
Heptachlor epoxide	0.706	U	1.79	0.706	0.500	ug/Kg	☼	09/09/14 04:06	1
Methoxychlor	1.79	U	3.48	1.79	0.757	ug/Kg	☼	09/09/14 04:06	1
Toxaphene	35.8	U	70.6	35.8	16.0	ug/Kg	☼	09/09/14 04:06	1
Technical Chlordane	7.06	U	17.9	7.06	3.94	ug/Kg	☼	09/09/14 04:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*55 - 130*	*09/08/14 12:23*	*09/09/14 04:06*	*1*
Tetrachloro-m-xylene	*0*	*X*	*70 - 125*	*09/08/14 12:23*	*09/09/14 04:06*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aldrin	0.343	U	1.71	0.343	0.576	ug/Kg	☼	09/09/14 06:05	1
alpha-BHC	0.343	U	1.71	0.343	0.292	ug/Kg	☼	09/09/14 06:05	1
beta-BHC	0.343	U	1.71	0.343	0.462	ug/Kg	☼	09/09/14 06:05	1
delta-BHC	0.343	U	1.71	0.343	0.345	ug/Kg	☼	09/09/14 06:05	1
gamma-BHC (Lindane)	0.343	U	1.71	0.343	0.482	ug/Kg	☼	09/09/14 06:05	1
4,4'-DDD	0.343	U	1.71	0.343	0.349	ug/Kg	☼	09/09/14 06:05	1
4,4'-DDE	**0.707**	**J p**	1.71	0.675	0.523	ug/Kg	☼	09/09/14 06:05	1
4,4'-DDT	**1.16**	**J p**	1.71	0.675	0.633	ug/Kg	☼	09/09/14 06:05	1
Dieldrin	**0.579**	**J**	1.71	0.343	0.217	ug/Kg	☼	09/09/14 06:05	1
Endosulfan I	0.675	U	1.71	0.675	0.574	ug/Kg	☼	09/09/14 06:05	1
Endosulfan II	0.343	U	1.71	0.343	0.294	ug/Kg	☼	09/09/14 06:05	1
Endosulfan sulfate	0.675	U	1.71	0.675	0.343	ug/Kg	☼	09/09/14 06:05	1
Endrin	0.343	U	1.71	0.343	0.322	ug/Kg	☼	09/09/14 06:05	1
Endrin aldehyde	0.675	U	1.71	0.675	0.392	ug/Kg	☼	09/09/14 06:05	1
Endrin ketone	0.675	U	1.71	0.675	0.420	ug/Kg	☼	09/09/14 06:05	1
Heptachlor	0.343	U	1.71	0.343	0.286	ug/Kg	☼	09/09/14 06:05	1
Heptachlor epoxide	0.675	U	1.71	0.675	0.479	ug/Kg	☼	09/09/14 06:05	1
Methoxychlor	1.71	U	3.32	1.71	0.724	ug/Kg	☼	09/09/14 06:05	1
Toxaphene	34.3	U	67.5	34.3	15.3	ug/Kg	☼	09/09/14 06:05	1
Technical Chlordane	6.75	U	17.1	6.75	3.77	ug/Kg	☼	09/09/14 06:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*121*		*55 - 130*	*09/08/14 12:23*	*09/09/14 06:05*	*1*
Tetrachloro-m-xylene	*87*		*70 - 125*	*09/08/14 12:23*	*09/09/14 06:05*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor 1016	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1221	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1232	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1242	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1248	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1254	**8.42**	**J**	33.3	10.1	8.09	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1260	**15.8**	**J**	33.3	10.1	8.09	ug/Kg	☼	09/09/14 11:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*78*		*60 - 125*	*09/08/14 09:34*	*09/09/14 11:41*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - DL

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor 1016	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1221	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1232	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1242	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1248	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1254	**458**		344	104	83.6	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1260	**480**		344	104	83.6	ug/Kg	☼	09/09/14 12:30	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*0*	*D*	*60 - 125*	*09/08/14 09:34*	*09/09/14 12:30*	*10*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	3.41		2.22	2.13	0.729	mg/Kg	☼	09/16/14 00:20	10
Arsenic	6.95		4.45	3.47	1.16	mg/Kg	☼	09/16/14 00:20	10
Barium	204		8.89	1.25	0.418	mg/Kg	☼	09/16/14 00:20	10
Beryllium	0.587		0.445	0.347	0.116	mg/Kg	☼	09/16/14 00:20	10
Cadmium	352		0.267	0.213	0.0711	mg/Kg	☼	09/16/14 00:20	10
Chromium	1090		8.45	4.45	2.00	mg/Kg	☼	09/16/14 00:20	10
Cobalt	41.9		0.889	0.574	0.191	mg/Kg	☼	09/16/14 00:20	10
Copper	347		4.45	1.33	0.449	mg/Kg	☼	09/16/14 00:20	10
Lead	459		1.33	1.33	0.445	mg/Kg	☼	09/16/14 00:20	10
Molybdenum	27.3		2.22	1.60	0.551	mg/Kg	☼	09/16/14 00:20	10
Nickel	422		2.22	1.47	0.476	mg/Kg	☼	09/16/14 00:20	10
Selenium	0.825	J	2.22	2.13	0.703	mg/Kg	☼	09/16/14 00:20	10
Silver	23.0		2.00	0.320	0.107	mg/Kg	☼	09/16/14 00:20	10
Thallium	0.889	U	4.45	0.889	0.676	mg/Kg	☼	09/16/14 00:20	10
Vanadium	28.7		4.45	4.45	3.27	mg/Kg	☼	09/16/14 00:20	10
Iron	24500		53.4	22.2	14.7	mg/Kg	☼	09/16/14 00:20	10
Zinc	1240		22.2	17.7	5.91	mg/Kg	☼	09/16/14 00:20	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.34	U	2.43	2.34	0.798	mg/Kg	☼	09/16/14 00:53	10
Arsenic	**4.02**	**J**	4.87	3.80	1.27	mg/Kg	☼	09/16/14 00:53	10
Barium	**48.2**		9.74	1.37	0.458	mg/Kg	☼	09/16/14 00:53	10
Beryllium	**0.204**	**J**	0.487	0.380	0.127	mg/Kg	☼	09/16/14 00:53	10
Cadmium	**0.392**		0.292	0.234	0.0779	mg/Kg	☼	09/16/14 00:53	10
Chromium	**33.5**		9.25	4.87	2.19	mg/Kg	☼	09/16/14 00:53	10
Cobalt	**7.27**		0.974	0.628	0.209	mg/Kg	☼	09/16/14 00:53	10
Copper	**14.7**		4.87	1.46	0.492	mg/Kg	☼	09/16/14 00:53	10
Lead	**27.9**		1.46	1.46	0.487	mg/Kg	☼	09/16/14 00:53	10
Molybdenum	1.75	U	2.43	1.75	0.604	mg/Kg	☼	09/16/14 00:53	10
Nickel	**33.9**		2.43	1.61	0.521	mg/Kg	☼	09/16/14 00:53	10
Selenium	2.34	U	2.43	2.34	0.769	mg/Kg	☼	09/16/14 00:53	10
Silver	**0.228**	**J**	2.19	0.350	0.117	mg/Kg	☼	09/16/14 00:53	10
Thallium	0.974	U	4.87	0.974	0.740	mg/Kg	☼	09/16/14 00:53	10
Vanadium	**28.9**		4.87	4.87	3.58	mg/Kg	☼	09/16/14 00:53	10
Iron	**14500**		58.4	24.3	16.1	mg/Kg	☼	09/16/14 00:53	10
Zinc	**59.5**		24.3	19.4	6.47	mg/Kg	☼	09/16/14 00:53	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.42		0.0413	0.0310	0.0113	mg/Kg	☼	09/08/14 13:46	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0761		0.0356	0.0267	0.00979	mg/Kg	☼	09/08/14 13:55	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8110-2
TestAmerica Sample Delivery Group: 160-8110
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
10/6/2014 3:47:50 PM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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Have a Question? Ask The Expert

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-8113-2

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech EC, Inc.

Project: Alameda IR Site 17

Report Number: 160-8113-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-8113-2 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 8/27/2014 9:35 AM; the samples arrived in good condition, properly preserved. The temperature of the cooler at receipt was 20.0º C.

STRONTIUM-90 (GFPC)

Sample IWL-PS1-VAULT-UP-01 (160-8113-2) was analyzed for Strontium-90 (GFPC) in accordance with SR-03-RC. The samples were leached on 09/29/2014, prepared on 09/30/2014 and analyzed on 10/09/2014.

Count Time: All samples and QC were counted for 400 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TETRA TECH EC, INC

Chain-of Custody Record

NUMBER: FZ02 - 1007A RAD

Project Name	FZ02 - Alameda Site 17
PO Number	1096343-6
Project Location	Alameda, CA
Project Number	FZ02.0202.1000
Sampler Name	Chris Charchidi
Airbill Number	7709 5309 1510
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	Ra226 Only	E901.1-Cs 137	DOE SR90-03-RC MOD *					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-RINSE-04	8/26/2014	0910	3	3	W	21 dy	X	X							EQUIPMENT BLK			EQB
IWL-PS1-VAULT-UP-01	8/26/2014	0920	2	3	W	21 dy	X	X							PS1 10'UPSTREAM			N

CAL

160-8113 Chain of Custody

Relinquished by: (signature)	Date: 8-26-14	Received by (signature) FedEx	Laboratory Instructions/Comments: * If Cs137 result is > 0.113 pCi/g, then run sample for Sr90 (DOE SR90-03-RC MOD)
Company: BSRS	Time: 1507	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature) 8/27/14	Composite Discription:
Company:	Time:	Company: TA 0933	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1007A RAD

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1008A RAD

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Chris Carchidi	Airbill Number: 7709 5309 1510
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED: E901.1 - CS137 / Ra226 Only; DOE SR90-03-RC MOD *; CAL

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E901.1 - CS137 / Ra226 Only	DOE SR90-03-RC MOD *						COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MHs	8/25/2014	1405	2	3	S	21DY	X	X						Sediment accumulated during investigation	Pad F			N
IWL-BLDG29-EXCAVATION	8/25/2014	1431	2	3	S	21DY	X	X						Soil accumulated during investigation	Site 17 asphalt berm area			N

Relinquished by: (signature)	Date: 8-26-14	Received by (signature): FedEx	Laboratory Instructions/Comments: * If Cs137 result is > 0.113 pCi/g, then run sample for Sr90 (DOE SR90-03-RC MOD)
Company: RSRS	Time: 1507	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature): 8/27/14	Composite Discription:
Company:	Time:	Company: TA 0935	
Relinquished by: (signature)	Date:	Received by (signature):	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1008A RAD

Login Sample Receipt Checklist

Client: Tetra Tech EC, Inc.

Job Number: 160-8113-2
SDG Number: 160-8113

Login Number: 8113
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Method	Method Description	Protocol	Laboratory
SR-03-RC	Strontium-90 (GFPC)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-8113-2	IWL-PS1-VAULT-UP-01	Solid	08/26/14 09:20	08/27/14 09:35

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8113-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0235	U	0.134	0.134	0.320	0.111	pCi/g	09/30/14 16:33	10/09/14 18:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*90.6*		*40 - 110*	*09/30/14 16:33*	*10/09/14 18:42*	*1*
Y Carrier	*92.3*		*40 - 110*	*09/30/14 16:33*	*10/09/14 18:42*	*1*

QC Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Method: SR-03-RC - Strontium-90 (GFPC)

Lab Sample ID: MB 160-146648/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 148465 — **Prep Batch: 146648**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.04441	U	0.134	0.134	0.320	0.108	pCi/g	09/30/14 16:33	10/09/14 18:42	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*87.8*		*40 - 110*	*09/30/14 16:33*	*10/09/14 18:42*	*1*
Y Carrier	*93.8*		*40 - 110*	*09/30/14 16:33*	*10/09/14 18:42*	*1*

Lab Sample ID: LCS 160-146648/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 148465 — **Prep Batch: 146648**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Strontium-90			9.00	8.887		0.828	0.320	0.0994	pCi/g	99	88 - 136		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*91.3*		*40 - 110*
Y Carrier	*94.2*		*40 - 110*

Lab Sample ID: 160-8113-2 DU — **Client Sample ID: IWL-PS1-VAULT-UP-01**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 148465 — **Prep Batch: 146648**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Strontium-90	-0.0235	U		0.1145	U	0.155	0.320	0.121	pCi/g			0.48	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Sr Carrier	*81.6*		*40 - 110*
Y Carrier	*93.8*		*40 - 110*

QC Association Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Rad

Leach Batch: 146468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8113-2	IWL-PS1-VAULT-UP-01	Total/NA	Solid	Dry and Grind	
160-8113-2 DU	IWL-PS1-VAULT-UP-01	Total/NA	Solid	Dry and Grind	

Prep Batch: 146648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8113-2	IWL-PS1-VAULT-UP-01	Total/NA	Solid	DPS-7	146468
160-8113-2 DU	IWL-PS1-VAULT-UP-01	Total/NA	Solid	DPS-7	146468
LCS 160-146648/2-A	Lab Control Sample	Total/NA	Solid	DPS-7	
MB 160-146648/1-A	Method Blank	Total/NA	Solid	DPS-7	

Tracer/Carrier Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Method: SR-03-RC - Strontium-90 (GFPC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**Sr (C) (40-110)**	**Y (40-110)**						
160-8113-2	IWL-PS1-VAULT-UP-01	90.6	92.3						
160-8113-2 DU	IWL-PS1-VAULT-UP-01	81.6	93.8						
LCS 160-146648/2-A	Lab Control Sample	91.3	94.2						
MB 160-146648/1-A	Method Blank	87.8	93.8						

Tracer/Carrier Legend

Sr (C) = Sr Carrier

Y = Y Carrier

Subappendix D4

Waste Characterization Data for Excavated Soil above Former Building 29 Pump Station

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Table D-4
Industrial Waste Line
Waste Characterization Results for Sample IWL-BLDG29-Excavation

Method	Analyte	Units	EVALUATION FOR DISPOSAL PURPOSES			Sample: IWL-BLDG29-EXCAVATION
			If greater than TTLC criteria listed below, then indicates California (non-RCRA) Hazardous	Run STLC if result is greater than value listed below unless result is above TTLC criteria	Run TCLP if result is greater than value listed below	Date Collected: 8/26/2014
901.1	Cesium-137	pCi/g	--			0.0429
901.1	Radium-226	pCi/g	1.0 above background (where background is 0.56 pCi/g) [a]			0.452
6020A	Antimony	mg/kg	500	150	--	2.34 U
6020A	Arsenic	mg/kg	500	50	100	4.02 J
6020A	Barium	mg/kg	10,000	1,000	2,000	48.2
6020A	Beryllium	mg/kg	75	8	--	0.204 J
6020A	Cadmium	mg/kg	100	10	20	0.392
6020A	Chromium	mg/kg	2,500	50	100	33.5
6020A	Cobalt	mg/kg	8,000	800	--	7.27
6020A	Copper	mg/kg	2,500	250	--	14.7
6020A	Iron	mg/kg	--	--	--	14500
6020A	Lead	mg/kg	1,000	50	100	27.9
7471B	Mercury	mg/kg	20	2	4	0.0761
6020A	Molybdenum	mg/kg	3,500		--	1.75 U
6020A	Nickel	mg/kg	2,000	200	--	33.9
6020A	Selenium	mg/kg	100	10	20	2.34 U
6020A	Silver	mg/kg	500	50	100	0.228 J
6020A	Thallium	mg/kg	700	70	--	0.974 U
6020A	Vanadium	mg/kg	2,400	240	--	28.9
6020A	Zinc	mg/kg	5,000	2,500	--	59.5
8015B DRO	Diesel Range Organics [C10-C28]	mg/kg	--	--	--	2.01 U
8015B DRO	Motor Oil Range Organics [C28-C40]	mg/kg	--	--	--	75.7 J
8015B GRO	Gasoline Range Organics (C6-C12)	mg/kg	--	--	--	0.0417 J
8081B	4,4'-DDD	µg/kg	1,000	--	--	0.343 U
8081B	4,4'-DDE	µg/kg	1,000	--	--	0.707 J p
8081B	4,4'-DDT	µg/kg	1,000	--	--	1.16 J p
8081B	Aldrin	µg/kg	1,400	--	--	0.343 U
8081B	alpha-BHC	µg/kg	--	--	--	0.343 U
8081B	beta-BHC	µg/kg	--	--	--	0.343 U
8081B	delta-BHC	µg/kg	--	--	--	0.343 U
8081B	Dieldrin	µg/kg	8,000	--	--	0.579 J
8081B	Endosulfan I	µg/kg	--	--	--	0.675 U

Table D-4
Industrial Waste Line
Waste Characterization Results for Sample IWL-BLDG29-Excavation

Method	Analyte	Units	EVALUATION FOR DISPOSAL PURPOSES			Sample: IWL-BLDG29-EXCAVATION
			If greater than TTLC criteria listed below, then indicates California (non-RCRA) Hazardous	Run STLC if result is greater than value listed below unless result is above TTLC criteria	Run TCLP if result is greater than value listed below	Date Collected: 8/26/2014
8081B	Endosulfan II	µg/kg	--	--	--	0.343 U
8081B	Endosulfan sulfate	µg/kg	--	--	--	0.675 U
8081B	Endrin	µg/kg	200	--	400	0.343 U
8081B	Endrin aldehyde	µg/kg	--	--	--	0.675 U
8081B	Endrin ketone	µg/kg	--	--	--	0.675 U
8081B	gamma-BHC (Lindane)	µg/kg	4,000	--	8,000	0.343 U
8081B	Heptachlor	µg/kg	4,700	--	160	0.343 U
8081B	Heptachlor epoxide	µg/kg	--	--	160	0.675 U
8081B	Methoxychlor	µg/kg	100,000	--	200,000	1.71 U
8081B	Technical Chlordane	µg/kg	2,500	--	600	6.75 U
8081B	Toxaphene	µg/kg	5,000	--	10,000	34.3 U
8082A	Aroclor 1016	µg/kg	50,000	--	--	16.2 U
8082A	Aroclor 1221	µg/kg		--	--	16.2 U
8082A	Aroclor 1232	µg/kg		--	--	16.2 U
8082A	Aroclor 1242	µg/kg		--	--	16.2 U
8082A	Aroclor 1248	µg/kg		--	--	16.2 U
8082A	Aroclor 1254	µg/kg		--	--	8.42 J
8082A	Aroclor 1260	µg/kg		--	--	15.8 J
8260C	1,1,1-Trichloroethane	µg/kg	--	--	--	1.17 U
8260C	1,1,2,2-Tetrachloroethane	µg/kg	--	--	--	1.17 U
8260C	1,1,2-Trichloroethane	µg/kg	--	--	--	1.17 U
8260C	1,1-Dichloroethane	µg/kg	--	--	--	1.17 U
8260C	1,1-Dichloroethene	µg/kg	--	--	14,000	5.87 U
8260C	1,2-Dichloroethane	µg/kg	--	--	10,000	1.17 U
8260C	1,2-Dichloropropane	µg/kg	--	--	--	1.17 U
8260C	2-Butanone (MEK)	µg/kg	--	--	4,000,000	5.87 U
8260C	2-Hexanone	µg/kg	--	--	--	5.87 U
8260C	4-Methyl-2-pentanone (MIBK)	µg/kg	--	--	--	5.87 U
8260C	Acetone	µg/kg	--	--	--	10.3 J
8260C	Benzene	µg/kg	--	--	10,000	1.17 U
8260C	Bromodichloromethane	µg/kg	--	--	--	1.17 U
8260C	Bromoform	µg/kg	--	--	--	1.17 U

Table D-4
Industrial Waste Line
Waste Characterization Results for Sample IWL-BLDG29-Excavation

Method	Analyte	Units	EVALUATION FOR DISPOSAL PURPOSES			Sample: IWL-BLDG29-EXCAVATION
			If greater than TTLC criteria listed below, then indicates California (non-RCRA) Hazardous	Run STLC if result is greater than value listed below unless result is above TTLC criteria	Run TCLP if result is greater than value listed below	Date Collected: 8/26/2014
8260C	Bromomethane	µg/kg	--	--	--	5.87 U
8260C	Carbon tetrachloride	µg/kg	--	--	10,000	1.17 U
8260C	Chlorobenzene	µg/kg	--	--	2,000,000	1.17 U
8260C	Chloroethane	µg/kg	--	--	--	1.17 U
8260C	Chloroform	µg/kg	--	--	120,000	1.17 U
8260C	Chloromethane	µg/kg	--	--	--	5.87 U
8260C	cis-1,2-Dichloroethene	µg/kg	--	--	--	1.17 U
8260C	cis-1,3-Dichloropropene	µg/kg	--	--	--	1.17 U
8260C	Dibromochloromethane	µg/kg	--	--	--	1.17 U
8260C	Ethylbenzene	µg/kg	--	--	--	1.17 U
8260C	Methyl tert-butyl ether	µg/kg	--	--	--	1.17 U
8260C	Methylene Chloride	µg/kg	--	--	--	5.87 U
8260C	Styrene	µg/kg	--	--	--	1.17 U
8260C	Tetrachloroethene	µg/kg	--	--	14,000	1.17 U
8260C	Toluene	µg/kg	--	--	--	1.17 U
8260C	trans-1,2-Dichloroethene	µg/kg	--	--	--	1.17 U
8260C	trans-1,3-Dichloropropene	µg/kg	--	--	--	1.17 U
8260C	Trichloroethene	µg/kg	2,040,000	--	10,000	1.17 U
8260C	Vinyl chloride	µg/kg	--	--	4,000	1.17 U
8260C	Xylenes, Total	µg/kg	--	--	--	5.87 U
8270D	1,2,4-Trichlorobenzene	µg/kg	--	--	--	100 U
8270D	1,2-Dichlorobenzene	µg/kg	--	--	--	100 U
8270D	1,3-Dichlorobenzene	µg/kg	--	--	--	100 U
8270D	1,4-Dichlorobenzene	µg/kg	--	--	150,000	100 U
8270D	2,4,5-Trichlorophenol	µg/kg	--	--	8,000,000	100 U
8270D	2,4,6-Trichlorophenol	µg/kg	--	--	40,000	100 U
8270D	2,4-Dichlorophenol	µg/kg	--	--	--	100 U
8270D	2,4-Dimethylphenol	µg/kg	--	--	--	100 U
8270D	2,4-Dinitrophenol	µg/kg	--	--	--	667 U
8270D	2,4-Dinitrotoluene	µg/kg	--	--	2,600	100 U
8270D	2,6-Dinitrotoluene	µg/kg	--	--	--	100 U
8270D	2-Chloronaphthalene	µg/kg	--	--	--	100 U

Table D-4
Industrial Waste Line
Waste Characterization Results for Sample IWL-BLDG29-Excavation

Method	Analyte	Units	EVALUATION FOR DISPOSAL PURPOSES			Sample: IWL-BLDG29-EXCAVATION
			If greater than TTLC criteria listed below, then indicates California (non-RCRA) Hazardous	Run STLC if result is greater than value listed below unless result is above TTLC criteria	Run TCLP if result is greater than value listed below	Date Collected: 8/26/2014
8270D	2-Chlorophenol	µg/kg	--	--	--	100 U
8270D	2-Methylphenol	µg/kg	--	--	4,000,000	100 U
8270D	2-Nitroaniline	µg/kg	--	--	--	100 U
8270D	2-Nitrophenol	µg/kg	--	--	--	100 U
8270D	3 & 4 Methylphenol	µg/kg	--	--	4,000,000	100 U
8270D	3,3'-Dichlorobenzidine	µg/kg	--	--	--	667 U
8270D	3-Nitroaniline	µg/kg	--	--	--	100 U
8270D	4,6-Dinitro-2-methylphenol	µg/kg	--	--	--	667 U
8270D	4-Bromophenyl phenyl ether	µg/kg	--	--	--	100 U
8270D	4-Chloro-3-methylphenol	µg/kg	--	--	--	100 U
8270D	4-Chloroaniline	µg/kg	--	--	--	100 U
8270D	4-Chlorophenyl phenyl ether	µg/kg	--	--	--	100 U
8270D	4-Nitroaniline	µg/kg	--	--	--	667 U
8270D	4-Nitrophenol	µg/kg	--	--	--	667 U
8270D	Acenaphthene	µg/kg	--	--	--	100 U
8270D	Acenaphthylene	µg/kg	--	--	--	100 U
8270D	Anthracene	µg/kg	--	--	--	100 U
8270D	Benzo[a]anthracene	µg/kg	--	--	--	100 U
8270D	Benzo[a]pyrene	µg/kg	--	--	--	100 U
8270D	Benzo[b]fluoranthene	µg/kg	--	--	--	100 U
8270D	Benzo[g,h,i]perylene	µg/kg	--	--	--	100 U
8270D	Benzo[k]fluoranthene	µg/kg	--	--	--	100 U
8270D	bis (2-chloroisopropyl) ether	µg/kg	--	--	--	100 U
8270D	Bis(2-chloroethoxy)methane	µg/kg	--	--	--	100 U
8270D	Bis(2-chloroethyl)ether	µg/kg	--	--	--	100 U
8270D	Bis(2-ethylhexyl) phthalate	µg/kg	--	--	--	100 U
8270D	Butyl benzyl phthalate	µg/kg	--	--	--	100 U
8270D	Chrysene	µg/kg	--	--	--	100 U
8270D	Dibenzo(a),h)anthracene	µg/kg	--	--	--	100 U
8270D	Dibenzofuran	µg/kg	--	--	--	100 U
8270D	Diethyl phthalate	µg/kg	--	--	--	100 U
8270D	Dimethyl phthalate	µg/kg	--	--	--	100 U

Table D-4
Industrial Waste Line
Waste Characterization Results for Sample IWL-BLDG29-Excavation

Method	Analyte	Units	EVALUATION FOR DISPOSAL PURPOSES			Sample: IWL-BLDG29-EXCAVATION
			If greater than TTLC criteria listed below, then indicates California (non-RCRA) Hazardous	Run STLC if result is greater than value listed below unless result is above TTLC criteria	Run TCLP if result is greater than value listed below	Date Collected: 8/26/2014
8270D	Di-n-butyl phthalate	µg/kg	--	--	--	100 U
8270D	Di-n-octyl phthalate	µg/kg	--	--	--	100 U
8270D	Fluoranthene	µg/kg	--	--	--	100 U
8270D	Fluorene	µg/kg	--	--	--	100 U
8270D	Hexachlorobenzene	µg/kg	--	--	2,600	100 U
8270D	Hexachlorobutadiene	µg/kg	--	--	10,000	100 U
8270D	Hexachlorocyclopentadiene	µg/kg	--	--	--	667 U
8270D	Hexachloroethane	µg/kg	--	--	60,000	100 U
8270D	Indeno[1,2,3-cd]pyrene	µg/kg	--	--	--	100 U
8270D	Naphthalene	µg/kg	--	--	--	100 U
8270D	Nitrobenzene	µg/kg	--	--	40,000	100 U
8270D	N-Nitrosodi-n-propylamine	µg/kg	--	--	--	100 U
8270D	N-Nitrosodiphenylamine	µg/kg	--	--	--	100 U
8270D	Pentachlorophenol	µg/kg	17,000	--	2,000,000	334 U
8270D	Phenanthrene	µg/kg	--	--	--	100 U
8270D	Phenol	µg/kg	--	--	--	100 U
8270D	Pyrene	µg/kg	--	--	--	100 U
8270D	Pyridine	µg/kg	--	--	100,000	100 U

Table D-4
Industrial Waste Line
Waste Characterization Results for Sample IWL-BLDG29-Excavation

Notes:

Evaluation of results indicate non-hazardous material since TTLC values were not exceeded and STLC/TCLP further analysis was not required.

* This sample was collected from the soil excavated above the vault at the former Building 29 pump station location.

[a] Criteria not based on TTLC/STLC/TCLP but based on Alameda criteria for radiological analyses.

Abbreviations and Acronyms:

J – estimated value
µg/kg – micrograms per kilogram
mg/kg – milligrams per kilogram
p – the %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
pCi/g – picocuries per gram
STLC – soluble threshold limit concentration
TCLP – toxicity characteristic leaching procedure
TTLC – total threshold limit concentration
U – analyte is not detected above listed value

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8110-1
TestAmerica Sample Delivery Group: 160-8110
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
9/23/2014 11:36:44 AM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1012

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: W. Solorzano	Airbill Number: 7709 5369 1016
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	EPA 5035/8260 B (VOC)	EPA 8270C (SVOC)	EPA 8081 A (PEST)	EPA 5035/8015B TPH PURGE	EPA 8015 TPH DIESEL/MOTOR OIL	EPA 8081 (PCBs	EPA 6020B/7000 METAL/MERCURY	COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MHs	8/26/2014	1000	8	3	S	10DY	X	X	X	X	X	X	X	Sediment accumulated during investigation	Pad F			N
IWL-BLDG29-EXCAVATION	8/26/2014	1030	8	3	S	10DY	X	X	X	X	X	X	X	Soil accumulated during investigation	Site 17 asphalt berm area			N

160-8110 Chain of Custody

Relinquished by: (signature)	Date: 8-26-14	Received by (signature): FedEx	Laboratory instructions/Comments: Run STLC-Cr only
Company: Tetra tech	Time: 1400	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature): 8/27/14	Composite Discription:
Company:	Time:	Company: TA 0935	
Relinquished by: (signature)	Date:	Received by (signature):	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1012

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	**5.56**	**J**	6.40	1.28	0.551	ug/Kg	☼	08/28/14 11:06	1
1,1,2,2-Tetrachloroethane	1.28	U *	6.40	1.28	0.513	ug/Kg	☼	08/28/14 11:06	1
1,1,2-Trichloroethane	1.28	U *	6.40	1.28	0.733	ug/Kg	☼	08/28/14 11:06	1
1,1-Dichloroethane	1.28	U	6.40	1.28	0.501	ug/Kg	☼	08/28/14 11:06	1
1,1-Dichloroethene	6.40	U	6.40	6.40	2.06	ug/Kg	☼	08/28/14 11:06	1
1,2-Dichloroethane	1.28	U	6.40	1.28	1.11	ug/Kg	☼	08/28/14 11:06	1
1,2-Dichloropropane	1.28	U	6.40	1.28	0.490	ug/Kg	☼	08/28/14 11:06	1
2-Butanone (MEK)	6.40	U	25.6	6.40	2.46	ug/Kg	☼	08/28/14 11:06	1
2-Hexanone	6.40	U *	12.8	6.40	2.26	ug/Kg	☼	08/28/14 11:06	1
4-Methyl-2-pentanone (MIBK)	6.40	U *	25.6	6.40	0.936	ug/Kg	☼	08/28/14 11:06	1
Acetone	12.8	U	25.6	12.8	8.28	ug/Kg	☼	08/28/14 11:06	1
Benzene	1.28	U	6.40	1.28	0.324	ug/Kg	☼	08/28/14 11:06	1
Bromodichloromethane	1.28	U	6.40	1.28	0.325	ug/Kg	☼	08/28/14 11:06	1
Bromoform	1.28	U *	6.40	1.28	0.468	ug/Kg	☼	08/28/14 11:06	1
Bromomethane	6.40	U	12.8	6.40	1.41	ug/Kg	☼	08/28/14 11:06	1
Carbon tetrachloride	1.28	U	6.40	1.28	0.656	ug/Kg	☼	08/28/14 11:06	1
Chlorobenzene	1.28	U *	6.40	1.28	0.489	ug/Kg	☼	08/28/14 11:06	1
Chloroethane	1.28	U	12.8	1.28	0.660	ug/Kg	☼	08/28/14 11:06	1
Chloroform	1.28	U	6.40	1.28	0.481	ug/Kg	☼	08/28/14 11:06	1
Chloromethane	6.40	U	12.8	6.40	0.832	ug/Kg	☼	08/28/14 11:06	1
cis-1,2-Dichloroethene	1.28	U	6.40	1.28	0.764	ug/Kg	☼	08/28/14 11:06	1
cis-1,3-Dichloropropene	1.28	U	6.40	1.28	0.761	ug/Kg	☼	08/28/14 11:06	1
Dibromochloromethane	1.28	U *	6.40	1.28	0.519	ug/Kg	☼	08/28/14 11:06	1
Ethylbenzene	1.28	U *	6.40	1.28	0.383	ug/Kg	☼	08/28/14 11:06	1
Methyl tert-butyl ether	1.28	U	6.40	1.28	0.609	ug/Kg	☼	08/28/14 11:06	1
Methylene Chloride	6.40	U	12.8	6.40	2.02	ug/Kg	☼	08/28/14 11:06	1
Styrene	1.28	U *	6.40	1.28	0.444	ug/Kg	☼	08/28/14 11:06	1
Tetrachloroethene	1.28	U *	6.40	1.28	0.412	ug/Kg	☼	08/28/14 11:06	1
Toluene	1.28	U *	6.40	1.28	0.896	ug/Kg	☼	08/28/14 11:06	1
trans-1,2-Dichloroethene	1.28	U	6.40	1.28	1.21	ug/Kg	☼	08/28/14 11:06	1
trans-1,3-Dichloropropene	1.28	U *	6.40	1.28	0.446	ug/Kg	☼	08/28/14 11:06	1
Trichloroethene	1.28	U	6.40	1.28	0.493	ug/Kg	☼	08/28/14 11:06	1
Vinyl chloride	1.28	U	12.8	1.28	0.548	ug/Kg	☼	08/28/14 11:06	1
Xylenes, Total	6.40	U *	12.8	6.40	1.09	ug/Kg	☼	08/28/14 11:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*124*		*71 - 128*	*08/27/14 20:59*	*08/28/14 11:06*	*1*
4-Bromofluorobenzene (Surr)	*152*	** X*	*85 - 120*	*08/27/14 20:59*	*08/28/14 11:06*	*1*
Dibromofluoromethane (Surr)	*117*		*76 - 126*	*08/27/14 20:59*	*08/28/14 11:06*	*1*
Toluene-d8 (Surr)	*125*	** X*	*85 - 115*	*08/27/14 20:59*	*08/28/14 11:06*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8260C - Volatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,1,1-Trichloroethane	1.17	U	5.87	1.17	0.506	ug/Kg	☼	08/28/14 10:41	1
1,1,2,2-Tetrachloroethane	1.17	U	5.87	1.17	0.471	ug/Kg	☼	08/28/14 10:41	1
1,1,2-Trichloroethane	1.17	U	5.87	1.17	0.673	ug/Kg	☼	08/28/14 10:41	1
1,1-Dichloroethane	1.17	U	5.87	1.17	0.460	ug/Kg	☼	08/28/14 10:41	1
1,1-Dichloroethene	5.87	U	5.87	5.87	1.89	ug/Kg	☼	08/28/14 10:41	1
1,2-Dichloroethane	1.17	U	5.87	1.17	1.02	ug/Kg	☼	08/28/14 10:41	1
1,2-Dichloropropane	1.17	U	5.87	1.17	0.450	ug/Kg	☼	08/28/14 10:41	1
2-Butanone (MEK)	5.87	U	23.5	5.87	2.25	ug/Kg	☼	08/28/14 10:41	1
2-Hexanone	5.87	U	11.7	5.87	2.08	ug/Kg	☼	08/28/14 10:41	1
4-Methyl-2-pentanone (MIBK)	5.87	U	23.5	5.87	0.859	ug/Kg	☼	08/28/14 10:41	1
Acetone	**10.3**	**J**	23.5	11.7	7.59	ug/Kg	☼	08/28/14 10:41	1
Benzene	1.17	U	5.87	1.17	0.297	ug/Kg	☼	08/28/14 10:41	1
Bromodichloromethane	1.17	U	5.87	1.17	0.298	ug/Kg	☼	08/28/14 10:41	1
Bromoform	1.17	U	5.87	1.17	0.430	ug/Kg	☼	08/28/14 10:41	1
Bromomethane	5.87	U	11.7	5.87	1.29	ug/Kg	☼	08/28/14 10:41	1
Carbon tetrachloride	1.17	U	5.87	1.17	0.602	ug/Kg	☼	08/28/14 10:41	1
Chlorobenzene	1.17	U	5.87	1.17	0.448	ug/Kg	☼	08/28/14 10:41	1
Chloroethane	1.17	U	11.7	1.17	0.606	ug/Kg	☼	08/28/14 10:41	1
Chloroform	1.17	U	5.87	1.17	0.441	ug/Kg	☼	08/28/14 10:41	1
Chloromethane	5.87	U	11.7	5.87	0.763	ug/Kg	☼	08/28/14 10:41	1
cis-1,2-Dichloroethene	1.17	U	5.87	1.17	0.701	ug/Kg	☼	08/28/14 10:41	1
cis-1,3-Dichloropropene	1.17	U	5.87	1.17	0.698	ug/Kg	☼	08/28/14 10:41	1
Dibromochloromethane	1.17	U	5.87	1.17	0.477	ug/Kg	☼	08/28/14 10:41	1
Ethylbenzene	1.17	U	5.87	1.17	0.351	ug/Kg	☼	08/28/14 10:41	1
Methyl tert-butyl ether	1.17	U	5.87	1.17	0.559	ug/Kg	☼	08/28/14 10:41	1
Methylene Chloride	5.87	U	11.7	5.87	1.85	ug/Kg	☼	08/28/14 10:41	1
Styrene	1.17	U	5.87	1.17	0.407	ug/Kg	☼	08/28/14 10:41	1
Tetrachloroethene	1.17	U	5.87	1.17	0.378	ug/Kg	☼	08/28/14 10:41	1
Toluene	1.17	U	5.87	1.17	0.822	ug/Kg	☼	08/28/14 10:41	1
trans-1,2-Dichloroethene	1.17	U	5.87	1.17	1.11	ug/Kg	☼	08/28/14 10:41	1
trans-1,3-Dichloropropene	1.17	U	5.87	1.17	0.410	ug/Kg	☼	08/28/14 10:41	1
Trichloroethene	1.17	U	5.87	1.17	0.452	ug/Kg	☼	08/28/14 10:41	1
Vinyl chloride	1.17	U	11.7	1.17	0.502	ug/Kg	☼	08/28/14 10:41	1
Xylenes, Total	5.87	U	11.7	5.87	1.00	ug/Kg	☼	08/28/14 10:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*112*		*71 - 128*	*08/27/14 20:59*	*08/28/14 10:41*	*1*
4-Bromofluorobenzene (Surr)	*120*		*85 - 120*	*08/27/14 20:59*	*08/28/14 10:41*	*1*
Dibromofluoromethane (Surr)	*108*		*76 - 126*	*08/27/14 20:59*	*08/28/14 10:41*	*1*
Toluene-d8 (Surr)	*110*		*85 - 115*	*08/27/14 20:59*	*08/28/14 10:41*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
1,2-Dichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
1,3-Dichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
1,4-Dichlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4,5-Trichlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4,6-Trichlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4-Dichlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4-Dimethylphenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,4-Dinitrophenol	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
2,4-Dinitrotoluene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2,6-Dinitrotoluene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Chloronaphthalene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Chlorophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Methylphenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Nitroaniline	104	U	1690	104	35.1	ug/Kg	☼	09/08/14 13:01	1
2-Nitrophenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
3 & 4 Methylphenol	104	U	696	104	70.2	ug/Kg	☼	09/08/14 13:01	1
3,3'-Dichlorobenzidine	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
3-Nitroaniline	104	U	1690	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4,6-Dinitro-2-methylphenol	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
4-Bromophenyl phenyl ether	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Chloro-3-methylphenol	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Chloroaniline	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Chlorophenyl phenyl ether	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
4-Nitroaniline	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
4-Nitrophenol	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1
Acenaphthene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Acenaphthylene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Anthracene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[a]anthracene	**189**	**J**	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[a]pyrene	**229**	**J**	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[b]fluoranthene	**401**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[g,h,i]perylene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Benzo[k]fluoranthene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
bis (2-chloroisopropyl) ether	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Bis(2-chloroethoxy)methane	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Bis(2-chloroethyl)ether	104	U	348	104	35.2	ug/Kg	☼	09/08/14 13:01	1
Butyl benzyl phthalate	**1140**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Chrysene	**357**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Dibenzo(a),h)anthracene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Dibenzofuran	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Diethyl phthalate	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Dimethyl phthalate	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Di-n-butyl phthalate	**1190**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Di-n-octyl phthalate	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Fluorene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Hexachlorobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Hexachlorobutadiene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Hexachlorocyclopentadiene	696	U	1690	696	348	ug/Kg	☼	09/08/14 13:01	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachloroethane	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Indeno[1,2,3-cd]pyrene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Nitrobenzene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
N-Nitrosodiphenylamine	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
N-Nitrosodi-n-propylamine	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Pentachlorophenol	348	U	1690	348	348	ug/Kg	☼	09/08/14 13:01	1
Phenanthrene	104	U	348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Phenol	**1000**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Pyrene	**1010**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1
Pyridine	104	U	696	104	70.2	ug/Kg	☼	09/08/14 13:01	1
Naphthalene	**1900**		348	104	35.1	ug/Kg	☼	09/08/14 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*85*		*35 - 125*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
2-Fluorobiphenyl (Surr)	*82*		*45 - 105*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
2-Fluorophenol (Surr)	*84*		*35 - 105*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
Nitrobenzene-d5 (Surr)	*92*		*35 - 100*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
Phenol-d5 (Surr)	*82*		*40 - 100*	*09/06/14 09:34*	*09/08/14 13:01*	*1*
Terphenyl-d14 (Surr)	*90*		*30 - 125*	*09/06/14 09:34*	*09/08/14 13:01*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8270D - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
1,2-Dichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
1,3-Dichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
1,4-Dichlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4,5-Trichlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4,6-Trichlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4-Dichlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4-Dimethylphenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,4-Dinitrophenol	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
2,4-Dinitrotoluene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2,6-Dinitrotoluene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Chloronaphthalene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Chlorophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Methylphenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Nitroaniline	100	U	1620	100	33.7	ug/Kg	☼	09/08/14 14:43	1
2-Nitrophenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
3 & 4 Methylphenol	100	U	667	100	67.3	ug/Kg	☼	09/08/14 14:43	1
3,3'-Dichlorobenzidine	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
3-Nitroaniline	100	U	1620	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4,6-Dinitro-2-methylphenol	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
4-Bromophenyl phenyl ether	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Chloro-3-methylphenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Chloroaniline	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Chlorophenyl phenyl ether	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
4-Nitroaniline	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
4-Nitrophenol	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
Acenaphthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Acenaphthylene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Anthracene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[a]anthracene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[a]pyrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[b]fluoranthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[g,h,i]perylene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Benzo[k]fluoranthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
bis (2-chloroisopropyl) ether	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Bis(2-chloroethoxy)methane	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Bis(2-chloroethyl)ether	100	U	334	100	33.8	ug/Kg	☼	09/08/14 14:43	1
Bis(2-ethylhexyl) phthalate	100	U	334	100	45.8	ug/Kg	☼	09/08/14 14:43	1
Butyl benzyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Chrysene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Dibenzo(a),h)anthracene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Dibenzofuran	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Diethyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Dimethyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Di-n-butyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Di-n-octyl phthalate	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Fluoranthene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Fluorene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Hexachlorobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1

Method: 8270D - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Hexachlorobutadiene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Hexachlorocyclopentadiene	667	U	1620	667	334	ug/Kg	☼	09/08/14 14:43	1
Hexachloroethane	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Indeno[1,2,3-cd]pyrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Nitrobenzene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
N-Nitrosodiphenylamine	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
N-Nitrosodi-n-propylamine	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Pentachlorophenol	334	U	1620	334	334	ug/Kg	☼	09/08/14 14:43	1
Phenanthrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Phenol	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Pyrene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1
Pyridine	100	U	667	100	67.3	ug/Kg	☼	09/08/14 14:43	1
Naphthalene	100	U	334	100	33.7	ug/Kg	☼	09/08/14 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*90*		*35 - 125*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
2-Fluorobiphenyl (Surr)	*87*		*45 - 105*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
2-Fluorophenol (Surr)	*84*		*35 - 105*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
Nitrobenzene-d5 (Surr)	*87*		*35 - 100*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
Phenol-d5 (Surr)	*85*		*40 - 100*	*09/06/14 09:34*	*09/08/14 14:43*	*1*
Terphenyl-d14 (Surr)	*105*		*30 - 125*	*09/06/14 09:34*	*09/08/14 14:43*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8270D - Semivolatile Organic Compounds (GC/MS) - DL

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	30800		1740	522	239	ug/Kg	☼	09/09/14 21:12	5
Fluoranthene	13300		1740	522	176	ug/Kg	☼	09/09/14 21:12	5

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B GRO - Gasoline Range Organics (GRO)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	0.148		0.120	0.0301	0.0120	mg/Kg	☼	09/08/14 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*79*		*44 - 147*	*08/28/14 08:52*	*09/08/14 20:29*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B GRO - Gasoline Range Organics (GRO)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	0.0417	J	0.140	0.0350	0.0140	mg/Kg	☼	09/08/14 21:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Trifluorotoluene (Surr)	*118*		*44 - 147*	*08/28/14 08:52*	*09/08/14 21:03*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B DRO - Diesel Range Organics (DRO) (GC) - DL

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	10300		4220	84.4	56.2	mg/Kg	☼	09/09/14 14:33	80
Motor Oil Range Organics [C28-C40]	9290		4220	84.4	108	mg/Kg	☼	09/09/14 14:33	80

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*0*	*D*	*49 - 133*	*09/08/14 07:40*	*09/09/14 14:33*	*80*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8015B DRO - Diesel Range Organics (DRO) (GC) - DL

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	2.01	U	101	2.01	1.34	mg/Kg	☼	09/09/14 14:59	4
Motor Oil Range Organics [C28-C40]	**75.7**	**J**	101	2.01	2.56	mg/Kg	☼	09/09/14 14:59	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl (Surr)	*95*		*49 - 133*	*09/08/14 07:40*	*09/09/14 14:59*	*4*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aldrin	0.358	U	1.79	0.358	0.603	ug/Kg	☼	09/09/14 04:06	1
alpha-BHC	0.358	U	1.79	0.358	0.306	ug/Kg	☼	09/09/14 04:06	1
beta-BHC	0.358	U	1.79	0.358	0.484	ug/Kg	☼	09/09/14 04:06	1
delta-BHC	0.358	U	1.79	0.358	0.360	ug/Kg	☼	09/09/14 04:06	1
gamma-BHC (Lindane)	0.358	U	1.79	0.358	0.504	ug/Kg	☼	09/09/14 04:06	1
4,4'-DDD	**3.49**	**p**	1.79	0.358	0.365	ug/Kg	☼	09/09/14 04:06	1
4,4'-DDE	**5.25**	**p**	1.79	0.706	0.547	ug/Kg	☼	09/09/14 04:06	1
4,4'-DDT	0.706	U	1.79	0.706	0.662	ug/Kg	☼	09/09/14 04:06	1
Dieldrin	0.358	U	1.79	0.358	0.227	ug/Kg	☼	09/09/14 04:06	1
Endosulfan I	**1.00**	**J p**	1.79	0.706	0.600	ug/Kg	☼	09/09/14 04:06	1
Endosulfan II	0.358	U	1.79	0.358	0.308	ug/Kg	☼	09/09/14 04:06	1
Endosulfan sulfate	0.706	U	1.79	0.706	0.358	ug/Kg	☼	09/09/14 04:06	1
Endrin	0.358	U	1.79	0.358	0.337	ug/Kg	☼	09/09/14 04:06	1
Endrin aldehyde	**8.37**		1.79	0.706	0.410	ug/Kg	☼	09/09/14 04:06	1
Endrin ketone	0.706	U	1.79	0.706	0.439	ug/Kg	☼	09/09/14 04:06	1
Heptachlor	0.358	U	1.79	0.358	0.299	ug/Kg	☼	09/09/14 04:06	1
Heptachlor epoxide	0.706	U	1.79	0.706	0.500	ug/Kg	☼	09/09/14 04:06	1
Methoxychlor	1.79	U	3.48	1.79	0.757	ug/Kg	☼	09/09/14 04:06	1
Toxaphene	35.8	U	70.6	35.8	16.0	ug/Kg	☼	09/09/14 04:06	1
Technical Chlordane	7.06	U	17.9	7.06	3.94	ug/Kg	☼	09/09/14 04:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*0*	*X*	*55 - 130*	*09/08/14 12:23*	*09/09/14 04:06*	*1*
Tetrachloro-m-xylene	*0*	*X*	*70 - 125*	*09/08/14 12:23*	*09/09/14 04:06*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8081B - Organochlorine Pesticides (GC)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aldrin	0.343	U	1.71	0.343	0.576	ug/Kg	☼	09/09/14 06:05	1
alpha-BHC	0.343	U	1.71	0.343	0.292	ug/Kg	☼	09/09/14 06:05	1
beta-BHC	0.343	U	1.71	0.343	0.462	ug/Kg	☼	09/09/14 06:05	1
delta-BHC	0.343	U	1.71	0.343	0.345	ug/Kg	☼	09/09/14 06:05	1
gamma-BHC (Lindane)	0.343	U	1.71	0.343	0.482	ug/Kg	☼	09/09/14 06:05	1
4,4'-DDD	0.343	U	1.71	0.343	0.349	ug/Kg	☼	09/09/14 06:05	1
4,4'-DDE	**0.707**	**J p**	1.71	0.675	0.523	ug/Kg	☼	09/09/14 06:05	1
4,4'-DDT	**1.16**	**J p**	1.71	0.675	0.633	ug/Kg	☼	09/09/14 06:05	1
Dieldrin	**0.579**	**J**	1.71	0.343	0.217	ug/Kg	☼	09/09/14 06:05	1
Endosulfan I	0.675	U	1.71	0.675	0.574	ug/Kg	☼	09/09/14 06:05	1
Endosulfan II	0.343	U	1.71	0.343	0.294	ug/Kg	☼	09/09/14 06:05	1
Endosulfan sulfate	0.675	U	1.71	0.675	0.343	ug/Kg	☼	09/09/14 06:05	1
Endrin	0.343	U	1.71	0.343	0.322	ug/Kg	☼	09/09/14 06:05	1
Endrin aldehyde	0.675	U	1.71	0.675	0.392	ug/Kg	☼	09/09/14 06:05	1
Endrin ketone	0.675	U	1.71	0.675	0.420	ug/Kg	☼	09/09/14 06:05	1
Heptachlor	0.343	U	1.71	0.343	0.286	ug/Kg	☼	09/09/14 06:05	1
Heptachlor epoxide	0.675	U	1.71	0.675	0.479	ug/Kg	☼	09/09/14 06:05	1
Methoxychlor	1.71	U	3.32	1.71	0.724	ug/Kg	☼	09/09/14 06:05	1
Toxaphene	34.3	U	67.5	34.3	15.3	ug/Kg	☼	09/09/14 06:05	1
Technical Chlordane	6.75	U	17.1	6.75	3.77	ug/Kg	☼	09/09/14 06:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*121*		*55 - 130*	*09/08/14 12:23*	*09/09/14 06:05*	*1*
Tetrachloro-m-xylene	*87*		*70 - 125*	*09/08/14 12:23*	*09/09/14 06:05*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor 1016	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1221	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1232	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1242	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1248	16.2	U	33.3	16.2	9.70	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1254	**8.42**	**J**	33.3	10.1	8.09	ug/Kg	☼	09/09/14 11:41	1
Aroclor 1260	**15.8**	**J**	33.3	10.1	8.09	ug/Kg	☼	09/09/14 11:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*78*		*60 - 125*	*09/08/14 09:34*	*09/09/14 11:41*	*1*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography - DL

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Aroclor 1016	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1221	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1232	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1242	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1248	167	U	344	167	100	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1254	**458**		344	104	83.6	ug/Kg	☼	09/09/14 12:30	10
Aroclor 1260	**480**		344	104	83.6	ug/Kg	☼	09/09/14 12:30	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl (Surr)	*0*	*D*	*60 - 125*	*09/08/14 09:34*	*09/09/14 12:30*	*10*

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	3.41		2.22	2.13	0.729	mg/Kg	☼	09/16/14 00:20	10
Arsenic	6.95		4.45	3.47	1.16	mg/Kg	☼	09/16/14 00:20	10
Barium	204		8.89	1.25	0.418	mg/Kg	☼	09/16/14 00:20	10
Beryllium	0.587		0.445	0.347	0.116	mg/Kg	☼	09/16/14 00:20	10
Cadmium	352		0.267	0.213	0.0711	mg/Kg	☼	09/16/14 00:20	10
Chromium	1090		8.45	4.45	2.00	mg/Kg	☼	09/16/14 00:20	10
Cobalt	41.9		0.889	0.574	0.191	mg/Kg	☼	09/16/14 00:20	10
Copper	347		4.45	1.33	0.449	mg/Kg	☼	09/16/14 00:20	10
Lead	459		1.33	1.33	0.445	mg/Kg	☼	09/16/14 00:20	10
Molybdenum	27.3		2.22	1.60	0.551	mg/Kg	☼	09/16/14 00:20	10
Nickel	422		2.22	1.47	0.476	mg/Kg	☼	09/16/14 00:20	10
Selenium	0.825	J	2.22	2.13	0.703	mg/Kg	☼	09/16/14 00:20	10
Silver	23.0		2.00	0.320	0.107	mg/Kg	☼	09/16/14 00:20	10
Thallium	0.889	U	4.45	0.889	0.676	mg/Kg	☼	09/16/14 00:20	10
Vanadium	28.7		4.45	4.45	3.27	mg/Kg	☼	09/16/14 00:20	10
Iron	24500		53.4	22.2	14.7	mg/Kg	☼	09/16/14 00:20	10
Zinc	1240		22.2	17.7	5.91	mg/Kg	☼	09/16/14 00:20	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 6020A - Metals (ICP/MS)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Antimony	2.34	U	2.43	2.34	0.798	mg/Kg	☼	09/16/14 00:53	10
Arsenic	**4.02**	**J**	4.87	3.80	1.27	mg/Kg	☼	09/16/14 00:53	10
Barium	**48.2**		9.74	1.37	0.458	mg/Kg	☼	09/16/14 00:53	10
Beryllium	**0.204**	**J**	0.487	0.380	0.127	mg/Kg	☼	09/16/14 00:53	10
Cadmium	**0.392**		0.292	0.234	0.0779	mg/Kg	☼	09/16/14 00:53	10
Chromium	**33.5**		9.25	4.87	2.19	mg/Kg	☼	09/16/14 00:53	10
Cobalt	**7.27**		0.974	0.628	0.209	mg/Kg	☼	09/16/14 00:53	10
Copper	**14.7**		4.87	1.46	0.492	mg/Kg	☼	09/16/14 00:53	10
Lead	**27.9**		1.46	1.46	0.487	mg/Kg	☼	09/16/14 00:53	10
Molybdenum	1.75	U	2.43	1.75	0.604	mg/Kg	☼	09/16/14 00:53	10
Nickel	**33.9**		2.43	1.61	0.521	mg/Kg	☼	09/16/14 00:53	10
Selenium	2.34	U	2.43	2.34	0.769	mg/Kg	☼	09/16/14 00:53	10
Silver	**0.228**	**J**	2.19	0.350	0.117	mg/Kg	☼	09/16/14 00:53	10
Thallium	0.974	U	4.87	0.974	0.740	mg/Kg	☼	09/16/14 00:53	10
Vanadium	**28.9**		4.87	4.87	3.58	mg/Kg	☼	09/16/14 00:53	10
Iron	**14500**		58.4	24.3	16.1	mg/Kg	☼	09/16/14 00:53	10
Zinc	**59.5**		24.3	19.4	6.47	mg/Kg	☼	09/16/14 00:53	10

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-MHs
Date Collected: 08/26/14 10:00
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-1
Matrix: Solid
Percent Solids: 94.7

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	1.42		0.0413	0.0310	0.0113	mg/Kg	☼	09/08/14 13:46	1

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8110-1
SDG: 160-8110

Method: 7471B - Mercury (CVAA)

Client Sample ID: IWL-BLDG29-EXCAVATION
Date Collected: 08/26/14 10:30
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8110-2
Matrix: Solid
Percent Solids: 98.8

Analyte	Result	Qualifier	LOQ	LOD	DL	Unit	D	Analyzed	Dil Fac
Mercury	0.0761		0.0356	0.0267	0.00979	mg/Kg	☼	09/08/14 13:55	1

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

TestAmerica Job ID: 160-8113-2
TestAmerica Sample Delivery Group: 160-8113
Client Project/Site: Alameda IR Site 17

For:
Tetra Tech EC, Inc.
17885 Von Karman Ave
Suite 500
Irvine, California 92614

Attn: Sabina Sudoko

Authorized for release by:
10/13/2014 9:43:11 AM

Erika Gish, Project Manager II
(314)298-8566
erika.gish@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 160-8113-2

Laboratory: TestAmerica St. Louis

Narrative

CASE NARRATIVE

Client: Tetra Tech EC, Inc.

Project: Alameda IR Site 17

Report Number: 160-8113-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica St. Louis attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt
Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

The following clean-up methods for Organic analyses may have been used on the samples in this data set. Specific methods employed are documented on the batch extraction logs:

Method 3600C: Cleanup
Method 3620C: Florisil Cleanup
Method 3630C: Silica Gel Cleanup
Method 3640A: Gel-Permeation Cleanup
Method 3650B: Acid-Base Partition Cleanup
Method 3660B: Sulfur Cleanup
Method 3665A: Sulfuric Acid/Permanganate Cleanup

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

Job ID: 160-8113-2 (Continued)

Laboratory: TestAmerica St. Louis (Continued)

RECEIPT

The samples were received on 8/27/2014 9:35 AM; the samples arrived in good condition, properly preserved. The temperature of the cooler at receipt was 20.0º C.

STRONTIUM-90 (GFPC)

Sample IWL-PS1-VAULT-UP-01 (160-8113-2) was analyzed for Strontium-90 (GFPC) in accordance with SR-03-RC. The samples were leached on 09/29/2014, prepared on 09/30/2014 and analyzed on 10/09/2014.

Count Time: All samples and QC were counted for 400 mins.

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

TETRA TECH EC, INC

Chain-of Custody Record

NUMBER: FZ02 - 1007A RAD

Project Name	FZ02 - Alameda Site 17
PO Number	1096343-6
Project Location	Alameda, CA
Project Number	FZ02.0202.1000
Sampler Name	Chris Charchidi
Airbill Number	7709 5309 1510
Project Chemist	S. Sudoko
Project Chemist Phone	949-809-5022
Laboratory Name	Test America St. Louis
Laboratory ID	

ANALYSES REQUIRED

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	Ra226 Only	E901.1-Cs 137	DOE SR90-03-RC MOD *					COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-RINSE-04	8/26/2014	0910	3	3	W	21 dy	X	X							EQUIPMENT BLK			EQB
IWL-PS1-VAULT-UP-01	8/26/2014	0920	2	3	W	21 dy	X	X							PS1 10'UPSTREAM			N

CAL

160-8113 Chain of Custody

Relinquished by: (signature)	Date: 8-26-14	Received by (signature) FedEx	Laboratory Instructions/Comments: * If Cs137 result is > 0.113 pCi/g, then run sample for Sr90 (DOE SR90-03-RC MOD)
Company: BSRS	Time: 1507	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature) 8/27/14	Composite Discription:
Company:	Time:	Company: TA 0933	
Relinquished by: (signature)	Date:	Received by (signature)	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1007A RAD

TETRA TECH EC, INC.

Chain-of Custody Record

NUMBER: FZ02 - 1008A RAD

Project Name: FZ02 - Alameda Site 17	PO Number: 1096343-6
Project Location: Alameda, CA	Project Number: FZ02.0202.1000
Sampler Name: Chris Carchidi	Airbill Number: 7709 5309 1510
Project Chemist: S. Sudoko	Project Chemist Phone: 949-809-5022

Laboratory Name: Test America St. Louis

Laboratory ID:

ANALYSES REQUIRED: E901.1 - CS137 / Ra226 Only; DOE SR90-03-RC MOD *; CAL

Sample ID	DATE COLLECTED	TIME COLLECTED	Containers	LEVEL	TYPE	TAT	E901.1 - CS137 / Ra226 Only	DOE SR90-03-RC MOD *						COMMENTS	LOCATION	Depth START	Depth END	QC
IWL-MHs	8/25/2014	1405	2	3	S	21DY	X	X						Sediment accumulated during investigation	Pad F			N
IWL-BLDG29-EXCAVATION	8/25/2014	1431	2	3	S	21DY	X	X						Soil accumulated during investigation	Site 17 asphalt berm area			N

Relinquished by: (signature)	Date: 8-26-14	Received by (signature): FedEx	Laboratory Instructions/Comments: * If Cs137 result is > 0.113 pCi/g, then run sample for Sr90 (DOE SR90-03-RC MOD)
Company: RSRS	Time: 1507	Company: FedEx	
Relinquished by: (signature)	Date:	Received by (signature): 8/27/14	Composite Discription:
Company:	Time:	Company: TA 0935	
Relinquished by: (signature)	Date:	Received by (signature):	Sample Condition Upon Receipt (for Laboratory)
Company:	Time:	Company:	Temperature: Sample Condition: Cooler Seal:

Sampling Comments:

Piles:

FZ02 - 1008A RAD

Login Sample Receipt Checklist

Client: Tetra Tech EC, Inc.

Job Number: 160-8113-2
SDG Number: 160-8113

Login Number: 8113
List Number: 1
Creator: Daniels, Brian J

List Source: TestAmerica St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Method Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Method	Method Description	Protocol	Laboratory
SR-03-RC	Strontium-90 (GFPC)	DOE	TAL SL

Protocol References:

DOE = U.S. Department of Energy

Laboratory References:

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-8113-2	IWL-PS1-VAULT-UP-01	Solid	08/26/14 09:20	08/27/14 09:35

Client Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Method: SR-03-RC - Strontium-90 (GFPC)

Client Sample ID: IWL-PS1-VAULT-UP-01
Date Collected: 08/26/14 09:20
Date Received: 08/27/14 09:35

Lab Sample ID: 160-8113-2
Matrix: Solid

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0235	U	0.134	0.134	0.320	0.111	pCi/g	09/30/14 16:33	10/09/14 18:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*90.6*		*40 - 110*	*09/30/14 16:33*	*10/09/14 18:42*	*1*
Y Carrier	*92.3*		*40 - 110*	*09/30/14 16:33*	*10/09/14 18:42*	*1*

QC Sample Results

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Method: SR-03-RC - Strontium-90 (GFPC)

Lab Sample ID: MB 160-146648/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 148465 — **Prep Batch: 146648**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	LOQ	DL	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.04441	U	0.134	0.134	0.320	0.108	pCi/g	09/30/14 16:33	10/09/14 18:42	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*87.8*		*40 - 110*	*09/30/14 16:33*	*10/09/14 18:42*	*1*
Y Carrier	*93.8*		*40 - 110*	*09/30/14 16:33*	*10/09/14 18:42*	*1*

Lab Sample ID: LCS 160-146648/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 148465 — **Prep Batch: 146648**

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit	%Rec	%Rec. Limits		
Strontium-90			9.00	8.887		0.828	0.320	0.0994	pCi/g	99	88 - 136		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*91.3*		*40 - 110*
Y Carrier	*94.2*		*40 - 110*

Lab Sample ID: 160-8113-2 DU — **Client Sample ID: IWL-PS1-VAULT-UP-01**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 148465 — **Prep Batch: 146648**

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	LOQ	DL	Unit			RER	RER Limit
Strontium-90	-0.0235	U		0.1145	U	0.155	0.320	0.121	pCi/g			0.48	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Sr Carrier	*81.6*		*40 - 110*
Y Carrier	*93.8*		*40 - 110*

QC Association Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Rad

Leach Batch: 146468

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8113-2	IWL-PS1-VAULT-UP-01	Total/NA	Solid	Dry and Grind	
160-8113-2 DU	IWL-PS1-VAULT-UP-01	Total/NA	Solid	Dry and Grind	

Prep Batch: 146648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-8113-2	IWL-PS1-VAULT-UP-01	Total/NA	Solid	DPS-7	146468
160-8113-2 DU	IWL-PS1-VAULT-UP-01	Total/NA	Solid	DPS-7	146468
LCS 160-146648/2-A	Lab Control Sample	Total/NA	Solid	DPS-7	
MB 160-146648/1-A	Method Blank	Total/NA	Solid	DPS-7	

Tracer/Carrier Summary

Client: Tetra Tech EC, Inc.
Project/Site: Alameda IR Site 17

TestAmerica Job ID: 160-8113-2
SDG: 160-8113

Method: SR-03-RC - Strontium-90 (GFPC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)							
Lab Sample ID	**Client Sample ID**	**Sr (C) (40-110)**	**Y (40-110)**						
160-8113-2	IWL-PS1-VAULT-UP-01	90.6	92.3						
160-8113-2 DU	IWL-PS1-VAULT-UP-01	81.6	93.8						
LCS 160-146648/2-A	Lab Control Sample	91.3	94.2						
MB 160-146648/1-A	Method Blank	87.8	93.8						

Tracer/Carrier Legend

Sr (C) = Sr Carrier

Y = Y Carrier

APPENDIX E

PHOTOGRAPHS
(on CD)

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Subappendix E1

Project Photographs

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PHOTOGRAPHS

Photo 1. Investigating industrial waste line piping through Building 5, March 2014.

Photo 2. Background trench used as a baseline for radiological surveys in the four reach excavations.

Photo 3. Utility markings at Reach 7 placed prior to excavation.

Photo 4. Guzzler vacuum truck used during project to pump water and sediments from the excavation areas.

Photo 5. Crawler cameras used to investigate industrial waste lines. The same equipment was used in July 2014.

Photo 6. Excavation of trench using Hitachi 330.

Photo 7. Tree removal debris from the Reach 7 area.

Photo 8. Performing sidewall surveys of trench prior to pipe removal and placement. Elevating work platform used to eliminate need to enter trench.

Photo 9. Collecting soil samples with hand auger prior to pipe removal from Reach 7.

Photo 10. Trench boxes set in order to remove existing pipe and install new pipe in trench at Reach 7. Note center shadow figure of Global Positioning System (GPS) technician with GPS rover unit on staff.

Photo 11. Existing storm drain piping in Reach 7 that needed to be removed.

Photo 12. Placing excavation spoils in the Installation Restoration (IR) Site 17 asphalt berm area.

Photo 13. Backfilling the Reach 7 excavation.

Photo 14. Concrete slabs removed from reach areas placed as reinforcement on land-side of seawall between IR Sites 1 and 2.

Photo 15. Soil and debris material from excavation work managed in the IR Site 17 area.

Photo 16. Traffic control in the Reach 63 area. Typical setup in all reach locations.

Photo 17. Reach 63 support area. Note Radiological Control Technician (RCT) preparing radiological monitoring equipment required during excavation activities.

Photo 18. Typical 21,000-gallon water storage tank positioned at Reach 63 to store any standing water pumped from excavation.

Photo 19. Preparing the IR Site 17 asphalt berm area to place excavated material for processing.

Photo 20. Excavation of Reach 63. Note bench cutbacks in slope to allow permitted access by personnel.

Photo 21. Storm drain pipe removed from Reach 63 and staged for investigation and release survey by RCTs.

Photo 22. Pumping water from the Reach 63 excavation prior to pipe replacement.

Photo 23. Crew installing new replacement pipe section in Reach 63.

Photo 24. Reach 27 initial excavation work activities. Radiation Safety Officer Representative (RSOR) performing radiological scans of concrete slabs prior to removal from area.

Photo 25. Crews installing pipe plug to isolate the Reach 27 storm drain excavation. Crew member on left removed safety glasses (in left hand) to see and direct plug installation in shadow area.

Photo 26. GPS technician collecting coordinates and elevation in the Reach 27 area. GPS data were collected at each work area.

Photo 27. Exposed storm drain line in Reach 27.

Photo 28. RCT using hand auger to collect radiological core samples prior to removing pipe segment.

Photo 29. Removed storm drain pipe from Reach 27.

Photo 30. Note typical air monitoring equipment at Reach 27.

Photo 31. Backfilling Reach 27 trench. Note radiological control fencing and signage in addition to air monitoring using a 4 gas plus photoionization detector (PID). Note yellow ribbon used for wind direction.

Photo 32. Finalizing aggregate base layer prior to concrete pavement installation.

Photo 33. Spreading excavation material in asphalt berm area prior to conducting Vehicle Towed Array (VTA) surveys.

Photo 34. Collecting systematic soil samples at Reach 12 from trench wall after the impacted storm drain line had been removed during excavation activities.

Photo 35. Reach 12 natural gas line that required recoating prior to backfill.

Photo 36. Finalizing backfill of Reach 12 prior to concrete pavement installation.

Photo 37. Backfill density testing with nuclear density gauge at Reach 12.

Photo 38. Setting forms for concrete curb at Reach 12.

Photo 39. Geophysical survey work at the former Building 29 Pump Station prior to excavation to locate utilities.

Photo 40. Utility markings and approximate building layouts with the three vault areas.

Photo 41. Potholing and exposing utilities at the former Building 29 Pump Station excavation area.

Photo 42. Removing overburden material from the former Building 29 Pump Station in preparation for soil sampling.

Photo 43. Footprint of former Building 29 Pump Station with access ramps for the direct push rig to access the areas.

Photo 44. Collecting soil boring 1 core from the south vault at former Building 29 Pump Station. Sampling method for all samples was implemented using a direct push rig capable of collecting an approximately 2-inch core.

Photo 45. Soil boring 1 core from the south vault at former Building 29 Pump Station.

Photo 46. Collecting soil sample from the soil boring 1 core taken from the south vault at former Building 29 Pump Station.

Photo 47. Crew preparing to remove soil boring 2 core from center vault at former Building 29 Pump Station.

Photo 48. Soil boring from the center vault at former Building 29 Pump Station.

Photo 49. Sediment collected near center vault bottom at former Building 29 Pump Station. Sediment typical in all three locations.

Photo 50. Collecting soil boring 3 core from the north vault at former Building 29 Pump Station.

Photo 51. Soil boring 3 core from the north vault at former Building 29 Pump Station.

Photo 52. Former Building 29 Pump Station excavated soil on the survey pad.

Photo 53. Former Building 29 Pump Station area backfilled after excavation and soil boring activities.

Photo 54. Soil boring collected near Pump Station 2.

Photo 55. Collecting soil boring near manhole MH 1-8 using direct push rig.

Photo 56. Collecting soil samples from the boring near manhole MH 1-8.

Photo 57. Sediment and sludge from cleanout activities at the manholes drying in the dewatering pad.

Photo 58. Sediment and sludge that were removed from cleaning the manholes were sampled and characterized as RCRA hazardous waste. Dewatering pad was labeled to show content status. This material was transferred from the site on October 28, 2014, to a Class I landfill for disposal.

Photo 59. Former Building 29 Pump Station excavated soils on the Radiological Scanning Pads awaiting surveys and sampling. This material was determined to be nonhazardous and was transported to the IR Site 1 landfill area for beneficial reuse.

Photo 60. Batch 12 water being treated at the IR Site 17 water treatment system. Water was generated from the OU-2C work activities. Treated water was later placed in the asphalt berm area and evaporated. The water treatment plant, tanks, and other equipment were all located within an asphalt berm, which prevented any spillage from reaching the bay.

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Subappendix E2

Manholes Before and After Sediment Removal

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PHOTOGRAPHS

Photo 1. Industrial waste manhole MH1-1 before sediment removal.

Photo 2. Industrial waste manhole MH1-1 after sediment removal.

Photo 3. Industrial waste manhole MH1-2 before sediment removal.

Photo 4. Industrial waste manhole MH1-2 after sediment removal.

Photo 5. Industrial waste manhole MH1-3 before sediment removal.

Photo 6. Industrial waste manhole MH1-3 after sediment removal.

Photo 7. Industrial waste manhole MH1-4 before sediment removal.

Photo 8. Industrial waste manhole MH1-4 after sediment removal.

Photo 9. Industrial waste manhole MH1-5 before sediment removal.

Photo 10. Industrial waste manhole MH1-5 after sediment removal.

Photo 11. Industrial waste manhole MH1-6 before sediment removal.

Photo 12. Industrial waste manhole MH1-6 after sediment removal.

Photo 13. Industrial waste manhole MH1-7 before sediment removal.

Photo 14. Industrial waste manhole MH1-7 after sediment removal.

Photo 15. Industrial waste manhole MH1-8 before sediment removal.

Photo 16. Industrial waste manhole MH1-8 after sediment removal.

Photo 17. Industrial waste manhole MH1-9 before sediment removal.

Photo 18. Industrial waste manhole MH1-9 after sediment removal.

Photo 19. Industrial waste manhole MH1-10 before sediment removal.

Photo 20. Industrial waste manhole MH1-10 after sediment removal.

Photo 21. Industrial waste manhole MH1-11 before sediment removal.

Photo 22. Industrial waste manhole MH1-11 after sediment removal.

Photo 23. Industrial waste manhole MH1-11A before sediment removal.

Photo 24. Industrial waste manhole MH1-11A after sediment removal.

Photo 25. Industrial waste manhole MH1-12 before sediment removal.

Photo 26. Industrial waste manhole MH1-12 after sediment removal.

Photo 27. Industrial waste manhole MH1-13 before sediment removal.

Photo 28. Industrial waste manhole MH1-13 after sediment removal.

Photo 29. Industrial waste manhole MH1-14 before sediment removal.

Photo 30. Industrial waste manhole MH1-14 after sediment removal.

Photo 31. Industrial waste manhole MH1-22 before sediment removal.

Photo 32. Industrial waste manhole MH1-22 after sediment removal.

Photo 33. Industrial waste manhole MH1-23 before sediment removal.

Photo 34. Industrial waste manhole MH1-23 after sediment removal.

Photo 35. Industrial waste manhole MH1-24 before sediment removal.

Photo 36. Industrial waste manhole MH1-24 after sediment removal.

Photo 37. Industrial waste Pump Station 1 vault before sediment removal.

Photo 38. Industrial waste Pump Station 1 vault after sediment removal.

Photo 39. Industrial waste Pump Station 2 vault before sediment removal.

Photo 40. Industrial waste Pump Station 2 vault after sediment removal.

Photo 41. Industrial waste manhole near former Building 29 Pump Station. Unable to sample because no sediment was present.

Photo 42. Industrial waste sump in northeast area of Building 5 that was sampled.

Photo 1. Industrial waste manhole MH1-1 before sediment removal.

Photo 2. Industrial waste manhole MH1-1 after sediment removal.

Photo 3. Industrial waste manhole MH1-2 before sediment removal.

Photo 4. Industrial waste manhole MH1-2 after sediment removal.

Photo 5. Industrial waste manhole MH1-3 before sediment removal.

Photo 6. Industrial waste manhole MH1-3 after sediment removal.

Photo 7. Industrial waste manhole MH1-4 before sediment removal.

Photo 8. Industrial waste manhole MH1-4 after sediment removal.

Photo 9. Industrial waste manhole MH1-5 before sediment removal.

Photo 10. Industrial waste manhole MH1-5 after sediment removal.

Photo 11. Industrial waste manhole MH1-6 before sediment removal.

Photo 12. Industrial waste manhole MH1-6 after sediment removal.

Photo 13. Industrial waste manhole MH1-7 before sediment removal.

Photo 14. Industrial waste manhole MH1-7 after sediment removal.

Photo 15. Industrial waste manhole MH1-8 before sediment removal.

Photo 16. Industrial waste manhole MH1-8 after sediment removal.

Photo 17. Industrial waste manhole MH1-9 before sediment removal.

Photo 18. Industrial waste manhole MH1-9 after sediment removal.

Photo 19. Industrial waste manhole MH1-10 before sediment removal.

Photo 20. Industrial waste manhole MH1-10 after sediment removal.

Photo 21. Industrial waste manhole MH1-11 before sediment removal.

Photo 22. Industrial waste manhole MH1-11 after sediment removal.

Photo 23. Industrial waste manhole MH1-11A before sediment removal.

Photo 24. Industrial waste manhole MH1-11A after sediment removal.

Photo 25. Industrial waste manhole MH1-12 before sediment removal.

Photo 26. Industrial waste manhole MH1-12 after sediment removal.

Photo 27. Industrial waste manhole MH1-13 before sediment removal.

Photo 28. Industrial waste manhole MH1-13 after sediment removal.

Photo 29. Industrial waste manhole MH1-14 before sediment removal.

Photo 30. Industrial waste manhole MH1-14 after sediment removal.

Photo 31. Industrial waste manhole MH1-22 before sediment removal.

Photo 32. Industrial waste manhole MH1-22 after sediment removal.

Photo 33. Industrial waste manhole MH1-23 before sediment removal.

Photo 34. Industrial waste manhole MH1-23 after sediment removal.

Photo 35. Industrial waste manhole MH1-24 before sediment removal.

Photo 36. Industrial waste manhole MH1-24 after sediment removal.

Photo 37. Industrial waste Pump Station 1 vault before sediment removal.

Photo 38. Industrial waste Pump Station 1 vault after sediment removal.

Photo 39. Industrial waste Pump Station 2 vault before sediment removal.

Photo 40. Industrial waste Pump Station 2 vault after sediment removal.

Photo 41. Industrial waste manhole near former Building 29 Pump Station. Unable to sample because no sediment was present.

Photo 42. Industrial waste sump in northeast area of Building 5 that was sampled.

APPENDIX F

WORK PLAN FIELD CHANGE REQUEST FORMS
(on CD)

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TtEC, NAVFAC SW RMAC CONTRACT NO. N62473-10-D-0809, CTO NO. 0005

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	0005	FCR #	05-03	DATE	11/19/13
LOCATION	Alameda Point OU-2C IR Sites 5 and 10	ROICC	Gregory Grace		
SUBJECT: Additional Storm Drain Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC			

1. Document to be changed. Identify revision, date, section, drawing, etc.

Final Remedial Action Work Plan, January, 2011. DCN: RMAC-0809-0006-0001.R1,

2. Description of existing requirements and proposed change (Attach sheet if necessary)

Existing Requirements: TtEC CTO No. 0006 and 0010 work activities that focus on the remediation of the Site 17 area are dictated by the referenced RAWP and included source removal work on the storm drain line G main trunk, which originated from the OU-2C area of Alameda Point. At the Navy's direction, TtEC will continue to perform characterization/health and safety activities on the remaining radiologically-impacted storm drain lines originating from the OU-2C Building 5. This work will be conducted in accordance with NAVFAC SW Radiological EMAC CTO 0005 (contract # N62473-10-D-0809) and CTO FZ02 (contract #N62470-13-D-8007) requirements, with all work included in this CTO 0005 FCR.

Change:

1) RAWP (main text) Section 1.5 – Remedial Action

Insert the following paragraph at the end of RAWP Section 1.5 to incorporate the requirements for the additional investigation. In August 2013, the DON requested additional investigation work on locations in Storm Drain Lines A, B and G originating from the OU-2C Building 5 that had not been included in the work associated with FCR05-01 and FCR05-02. This work includes the excavation, removal of the piping, radiological surveys of the area, sampling, replacement pipe of four (4) locations on the referenced storm drain lines, and backfill. Remediation of trenches based on sample results will not be performed because this line removal is part of an investigation. In addition, since video confirms that the sediment has been removed from inside the storm water piping, soil contamination falling in the trench due to sediment inside the piping is not an issue. All work associated with the scope will be conducted in accordance with the existing RAWP, and the revisions incorporated into it by the current FCR05-03 and FCR05-01 and FCR05-02 previously issued. The specific details of the work are included in Appendix L.

2) Appendix F - Contractor Quality Control Plan

Insert the attached pages of the DFW table to reflect new activity numbers and the project schedule for the additional work. The attached document provides the table revisions and presents the additional work schedule.

3) Appendix L - Installation Restoration Site 17 Source Control Remedial Action Work Plan

Insert the following paragraph at the end of Section 1.0 Introduction to reflect the current work requirements for the additional investigation work on the OU-2C storm drains.

Storm Drain Line Removal and Replacement

Specific sections of Storm Drain Lines A, B, and G will be excavated and the removed pipe will be 100% radiologically surveyed. Core samples will be collected from areas around each pipe segment excavated. Following the investigation a Final Status Survey (FSS) will be conducted in each trench and the storm drain lines will be replaced. The trenches will be backfilled following replacement of the storm drain lines. A detailed description of the work is included in Section 3.3 below.

Insert the following subsection at the end of Section 3.0 Radiological Source Removals, to reflect the current work requirements for the additional investigation work on the OU-2C storm drains. Figures will be added to Appendix L.

3.3 Storm Drain Line A, B and G Removal and Replacement

Specific sections of Storm Drain Lines A, B, and G will be excavated and the removed pipe will be 100% radiologically surveyed. Core samples will be collected from areas around each pipe segment excavated. Following the investigation, a FSS will be conducted in each trench and the storm drain lines will be replaced. The FSS will consist of a 100% gamma scan survey of all accessible areas and collecting 18 systematic samples starting from a random start point. The samples will only be collected for characterization purposes and no remediations will be conducted based on sample results. As soon as the systematic samples are collected from the excavation, replacement of the pipe followed by backfilling the excavation may begin. If the sample results are not available for the excavation when workers are entering the excavation, then specific radiological controls will be required for these activities. Appropriate radiological controls as dictated by the RSOR will be enforced during work implemented, to include impermeable anti-contamination clothing and a decontamination system for personnel and equipment to be installed at each excavation.

All work will be conducted in accordance with the general approach and methodologies in the *Final Remedial Action Work Plan: Installation Restoration Site 17 Seaplane Lagoon, Alameda Point, Alameda, California* (Work Plan), the associated Sampling and Analysis Plan (SAP) in the Work Plan, the Alameda Standard Operating Procedures

(SOPs), the other associated documents including this description of work.

The areas to be investigated in Storm Drain Lines A, B & G are provided below and are shown on Figures L.3-2 to L.3-6

- Storm Drain Line A – 20-feet of Reach 7, 10–inch diameter vitrified clay pipe line, between MH5A6 and MH5A5. 40-feet of Reach 12, 30–inch diameter concrete pipe line, between MH6A and CB5A4.
- Storm Drain Line B – 60-feet of Reach 27, 18–inch diameter concrete pipe line, between MH7B and MH6B.
- Storm Drain Line G – 20-feet of Reach 63, 18–inch diameter concrete pipe line, between MH9G and MH8G.

Each trench will be excavated down to the top of the storm drain line, and samples will be collected around the pipe to evaluate the potential for radiological contamination in the soil outside the pipe. The samples will be collected in locations due to their proximity to known joints or breaks in the line if present within each excavated reach of piping. One sample will be collected at 1-foot from the centerline on each side of the pipe at the location of the highest gamma reading and any identified cracks or leaks in the pipe. One sample will be collected by coring under the pipe from each side at the same locations as above. For this coring around the pipe, there will be a maximum of eight samples collected at each excavation. FSS sample data will be provided based on the 186 kev peak for radium-226 in order to facilitate field decisions. Final data for reports will be based upon 21 day validated data based on the bismuth in growth. All other excavation activities will be in accordance with the Work Plan.

Excavated soil piles will be processed in accordance with the Work Plan with the exception that biased radiological samples will be collected in any location identified as greater than the 3σ investigation criteria once scanned by the Vehicle Towed Array.

3. Reason for Change (Attach sheet if necessary)

The purpose of this Field Change Request (FCR) is to establish the requirements for excavation, investigation, and sampling of specific locations in Storm Drain Lines A, B, and G at Alameda Point that emanate from Building 5, Installation Restoration (IR) Site 5 Operable Unit (OU) 2C. Activities addressed in this FCR are similar to the work conducted previously under Contract Task Order (CTO)-0005. One change is that samples will be collected at specific locations near the pipe.

4. Cost and Schedule Implications (if any)

None.

TtEC Project QC Manager (Print name and sign) Vince Richards	Date 11/12/13	TtEC Site Engineer (print name and sign) Ray Seamons	Date 11 12 13
Reviewed by: (Print name and sign) Nathan Smith	11/12/13	Title TtEC's RSOR	Date 11/12/13
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date 11/12/13
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date 11-13-13
TtEC Program QC Manager (Print name and sign) Greg Joyce	Date 11/14/13	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date 11-20-13	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date 11/20/13

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
BATT4. TtEC4, TT10-5. Utility surveying (Battelle/TtEC) A4030 per FCR05-03	• Review AHAs. • Verify that sensitive locations at the site are delineated and work crews are aware of restricted areas. • Review control points. • Review the RAWP. • Verify that radiation awareness training has been completed and training is documented.		• Verify that utility locations are marked in the field and identified to the equipment operators. • Verify that a qualified RCT and SSHO are present at active work areas.		• Verify that a qualified RCT and SSHO are present at active work areas. • Verify that utility locations are marked in the field and identified to the equipment operators. • Verify that boundaries of survey have been met. • Verify that site activities are being photographed. • Verify that photographs are logged and stored.	
BATT5a and b. TtEC7b and d, TT10-9. Baseline and final bathymetric surveying (Battelle/TtEC. TtEC includes debris piles area)	• Review project documents and verify that all meetings have been conducted and documented and that all notifications have been made. • Verify that proper base benchmark has been obtained. • Verify with the DON that site locations and off-site easements have been confirmed. • Review submittals from contractors. • Review AHAs for this activity.		• Verify that all site personnel including contractors have submitted health and safety documentation. • Review traffic access and base security requirements. • Verify that project documents have been reviewed and will be followed.		• Verify that contractor performs work as specified in the RAWP. • Verify that contractor has provided a copy of daily survey logbooks and listed control points used. • Verify that survey data and staking points are in accordance with the standard specified.	
Site Preparation, Setup, and Mobilization						
BATT6. TtEC1. TT10-1. TT10-5 Mobilization/site setup (Battelle/TtEC) A4025 per FCR05-03	• Verify that all pertinent documents are approved. • Review project documents and verify that all meetings have been conducted and documented and that all notifications have been made. • Verify that all site personnel including contractors have submitted health and safety documentation. • Review traffic access and base security requirements. • Review AHAs for this activity.		• Verify that materials and equipment delivered to the site are as identified in the RAWP. • Verify that work zones, including decontamination areas, are being constructed and/or delineated in accordance with the RAWP and APP. • Verify that stormwater management procedures are followed. • Verify that base traffic and security requirements are being followed.		• Verify that temporary facilities have been installed as per the RAWP. • Verify compliance. • Review base security. • Observe site traffic.	
BATT6a. TtEC1. TT10-5 Installation and setup of office trailer (Battelle/TtEC)	• Review the RAWP. • Review AHAs for this activity. • Verify that electrical work is conducted by a certified electrician.		• Verify that electrical work is conducted in accordance to the APP.		• Verify that all work has been performed in compliance with the RAWP.	
BATT 6b. TtEC1. TT10-5 Installation of temporary fencing and gates (Battelle/TtEC)	• Review site drawings and fence specification. • Verify that site security requirements have been reviewed.		• Verify that fence is installed as shown in the site plan drawing and in accordance with specifications. • Verify that site security requirements have been followed.		• Inspect fence installation.	
BATT7. TtEC1. TT10-5 Implementation of temporary erosion and sediment control measures (Battelle/TtEC)	• Verify that a site plan identifying sensitive areas is prepared. • Review AHAs for this activity. • Verify that equipment and products are appropriate for work and are stored on site.		• Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Identify inspection requirements. • Identify sensitive areas in field. • Verify that stormwater BMPs are implemented.		• Inspect field control BMPs. • Verify implementation of stormwater BMPs. • Inspect recordkeeping. • Review BMPs and update, if needed.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC8. TT10-13 Screening of potentially radiologically impacted materials (TtEC) A4050 per FCR05-03	• Verify that the DON and the RASO have been notified. • Verify that the stormwater BMP requirements have been reviewed. • Verify that material and equipment for erosion control meet requirements for stormwater at the site. • Verify that equipment and products are appropriate for work and are stored on site. • Review work with the DON and verify the work area. • Verify that all workers have required health and safety documentation. • Review the RAWP. • Verify that materials and equipment delivered to the site are as identified in the RAWP. • Verify that safety checks on all heavy equipment have been completed. • Verify that all equipment operators are certified to operate the equipment and completed radiological training. • Review AHAs for this activity. • Verify that the relevant SOPs and/or manufacturers' instructions are available and have been reviewed for equipment to be used for radiological surveys. • Verify that dust control and erosion control measures are in place per the RAWP. • Verify that background reference area(s) for instrument background determinations have been identified. • Verify current calibration of survey instrument. • Verify that a daily operation check instrument logbook or data sheet is available.		• Verify that stormwater BMPs are implemented. • Verify equipment maintenance and safety conditions. • Verify that sediment free of radioactive debris is segregated and placed in the proper stockpile area. • Verify that the background reference area measurements for each instrument being used to survey have been obtained using the procedure described in the RAWP. • Verify that daily checks are performed on all portable survey instruments. • Verify that required dosimetry is being worn. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP and relevant SOPs.		• Inspect field control BMPs. • Verify implementation of the stormwater BMPs. • Verify that work area is protected from water runoff. • Verify that all radiological safety procedures are being followed. • Verify equipment maintenance and safety. • Verify that any suspected material location is marked, flagged, and documented. • Verify that daily instrument checks and background measurements are obtained and documented. • Verify that survey results are documented as required by the RAWP and SOPs. • Verify that RWP is available at the work site. • Verify that personnel have read and signed the revised RWP, if revision is required. • Verify that survey data and sample analysis results are reviewed and approved as required per the RAWP and SOPs.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
. TtEC10. Radiological surveys including personnel and equipment (TtEC) A4040 and A4040 per FCR05-03	• Verify that the RPM, RASO, and CSO are notified. • Verify that an approved RWP is available and has been read and signed by assigned personnel. • Verify that the RAWP and AHAs have been reviewed. • Verify that assigned personnel are trained and qualified. • Verify that training record documentation is being maintained. • Verify that personnel have been given an emergency notification procedure. • Verify that workers assigned dosimetry have completed NRC Form 4. • Verify that the relevant SOPs and/or manufacturers' instructions are available and have been reviewed for equipment to be used for radiological surveys. • Verify that the limits and boundaries of surveys have been established and are understood. • Verify background reference area(s) for instrument background determinations has been identified. • Verify that calibration of survey instrument is current. • Verify that equipment is on site. • Verify that traffic schedule has been approved by CSO. • Verify that instrument a daily operation check logbook or data sheet is available.		• Verify that radiological instruments are as specified in the RAWP. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that site activities are being photographed. • Verify that the background reference area measurements for each instrument being used to survey have been obtained using the procedure described in the RAWP • Verify that daily checks are performed on all portable survey instruments. • Verify that required dosimetry is being worn. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP, SAP, and relevant SOPs. • Verify that the limits and boundaries of the survey are being met.		• Verify that the site is properly posted and secured, if necessary. • Conduct ongoing inspection of material and equipment. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that required dosimetry is being worn. • Verify that any suspected material location is marked, flagged, and documented. • Verify that daily instrument checks and background measurements are obtained and documented. • Verify that survey results are documented as required by the RAWP and SOPs. • Verify that the RWP is available at the work site. • Verify that personnel have read and signed the revised RWP, if revision is required. • Verify that survey data and sample analysis results are reviewed as required by the RAWP, SAP, and SOPs. • Verify that survey activities conform to the RAWP and SOPs. • Verify that the boundaries of the survey have been met. • Verify that survey instrument is recalibrated after repairs or modifications. • Verify that personnel surveys are performed for all personnel leaving a radiologically controlled area. • Verify that equipment surveys are performed for all equipment leaving a radiologically controlled area. • Verify that the RASO is notified of discovered radioactive material. • Verify that areas known or suspected to contain radioactive material are isolated. • Verify that site activities are being photographed. • Verify that photographs are logged and stored.	•

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC12. TT10-13Final status surveys (TtEC) A4040 and A4050 per FCR05-03	• Verify that the ROICC and CSO have been notified. • Review AHAs. • Review the RAWP and SSHP. • Verify that radiation awareness training has been completed and training is documented. • Verify that designated personnel have assigned dosimeters and completed the NRC Form 4. • Verify that PPE is available.		• Verify that the RCT and SSHO are present in an active work area. • Verify that required dosimetry is being worn. • Verify that up to 18 systematically located post-excavation samples are collected for each survey unit of the trench. • Verify that survey units are not greater than 1,000 m^2.		• Verify that the RCT and SSHO are present in an active work area. • Verify that required dosimetry is being worn. • Conduct ongoing inspection of decontamination and survey activities. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that survey forms are properly completed and stored. • Verify the grid layout and sampling of the Final Status Survey units in the trench in accordance with the RAWP.	
TtEC2. Installation of by-pass system in Building 5 (TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs. • Review the RAWP. • Verify that radiation awareness training has been completed and training is documented. • Verify that designated personnel have assigned dosimeters. • Verify project drawings approved by Site Engineer. • Verify PVC pipe and support systems are IAW the RAWP and are stored properly.		• Verify that materials and equipment delivered to the site are as identified in the RAWP. • Verify that the RCT and SSHO are present in an active work area when downdrains are cut. • Verify PVC pipe support systems are placed IAW manufacturer's recommendation. • Verify photographs are being taken.		• Verify that the RCT and SSHO are present in an active work area when downdrains are cut. • Verify PVC pipe support systems are placed IAW manufacturer's recommendation • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify as-built drawings prepared by Site Engineer	
TtEC5 and 6. Clearing of Pavement (TtEC) A4040 per FCR05-03	• Verify that the ROICC and CSO have been notified. • Review AHAs. • Verify that PPE is available and meets requirements of the SSHP. • Verify that the area has been walked/visually inspected for items that could interfere with clearing (utilities, rebar, etc.). • Verify that radiation awareness training has been completed and that training is documented. • Verify that traffic schedule has been approved by CSO and ROICC.		• Verify that a qualified RCT and SSHO are present at active work areas. • Verify that pavement is removed throughout the excavation area. • Verify that waste pavement is being managed as required. • Verify that pavement removed from radiologically impacted areas is stockpiled at the approved location. • Verify that the activity is photographed.		• Continue to inspect ongoing activities. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that the pavement stockpiles are maintained per the RAWP requirements. • Verify that the pavement is disposed of in accordance with RAWP requirements, and that the stockpile locations are cleaned up. • Verify that site activities are being photographed. • Verify that photographs are logged and stored.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC5 and 6. Excavation and removal of soil/piping (TtEC) A4040 per FCR05-03	• Verify that the ROICC and CSO have been notified. • Verify that USA Dig Alert has been notified 72 hours prior to excavation. • Verify that an assignment letter for competent person is on file. • Verify that training requirements are met for all personnel. • Verify that an OSHA excavation permit is on site. • Verify that OSHA excavation regulations are reviewed. • Verify that equipment and material are surveyed for radiation and survey results are documented. • Verify that final excavation configurations have been reviewed with the DON and regulators. • Verify that initial background air sampling has been conducted. • Verify that electrical lines are de-energized, if necessary. • Verify that existing utilities and structures are removed, if necessary. • Verify that temporary drainage control system and/or construction zone dewatering system are in place. • Verify that proper equipment is on site to perform work. • Review the RAWP. • Review the AHAs. • Verify that PPE is available and meets the requirements of the SHSP. • Verify that radiation awareness training has been completed and documented. • Verify that all personnel have assigned dosimeters and completed NRC Form 4. • Verify that the RWP is in place and that all workers have read the requirements. • Verify that the Traffic Control Plan is in place and reviewed. • Verify that traffic schedule has been approved by the CSO. • Verify that the shoring plan has been approved and that the subcontractor is available if needed.		• Verify that the ROICC and CSO have been notified. • Verify that the RCT and SSHO are present in an active work area. • Verify that a spotter trained in recognizing underground utilities is present at all times. • Verify that airborne concentrations do not exceed the established levels. • Verify that air monitoring and initial baseline sampling are being performed per the SSHP. • Verify that required dosimetry is being worn. • Verify that all personnel have signed the RWP(s). • Verify that the excavation protocol, as described in the RAWP and work instructions is being followed. • Verify that dust control is used as necessary. • Verify that site activities are being photographed. • Verify that permit conditions are followed. • Verify sediment control per the SPSPP. • Verify that traffic control procedures are being followed. • Verify that competent person is inspecting excavation and that if the Site Engineer feels shoring is required work is stopped until the shoring system is installed.		• Verify that an RCT and SSHO are present in an active work area. • Verify that a spotter trained in recognizing underground utilities is present at all times. • Verify that airborne concentrations do not exceed the established levels. • Verify that air and soil samples are collected as required. • Verify that trenching excavation is performed in accordance with the work plans and specifications. • Verify that pipeline draining is performed in accordance with the work plans and specifications. • Verify that swipe samples are collected from each 10-foot section of removed piping. • Verify that solid samples are collected if material is found to be present within the removed section of pipe. • Verify that open sewer or storm drain lines, temporarily left in place during the removal process, are plugged as described in the RAWP. • Verify that pipeline closures are performed in accordance with the RAWP and specifications. • Verify that required dosimetry is being worn. • Verify that daily safety briefings discuss status of RWP(s). • Verify that RWP is available at the work location. • Verify that RWP is modified in the event of changes to the conditions. • Verify that the RASO concurred with the modified RWP and concurrence is documented. • Verify that tools, material, and equipment are cleaned, wiped down, and surveyed prior to removal. • Verify that the excavation protocol, as described in the RAWP, is being followed. • Verify that visually stained soil/material is segregated. • Verify that a competent person is conducting daily inspection of the excavation and slope stability, and that the inspection is documented in a logbook. • Continue to inspect ongoing work. • Verify sediment control per the SPSPP. • Verify that personnel surveys are performed for all personnel leaving a radiological controlled area. • Verify that site activities are being photographed.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC5 and 6. Excavation and removal of soil/piping (TtEC) (Continued)	•				• Verify that photographs are logged and stored. • Verify that traffic control procedures are being followed.	
TtEC3. Cleaning of storm drain system pipe (TtEC)	• Notify the DON, the RASO, and agencies. • Verify that activities will be conducted in accordance with approved RAWP. • Review AHAs for this activity. • Verify CSO has approved the Traffic Control Plan. • Verify that the RWP is in place and that all workers have read the requirements.		• Verify water storage tanks appropriately placed. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that air monitoring per SSHP is being followed. • Verify that required dosimetry is being worn. • Verify that all personnel have signed the RWP(s). • Verify that the cleaning protocol, as described in the RAWP and work instructions, is being followed. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP and relevant SOPs. • Verify Traffic Control Plan is being followed. • Verify photographs are being taken. • Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Verify that SPSPP BMPs are implemented. • Verify equipment maintenance and safety conditions. • Verify that work boundary is properly delineated.		• Verify that required dosimetry is being worn. • Verify that daily safety briefings discuss status of RWP(s). • Verify that RWP is available at the work location. • Verify that RWP is modified in the event of changes to the conditions. • Verify that the RASO concurred with the modified RWP and concurrence is documented. • Verify that tools, material, and equipment are cleaned, wiped down, and surveyed prior to removal from work areas. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Inspect field control BMPs. • Verify water storage tanks are inspected daily and water transferred to the water treatment plant in a timely manner	
BATT19. TtEC7e and 9. TT10-10 Confirmation sediment sampling (BattelleTtEC[non-impacted soil or sediments]/TtEC [suspected LLRW materials]) A4050 per FCR05-03	• Notify the DON, the RASO, and agencies. • Conduct activities in accordance with approved RAWP. • Verify that appropriate containers and sampling equipment are available. • Review AHAs for this activity. • Review shipping and handling of samples requirements. • Review testing laboratory certifications.		• Confirm that samples will be collected and analyzed in accordance with the RAWP. • Inspect sampling equipment. • Verify that appropriate containers and sample preservatives are used. • Verify proper handling and packaging of samples. • Follow equipment decontamination procedures.		• Conduct ongoing inspection of proper sampling and equipment decontamination techniques. • Follow up with laboratory to ensure proper delivery of all collected samples. • Confirm receipt of analytical data.	
BATT20. TtEC 13. TT10-13 Decontamination and final radiological screening of project site (Battelle/TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs.		• Verify that decontamination and survey procedures are being followed. • Verify that required dosimetry is being worn. • Verify documentation. • Verify that site activities are being photographed. • Verify that surveys are being documented on the appropriate form.		• Conduct ongoing inspection of decontamination and survey activities. • Verify that required dosimetry is being worn. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that survey forms are properly completed and stored.	

TABLE F.4-1

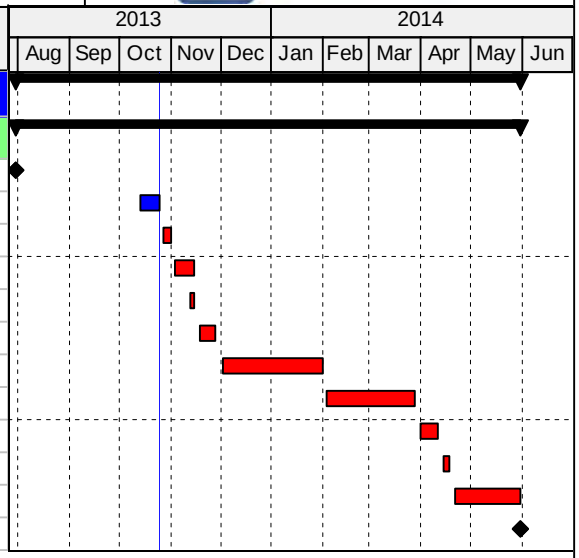
DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC11. TT10-14 Transportation and disposal of RCRA, non-RCRA, and nonhazardous soil, sediment, and debris (TtEC)	• Verify that all transporters are authorized to haul the particular type of waste being transported. • Verify that the ROICC and CSO have been notified. • Review the RAWP and RWP for the portal monitor operations. • Verify that waste profiles have been approved by disposal sites. • Verify that the waste manifest has been approved and signed by DON representative. • Verify that all traffic or other (if any) permits from Alameda County have been obtained. • Verify that locations of disposal with the ROICC have been confirmed. • Review submittal load tickets process from contractors. • Review the traffic pattern. • Review the road closure and traffic plan with ROICC and CSO. • Review signage requirements with ROICC and CSO. • Review truck decontamination requirements. • Review the AHA for this activity.		• Verify that all transporters are authorized to haul the particular type of waste being transported. • Verify trucks are passing portal monitor during ingress to the site and egress from the site. • Verify drivers sign manifest. • Verify that the contractor performs work as specified in the RAWP and Waste Management/Transportation and Disposal Plan. • Review load ticket record procedures. • Verify that truck decontamination is being conducted in accordance with the RAWP.		• Verify RSOR has monitored use of portal monitor • Verify manifest are signed and originals given to CSO • Verify that the contractor has provided delivery logs. • Verify that disposal loads are in accordance with the standard requirements of the RAWP. • Verify that all load tickets are accounted for.	
BATT20. TtEC13. TT10-12 Decontamination (Battelle/TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs.		• Verify that decontamination and survey procedures are being followed. • Verify documentation. • Verify that site activities are being photographed. • Verify that surveys are being documented on the appropriate form.		• Conduct ongoing inspection of decontamination and survey activities. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that survey forms are properly completed and stored.	
Site Restoration and Demobilization						
TtEC14. TT10-12 Site Restoration (TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs. • Review site restoration activities and procedure.		• Verify that site demobilization procedures have concurrence from the DON. • Inspect site restoration activities. • Verify that site activities are being photographed (before/after photographs).		• Conduct ongoing inspection of site restoration activities. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that radiological survey is being conducted in accordance with the RAWP. • Verify that construction-related damages are repaired.	
BATT23. TtEC15. TT10-12 Demobilization (Battelle/TtEC) A4070 per FCR05-03	• Notify the DON and the RASO. • Review AHAs. • Review site demobilization production. • Verify that the final inspection checklist has been prepared.		• Verify that all construction material and equipment have been free released, prior to removal from the site. • Verify that the site activities are photographed. • Verify that the punch list items identified during the final inspection are included on the inspection report.		• Verify that all equipment and materials are removed from the site. • Verify that all the punch list items on the inspection reports are completed. • Verify that survey forms are properly completed and stored. • Verify that all equipment and material have been inspected, screened, and approved prior to removing from the site.	

Contract No. N62473-10-D-0809
106-40440005

TETRA TECH EC, INC.

Activity ID	Activity Name	Remaining Duration	Start	Finish
RAD EMAC Task 5 - OU-2C Sewerline Rad Strategy		215	30-Jul-13 A	31-May-14
Mod 4 Tasks		215	30-Jul-13 A	31-May-14
A1140	Mod 4 Award	0	30-Jul-13 A	
A4000	Internal Draft FCR	0	14-Oct-13 A	25-Oct-13 A
A4010	Navy Review of Internal Draft FCR	5	28-Oct-13	01-Nov-13
A4020	Final FCR	10	04-Nov-13	15-Nov-13
A4025	Mobilization	3	13-Nov-13	15-Nov-13
A4030	Utility Locate and Saw Cutting	8	18-Nov-13	27-Nov-13
A4040	Remedial Action	43	02-Dec-13	31-Jan-14
A4050	Material Processing	40	03-Feb-14	28-Mar-14
A4060	T&D	10	31-Mar-14	11-Apr-14
A4070	Demobilization	5	14-Apr-14	18-Apr-14
A4080	Technical Memorandum (TBD)	29	21-Apr-14	30-May-14
A1050	Contractual Completion Date as of Mod 4 is Saturday, 5/31/14	0		31-May-14



Project Baseline Bar
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Figure F.3-3

Project Schedule
RAD EMAC Task 5

OU-2C Sewerline Radiological Strategy
Alameda Point, CA

Data Date: 25-Oct-13

Layout: 40440005
TASK filters: 40440005 MPR, MPF

30-Oct-13 15:21
1 of 1

REACH 12
(SEE FIGURE L.3-4
FOR DETAILS)

REACH 7
(SEE FIGURE L.3-3
FOR DETAILS)

REACH 27
(SEE FIGURE L.3-5
FOR DETAILS)

REACH 63
(SEE FIGURE L.3-6
FOR DETAILS)

FIRST ST.

SECOND ST.

THIRD ST.

FOURTH ST.

FIFTH STREET

PENSACOLA

W. 5th ST.

AVENUE C

AVENUE C

AVENUE D

AVENUE E

AVENUE E

BLDG 5

WEST TOWER AVENUE

HANGAR 11

BLDG 400

HANGAR 12

SITE FACILITIES

MATERIAL AND WASTE WATER PROCESSING AREAS

SEAPLANE LAGOON

OUTFALL G

FIFTH STREET

EXPANDED AREA

LOCATION MAP

LEGEND

STORM DRAIN SYSTEM A

STORM DRAIN SYSTEM B

STORM DRAIN SYSTEM G

APPROXIMATE EXCAVATION BOUNDARY

TEMPORARY CONSTRUCTION FENCE

150 0 150 300

(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

CTO 5 - OPERABLE UNIT 2C IR SITES 5 AND 10

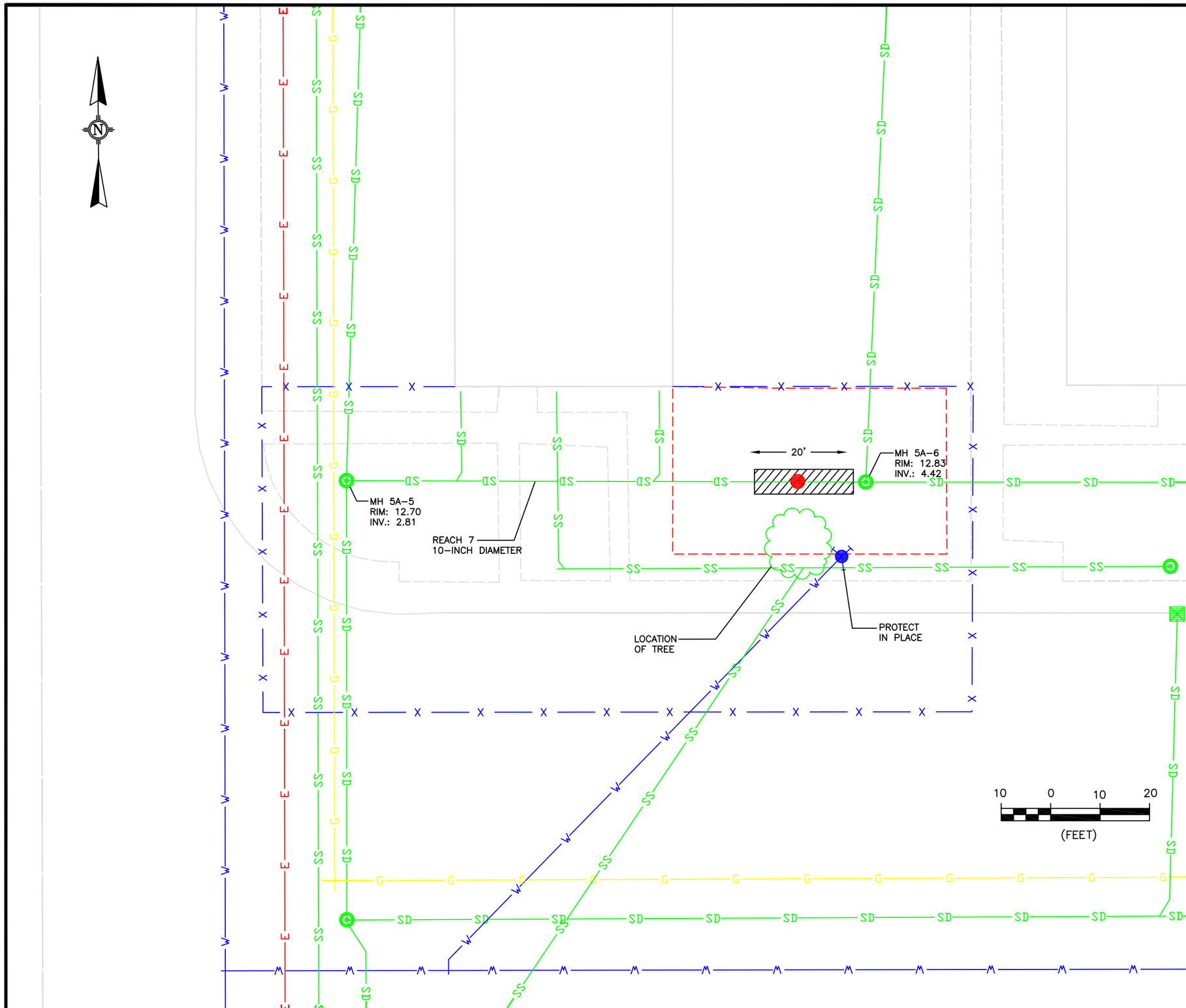
FIGURE L.3-2
LOCATION OF WORK AREAS

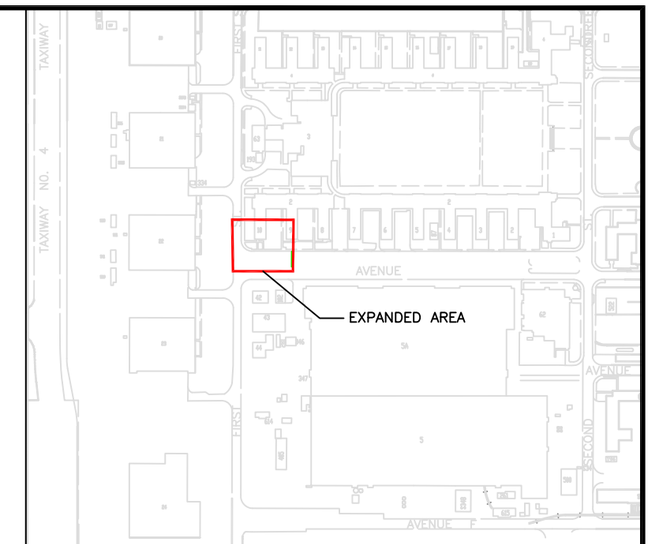
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS

TETRA TECH EC, INC.

SHEET 1 OF 1





LOCATION MAP

LEGEND

- STORM DRAIN SYSTEM CATCH BASIN
- STORM DRAIN SYSTEM MANHOLE
- SD — STORM DRAIN SYSTEM UTILITY
- APPROXIMATE EXCAVATION DAYLIGHT BOUNDARY
- PORTION OF PIPE TO BE REMOVED & REPLACED
- X — TEMPORARY CONSTRUCTION FENCE (ACTUAL LOCATION WILL BE FIELD DETERMINED)
- E — ELECTRICAL UTILITY
- SS — SANITARY SEWER UTILITY
- W — WATER UTILITY
- G — NATURAL GAS UTILITY
- MAXIMUM GAMMA READING OF 11,000 CPM
- FIRE HYDRANT

NOTES;

1. NO SIGNIFICANT STRUCTURAL DAMAGE WAS NOTICED DURING VIDEO INSPECTION OF REACH 7.
2. PIPE REMOVAL LENGTH MAY BE ADJUSTED, AS APPROPRIATE, TO AVOID OBSTRUCTIONS

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

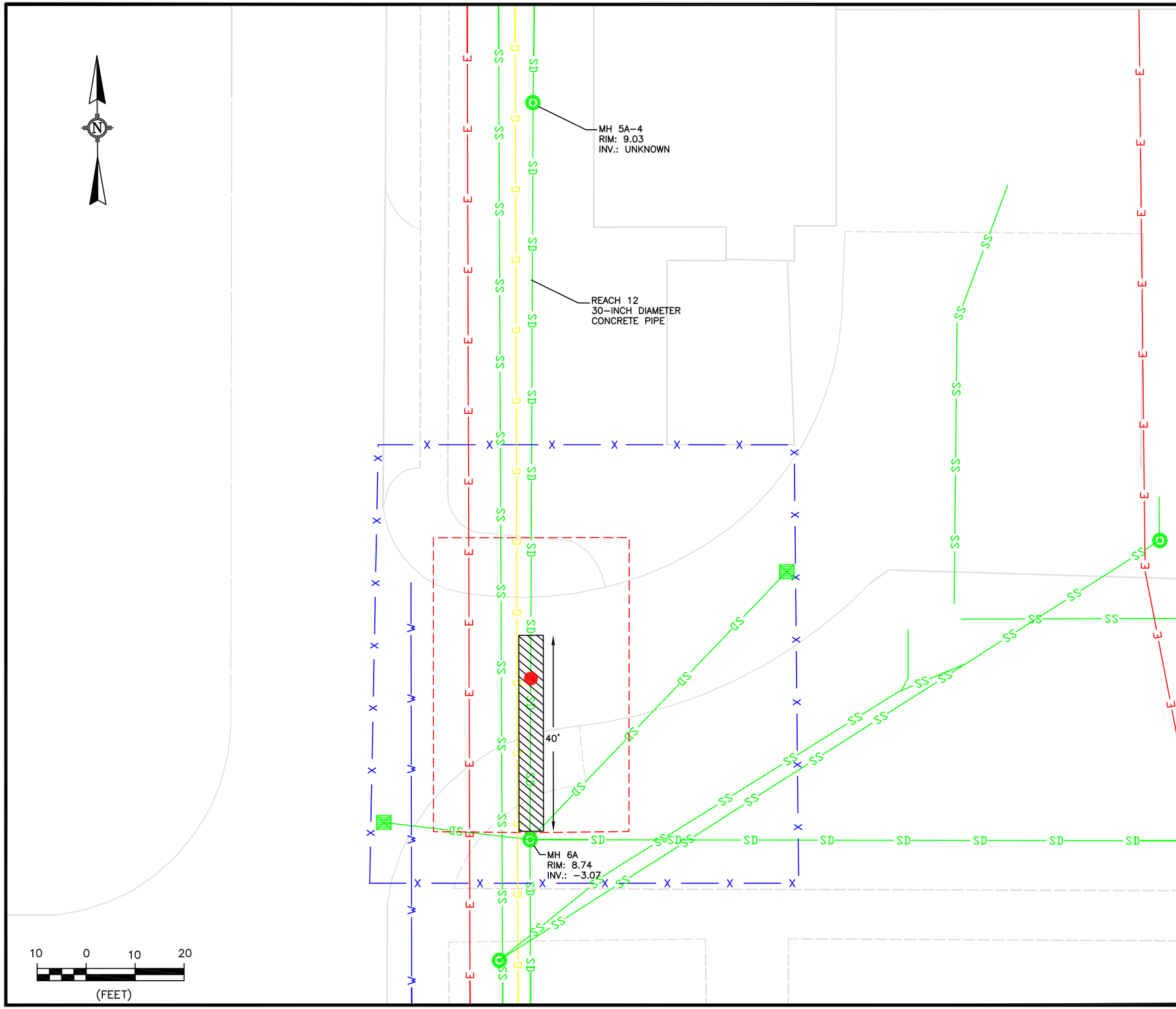
CTO 5 - OPERABLE UNIT 2C IR SITES 5 AND 10

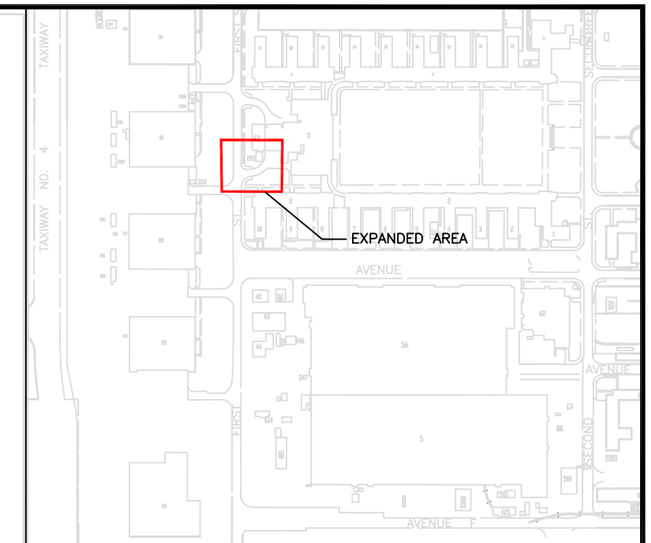
FIGURE L.3-3
REACH 7 PIPE REMOVAL

ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: OCTOBER 24, 2013

TETRA TECH EC, INC.





LOCATION MAP

LEGEND

- STORM DRAIN SYSTEM CATCH BASIN
- STORM DRAIN SYSTEM MANHOLE
- SD — STORM DRAIN SYSTEM UTILITY
- APPROXIMATE EXCAVATION DAYLIGHT BOUNDARY
- PORTION OF PIPE TO BE REMOVED & REPLACED
- X — TEMPORARY CONSTRUCTION FENCE (ACTUAL LOCATION WILL BE FIELD DETERMINED)
- E — ELECTRICAL UTILITY
- SS — SANITARY SEWER UTILITY
- W — WATER UTILITY
- G — NATURAL GAS UTILITY
- MAXIMUM GAMMA READING OF 17,300 CPM

NOTES;

1. NO SIGNIFICANT STRUCTURAL DAMAGE WAS NOTICED DURING VIDEO INSPECTION OF REACH 12.
2. PIPE REMOVAL LENGTH MAY BE ADJUSTED, AS APPROPRIATE, TO AVOID OBSTRUCTIONS

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

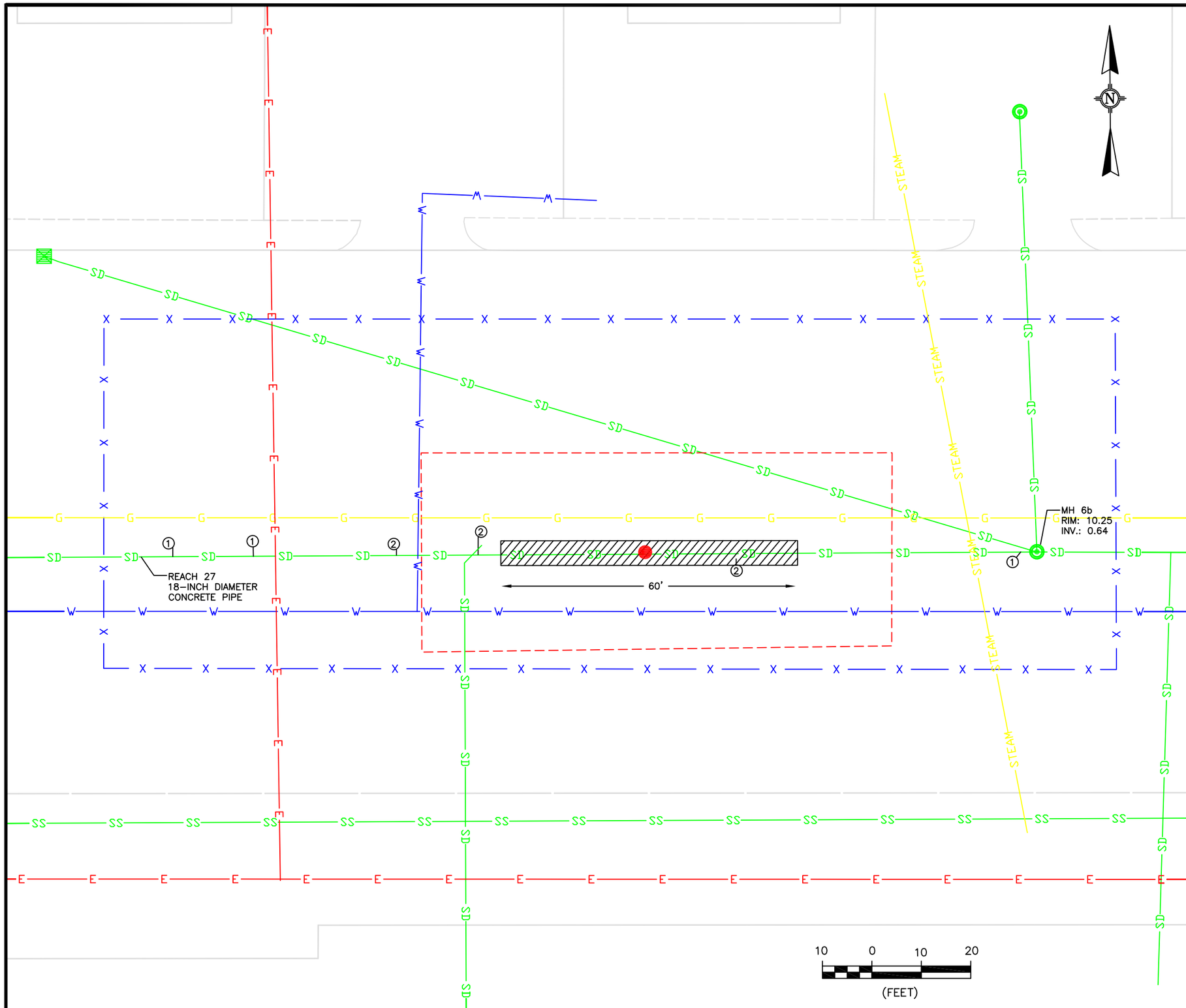
CTO 5 - OPERABLE UNIT 2C IR SITES 5 AND 10

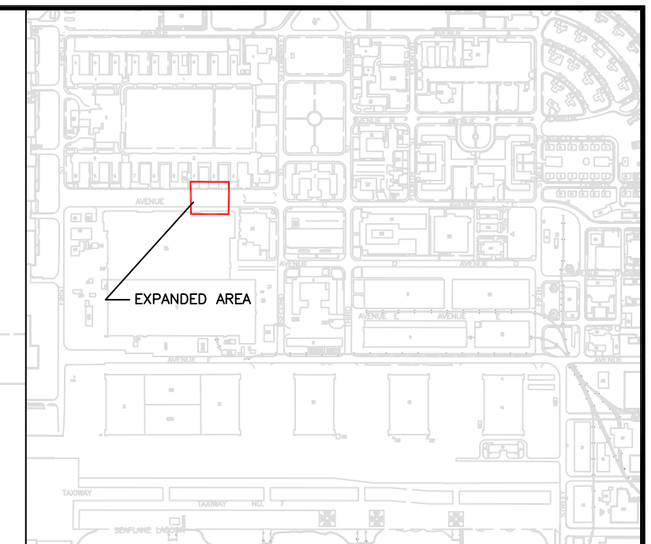
FIGURE L.3-4
REACH 12 PIPE REMOVAL

ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: OCTOBER 24, 2013

TETRA TECH EC, INC.





LOCATION MAP

LEGEND

- STORM DRAIN SYSTEM CATCH BASIN
- STORM DRAIN SYSTEM MANHOLE
- SD — STORM DRAIN SYSTEM UTILITY
- APPROXIMATE EXCAVATION DAYLIGHT BOUNDARY
- PORTION OF PIPE TO BE REMOVED & REPLACED
- X — TEMPORARY CONSTRUCTION FENCE (ACTUAL LOCATION WILL BE FIELD DETERMINED)
- E — ELECTRICAL UTILITY
- SS — SANITARY SEWER UTILITY
- W — WATER UTILITY
- G — NATURAL GAS UTILITY
- STEAM — STEAM UTILITY
- MAXIMUM GAMMA READING OF 11,200 CPM
- ① APPROXIMATE LOCATION OF CICUMFERENTIAL CRACKS
- ② APPROXIMATE LOCATION OF SEEPAGE AT JOINTS

NOTES;

1. PIPE REMOVAL LENGTH MAY BE ADJUSTED, AS APPROPRIATE, TO AVOID OBSTRUCTIONS

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

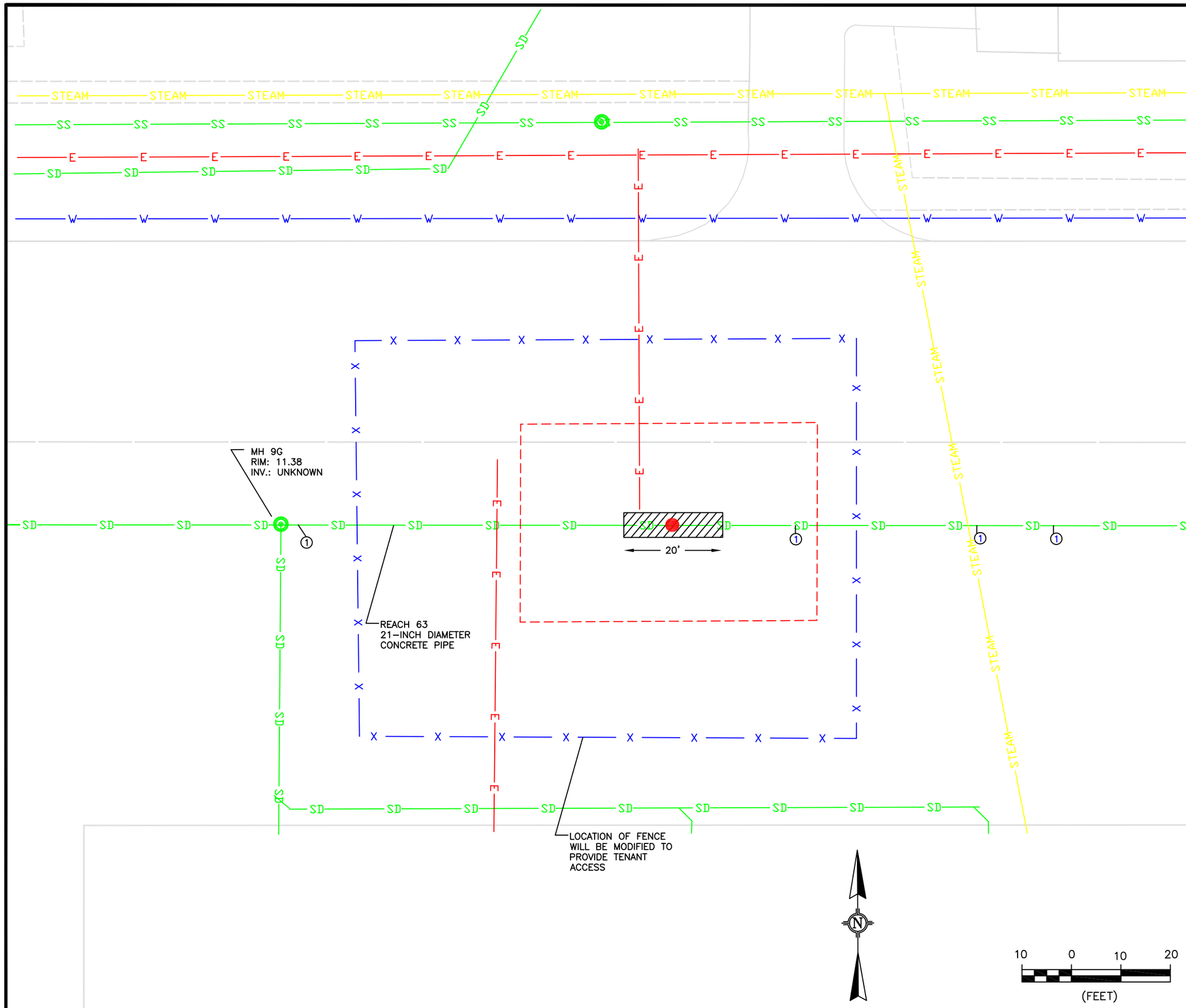
CTO 5 - OPERABLE UNIT 2C IR SITES 5 AND 10

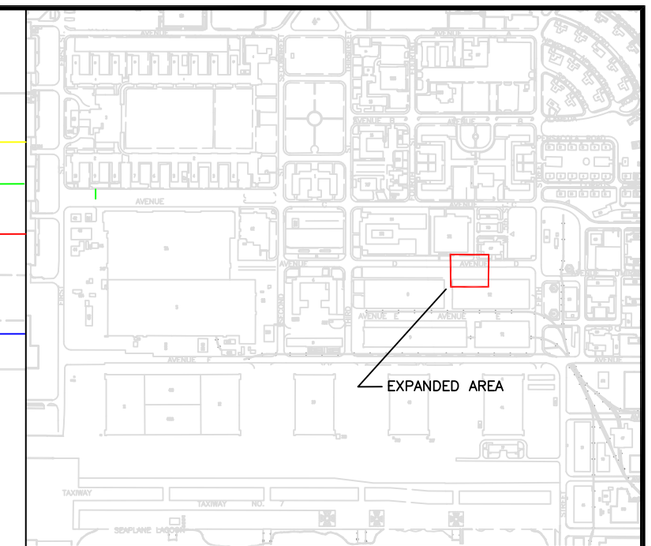
FIGURE L.3-5
REACH 27 PIPE REMOVAL

ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: OCTOBER 24, 2013

TETRA TECH EC, INC.





LOCATION MAP

LEGEND

- STORM DRAIN SYSTEM CATCH BASIN
- STORM DRAIN SYSTEM MANHOLE
- SD — STORM DRAIN SYSTEM UTILITY
- APPROXIMATE EXCAVATION DAYLIGHT BOUNDARY
- PORTION OF PIPE TO BE REMOVED & REPLACED
- X — TEMPORARY CONSTRUCTION FENCE (ACTUAL LOCATION WILL BE FIELD DETERMINED)
- E — ELECTRICAL UTILITY
- SS — SANITARY SEWER UTILITY
- W — WATER UTILITY
- G — NATURAL GAS UTILITY
- STEAM — STEAM UTILITY
- MAXIMUM GAMMA READING OF 9,020 CPM
- 1 — APPROXIMATE LOCATION OF SEEPAGE AT JOINTS
- 1 — APPROXIMATE LOCATION OF SEEPAGE AT JOINTS WITH DRIPPING WATER

NOTES;

1. PIPE REMOVAL LENGTH MAY BE ADJUSTED, AS APPROPRIATE, TO AVOID OBSTRUCTIONS

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

CTO 5 - OPERABLE UNIT 2C IR SITES 5 AND 10

FIGURE L.3-6
REACH 63 PIPE REMOVAL

ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: OCTOBER 24, 2013

TETRA TECH EC, INC.

TtEC, NAVFAC SW RMAC CONTRACT NO. N62470-13-D-8007, CTO NO. FZ02

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	FZ02	FCR #	FZ02-01	DATE	12/5/13
LOCATION	Alameda Point OU-2C IR Sites 5 and 10	ROICC	Gregory Grace		
SUBJECT: Additional Storm Drain Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC			

1. Document to be changed. Identify revision, date, section, drawing, etc.

Final Remedial Action Work Plan, January, 2011. DCN: RMA-0809-0006-0001.R1

2. Description of existing requirements and proposed change (Attach sheet if necessary)

Existing Requirements: TtEC's CTO No. 0006 and 0010 work activities completed under the Rad EMAC that focus on the remediation of the Site 17 area are dictated by the referenced RAWP and included source removal work on the storm drain line G main trunk, which originated from the OU-2C area of Alameda Point. At the Navy's direction, TtEC will continue to perform characterization/health and safety activities on the remaining potentially radiologically-impacted storm drain lines originating from the OU-2C Building 5. This work includes all activities required for the removal and replacement of specific pipe sections identified for further investigations by the previous investigation. The majority of the work associated with the additional investigation is detailed in FCR05-03. A portion of that work is being performed under the LANT RAC Contract No. N62470-13-D-8007 CTO FZ02. For Storm Drains A, B, and G, for the pipes that have been excavated at four (4) locations (reaches 7, 12, 27, and 63 at approximately 20, 40, 60, and 20 linear feet lengths, respectively), the interior of the pipe shall be radiologically surveyed and, if sufficient sediment is present inside the pipe, sampled for Ra-226. At each excavation, laboratory analysis of soil for Ra-226, in accordance with the in-place work plan (18 samples per survey unit and survey unit area not to exceed 1,000 square meters) shall be included in this work element. This work also includes all activities associated with using on-site transportation and disposal to the Site 1 area using all available efficiencies in-place for other contracts including water treatment activities associated with the Storm Drains A, B, and G work.

Change:

1) RAWP (main text) Section 1.5 – Remedial Action

Insert the following paragraph at the end of RAWP Section 1.5, as modified by FCR05-03, to identify work associated with CTO FZ02.

Work associated with CTO FZ02 will be performed in accordance with the referenced RAWP and as modified by FCR05-03 and includes: the radiological survey of the interior of the excavated pipe; collection of sediment for Ra-226 analysis if sufficient sediment is present inside the pipe; laboratory analysis of soil for Ra-226, in accordance with the in-place work plan (18 samples per survey unit and survey unit area not to exceed 1,000 square meters) and all activities associated with using on-site transportation and disposal to the Site 1 area using all available efficiencies in-place for other contracts including water treatment activities associated with the Storm Drains A, B, and G work. The specific details of the work are included in Appendix L as modified by FCR05-03.

2) Appendix F - Contractor Quality Control Plan

Insert the attached pages of the DFW table to reflect new activity numbers and the project schedule for the FZ02 work.

The attached document provides the table revisions and presents the additional work schedule.

3. Reason for Change (Attach sheet if necessary)

The purpose of this FCR is to define for administration purposes the work activities that will be carried under the LANT RAC Contract No. N62470-13-D-8007 CTO FZ02 at specific locations in Storm Drain Lines A, B, and G at Alameda Point that emanate from Building 5, Installation Restoration (IR) Site 5 Operable Unit (OU) 2C. Activities addressed in this FCR are similar to the work conducted previously under Contract Task Order (CTO)-0005.

4. Cost and Schedule Implications (if any)

None.

TtEC, NAVFAC SW RMAC CONTRACT NO. N62470-13-D-8007, CTO NO. FZ02

FIELD CHANGE REQUEST (FCR)			
TASK ORDER # FZ02	FCR # FZ02-01	DATE 12/5/13	
LOCATION Alameda Point OU-2C IR Sites 5 and 10	ROICC Gregory Grace		
SUBJECT: Additional Storm Drain Line Characterization Activities	PRIMARY RESPONSIBILITY: TtEC		
TtEC Project QC Manager (Print name and sign) Vince Richards	Date	TtEC Site Engineer (print name and sign) Ray Seamons	Date
Reviewed by: (Print name and sign) Nathan Smith		Title TtEC's RSOR	Date
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date
TtEC Program QC Manager (Print name and sign) Greg Joyce Gregory D Joyce	Date 12/12/13	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date

TtEC, NAVFAC SW RMAC CONTRACT NO. N62470-13-D-8007, CTO NO. FZ02

FIELD CHANGE REQUEST (FCR)

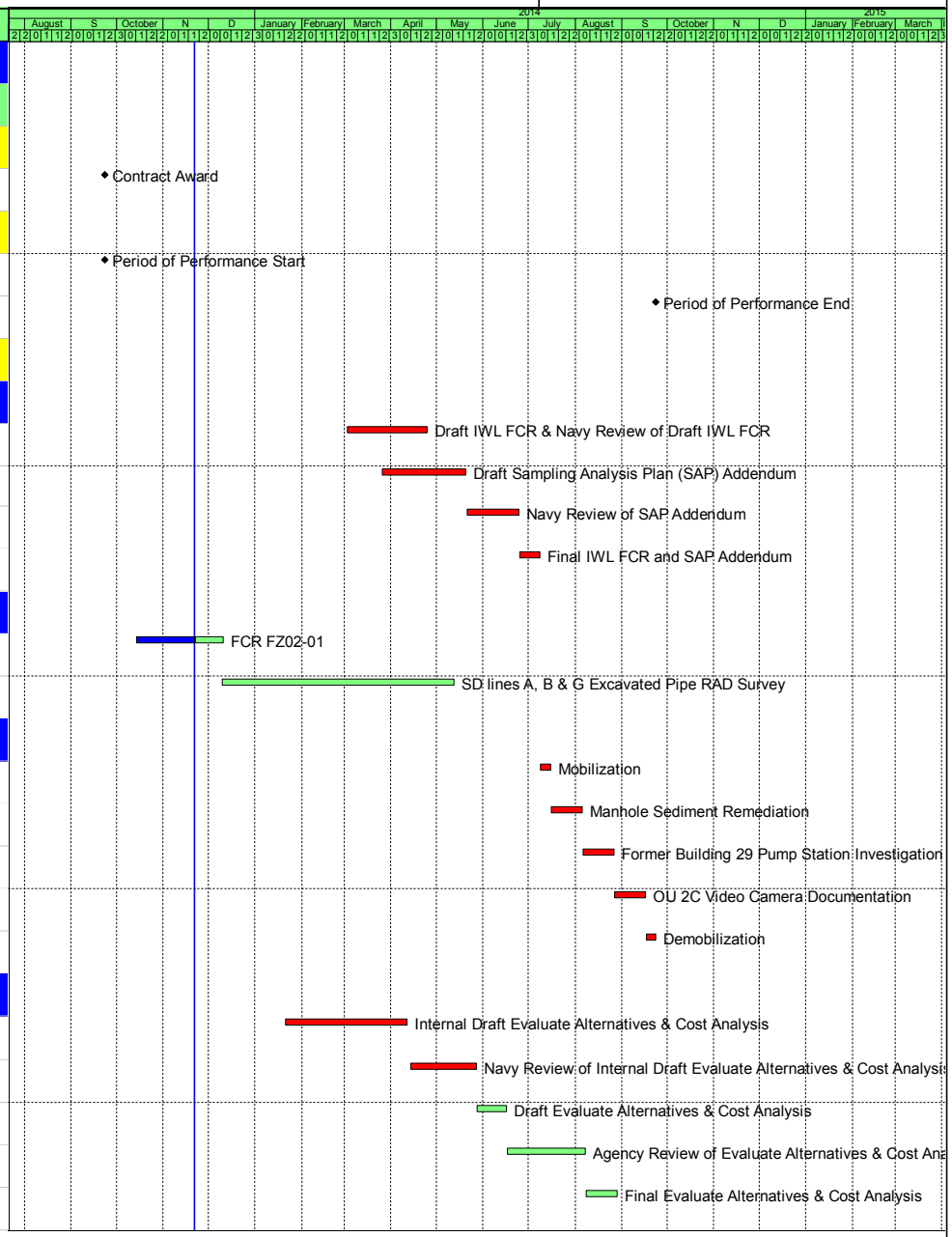
TASK ORDER #	FZ02	FCR #	FZ02-01	DATE	12/5/13
LOCATION	Alameda Point OU-2C IR Sites 5 and 10		ROICC	Gregory Grace	
SUBJECT: Additional Storm Drain Line Characterization Activities			PRIMARY RESPONSIBILITY: TtEC		

TtEC Project QC Manager (Print name and sign) Vince Richards	Date 12/5/13	TtEC Site Engineer (print name and sign) Ray Seamons	Date 12-10-13
Reviewed by: (Print name and sign) Nathan Smith		Title TtEC's RSOR	Date
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date 12/10/13
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date 12-10-13
TtEC Program QC Manager (Print name and sign) Greg Joyce	Date	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date 12-12-13	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date 12/19/13

CTO FZ02 OU-2C Drain Lines, Alameda Point, Alameda, CA

Data Date 22-Nov-13

Activity ID	Activity Name	Original Duration	Activity % Complete	Start	Finish
Total		**262**		**23-Sep-13 A**	**23-Sep-14**
CTO FZ02 OU-2C Drain Lines, Alameda Point, Alameda, CA		**262**		**23-Sep-13 A**	**23-Sep-14**
Contract Award		**0**		**23-Sep-13 A**	**23-Sep-13 A**
A1000	Contract Award	0	100%	23-Sep-13 A	
Period of Performance		**254**		**23-Sep-13 A**	**23-Sep-14**
A1010	Period of Performance Start	0	100%	23-Sep-13 A	
A1020	Period of Performance End	0	0%		23-Sep-14
Project Management		**247**		**14-Oct-13 A**	**23-Sep-14**
Work Plans [Industrial Waste Line (IWL) Field Change Request (FCR)]		**90**		**03-Mar-14**	**08-Jul-14**
A1030	Draft IWL FCR & Navy Review of Draft IWL FCR	39	0%	03-Mar-14	24-Apr-14
A1040	Draft Sampling Analysis Plan (SAP) Addendum	40	0%	26-Mar-14	20-May-14
A1050	Navy Review of SAP Addendum	24	0%	21-May-14	24-Jun-14
A1060	Final IWL FCR and SAP Addendum	9	0%	25-Jun-14	08-Jul-14
Storm Drain (SD) Field Activities		**151**		**14-Oct-13 A**	**12-May-14**
A1240	FCR FZ02-01	27	51.85%	14-Oct-13 A	10-Dec-13
A1070	SD lines A, B & G Excavated Pipe RAD Survey	106	0%	10-Dec-13	12-May-14
IWL Field Activities		**54**		**09-Jul-14**	**23-Sep-14**
A1080	Mobilization	5	0%	09-Jul-14	15-Jul-14
A1090	Manhole Sediment Remediation	15	0%	16-Jul-14	05-Aug-14
A1100	Former Building 29 Pump Station Investigation	15	0%	06-Aug-14	26-Aug-14
A1110	OU 2C Video Camera Documentation	14	0%	27-Aug-14	16-Sep-14
A1120	Demobilization	5	0%	17-Sep-14	23-Sep-14
Evaluate Alternatives & Cost Analysis for Drain Lines		**155**		**21-Jan-14**	**28-Aug-14**
A1130	Internal Draft Evaluate Alternatives & Cost Analysis	58	0%	21-Jan-14	11-Apr-14
A1140	Navy Review of Internal Draft Evaluate Alternatives & Cost Analysis	31	0%	14-Apr-14	27-May-14
A1150	Draft Evaluate Alternatives & Cost Analysis	14	0%	28-May-14	16-Jun-14
A1160	Agency Review of Evaluate Alternatives & Cost Analysis	37	0%	17-Jun-14	07-Aug-14
A1170	Final Evaluate Alternatives & Cost Analysis	15	0%	08-Aug-14	28-Aug-14



Actual Work | Critical Remaining Work | Remaining Work | ◆ Milestone

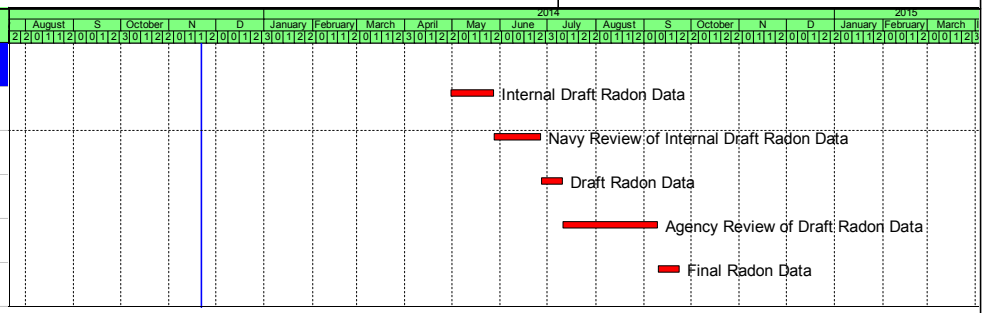
Attachment 2

TETRA TECH EC, INC

CTO FZ02 OU-2C Drain Lines, Alameda Point, Alameda, CA

Data Date 22-Nov-13

Activity ID	Activity Name	Original Duration	Activity % Complete	Start	Finish
Evaluate Radon Data		102		30-Apr-14	23-Sep-14
A1180	Internal Draft Radon Data	19	0%	30-Apr-14	27-May-14
A1190	Navy Review of Internal Draft Radon Data	22	0%	28-May-14	26-Jun-14
A1200	Draft Radon Data	9	0%	27-Jun-14	10-Jul-14
A1210	Agency Review of Draft Radon Data	42	0%	11-Jul-14	09-Sep-14
A1230	Final Radon Data	10	0%	10-Sep-14	23-Sep-14



Actual Work
Critical Remaining Work
Remaining Work
Milestone

Attachment 2

TETRA TECH EC, INC

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC8. TT10-13 Screening of potentially radiologically impacted materials (TtEC) A4050 per FCR05-03 A1070 per FCRFZ02-01	• Verify that the DON and the RASO have been notified. • Verify that the stormwater BMP requirements have been reviewed. • Verify that material and equipment for erosion control meet requirements for stormwater at the site. • Verify that equipment and products are appropriate for work and are stored on site. • Review work with the DON and verify the work area. • Verify that all workers have required health and safety documentation. • Review the RAWP. • Verify that materials and equipment delivered to the site are as identified in the RAWP. • Verify that safety checks on all heavy equipment have been completed. • Verify that all equipment operators are certified to operate the equipment and completed radiological training. • Review AHAs for this activity. • Verify that the relevant SOPs and/or manufacturers' instructions are available and have been reviewed for equipment to be used for radiological surveys. • Verify that dust control and erosion control measures are in place per the RAWP. • Verify that background reference area(s) for instrument background determinations have been identified. • Verify current calibration of survey instrument. • Verify that a daily operation check instrument logbook or data sheet is available.		• Verify that stormwater BMPs are implemented. • Verify equipment maintenance and safety conditions. • Verify that sediment free of radioactive debris is segregated and placed in the proper stockpile area. • Verify that the background reference area measurements for each instrument being used to survey have been obtained using the procedure described in the RAWP. • Verify that daily checks are performed on all portable survey instruments. • Verify that required dosimetry is being worn. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP and relevant SOPs.		• Inspect field control BMPs. • Verify implementation of the stormwater BMPs. • Verify that work area is protected from water runoff. • Verify that all radiological safety procedures are being followed. • Verify equipment maintenance and safety. • Verify that any suspected material location is marked, flagged, and documented. • Verify that daily instrument checks and background measurements are obtained and documented. • Verify that survey results are documented as required by the RAWP and SOPs. • Verify that RWP is available at the work site. • Verify that personnel have read and signed the revised RWP, if revision is required. • Verify that survey data and sample analysis results are reviewed and approved as required per the RAWP and SOPs.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC12. TT10-13Final status surveys (TtEC) A4040 and A4050 per FCR05-03 A1070 per FCRFZ02-01	• Verify that the ROICC and CSO have been notified. • Review AHAs. • Review the RAWP and SSHP. • Verify that radiation awareness training has been completed and training is documented. • Verify that designated personnel have assigned dosimeters and completed the NRC Form 4. • Verify that PPE is available.		• Verify that the RCT and SSHO are present in an active work area. • Verify that required dosimetry is being worn. • Verify that up to 18 systematically located post-excavation samples are collected for each survey unit of the trench. • Verify that survey units are not greater than 1,000 m^2.		• Verify that the RCT and SSHO are present in an active work area. • Verify that required dosimetry is being worn. • Conduct ongoing inspection of decontamination and survey activities. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that survey forms are properly completed and stored. • Verify the grid layout and sampling of the Final Status Survey units in the trench in accordance with the RAWP.	
TtEC2. Installation of by-pass system in Building 5 (TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs. • Review the RAWP. • Verify that radiation awareness training has been completed and training is documented. • Verify that designated personnel have assigned dosimeters. • Verify project drawings approved by Site Engineer. • Verify PVC pipe and support systems are IAW the RAWP and are stored properly.		• Verify that materials and equipment delivered to the site are as identified in the RAWP. • Verify that the RCT and SSHO are present in an active work area when downdrains are cut. • Verify PVC pipe support systems are placed IAW manufacturer's recommendation. • Verify photographs are being taken.		• Verify that the RCT and SSHO are present in an active work area when downdrains are cut. • Verify PVC pipe support systems are placed IAW manufacturer's recommendation • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify as-built drawings prepared by Site Engineer	
TtEC5 and 6. Clearing of Pavement (TtEC) A4040 per FCR05-03	• Verify that the ROICC and CSO have been notified. • Review AHAs. • Verify that PPE is available and meets requirements of the SSHP. • Verify that the area has been walked/visually inspected for items that could interfere with clearing (utilities, rebar, etc.). • Verify that radiation awareness training has been completed and that training is documented. • Verify that traffic schedule has been approved by CSO and ROICC.		• Verify that a qualified RCT and SSHO are present at active work areas. • Verify that pavement is removed throughout the excavation area. • Verify that waste pavement is being managed as required. • Verify that pavement removed from radiologically impacted areas is stockpiled at the approved location. • Verify that the activity is photographed.		• Continue to inspect ongoing activities. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that the pavement stockpiles are maintained per the RAWP requirements. • Verify that the pavement is disposed of in accordance with RAWP requirements, and that the stockpile locations are cleaned up. • Verify that site activities are being photographed. • Verify that photographs are logged and stored.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC5 and 6. Excavation and removal of soil/piping (TtEC) (Continued)	•				• Verify that photographs are logged and stored. • Verify that traffic control procedures are being followed.	
TtEC3. Cleaning of storm drain system pipe (TtEC)	• Notify the DON, the RASO, and agencies. • Verify that activities will be conducted in accordance with approved RAWP. • Review AHAs for this activity. • Verify CSO has approved the Traffic Control Plan. • Verify that the RWP is in place and that all workers have read the requirements.		• Verify water storage tanks appropriately placed. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that air monitoring per SSHP is being followed. • Verify that required dosimetry is being worn. • Verify that all personnel have signed the RWP(s). • Verify that the cleaning protocol, as described in the RAWP and work instructions, is being followed. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP and relevant SOPs. • Verify Traffic Control Plan is being followed. • Verify photographs are being taken. • Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Verify that SPSPP BMPs are implemented. • Verify equipment maintenance and safety conditions. • Verify that work boundary is properly delineated.		• Verify that required dosimetry is being worn. • Verify that daily safety briefings discuss status of RWP(s). • Verify that RWP is available at the work location. • Verify that RWP is modified in the event of changes to the conditions. • Verify that the RASO concurred with the modified RWP and concurrence is documented. • Verify that tools, material, and equipment are cleaned, wiped down, and surveyed prior to removal from work areas. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Inspect field control BMPs. • Verify water storage tanks are inspected daily and water transferred to the water treatment plant in a timely manner	
BATT19. TtEC7e and 9. TT10-10 Confirmation sediment sampling (BattelleTtEC[non-impacted soil or sediments]/TtEC [suspected LLRW materials]) A4050 per FCR05-03 A1070 per FCRFZ02-01	• Notify the DON, the RASO, and agencies. • Conduct activities in accordance with approved RAWP. • Verify that appropriate containers and sampling equipment are available. • Review AHAs for this activity. • Review shipping and handling of samples requirements. • Review testing laboratory certifications.		• Confirm that samples will be collected and analyzed in accordance with the RAWP. • Inspect sampling equipment. • Verify that appropriate containers and sample preservatives are used. • Verify proper handling and packaging of samples. • Follow equipment decontamination procedures.		• Conduct ongoing inspection of proper sampling and equipment decontamination techniques. • Follow up with laboratory to ensure proper delivery of all collected samples. • Confirm receipt of analytical data.	
BATT20. TtEC 13. TT10-13 Decontamination and final radiological screening of project site (Battelle/TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs.		• Verify that decontamination and survey procedures are being followed. • Verify that required dosimetry is being worn. • Verify documentation. • Verify that site activities are being photographed. • Verify that surveys are being documented on the appropriate form.		• Conduct ongoing inspection of decontamination and survey activities. • Verify that required dosimetry is being worn. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that survey forms are properly completed and stored.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC11. TT10-14 Transportation and disposal of RCRA, non-RCRA, and nonhazardous soil, sediment, and debris (TtEC) A1070 per FCRFZ02-01	• Verify that all transporters are authorized to haul the particular type of waste being transported. • Verify that the ROICC and CSO have been notified. • Review the RAWP and RWP for the portal monitor operations. • Verify that waste profiles have been approved by disposal sites. • Verify that the waste manifest has been approved and signed by DON representative. • Verify that all traffic or other (if any) permits from Alameda County have been obtained. • Verify that locations of disposal with the ROICC have been confirmed. • Review submittal load tickets process from contractors. • Review the traffic pattern. • Review the road closure and traffic plan with ROICC and CSO. • Review signage requirements with ROICC and CSO. • Review truck decontamination requirements. • Review the AHA for this activity.		• Verify that all transporters are authorized to haul the particular type of waste being transported. • Verify trucks are passing portal monitor during ingress to the site and egress from the site. • Verify drivers sign manifest. • Verify that the contractor performs work as specified in the RAWP and Waste Management/Transportation and Disposal Plan. • Review load ticket record procedures. • Verify that truck decontamination is being conducted in accordance with the RAWP.		• Verify RSOR has monitored use of portal monitor • Verify manifest are signed and originals given to CSO • Verify that the contractor has provided delivery logs. • Verify that disposal loads are in accordance with the standard requirements of the RAWP. • Verify that all load tickets are accounted for.	
BATT20. TtEC13. TT10-12 Decontamination (Battelle/TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs.		• Verify that decontamination and survey procedures are being followed. • Verify documentation. • Verify that site activities are being photographed. • Verify that surveys are being documented on the appropriate form.		• Conduct ongoing inspection of decontamination and survey activities. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that survey forms are properly completed and stored.	
Site Restoration and Demobilization						
TtEC14. TT10-12 Site Restoration (TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs. • Review site restoration activities and procedure.		• Verify that site demobilization procedures have concurrence from the DON. • Inspect site restoration activities. • Verify that site activities are being photographed (before/after photographs).		• Conduct ongoing inspection of site restoration activities. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that radiological survey is being conducted in accordance with the RAWP. • Verify that construction-related damages are repaired.	
BATT23. TtEC15. TT10-12 Demobilization (Battelle/TtEC) A4070 per FCR05-03	• Notify the DON and the RASO. • Review AHAs. • Review site demobilization production. • Verify that the final inspection checklist has been prepared.		• Verify that all construction material and equipment have been free released, prior to removal from the site. • Verify that the site activities are photographed. • Verify that the punch list items identified during the final inspection are included on the inspection report.		• Verify that all equipment and materials are removed from the site. • Verify that all the punch list items on the inspection reports are completed. • Verify that survey forms are properly completed and stored. • Verify that all equipment and material have been inspected, screened, and approved prior to removing from the site.	

TtEC, NAVFAC SW LANT RAC CONTRACT NO. N62470-13-D-8007, CTO NO. FZ02

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	FZ02	FCR #	FZ02-02	DATE	5/30/14
LOCATION	Alameda Point OU-2C IR Sites 5 and 10	ROICC	Gregory Grace		
SUBJECT: Industrial Waste Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC			

1. Document to be changed. Identify revision, date, section, drawing, etc.

Final Remedial Action Work Plan, Revision 1, January 2011. DCN: RMAC-0809-0006-0001.R1, Installation Restoration Site 17, Seaplane Lagoon, Alameda Point, Alameda California

2. Description of existing requirements and proposed change (Attach sheet if necessary)

Existing Requirements: TtEC's CTO No. 0006 and 0010 work activities completed under the Rad EMAC that focus on the remediation of the Site 17 area are dictated by the referenced Final Remedial Action Work Plan (RAWP) and included source removal work on the storm drain lines and the industrial waste line, which originated from the OU-2C area of Alameda Point. At the Navy's direction, TtEC will perform characterization/health and safety activities on the radiologically-impacted industrial waste lines originating from the OU-2C Building 5 and 400. The work will be performed under the LANT RAC Contract N62470-13-D-8007.

Change:

1) **RAWP (main text) Section 1.5 – Remedial Action**

Insert the following paragraph at the end of RAWP Section 1.5, as modified by FCRFZ02-02, to identify work associated with CTO FZ02.

Additional work associated with CTO FZ02 will be performed in accordance with the RAWP and as modified by Field Change Request (FCR) FCRFZ02-02. The FCR establishes the requirements for inspecting and sampling specific locations in the Industrial Waste System at Alameda Point that emanate from Building 5 and 400, IR Site 5 and 10 in OU 2C. The work will be conducted in accordance with the general approach and methodologies in the RAWP, the Alameda Radiological Standard Operating Procedures (SOPs) located in Appendix K of the RAWP, the Final Operable Unit-2C Industrial Waste Line Investigation, Alameda Point, Alameda, California, May 12, 2014 which has been incorporated as Attachment 1 in Appendix L of the RAWP (includes a figure of the Industrial Waste System and associated components and locations to be surveyed and sampled and a historical figure of the Former Building 29 Pump Station) and the Vacuum Excavation of Radiologically Impacted Soil Work Instruction (Appendix Q).

Sampling and analysis will be completed in accordance with the requirements established in Appendix D, Sampling and Analysis Plan (SAP) of the RAWP as modified by SAP Addendum 2.

2) **Appendix D – Sampling and Analysis Plan**

Insert the attached pages as SAP Addendum 2 into Appendix D to reflect the FZ02 work.

3) **Appendix F - Contractor Quality Control Plan**

Insert the attached pages of the DFW table to reflect new activity numbers and the project schedule for the FZ02 work.

4) **Appendix L Installation Restoration Site 17 Source Control Remedial Action Work Plan, Section 3.5, Operable Unit-2C Industrial Waste Line Investigation**

Add the following text (attached) as Section 3.5 into Appendix L to reflect the FZ02 work and incorporate Attachment 1 (attached).

5) **Appendix Q, Work Instructions**

Add the attached Vacuum Excavation of Radiological Impacted Soil Work Instructions into Appendix Q

3. Reason for Change (Attach sheet if necessary)

The purpose of this FCR is to define for administration purposes the work activities that will be carried out under the LANT RAC Contract No. N62470-13-D-8007 CTO FZ02 at specific locations in the Industrial Waste Line at Alameda Point that emanate from Building 5 and 400, Installation Restoration (IR) Site 5 Operable Unit (OU) 2C. Activities addressed in this FCR are similar to the work conducted previously under Contract Task Order (CTO)-0006 and 0010 and those portions modified by FCRFZ02-02.

TtEC, NAVFAC SW LANT RAC CONTRACT NO. N62470-13-D-8007, CTO NO. FZ02

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	FZ02	FCR #	FZ02-02	DATE	5/30/14
LOCATION	Alameda Point OU-2C IR Sites 5 and 10	ROICC	Gregory Grace		
SUBJECT: Industrial Waste Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC			

4. Cost and Schedule Implications (if any)

The Cost and schedule impacts of the new OU-2C work has been negotiated with the Navy in previous modifications.

TtEC Project QC Manager (Print name and sign) Vince Richards	Date 6-9-14	TtEC Site Engineer (print name and sign) Ray Seamons	Date 6/9/14
Reviewed by: (Print name and sign) Nathan Smith		Title TtEC's RSOR Needs RASO Review	Date 6/9/14
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date 6/10/14
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date 6-9-14
TtEC Program QC Manager (Print name and sign) Greg Joyce	Date 6/11/14	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date 6-11-14	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date

TtEC, NAVFAC SW LANT RAC CONTRACT NO. N62470-13-D-8007, CTO NO. FZ02

FIELD CHANGE REQUEST (FCR)

TASK ORDER #	FZ02	FCR # FZ02-02	DATE 5/30/14
LOCATION	Alameda Point OU-2C IR Sites 5 and 10	ROICC	Gregory Grace
SUBJECT: Industrial Waste Line Characterization Activities		PRIMARY RESPONSIBILITY: TtEC	

4. Cost and Schedule Implications (if any)

The Cost and schedule impacts of the new OU-2C work has been negotiated with the Navy in previous modifications.

TtEC Project QC Manager (Print name and sign) Vince Richards	Date 6-9-14	TtEC Site Engineer (print name and sign) Ray Seamons	Date 6/9/14
Reviewed by: (Print name and sign) Nathan Smith		Title TtEC's RSOR Needs RASO Review	Date 6/9/14
Reviewed by: (Print name and sign) Hedy Abedi		Title TtEC's Project Manager	Date 6/10/14
Reviewed by: (Print name and sign) Robert Wells		Title TtEC's Site Superintendent	Date 6-9-14
TtEC Program QC Manager (Print name and sign) Greg Joyce	Date 6/11/14	TtEC Program HS Manager (print name and sign) (if health and safety related) Roger Margotto	Date
Navy's RPM (Print name and sign) Mary Parker	Date 6-11-14	ROICC Acknowledgement (Print name and sign) Gregory Grace	Date 6/13/14

SAP ADDENDUM 2 (APPENDIX D)

SAP Worksheet #1 – Title and Approval Page

ADDENDUM 2

TO THE

FINAL

SAMPLING AND ANALYSIS PLAN
(Field Sampling Plan and Quality Assurance Project Plan)
May 2014

INSTALLATION RESTORATION SITE 17
SEAPLANE LAGOON
ALAMEDA POINT, CALIFORNIA

Prepared for:
Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310

Prepared by:
Tetra Tech EC, Inc.
1230 Columbia Street, Suite 750
San Diego, California 92101-8536
(619) 234-8696

Prepared under:
Contract No. N62473-10-D-0809
DCN: N/A
CTO No. 0006

Review Signature: _____ 05/16/14
Greg Joyce — Date
TtEC Quality Control Program Manager

Approval Signature: _____ _____
TBD — Date
NAVFAC LANT Chemist

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EXECUTIVE SUMMARY

This Addendum 2 to the Final Sampling and Analysis Plan (SAP) (Field Sampling Plan and Quality Assurance Project Plan) under Document Control Number RMAC-0809-0006-0001.R1 has been prepared by Tetra Tech EC, Inc. (TtEC) to support activities associated with Operable Unit (OU) 2C located at the former Naval Air Station Alameda (now known as Alameda Point) in Alameda, California. This Addendum complies with the requirements of revising the SAP when a scope or regulation change occurs in conjunction with Environmental Work Instruction #2, 3VR.2, Review, Approval, Revision, and Amendment of Sampling and Analysis Plans (SAPs) (NAVFAC SW 2011).

The original SAP (provided as Attachment 1 herein) was prepared by Battelle Memorial Institute (Battelle) and TtEC, on behalf of the Department of the Navy Base Realignment and Closure Program Management Office West under the Naval Facilities Engineering Command (NAVFAC) Southwest Indefinite Delivery/Indefinite Quantity Environmental Multiple Award Contract No. N62473-08-D-8824, Contract Task Order (CTO) 0004 (for Battelle) and under the Radiological Environmental Multiple Award Contract No. N62473-10-D-0809, CTO 0006 (for TtEC). That SAP was prepared to implement the selected remedy for sediments at Installation Restoration Site 17 at Seaplane Lagoon (SPL) at Alameda Point. Addendum 1 to that SAP was prepared in November 2011 to include some additions to the original SAP including 1) that TtEC would complete remediation of the northwest corner of SPL, 2) clarification on which TestAmerica laboratories would be used for analysis, and 3) clarification on the method for metals for wastewater samples.

Currently, TtEC was awarded a project under NAVFAC Mid-Atlantic division Remedial Action Contract No. N62470-13-D-8007, CTO FZ02, where the Statement of Work (SOW) for the project includes performing drain line work at OU 2C at Alameda Point, specifically the industrial waste (IW) lines. The following is information from the SOW:

- The work includes sampling and analysis and removal of contamination in OU 2C IW lines.
- Since this field work shall be conducted using existing work plans, any revisions related to this work shall be documented via the Field Change Request process.

Since the SOW included using existing plans to conduct the work, the SAP for the SPL project (discussed above) will be used as a basis for the current scope of work since a) the sampling and analysis requirements are covered in that SAP for the proposed work at OU 2C and b) select OU 2C drain lines were discussed in that SAP. Therefore, this Addendum 2 will be used in conjunction with the original SAP to document the sampling scope of work for OU 2C and which sampling and analytical requirements in the SPL SAP will be used to complete the field activities. All policies and procedures set forth in the original SAP that have not been modified in this Addendum 2 will remain in effect for the OU 2C project where applicable.

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SAP Worksheet #2 – SAP Identifying Information

After review of the original SAP, the worksheets that require modifications for this Addendum are discussed in the following Worksheet #2.

UFP-QAPP Worksheet #	Required Information for Original SAP	Modification Required for this Addendum
A. Project Management		
Documentation		
1	Title and Approval Page	Included in this Addendum
2	Table of Contents SAP Identifying Information	Only SAP Identifying Information included in this Addendum
3	Distribution List	Included in this Addendum to update personnel
4	Project Personnel Sign-Off Sheet	Included in this Addendum
Project Organization		
5	Project Organizational Chart	Not included in this Addendum; no modification required; any updates to personnel presented in Worksheet #3 are applicable to this worksheet
6	Communication Pathways	Not included in this Addendum; no modification required; any updates to personnel presented in Worksheet #3 are applicable to this worksheet
7	Personnel Responsibilities and Qualifications Table	Not included in this Addendum; no modification required; any updates to personnel presented in Worksheet #3 are applicable to this worksheet
8	Special Personnel Training Requirements Table	Not included in this Addendum; no modification required
Project Planning/Problem Definition		
9	Project Planning Session Documentation (including Data Needs tables) Project Scoping Session Participants Sheet	Not included in this Addendum; no modification required
10	Problem Definition, Site History, and Background. Site Maps (historical and present)	Included in this Addendum
11	Site-Specific Project Quality Objectives	Included in this Addendum

SAP Worksheet #2 – SAP Identifying Information (Continued)

UFP-QAPP Worksheet #	Required Information for Original SAP	Modification Required for this Addendum
12	Measurement Performance Criteria Table	Not included in this Addendum; no modification required
13	Sources of Secondary Data and Information Secondary Data Criteria and Limitations Table	Not included in this Addendum; no modification required
14	Summary of Project Tasks	Included in this Addendum
15	Reference Limits and Evaluation Table	Not included in this Addendum; no modification required
16	Project Schedule/Timeline Table	Not included in this Addendum; no modification required
B. Measurement Data Acquisition		
Sampling Tasks		
17	Sampling Design and Rationale	Included in this Addendum
18	Sampling Locations and Methods/ SOP Requirements Table Sampling Location Map(s)	Included in this Addendum
19	Analytical Methods/SOP Requirements Table	Not included in this Addendum; no modification required
20	Field Quality Control Sample Summary Table	Not included in this Addendum; no modification required
21	Project Sampling SOP References Table	Not included in this Addendum; no modification required
22	Field Equipment Calibration, Maintenance, Testing, and Inspection Table	Not included in this Addendum; no modification required
Analytical Tasks		
23	Analytical SOPs Analytical SOP References Table	Not included in this Addendum; no modification required
24	Analytical Instrument Calibration Table	Not included in this Addendum; no modification required
25	Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table	Not included in this Addendum; no modification required
Sample Collection		
26	Sample Handling System, Documentation Collection, Tracking, Archiving and Disposal Sample Handling Flow Diagram	Not included in this Addendum; no modification required

SAP Worksheet #2 – SAP Identifying Information (Continued)

UFP-QAPP Worksheet #	Required Information for Original SAP	Modification Required for this Addendum
27	Sample Custody Requirements, Procedures/SOPs Sample Container Identification Example Chain-of-Custody Form and Seal	Not included in this Addendum; no modification required
Quality Control Samples		
28	QC Samples Table	Not included in this Addendum; no modification required
Data Management Tasks		
29	Project Documents and Records Table	Not included in this Addendum; no modification required
30	Analytical Services Table Analytical and Data Management SOPs	Not included in this Addendum; no modification required
C. Assessment Oversight		
31	Planned Project Assessments Table Audit Checklists	Not included in this Addendum; no modification required
32	Assessment Findings and Corrective Action Responses Table	Not included in this Addendum; no modification required
33	QA Management Reports Table	Not included in this Addendum; no modification required
D. Data Review		
34	Verification (Step I) Process Table	Not included in this Addendum; no modification required
35	Validation (Steps IIa and IIb) Process Table	Not included in this Addendum; no modification required
36	Validation (Steps IIa and IIb) Summary Table	Not included in this Addendum; no modification required
37	Usability Assessment	Not included in this Addendum; no modification required

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SAP Worksheet #3 – Distribution List

The following distribution list represents the recipients of the final version of this Addendum.

Name of SAP Recipients	Title/Role	Organization	Telephone Number	Mailing & E-mail Address
Mary Parker	Contracted Remedial Project Manager (RPM)	BRAC PMO West	619-532-0945	1455 Frazee Road, Suite 900 San Diego, CA 92108 mary.parker.ctr@navy.mil
Bill McGinnis	Lead RPM	BRAC PMO West	619-532-0907	1455 Frazee Road, Suite 900 San Diego, CA 92108 william.mcginnis1@navy.mil
Matthew Slack	Project Manager (PjM)	NAVSEADET RASO	757-887-4212	RASO NAVSEADET Building 1971 NWS P.O. Drawer 260 Yorktown, VA 23691-0260 matthew.slack@navy.mil
Joseph Michalowski	Quality Assurance Officer	NAVFAC SW	619-532-4125	1220 Pacific Coast Highway San Diego, CA 92132 joseph.michalowski@navy.mil
Diane Silva	Administrative Record Manager	NAVFAC SW	619-532-3676	937 N. Harbor Drive Building 1, 3rd Floor San Diego, CA 92132 diane.silva@navy.mil
Hedy Abedi	Project Manager	TtEC	949-632-2448	399 Seaplane Lagoon Alameda, CA 94501 hedy.abedi@tetratech.com

SAP Worksheet #3 – Distribution List (Continued)

Name of SAP Recipients	Title/Role	Organization	Telephone Number	Mailing & E-mail Address
Vince Richards	Project QC Manager	TtEC	949-283-0589	399 Seaplane Lagoon Alameda, CA 94501 vincent.richards@tetratech.com
Greg Joyce	Quality Control Program Manager	TtEC	360-780-0371	1230 Columbia St., Suite 750 San Diego, CA 92101 greg.joyce@tetratech.com
Erika Gish	Laboratory Project Manager	TestAmerica – St. Louis Laboratory	314-298-8566	13715 Rider Trail North Earth City, MO 63045 erika.gish@testamericainc.com
Shauna McKellar	Data Validator Project Manager	LDC	(760) 827-1171	2701 Loker Ave West, Suite 220 Carlsbad, CA, 92010 smckellar@lab-data.com

SAP Worksheet #4 – Project Personnel Sign-Off Sheet

The key personnel listed below will read the final version of this Addendum. Their signature and date will be filled in below and included in the project file.

Name	Organization/Title/Role	Signature/Email Receipt	Addendum Section Reviewed	Date Addendum Read
Hedy Abedi	TtEC/Project Manager		Entire document	
Vince Richards	TtEC/Project Quality Control Manager/Sampler		Entire document	
Sabina Sudoko	TtEC/Project Chemist		Entire document	
Erika Gish	TestAmerica /Laboratory Project Manager		Entire document	
Shauna McKellar	LDC /Data Validator Project Manager		Entire document	

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SAP Worksheet #10 – Problem Definition

The main problem defined for this project is: The Navy and regulators have concluded that additional investigative sampling within the IW line is needed to determine if the proposed institutional controls (ICs) are sufficient or additional remedial action is needed.

BACKGROUND

The industrial waste treatment plant (IWTP) that was located south of Building 5 was closed by the Department of Toxic Substances Control on October 12, 1999. Although the IWTP was removed, the IW lines were left in place; sampling was not conducted in the IW lines as part of the IWTP closure activities. In addition to wastewaters from the Building 5 IWTP, site history indicates that the IW lines between Buildings 5 and 400 received radium paint wastes.

The IW line system that received wastewaters from OU 2C Buildings 5 and 400 is made up of gravity fed and force main lines. There are two pump stations within the OU 2C area connected to the force main lines, Pump Station 1 and Pump Station 2. There is also evidence of an historical pump house building, Former Building 29 Pump Station, which forced IW line and sanitary sewer line contents to a treatment facility. Figure 1 shows the layout of the IW line, and Figure 2 is a historical figure showing details of the former Building 29 pump station.

The gravity fed manholes in the IW line originating from Buildings 5 and 400 were sampled in 2009 for radiological isotopes, but minimal information is known about the sediment within the gravity fed lines or other contaminants that may be present within the manhole sediment. Available information based on historical maps and former excavation activities indicates the gravity-fed portion of the inactive IW line is constructed of vitrified clay. Available information based on historical maps indicates the force main portion of the IW line is constructed of cast iron. There is currently no data available for sediment, if present, within the force main portion of the system. Results of the 2009 sampling indicate that the maximum radium-226 (Ra-226) activity within the gravity fed IW line manholes is 29.4 picocuries per gram (pCi/g) in manhole 1-8, which is located between Buildings 5 and 400. The highest Ra-226 sample results for each manhole sampled in 2009 are provided in Figure 1.

Examination of historical drawings and discussions with the Base Realignment and Closure Clean-up Team (BCT) in 2013 indicated additional investigation should be conducted. To support the proposed ICs alternative, work is proposed to 1) investigate the IW line based on new information and 2) collect data to verify the site conceptual model. Post-2009 information on the IW line was provided in the “Final Field Summary Report for Operable Unit 2C Drain Lines”, July 2013 (Field Summary Report).

As indicated in the Final Field Summary Report, a manhole was discovered, in 2013, near the former Building 29 Pump Station. The manhole resides between the force main and the former Building 29 Pump Station where the IW line force main historically discharged. Sediment was

SAP Worksheet #10 – Problem Definition (Continued)

removed from the manhole and four samples were collected and analyzed for Ra-226. Ra-226 activity in these samples was measured between 1.64 pCi/g and 0.7514 pCi/g. The one plus background Ra-226 criterion at Alameda Point is 1.5602 pCi/g.

The proposed work will be conducted as described in Worksheet #17 in this Addendum.

SAP Worksheet #11 – Project Quality Objectives/Systematic Planning Process

The Data Quality Objectives (DQOs) specify project objectives, data collection boundaries and limitations, the most appropriate type of data to collect, and the level of acceptable decision error. The quality and quantity of data required to implement environmental removal actions are also defined.

The DQOs, as defined through the seven-step process (EPA 2006), are as follows:

1. State the problem

The main problem defined for this project is: The Navy and regulators have concluded that additional investigative sampling within the IW line is needed to determine if the proposed ICs are sufficient or additional remedial action is needed.

2. Identify the goal of the study

Do the analytical results for the samples to be collected as described in Worksheet #17 of this Addendum support the ICs proposed for the OU 2C IW line?

3. Identify information inputs

Data from samples collected during this project as described in Worksheet #17 in this Addendum.

4. Define the boundaries of the study

Spatial boundaries: See Figure 1.

Temporal boundaries: There are no temporal boundaries for this project, i.e. seasonal variations such as the rainy season or the breeding season of animals living within the study area will not affect field work.

5. Develop the analytic approach

If the analytical results for the samples collected (as described in Worksheet #17 of this Addendum) support the ICs proposed for OU 2C IW line, then no further action will be required. Otherwise, the Navy in conjunction with the regulators may need to revise the ICs or perform remedial action.

6. Specify performance or acceptance criteria

Field crews will review this Addendum prior to collection of samples and sign off on Worksheet #4 (or a form equivalent to Worksheet #4.)

7. Develop the plan for obtaining data

Details of the sampling design and rationale are presented in Worksheet #17 of this Addendum.

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SAP Worksheet #14 – Summary of Project Tasks

SAMPLE COLLECTION PROCEDURES

Sampling personnel will don a new pair of disposable nitrile gloves, or equivalent, immediately before collecting sediment samples. Sediment samples will be collected as a grab sample directly from a sampling location use a disposable piece of equipment or, as described in Worksheet #17, some samples will be collected from the inside of the barrel of a boring device. Samples will be collected in eight ounce glass jars. The number of jars will depend on the analyses requested and will be coordinated with the laboratory in advance. Samples for volatile organic compounds (VOCs) will also be collected in jars as it is anticipated that the samples will be too wet to collect in En Core type devices. Sample labeling, packaging, and shipment to TestAmerica St. Louis laboratory will be completed in accordance with procedures in the original SAP. The frequency of field QC samples will performed as detailed in Worksheet #12 of the original SAP.

In addition to sediment sampling from the IW lines, sampling may also be required for any wastewater generated during the project. Sampling for wastewater will be conducted in accordance with procedures detailed in the original SAP.

ANALYTICAL PROCEDURES

All analytical methods will require the applicable quality control (QC) tasks described in the respective methods, including initial calibrations, continuing calibrations, tuning, reagent blanks, surrogates, replicates, control spikes, and others as necessary. Analytical methods and procedures detailed in Worksheets #24, #25, and #28 of the original SAP will also be followed for this project. The laboratory, TestAmerica St. Louis, will use the current version of their SOPs for all analyses, and the laboratory has current Department of Defense Environmental Laboratory Accreditation Program (ELAP) certification and current California ELAP certification for the methods discussed herein.

DATA REVIEW

Data review and validation will be performed by a third-party data validation subcontractor on all sample results generated from samples described in Worksheet #17 of this Addendum and in accordance with data validation requirements detailed throughout the original SAP. Analytical data will be submitted to the NIRIS website as described in the original SAP.

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SAP Worksheet #17 – Sampling Design and Rationale

Sampling design and rationale for this project is discussed below along with radiological and chemical analysis required. Note that references below to Ra-226 analysis will also include the radiological isotopes discussed in the original SAP which are Cesium-137 (Cs-137) and Strontium-90 (Sr-90).

FORMER BUILDING 29 PUMP STATION

Historical drawings indicate the IW line was connected to the Former Building 29 Pump Station and discharged to the pump station vaults before being pumped to a treatment facility. No record of Building 29 removal is available, so it is not known whether its vaults were removed or closed in place. Therefore, the Former Building 29 Pump Station requires further investigation. The former pump station is divided into three separate vaults as shown in Figure 2. Sediment is proposed to be collected from all three vaults, as feasible, and sampled. It is proposed that one boring be advanced in each of the three vaults as described below. Figure 1 provides the locations of the proposed borings for the Former Building 29 Pump Station (in the upper right hand corner of the figure). The purpose of these borings is to sample any remaining sediment that accumulated in the vault but may not have been previously removed.

Because it is not known whether the Former Building 29 Pump Station and any sediment within it were previously removed, geophysical surveys will be conducted to determine if the boundaries of the pump station can be identified. Results of the geophysical survey will be evaluated and shallow excavation will be conducted to expose the top of the pump station structure or verify that the vaults were removed. If the pump station vaults are still present, then entrance to the pump station interior will be evaluated to determine the best approach for gaining access into the pump station vaults. As feasible, all three of the vaults in the pump station will be evaluated to determine the extent of sediment within the vaults. Radiological controls will be established for all activities after the top of the pump station is exposed.

A boring will be advanced to the bottom of each of the three vaults (approximately 20 feet based on historical figures) through the exposed openings in the top of the pump station, as feasible. Each boring will be logged by a geologist, and two sediment samples will be collected from each boring based on field evaluation of the logs and gamma readings. Samples will be analyzed for Ra-226, metals, VOCs, and semivolatile organic compounds (SVOCs) based on the history of the wastes discharged to the IW line.

If it is determined that the pump station structure and vaults were removed, then only two of the three borings proposed will be advanced within the area of the former pump station to an estimated depth of 20 feet. The locations of the borings will be determined based on results of geophysical clearance and the field conditions. Each boring will be logged by a geologist, and two sediment samples will be collected from each boring based on field evaluation of the logs and gamma readings. Samples will be analyzed for Ra-226, metals, VOCs, and SVOCs based on the history of the wastes discharged to the IW line.

SAP Worksheet #17 – Sampling Design and Rationale (Continued)

IW LINE MANHOLES

In order to characterize the sediment within the IW line manholes, the following investigative activities are proposed. Figure 1 shows the proposed manholes to be investigated.

Photographs of the manholes will be taken to document current conditions. Two sediment samples will be collected from each manhole/vault identified for sampling on Figure 1 if sufficient sediment is present to sample. The manholes, 11 total including manholes 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-13, and 1-14, affiliated with the gravity fed line to the south and east of Building 5, Pump Stations 1 and 2 vaults, and an IW manhole near Former Building 29 were previously sampled for radionuclides. Therefore, samples will only be analyzed for metals, VOCs, and SVOCs at these locations highlighted in yellow on Figure 1. If a location has insufficient sediment for the full suite of analyses, the priority will be to analyze the available sediment for VOCs.

Two gravity fed lines meet at Pump Station 2, which are the IW lines from Buildings 5 and 400 and another gravity fed system east of OU 2C. Because of the potential for backflow from the western gravity fed system (OU 2C) to the eastern gravity fed system connecting to manhole 1-13 and because there is a connection to Storm Drain Line G south of manhole 1-24 of the IW line (shown on Figure 1), two sediment samples will be collected from manhole structures between manhole 1-12 and the storm drain cross-connection at manhole 1-24 (i.e., manholes 1-10, 1-11, 1-12, 1-22, 1-23, and 1-24) if there is sufficient sediment to sample. These samples will be analyzed for Ra-226, metals, VOCs, and SVOCs. If a location has insufficient sediment for the full suite of analyses, the priority will be to analyze the available sediment for Ra-226.

After samples have been collected, the manholes will be isolated using pneumatic plugs and standing water/suspended sediment will be removed. Collected water will be treated, sampled in accordance with the original SAP prior to discharge. After water is removed, remaining sediment will be removed using a vacuum truck, waste will be characterized (in accordance with the original SAP and disposal facility requirements), transported, and disposed. Following the sediment removal, photographs will be taken to document the sediment removal activities.

IW LINES

The proposed investigation of IW lines is to evaluate the condition of the gravity fed lines and force main lines and to assess the amount of sediment within the lines. As feasible, a video camera will be run through the gravity fed lines from manhole 1-1 to manhole 1-24. A video camera will also be run through the IW force main lines from Pump Station 1, Pump Station 2, and the former Building 29 manhole. Figure 1 shows the location of the lines, manholes and pump stations.

SAP Worksheet #17 – Sampling Design and Rationale (Continued)

For the two force main locations (Pump Stations 1 and 2), the pump stations will be dismantled as necessary to gain access to the lines and run the camera as far as possible, which is expected to be to the next 90 degree or other angle in the piping.

Approximate Distances:

- Force Main Line, Pump Station 1 to manhole 1-1: 875 feet
- Force Main Line, Pump Station 2 to Pump Station 29: 2,200 feet
- Gravity Line, manholes 1-1 to 1-13: 1,300 feet
- Gravity Line, manholes 1-13 to 1-24: 1,150 feet

If sufficient sediment is present to sample, then samples will be collected from inside the lines as follows:

- One sample approximately 10 feet in the upstream direction from Pump Station 1 vault
- One sample approximately 10 feet in the downstream direction from Pump Station 1 vault
- One sample approximately 10 feet in the upstream direction from Pump Station 2 vault
- One sample approximately 10 feet in the downstream direction from Pump Station 2 vault
- One sample approximately 10 feet from the Former Building 29 Pump Station manhole (at this manhole, it is not possible to sample in both directions)
- One sample approximately 10 feet in the upstream direction at manholes 1-1, 1-5 and 1-8
- One sample approximately 10 feet in the downstream direction at manholes 1-1, 1-5 and 1-8)

All of the samples above will be analyzed for Ra-226, metals, VOCs, and SVOCs. If there is insufficient sediment for the full suite of analyses, the priority will be to analyze the available sediment for Ra-226. If sediment is not present within the IW lines for a distance of 10 feet from the vaults/manholes or the sediment is too dense to penetrate 10 feet, then a sample will be collected in the line, as feasible, a shorter distance from the vaults/manholes.

Additional sampling for the IW lines includes proposed borings and collection of samples from the borings to provide data to establish the location of IC boundaries that are expected to require no excavation or pavement removal in order to avoid contact with the IW lines and ensure the safety of future excavations outside the IC boundary. Video will be taken, as feasible, in the IW lines and used by the field team to finalize boring locations. (The locations may be adjusted if

SAP Worksheet #17 – Sampling Design and Rationale (Continued)

utilities preclude advancing borings at these locations.) The strategy for determining boring locations is as follows:

- If it is noted that the line is damaged to the point of obvious leakage, a boring will be located near the two most damaged locations as close to the damaged line as feasible to provide characterization of sediment near the damaged piping.
- If the video of the pipe shows no damaged locations, one boring will be located downstream of manhole 1-8 because this manhole had the highest levels of Ra-226 and the other boring will be advanced near Pump Station 2 because this is the collection point for the gravity fed IW line prior to the force main line to the former Building 29 pump station. These borings will be advanced approximately 5 feet away from the center of the line in the absence of significant damaged lines. (These two boring locations are illustrated on Figure 1 as black/white circles near bottom center of figure.)

Each boring will be logged by a geologist, and gamma readings will be collected on the cores. Two samples will be collected from each boring based on field evaluation of the logs and gamma readings. The samples will be analyzed for Ra-226, metals, VOCs, and SVOCs based on the history of the wastes discharged to the IW line. If gamma readings show that sediment from the boring may contain elevated material (3 sigma above background), another boring will be advanced approximately 2 feet from the first boring. Two samples will be collected from the step-out boring based on field evaluation of the logs and gamma readings. Step-outs borings and sampling will continue to be conducted every 2 feet until gamma readings do not indicate potential contamination. Since gamma readings may be indicative of natural materials, the samples from the initial boring (closest to the line) will be analyzed first. The step-out samples will be held for analysis. If the results from the initial boring samples are less than the OU 2C remedial goal for Ra-226 (1 pCi/g above background) is not exceeded, then the other samples will not be analyzed. Otherwise, the next step-out boring samples will be analyzed until a step-out sample results do not exceed the Ra-226 remedial goal. This step-out procedure will allow the establishment of the IC boundary for the IW lines.

SUMP IN PAINT ROOM ON NORTHEAST SIDE OF BUILDING 5A

Inside the paint room on the northeast side of Building 5A where there is an IW line connection, the sump in the subsurface trench will be accessed and checked for sediment. If sediment is present, one sample of the sediment will be collected and analyzed for Ra-226. The sediment will then be removed for disposal.

SAP Worksheet #18 – Sampling Locations and Methods/SOP Requirements Table

Sampling Location/ID	Matrix	Depth (feet)	Analytical Group	Number of Samples	Sampling SOP Reference
Former Building 29 Pump Station (Sample locations in Figure 1 as black/white circles)					
IWL-BLDG29-SB1-01 IWL-BLDG29-SB1-02 IWL-BLDG29-SB2-01 IWL-BLDG29-SB2-02 IWL-BLDG29-SB3-01 IWL-BLDG29-SB3-02	Sediment	TBD	Ra-226 * Metals VOCs SVOCs	2 samples per boring	See Worksheet #14 of this Addendum
IW Line Manholes (Sample locations in Figure 1 as green/blue circles with yellow highlight)					
IWL-MH1-1-01 IWL-MH1-1-02 IWL-MH1-2-01 IWL-MH1-2-02 IWL-MH1-3-01 IWL-MH1-3-02 IWL-MH1-4-01 IWL-MH1-4-02 IWL-MH1-5-01 IWL-MH1-5-02 IWL-MH1-6-01 IWL-MH1-6-02 IWL-MH1-7-01 IWL-MH1-7-02 IWL-MH1-8-01 IWL-MH1-8-02	Sediment	TBD	Metals VOCs SVOCs	2 samples per manhole	See Worksheet #14 of this Addendum

SAP Worksheet #18 – Sampling Locations and Methods/SOP Requirements Table (Continued)

Sampling Location/ID	Matrix	Depth (feet)	Analytical Group	Number of Samples	Sampling SOP Reference
IW Line Manholes (Continued) (Sample locations in Figure 1 as green/blue circles with yellow highlight)					
IWL-MH1-9-01 IWL-MH1-9-02 IWL-MH1-13-01 IWL-MH1-13-02 IWL-MH1-14-01 IWL-MH1-14-02 IWL-PS1VAULT-01 IWL-PS1VAULT-02 IWL-PS2VAULT-01 IWL-PS2VAULT-02 IWL-MH-BLDG29-01 IWL-MH-BLDG29-02	Sediment	TBD	Metals VOCs SVOCs	2 samples per manhole or vault (listed as 01 and 02)	See Worksheet #14 of this Addendum
IWL-MH1-10-01 IWL-MH1-10-02 IWL-MH1-11-01 IWL-MH1-11-02 IWL-MH1-12-01 IWL-MH1-12-02 IWL-MH1-22-01 IWL-MH1-22-02 IWL-MH1-23-01 IWL-MH1-23-02 IWL-MH1-24-01 IWL-MH1-24-02	Sediment	TBD	Ra-226 * Metals VOCs SVOCs	2 samples per manhole (listed as 01 and 02)	See Worksheet #14 of this Addendum

SAP Worksheet #18 – Sampling Locations and Methods/SOP Requirements Table (Continued)

Sampling Location/ID	Matrix	Depth (feet)	Analytical Group	Number of Samples	Sampling SOP Reference
IW Lines					
IWL-PS1VAULT-UP-01 IWL-PS1VAULT-DN-01 IWL-PS2VAULT-UP-01 IWL-PS2VAULT-DN-01	Sediment	TBD	Ra-226 * Metals VOCs SVOCs	2 samples from inside the lines near Pump Station 1 and 2 vaults (one sample approximately 10 feet upstream and one 10 feet downstream)	See Worksheet #14 of this Addendum
IWL-BLDG29-MH-01	Sediment	TBD	Ra-226 * Metals VOCs SVOCs	1 sample from inside the line approximately 10 feet from the Former Building 29 Pump Station manhole	See Worksheet #14 of this Addendum
IWL-MH1-1-UP-01 IWL-MH1-1-DN-01 IWL-MH1-5-UP-01 IWL-MH1-5-DN-01 IWL-MH1-8-UP-01 IWL-MH1-8-DN-01	Sediment	TBD	Ra-226 * Metals VOCs SVOCs	2 samples from inside the line at manholes (one sample approximately 10 feet upstream and one 10 feet downstream)	See Worksheet #14 of this Addendum
IWL-SB1-01 IWL-SB1-02 IWL-SB1A-01 ** IWL-SB1A-02 ** IWL-SB2-01 IWL-SB2-02 IWL-SB2A-01 ** IWL-SB2A-02 **	Sediment	TBD	Ra-226 * Metals VOCs SVOCs	2 samples per each boring ** This sample ID represents the first step-out boring (A) for SB1. The letter designation (B, C, D, etc…) will continue as step-out borings are needed. Step-out borings will only be analyzed as described in Worksheet #17 of this Addendum.	See Worksheet #14 of this Addendum

SAP Worksheet #18 – Sampling Locations and Methods/SOP Requirements Table (Continued)

Sampling Location/ID	Matrix	Depth (feet)	Analytical Group	Number of Samples	Sampling SOP Reference
Sump in Paint Room on Northeast Side of Building 5A					
IWL-SUMPPR-01	Sediment	TBD	Ra-226 *	1 sample from inside the sump	See Worksheet #14 of this Addendum

Notes:

* Analysis for Ra-226 includes analysis for Cs-137 and Sr-90 as discussed in the original SAP.

The depth for each sample location will be determined in the field.

All sediment samples results will be reported as dry-weight corrected.

For any of the samples listed above, if insufficient sediment is available to conduct the full suite of analyses listed, Ra-226 analysis will take precedence; if Ra-226 analysis is not requested, then VOC analysis will take precedence.

REFERENCES

NAVFAC SW (Naval Facilities Engineering Command Southwest). 2011. Environmental Work Instruction (EWI) #2, 3EVR.2, Review, Approval, Revision, and Amendment of Sampling and Analysis Plans (SAPs). January.

Tetra Tech EC, Inc. 2011. Final Remedial Action Work Plan, Appendix D Final Sampling and Analysis Plan, Installation Restoration Site 17, Seaplane Lagoon, Alameda Point, California. January.

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FIGURES

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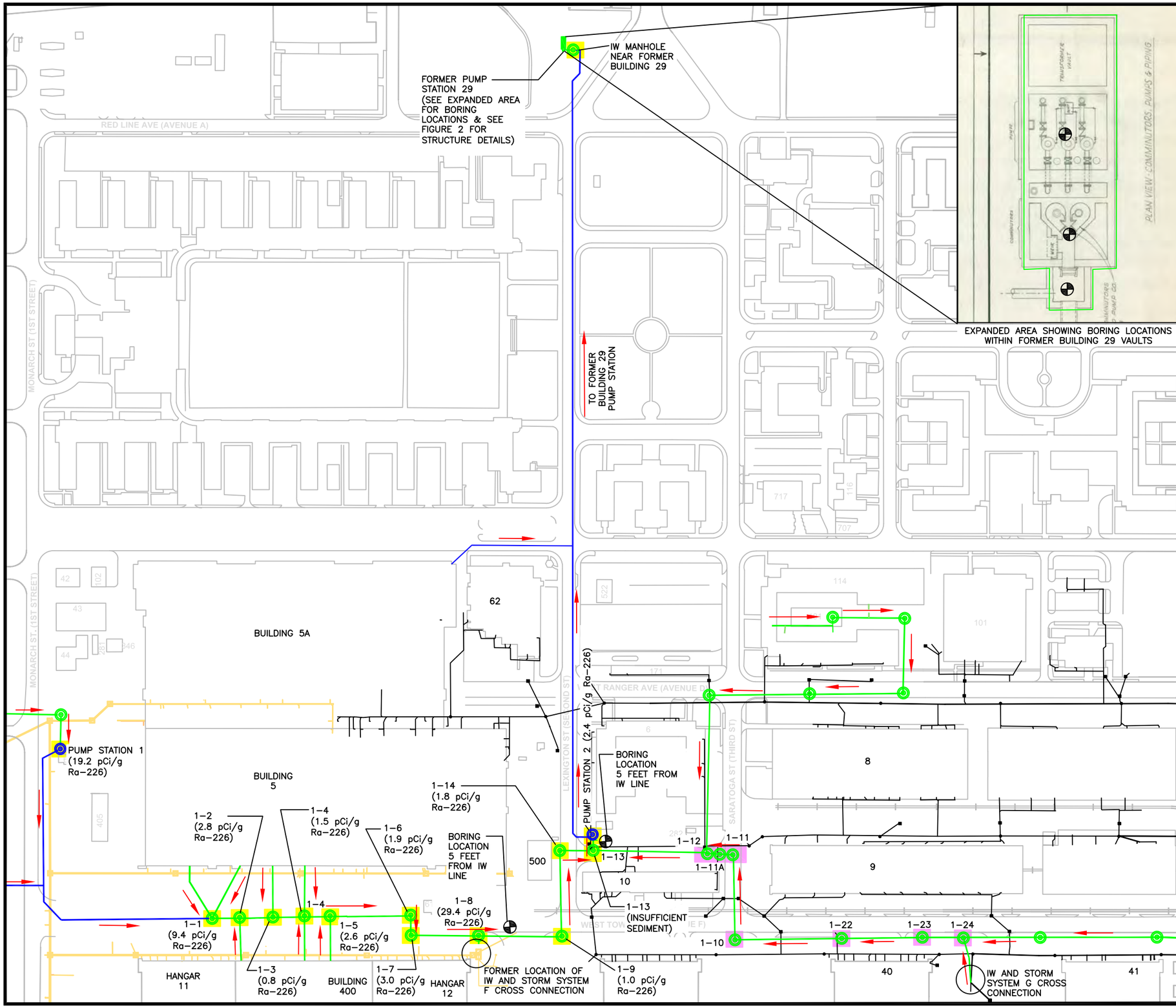


LEGEND

- INDUSTRIAL WASTE FORCE MAIN (CAST IRON PIPING)
- INDUSTRIAL WASTE GRAVITY LINES (VITRIFIED CLAY PIPING)
- INDUSTRIAL WASTE MANHOLE
- INDUSTRIAL WASTE PUMP STATION
- INDUSTRIAL WASTE SYSTEM DIRECTION OF FLOW
- INDUSTRIAL WASTE MANHOLE TO BE SAMPLED FOR METALS, VOCs, AND SVOCs
- INDUSTRIAL WASTE PUMP STATION VAULT TO BE SAMPLED FOR METALS, VOCs, AND SVOCs
- INDUSTRIAL WASTE MANHOLE TO BE SAMPLED FOR Ra-226, METALS, VOCs, AND SVOCs
- STORM SYSTEM G
- REMOVED & REPLACED PORTION OF STORM SYSTEM F
- PROPOSED BORING LOCATION

ABBREVIATIONS

IR = INSTALLATION RESTORATION
IW = INDUSTRIAL WASTE
NAS = NAVAL AIR STATION
pCi/g = PICOCURIES PER GRAM
Ra-226 = RADIUM 226
SVOCs = SEMI VOLATILE ORGANIC COMPOUNDS
VOCs = VOLATILE ORGANIC COMPOUNDS

REFERENCES

1. FORMER NAS ALAMEDA HISTORICAL AS-BUILT CANVAS DRAWINGS
2. "NAVAL AIR STATION, ALAMEDA INDUSTRIAL WASTE SYSTEM". PWC DRAWING NUMBERS: 23996 (REV. 1991), 23997 (REV. 1995), & 23998 (REV. 1990).

125 0 125 250
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

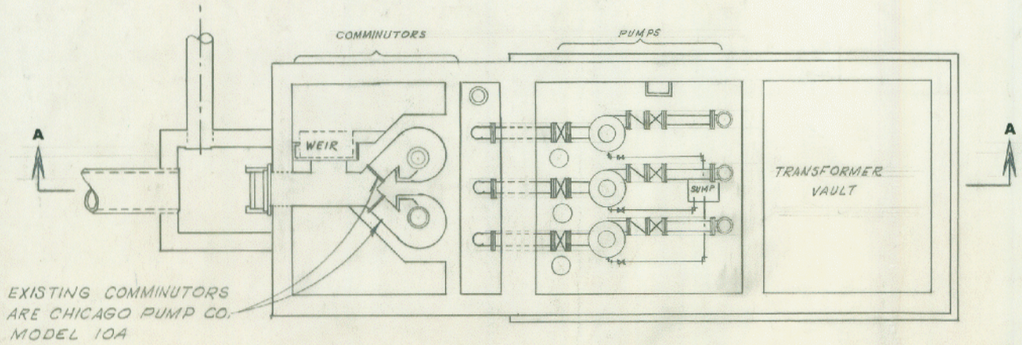
OPERABLE UNIT 2C IR SITES 5 AND 10

FIGURE 1
INDUSTRIAL WASTE LINE INVESTIGATION

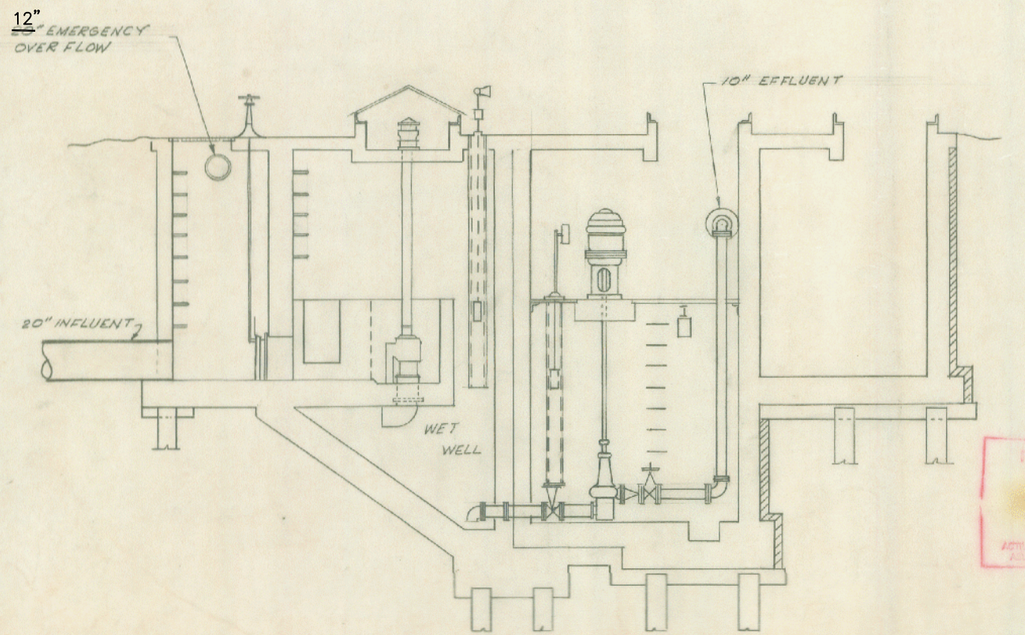
ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 1
AUTHOR: RS
DATE: MARCH 17, 2014

TETRA TECH EC, INC.



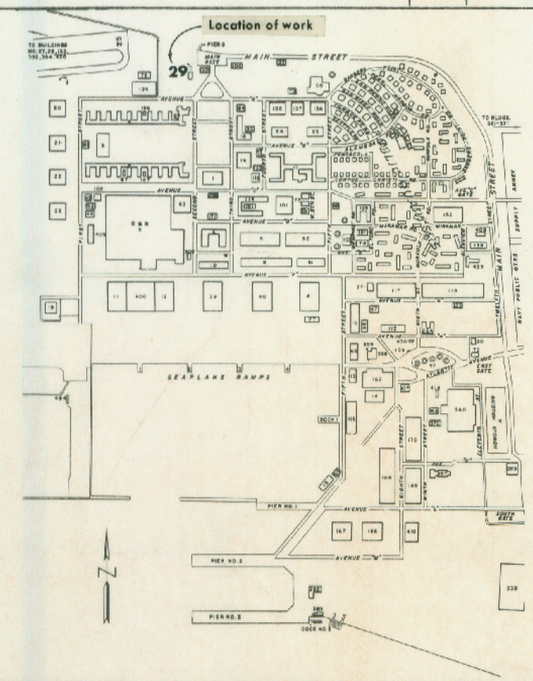
PLAN VIEW - COMMINUTORS, PUMPS & PIPING



SECTION A-A
EXISTING CONDITIONS AT STRUCTURE 29
SCALE 1/4" = 1'-0"

3.5 0 3.5 7
(ESTIMATED FEET)

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED



LOCATION PLAN

GRAPHIC SCALE 0 1000 2000 3000 IN FEET

PROPERTY U S NAVY
OFFICER IN CHARGE OF CONSTRUCTION
U. S. NAVAL AIR STATION
ALAMEDA, CALIFORNIA

All copies other than those to be used during construction and/or as part of contractural documents, are to be returned not later than 15 days after bid opening.

PWC 62026

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL AIR STATION — ALAMEDA, CALIF.

DES IR
DRWN J. F. Ritzen
SUPV R.E.H.
CHK H.A.
IN CHARGE Reynolds 4/5/70
SATISFACTORY TO
TITLE DATE
APPROVED DATE

REPAIRS TO SEWAGE LIFT STATION
STRUCTURE No. 29

CODE IDENT. NO.	SIZE	PWO DRAWING NO	12243
80091	C	NAVFAC DRAWING NO	1250194
SCALE 1/4"=1'-0"	SPEC. 12 - 70 - 0037	SHEET 1 OF 1	

CONTRACT No. N62474 -70 - C -0037

12ND NASA 11012/3 (Rev 12-68)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

OPERABLE UNIT 2C IR SITES 5 AND 10

FIGURE 2
HISTORICAL FIGURE SHOWING DETAILS OF THE FORMER BUILDING 29 PUMP STATION

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS

DATE: FEBRUARY 1, 2014

TETRA TECH EC, INC.

ATTACHMENT 1

ORIGINAL SAP and ADDENDUM 1
(on CD only)

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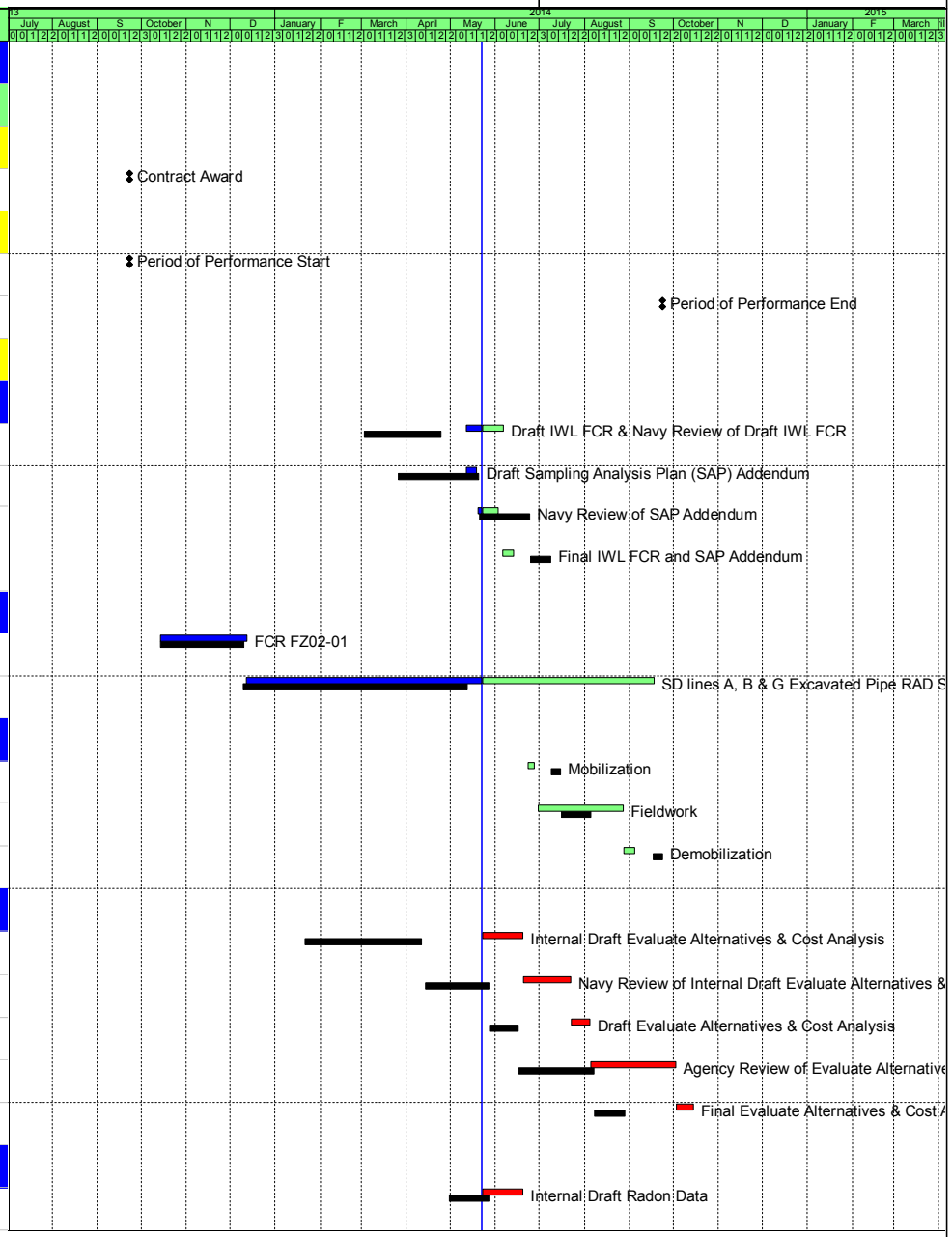
PROJECT SCHEDULE (APPENDIX F)

04-Jun-14

CTO FZ02 OU-2C Drain Lines, Alameda Point, Alameda, CA

Data Date 23-May-14

Activity ID	Activity Name	Original Duration	Activity % Complete	Start	Finish
Total		270		23-Sep-13 A	14-Oct-14
CTO FZ02 OU-2C Drain Lines, Alameda Point, Alameda, CA		270		23-Sep-13 A	14-Oct-14
Contract Award		0		23-Sep-13 A	23-Sep-13 A
A1000	Contract Award	0	100%	23-Sep-13 A	
Period of Performance		254		23-Sep-13 A	23-Sep-14
A1010	Period of Performance Start	0	100%	23-Sep-13 A	
A1020	Period of Performance End	0	0%		23-Sep-14
Project Management		255		14-Oct-13 A	14-Oct-14
Work Plans [Industrial Waste Line (IWL) Field Change Request (FCR)]		30		12-May-14 A	13-Jun-14
A1030	Draft IWL FCR & Navy Review of Draft IWL FCR	30	66.67%	12-May-14 A	06-Jun-14
A1040	Draft Sampling Analysis Plan (SAP) Addendum	13	100%	12-May-14 A	19-May-14 A
A1050	Navy Review of SAP Addendum	17	64.71%	20-May-14 A	02-Jun-14
A1060	Final IWL FCR and SAP Addendum	6	0%	06-Jun-14	13-Jun-14
Storm Drain (SD) Field Activities		152		14-Oct-13 A	17-Sep-14
A1240	FCR FZ02-01	27	100%	14-Oct-13 A	13-Dec-13 A
A1070	SD lines A, B & G Excavated Pipe RAD Survey and T&D	106	23.58%	12-Dec-13 A	17-Sep-14
IWL Field Activities		52		23-Jun-14	04-Sep-14
A1080	Mobilization	5	0%	23-Jun-14	27-Jun-14
A1090	Fieldwork	42	0%	30-Jun-14	27-Aug-14
A1120	Demobilization	5	0%	28-Aug-14	04-Sep-14
Evaluate Alternatives & Cost Analysis for Drain Lines		99		23-May-14	14-Oct-14
A1130	Internal Draft Evaluate Alternatives & Cost Analysis	19	0%	23-May-14	19-Jun-14
A1140	Navy Review of Internal Draft Evaluate Alternatives & Cost Analysis	22	0%	20-Jun-14	22-Jul-14
A1150	Draft Evaluate Alternatives & Cost Analysis	9	0%	23-Jul-14	04-Aug-14
A1160	Agency Review of Evaluate Alternatives & Cost Analysis	42	0%	05-Aug-14	02-Oct-14
A1170	Final Evaluate Alternatives & Cost Analysis	7	0%	03-Oct-14	14-Oct-14
Evaluate Radon Data		99		23-May-14	14-Oct-14
A1180	Internal Draft Radon Data	19	0%	23-May-14	19-Jun-14



Primary Baseline | Remaining Work | Baseline Milestone
Actual Work | Critical Remaining Work | Milestone

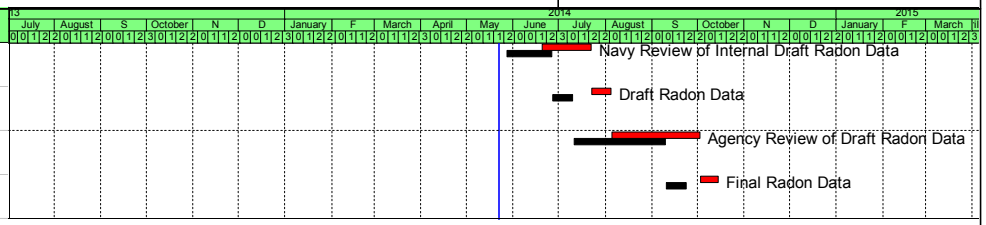
Attachment 2

TETRA TECH EC, INC

CTO FZ02 OU-2C Drain Lines, Alameda Point, Alameda, CA

Data Date 23-May-14

Activity ID	Activity Name	Original Duration	Activity % Complete	Start	Finish
A1190	Navy Review of Internal Draft Radon Data	22	0%	20-Jun-14	22-Jul-14
A1200	Draft Radon Data	9	0%	23-Jul-14	04-Aug-14
A1210	Agency Review of Draft Radon Data	42	0%	05-Aug-14	02-Oct-14
A1230	Final Radon Data	7	0%	03-Oct-14	14-Oct-14



Primary Baseline
Actual Work
Remaining Work
Critical Remaining Work
Baseline Milestone
Milestone

Attachment 2

TETRA TECH EC, INC

DEFINABLE FEATURES OF WORK (APPENDIX F)

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
BATT4. TtEC4, TT10-5. **Utility surveying** (Battelle/TtEC) A4030 per FCR05-03 A1080per FCRFZ02-02	• Review AHAs. • Verify that sensitive locations at the site are delineated and work crews are aware of restricted areas. • Review control points. • Review the RAWP. • Verify that radiation awareness training has been completed and training is documented.		• Verify that utility locations are marked in the field and identified to the equipment operators. • Verify that a qualified RCT and SSHO are present at active work areas.		• Verify that a qualified RCT and SSHO are present at active work areas. • Verify that utility locations are marked in the field and identified to the equipment operators. • Verify that boundaries of survey have been met. • Verify that site activities are being photographed. • Verify that photographs are logged and stored.	
BATT5a and b. TtEC7b and d, TT10-9. Baseline and final bathymetric surveying (Battelle/TtEC. TtEC includes debris piles area)	• Review project documents and verify that all meetings have been conducted and documented and that all notifications have been made. • Verify that proper base benchmark has been obtained. • Verify with the DON that site locations and off-site easements have been confirmed. • Review submittals from contractors. • Review AHAs for this activity.		• Verify that all site personnel including contractors have submitted health and safety documentation. • Review traffic access and base security requirements. • Verify that project documents have been reviewed and will be followed.		• Verify that contractor performs work as specified in the RAWP. • Verify that contractor has provided a copy of daily survey logbooks and listed control points used. • Verify that survey data and staking points are in accordance with the standard specified.	
Site Preparation, Setup, and Mobilization						
BATT6. TtEC1. TT10-1. TT10-5 **Mobilization/site setup** (Battelle/TtEC) A4025 per FCR05-03	• Verify that all pertinent documents are approved. • Review project documents and verify that all meetings have been conducted and documented and that all notifications have been made. • Verify that all site personnel including contractors have submitted health and safety documentation. • Review traffic access and base security requirements. • Review AHAs for this activity.		• Verify that materials and equipment delivered to the site are as identified in the RAWP. • Verify that work zones, including decontamination areas, are being constructed and/or delineated in accordance with the RAWP and APP. • Verify that stormwater management procedures are followed. • Verify that base traffic and security requirements are being followed.		• Verify that temporary facilities have been installed as per the RAWP. • Verify compliance. • Review base security. • Observe site traffic.	
BATT6a. TtEC1. TT10-5 Installation and setup of office trailer (Battelle/TtEC)	• Review the RAWP. • Review AHAs for this activity. • Verify that electrical work is conducted by a certified electrician.		• Verify that electrical work is conducted in accordance to the APP.		• Verify that all work has been performed in compliance with the RAWP.	
BATT 6b. TtEC1. TT10-5 Installation of temporary fencing and gates (Battelle/TtEC)	• Review site drawings and fence specification. • Verify that site security requirements have been reviewed.		• Verify that fence is installed as shown in the site plan drawing and in accordance with specifications. • Verify that site security requirements have been followed.		• Inspect fence installation.	
BATT7. TtEC1. TT10-5 Implementation of temporary erosion and sediment control measures (Battelle/TtEC)	• Verify that a site plan identifying sensitive areas is prepared. • Review AHAs for this activity. • Verify that equipment and products are appropriate for work and are stored on site.		• Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Identify inspection requirements. • Identify sensitive areas in field. • Verify that stormwater BMPs are implemented.		• Inspect field control BMPs. • Verify implementation of stormwater BMPs. • Inspect recordkeeping. • Review BMPs and update, if needed.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC8. TT10-13 **Screening of potentially radiologically impacted materials** (TtEC) A1070 per FCRFZ02-01 A1090per FCRFZ02-02	• Verify that the DON and the RASO have been notified. • Verify that the stormwater BMP requirements have been reviewed. • Verify that material and equipment for erosion control meet requirements for stormwater at the site. • Verify that equipment and products are appropriate for work and are stored on site. • Review work with the DON and verify the work area. • Verify that all workers have required health and safety documentation. • Review the RAWP. • Verify that materials and equipment delivered to the site are as identified in the RAWP. • Verify that safety checks on all heavy equipment have been completed. • Verify that all equipment operators are certified to operate the equipment and completed radiological training. • Review AHAs for this activity. • Verify that the relevant SOPs and/or manufacturers' instructions are available and have been reviewed for equipment to be used for radiological surveys. • Verify that dust control and erosion control measures are in place per the RAWP. • Verify that background reference area(s) for instrument background determinations have been identified. • Verify current calibration of survey instrument. • Verify that a daily operation check instrument logbook or data sheet is available.		• Verify that stormwater BMPs are implemented. • Verify equipment maintenance and safety conditions. • Verify that sediment free of radioactive debris is segregated and placed in the proper stockpile area. • Verify that the background reference area measurements for each instrument being used to survey have been obtained using the procedure described in the RAWP. • Verify that daily checks are performed on all portable survey instruments. • Verify that required dosimetry is being worn. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP and relevant SOPs.		• Inspect field control BMPs. • Verify implementation of the stormwater BMPs. • Verify that work area is protected from water runoff. • Verify that all radiological safety procedures are being followed. • Verify equipment maintenance and safety. • Verify that any suspected material location is marked, flagged, and documented. • Verify that daily instrument checks and background measurements are obtained and documented. • Verify that survey results are documented as required by the RAWP and SOPs. • Verify that RWP is available at the work site. • Verify that personnel have read and signed the revised RWP, if revision is required. • Verify that survey data and sample analysis results are reviewed and approved as required per the RAWP and SOPs.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC10. **Radiological surveys including personnel and equipment** (TtEC) A4040 and A4040 per FCR05-03 A1090per FCRFZ02-02	• Verify that the RPM, RASO, and CSO are notified. • Verify that an approved RWP is available and has been read and signed by assigned personnel. • Verify that the RAWP and AHAs have been reviewed. • Verify that assigned personnel are trained and qualified. • Verify that training record documentation is being maintained. • Verify that personnel have been given an emergency notification procedure. • Verify that workers assigned dosimetry have completed NRC Form 4. • Verify that the relevant SOPs and/or manufacturers' instructions are available and have been reviewed for equipment to be used for radiological surveys. • Verify that the limits and boundaries of surveys have been established and are understood. • Verify background reference area(s) for instrument background determinations has been identified. • Verify that calibration of survey instrument is current. • Verify that equipment is on site. • Verify that traffic schedule has been approved by CSO. • Verify that instrument a daily operation check logbook or data sheet is available.		• Verify that radiological instruments are as specified in the RAWP. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that site activities are being photographed. • Verify that the background reference area measurements for each instrument being used to survey have been obtained using the procedure described in the RAWP • Verify that daily checks are performed on all portable survey instruments. • Verify that required dosimetry is being worn. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP, SAP, and relevant SOPs. • Verify that the limits and boundaries of the survey are being met.		• Verify that the site is properly posted and secured, if necessary. • Conduct ongoing inspection of material and equipment. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that required dosimetry is being worn. • Verify that any suspected material location is marked, flagged, and documented. • Verify that daily instrument checks and background measurements are obtained and documented. • Verify that survey results are documented as required by the RAWP and SOPs. • Verify that the RWP is available at the work site. • Verify that personnel have read and signed the revised RWP, if revision is required. • Verify that survey data and sample analysis results are reviewed as required by the RAWP, SAP, and SOPs. • Verify that survey activities conform to the RAWP and SOPs. • Verify that the boundaries of the survey have been met. • Verify that survey instrument is recalibrated after repairs or modifications. • Verify that personnel surveys are performed for all personnel leaving a radiologically controlled area. • Verify that equipment surveys are performed for all equipment leaving a radiologically controlled area. • Verify that the RASO is notified of discovered radioactive material. • Verify that areas known or suspected to contain radioactive material are isolated. • Verify that site activities are being photographed. • Verify that photographs are logged and stored.	•

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC5 and 6. Excavation and removal of soil/piping (TtEC) (Continued)	•				• Verify that photographs are logged and stored. • Verify that traffic control procedures are being followed.	
TtEC3. Cleaning of storm drain system pipe (TtEC)	• Notify the DON, the RASO, and agencies. • Verify that activities will be conducted in accordance with approved RAWP. • Review AHAs for this activity. • Verify CSO has approved the Traffic Control Plan. • Verify that the RWP is in place and that all workers have read the requirements.		• Verify water storage tanks appropriately placed. • Verify that a qualified RCT and SSHO are present at active work areas. • Verify that air monitoring per SSHP is being followed. • Verify that required dosimetry is being worn. • Verify that all personnel have signed the RWP(s). • Verify that the cleaning protocol, as described in the RAWP and work instructions, is being followed. • Verify that the RWP is available at the work site. • Verify that field logbooks and proper forms are in use. • Verify that measurements are being collected in accordance with the RAWP and relevant SOPs. • Verify Traffic Control Plan is being followed. • Verify photographs are being taken. • Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Verify that SPSPP BMPs are implemented. • Verify equipment maintenance and safety conditions. • Verify that work boundary is properly delineated.		• Verify that required dosimetry is being worn. • Verify that daily safety briefings discuss status of RWP(s). • Verify that RWP is available at the work location. • Verify that RWP is modified in the event of changes to the conditions. • Verify that the RASO concurred with the modified RWP and concurrence is documented. • Verify that tools, material, and equipment are cleaned, wiped down, and surveyed prior to removal from work areas. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that material and equipment for sediment control meet requirements of stormwater BMPs. • Inspect field control BMPs. • Verify water storage tanks are inspected daily and water transferred to the water treatment plant in a timely manner	
BATT19. TtEC7e and 9. TT10-10 Confirmation sediment sampling (Battelle TtEC[non-impacted soil or sediments]/TtEC [suspected LLRW materials]) A1070 per FCRFZ02-01 A1090 per FCRFZ02-02	• Notify the DON, the RASO, and agencies. • Conduct activities in accordance with approved RAWP. • Verify that appropriate containers and sampling equipment are available. • Review AHAs for this activity. • Review shipping and handling of samples requirements. • Review testing laboratory certifications.		• Confirm that samples will be collected and analyzed in accordance with the RAWP. • Inspect sampling equipment. • Verify that appropriate containers and sample preservatives are used. • Verify proper handling and packaging of samples. • Follow equipment decontamination procedures.		• Conduct ongoing inspection of proper sampling and equipment decontamination techniques. • Follow up with laboratory to ensure proper delivery of all collected samples. • Confirm receipt of analytical data.	
BATT20. TtEC 13. TT10-13 Decontamination and final radiological screening of project site (Battelle/TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs.		• Verify that decontamination and survey procedures are being followed. • Verify that required dosimetry is being worn. • Verify documentation. • Verify that site activities are being photographed. • Verify that surveys are being documented on the appropriate form.		• Conduct ongoing inspection of decontamination and survey activities. • Verify that required dosimetry is being worn. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that survey forms are properly completed and stored.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
TtEC11. TT10-14 Transportation and disposal of RCRA, non-RCRA, and nonhazardous soil, sediment, and debris (TtEC) A1070 per FCRFZ02-01 A1090 per FCRFZ02-02	• Verify that all transporters are authorized to haul the particular type of waste being transported. • Verify that the ROICC and CSO have been notified. • Review the RAWP and RWP for the portal monitor operations. • Verify that waste profiles have been approved by disposal sites. • Verify that the waste manifest has been approved and signed by DON representative. • Verify that all traffic or other (if any) permits from Alameda County have been obtained. • Verify that locations of disposal with the ROICC have been confirmed. • Review submittal load tickets process from contractors. • Review the traffic pattern. • Review the road closure and traffic plan with ROICC and CSO. • Review signage requirements with ROICC and CSO. • Review truck decontamination requirements. • Review the AHA for this activity.		• Verify that all transporters are authorized to haul the particular type of waste being transported. • Verify trucks are passing portal monitor during ingress to the site and egress from the site. • Verify drivers sign manifest. • Verify that the contractor performs work as specified in the RAWP and Waste Management/Transportation and Disposal Plan. • Review load ticket record procedures. • Verify that truck decontamination is being conducted in accordance with the RAWP.		• Verify RSOR has monitored use of portal monitor • Verify manifest are signed and originals given to CSO • Verify that the contractor has provided delivery logs. • Verify that disposal loads are in accordance with the standard requirements of the RAWP. • Verify that all load tickets are accounted for.	
Soil Sampling by Drilling Method A1090per FCRFZ02-02	• Verify that the ROICC and CSO have been notified. • Verify that the WMP and SAP has been reviewed with the ROICC. • Verify drilling company is certified. • Verify drilling locations and depths have been finalized and utility clearances obtained.		• Verify that the RCT and SSHO are present in an active work area. • Verify that air monitoring is being performed per HASP. • Verify that required dosimetry is being worn. • Verify that all personnel have signed the RWP(s). • Verify that the removal protocols, as described in the RAWP are being followed. • Verify that site activities are being photographed. • Verify proper decontamination procedures are being followed • Verify sufficient volume of soil is being collected • Verify samples are being collected IAW SAP		• Verify that an RCT and SSHO are present in an active work area. • Verify that airborne concentrations do not exceed the established levels. • Verify that soil are collected as required. • Verify that required dosimetry is being worn. • Verify that daily safety briefings discuss status of RWP(s). • Verify that RWP is available at the work location. • Verify that RWP is modified in the event of changes to the conditions. • Verify that tools, material, and equipment are cleaned, wiped down, and surveyed prior to removal.	
BATT20. TtEC13. TT10-12 Decontamination (Battelle/TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs.		• Verify that decontamination and survey procedures are being followed. • Verify documentation. • Verify that site activities are being photographed. • Verify that surveys are being documented on the appropriate form.		• Conduct ongoing inspection of decontamination and survey activities. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that survey forms are properly completed and stored.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

ACTIVITY (Responsible Party)	PREPARATORY	DONE	INITIAL	DONE	FOLLOW-UP	DONE
Site Restoration and Demobilization						
TtEC14. TT10-12 Site Restoration (TtEC)	• Verify that the DON and the RASO have been notified. • Review AHAs. • Review site restoration activities and procedure.		• Verify that site demobilization procedures have concurrence from the DON. • Inspect site restoration activities. • Verify that site activities are being photographed (before/after photographs).		• Conduct ongoing inspection of site restoration activities. • Verify that site activities are being photographed. • Verify that photographs are logged and stored. • Verify that radiological survey is being conducted in accordance with the RAWP. • Verify that construction-related damages are repaired.	
BATT23. TtEC15. TT10-12 Demobilization (Battelle/TtEC) A4070 per FCR05-03 A1120 per FCRFZ02-02	• Notify the DON and the RASO. • Review AHAs. • Review site demobilization production. • Verify that the final inspection checklist has been prepared.		• Verify that all construction material and equipment have been free released, prior to removal from the site. • Verify that the site activities are photographed. • Verify that the punch list items identified during the final inspection are included on the inspection report.		• Verify that all equipment and materials are removed from the site. • Verify that all the punch list items on the inspection reports are completed. • Verify that survey forms are properly completed and stored. • Verify that all equipment and material have been inspected, screened, and approved prior to removing from the site.	

TABLE F.4-1

DEFINABLE FEATURES OF WORK AND GENERAL CONTROL PHASE REQUIREMENTS

Abbreviations and Acronyms:
AHA – Activity Hazard Analysis
APP – Accident Prevention Plan
Battelle – Battelle Memorial Institute
BMP – best management practice
CSO – Caretaker Site Office
DON – Department of the Navy
IAW – in accordance with
LLRW – low-level radioactive waste
NRC – Nuclear Regulatory Commission
OSHA – Occupational Safety and Health Administration
PPE – personal protective equipment
PVC – polyvinyl chloride
RASO – Radiological Affairs Support Office
RAWP – Remedial Action Work Plan
RCRA – Resource Conservation and Recovery Act
RCT – Radiological Control Technician
ROICC – Resident Officer in Charge of Construction
RPM – Remedial Project Manager
RSOR – Radiation Safety Officer Representative
RWP – Radiation Work Permit
SAP – Sampling and Analysis Plan
SOP – standard operating procedure
SPSPP – Stormwater Pollution and Spill Prevention Plan
SSHO – Site Safety and Health Officer
SSHP – Site Safety and Health Plan
TtEC – Tetra Tech EC, Inc.

SECTION 3.5 (APPENDIX L)

Insert the following text in Appendix L of the RAWP:

3.5 INDUSTRIAL WASTE LINE INVESTIGATION

All work will be conducted in accordance with the general approach and methodologies in this RAWP, the Sampling and Analysis Plan (SAP) and Addendums 1 and 2 (Appendix D), the Alameda Radiological Standard Operating Procedures (SOPs)(Appendix K) the Final Operable Unit-2C Industrial Waste Line Investigation, Alameda Point, Alameda, California, May 12, 2014, (Attachment 1, this Appendix), and the Vacuum Excavation of Radiologically Impacted Soil Work Instruction found in Appendix Q. Section 3.5 is consistent with Attachment 1, which is the plan reviewed and approved by the Alameda Point BCT. Work locations described below are identified in the Attachment 1 figures.

3.5.1 Former Building 29 Investigation

The area around the top of the building vaults will be fenced and a Radiologically Controlled Area (RCA) will be established in accordance with SOP 12 "Radiologically Controlled Areas Posting and Access Control," prior to intrusive activities. The soil over the former Building 29 vaults will be removed to expose the top of the structure to facilitate coring and sampling activities. Soil removed to uncover the former Building 29 vaults will be moved to the Site 17 survey pads and surveyed and sampled in accordance with this RAWP. Each boring will be logged by a geologist, and gamma readings collected on the cores. Samples will be collected based on the results of the gamma surveys and the evaluation of the geological data. Unused core sample material will be moved to the Site 17 survey pads and surveyed and sampled in accordance with the Work Plan. At the completion of intrusive activities at the site the excavation will be backfilled with imported material in accordance with this RAWP and the RCA removed in accordance with SOP 12.

3.5.2 Industrial Waste Manhole, Gravity Feed Lines and Forced Main Line Investigation.

A RCA will be established, in accordance with SOP-12 "Radiologically Controlled Areas Posting and Access Control," around each manhole being investigated and the upstream and downstream manholes. The areas will be fenced and the manhole opening will be protected using plastic material. The upstream and downstream lines will be plugged and samples will be collected from within each manhole. Following sampling a Guzzler will be used, in accordance with its associated Work Instruction (Appendix Q), to remove water and sediment from each industrial waste line manhole being investigated. Water will be pumped from the Guzzler into a water truck and transported to the Site 17 water treatment plant, batched, sampled and disposed of in accordance with the RAWP and SAP based on the sample results. Sediment from the Guzzler will be placed into the "F" Line dewatering pad located at IR Site 17. The sediment will be dried and spread out in a six inch lift and a walk over gamma scan will be performed using a Ludlum Model 2350 connected to a Ludlum 43-89 probe. Gamma surveys will be performed in accordance with SOP-1 "Radiation and Contamination Surveys". Two biased samples will be collected from the material based on the results of the gamma survey. Sediment samples will be

collected, when sediment is present, from within the upstream and downstream lines imitating from each manhole and pump station as indicated in the Final Operable Unit-2C Industrial Waste Line Investigation (Attachment 1). Following sampling and removal of sediment from the manholes and pump stations a video camera will be used to investigate the gravity fed lines and the forced mains.

3.5.3 Institutional Control Borings

Borings will be advanced at specific locations near the industrial waste lines, as indicated in the Final Operable Unit-2C Industrial Waste Line Investigation (Attachment 1), to gather data in support of establishing institutional controls. Each boring will be logged by a geologist, and gamma readings collected on the cores. Biased samples will be collected based on the results of the gamma surveys of the cores and the evaluation of the geological data. Unused core sample material will be moved to the Site 17 survey pads and surveyed and sampled in accordance with the Work Plan. . Work will be conducted in accordance with the SAP and associated addendums.

3.5.4 Building 5-A Paint Room Sump Sampling

The sump in the subsurface trench in the paint room will be accessed and inspected for the presence of sediment. If sediment is present, all of the sediment will be removed and sampled for Ra-226.

ATTACHMENT 1 (APPENDIX L)

Attachment 1

Final
Operable Unit-2C Industrial Waste Line Investigation
Alameda Point, Alameda, California

May 12, 2014

Final
Operable Unit-2C Industrial Waste Line Investigation
Alameda Point, Alameda, California
May 12, 2014

Background

The industrial waste treatment plant (IWTP) that was located south of Building 5 was closed by DTSC on October 12, 1999. Although the IWTP was removed, the industrial waste (IW) lines were left in place; sampling was not conducted in the IW lines as part of the IWTP closure activities. In addition to wastewaters from the Building 5 IWTP, site history indicates that the IW lines between Buildings 5 and 400 received radium paint wastes.

The IW line system that received wastewaters from Operable Unit (OU) 2C Buildings 5 and 400 is made up of gravity fed and force main lines. There are two pump stations within the OU-2C area connected to the force main lines, Pump Station 1 and Pump Station 2. There is also evidence of an historical pump house building, Former Building 29 Pump Station, which forced industrial waste line and sanitary sewer line contents to a treatment facility. Figure 1 shows the layout of the IW line, and Figure 2 is a historical figure showing details of the former Building 29 pump station.

The gravity fed manholes in the IW line originating from Buildings 5 and 400 were sampled in 2009 for radiological isotopes, but minimal information is known about the sediment within the gravity fed lines or other contaminants that may be present within the manhole sediment. Available information based on historical maps and former excavation activities indicates the gravity-fed portion of the inactive IW line is constructed of vitrified clay. Available information based on historical maps indicates the force main portion of the IW line is constructed of cast iron. There is currently no data available for sediment, if present, within the force main portion of the system. Results of the 2009 sampling indicate that the maximum radium-226 (Ra-226) activity within the gravity fed IW line manholes is 29.4 picocuries per gram (pCi/g) in manhole 1-8, which is located between Buildings 5 and 400. The highest radium-226 sample results for each manhole sampled in 2009 are provided in Figure 1.

Examination of historical drawings and discussions with the BCT in 2013 indicated additional investigation should be conducted. To support the proposed institutional controls (ICs) alternative, work is proposed to 1) investigate the IW line based on new information and 2) collect data to verify the site conceptual model. Post-2009 information on the IW line was provided in the "Final Field Summary Report for Operable Unit 2C Drain Lines", July 2013 (Field Summary Report).

As indicated in the Final Field Summary Report, a manhole was discovered, in 2013, near the former Building 29 Pump Station. The manhole resides between the force main and the former Building 29 Pump Station where the IW line force main historically discharged. Sediment was removed from the manhole and four samples were collected and analyzed for Ra-226. Ra-226

activity in these samples was measured between 1.64 pCi/g and 0.7514 pCi/g. The one plus background Ra-226 criterion at Alameda Point is 1.5602 pCi/g.

The proposed work will be conducted following approved existing plans and procedures. The investigation is subdivided as follows, with work for each area presented in the following sections:

- Former Building 29 Pump Station
- Industrial Waste Line Manholes
- Industrial Waste Lines.

Former Building 29 Pump Station

Historical drawings indicate the IW line was connected to the Former Building 29 Pump Station and discharged to the pump station vaults before being pumped to a treatment facility. This information was provided in the Field Summary Report. No record of Building 29 removal is available, so it is not known whether its vaults were removed or closed in place. Therefore, the former Building 29 pump station requires investigation. The pump station is divided into three separate vaults as shown in Figure 2. Sediment is proposed to be collected from all three vaults, as feasible, and sampled. It is proposed that one boring be advanced in each of the three vaults as indicated below. Figure 1 provides the locations of the proposed borings for the former Building 29 pump station. The purpose of these borings is to sample any remaining sediment that accumulated in the vault but may not have been previously removed.

Because it is not known whether the Former Building 29 pump station and any sediment within it were previously removed, geophysical surveys will be conducted to determine if the boundaries of the pump station can be identified. Results of the geophysical survey will be evaluated and shallow excavation will be conducted to expose the top of the pump station structure or verify that the vaults were removed. If the pump station vaults are still present, then entrance to the pump station interior will be evaluated to determine the best approach for gaining access into the pump station vaults. As feasible, all three of the vaults in the pump station will be evaluated to determine the extent of sediment within the vaults. Radiological controls will be established for all activities after the top of the pump station is exposed.

Borings will be advanced to the bottom of all three vaults (estimated 20 feet based on historical figures) through the exposed openings in the top of the pump station, as feasible. Each boring will be logged by a geologist, and two samples will be collected from each boring based on field evaluation of the logs and gamma readings. Samples will be analyzed for Ra-226, metals, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) based on the history of the wastes discharged to the IW line.

If it is determined that the pump station structure and vaults were removed, then two borings will be advanced within the area of the former pump station to an estimated depth of 20 feet. The locations of the borings will be determined based on results of geophysical clearance and the field conditions. Each boring will be logged by a geologist, and two samples will be collected from each boring based on field evaluation of the logs and gamma readings. Samples will be

analyzed for Ra-226, metals, VOCs, and SVOCs based on the history of the wastes discharged to the IW line.

Industrial Waste Line Manholes

In order to characterize the sediment within the IW line manholes, the following investigative activities are proposed. Figure 1 shows the proposed manholes to be investigated.

Photographs of the manholes will be taken to document current conditions. Two samples will be collected from each manhole/vault identified for sampling on Figure 1. Manholes, 11 total including manholes 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9, 1-13, and 1-14, affiliated with the gravity fed line to the south and east of Building 5, Pump Stations 1 and 2 vaults, and an IW manhole near Former Building 29 were previously sampled for Ra-226. Therefore, samples will be analyzed for metals, VOCs, and SVOCs at these locations highlighted in yellow on Figure 1.

Two gravity fed lines meet at Pump Station 2, which are the IW lines from Buildings 5 and 400 and another gravity fed system east of OU-2C. Because of the potential for backflow from the western gravity fed system (OU-2C) to the eastern gravity fed system connecting to manhole 1-13 and because there is a connection to Storm Drain Line G south of manhole 1-24 of the IW line (shown on Figure 1), samples will be collected from manhole structures between manhole 1-12 and the storm drain cross-connection at Manhole 1-24. These samples will be analyzed for metals, VOCs, SVOCs, and Ra-226.

If a location where Ra-226 was not previously sampled has insufficient sediment for analysis of the full suite of analyses, the priority will be to analyze the available sediment for Ra-226. If a location where Ra-226 was previously sampled has insufficient sediment for analysis of the full suite of analyses, the priority will be to analyze the available sediment for VOCs since they are most mobile.

After samples have been collected, the manholes will be isolated using pneumatic plugs and standing water/suspended sediment will be removed. Collected water will be treated and discharged in accordance with the Installation Restoration (IR) Site 17 Remedial Action Work Plan (RAWP). After water is removed, remaining sediment will be removed using a vacuum truck, waste will be characterized, transported, and disposed. Following the sediment removal, photographs will be taken to document the sediment removal activities.

Industrial Waste Lines

The proposed investigation of IW lines is to evaluate the condition of the gravity fed lines and force main lines and to assess the amount of sediment within the lines. As feasible, a video camera will be run through the gravity fed lines from manhole 1-1 to manhole 1-24. A video camera will also be run through the industrial waste force main lines from Pump Station 1, Pump Station 2, and the former Building 29 manhole. Figure 1 shows the location of the lines, manholes and pump stations.

For the two force main locations (Pump Stations 1 and 2), the pump stations will be dismantled as necessary to gain access to the lines and run the camera as far as possible, which is expected to be to the next 90 degree or other angle in the piping.

Approximate Distances:

Force Main Line, Pump Station 1 to manhole 1-1	875 feet
Force Main Line, Pump Station 2 to Pump Station 29	2,200 feet
Gravity Line, manholes 1-1 to 1-13	1,300 feet
Gravity Line, manholes 1-13 to 1-24	1,150 feet

If sufficient sediment is present to sample, then samples will be collected from inside the lines, approximately 10 feet from the Pump Stations 1 and 2 vaults in the upstream and downstream directions. If there is insufficient sediment for analysis of the full suite of analyses, the priority will be to analyze the available sediment for Ra-226. A sample also will be collected from inside the line approximately 10 feet from the former Pump Station 29 manhole. At this manhole, it is not possible to sample in both directions. If sediment is not present within the IW pipelines for a distance of 10 feet from the manholes or the sediment is too dense to penetrate 10 feet, then a sample will be collected in the piping, as feasible, a shorter distance from the manholes. Also, as feasible, samples will be collected from inside the lines, approximately 10 feet from the manhole in each direction, at manholes 1-1, 1-5 and 1-8 because these manholes had the highest recorded levels for Ra-226 (manhole 1-1 = 9.4 pCi/g; manhole 1-5 = 2.6 pCi/g; manhole 1-8 = 29.4 pCi/g). These locations are shown on Figure 1. The samples will be analyzed for metals, VOCs, SVOCs, and Ra-226.

Borings are proposed to provide data to support ICs. Video will be taken, as feasible, in the IW lines and used by the field team to finalize boring locations. If it is noted that pipe is damaged to the point of obvious leakage, a boring will be located near the two most damaged locations as close to the damaged pipe as feasible to provide characterization of soil near the damaged piping. If the two borings are located adjacent to the line due to damaged piping, then the distance from the IW line for the IC boundary would be based on data from previous investigations.

If the video of the pipe shows no damaged locations, one boring will be located downstream of manhole 1-8 because this manhole had the highest levels of Ra-226 and the other boring will be advanced near Pump Station 2 because this is the collection point for the gravity fed IW line prior to the force main line to the former Building 29 pump station. These proposed locations are shown on Figure 1; the locations may be adjusted if utilities preclude advancing borings at these locations.

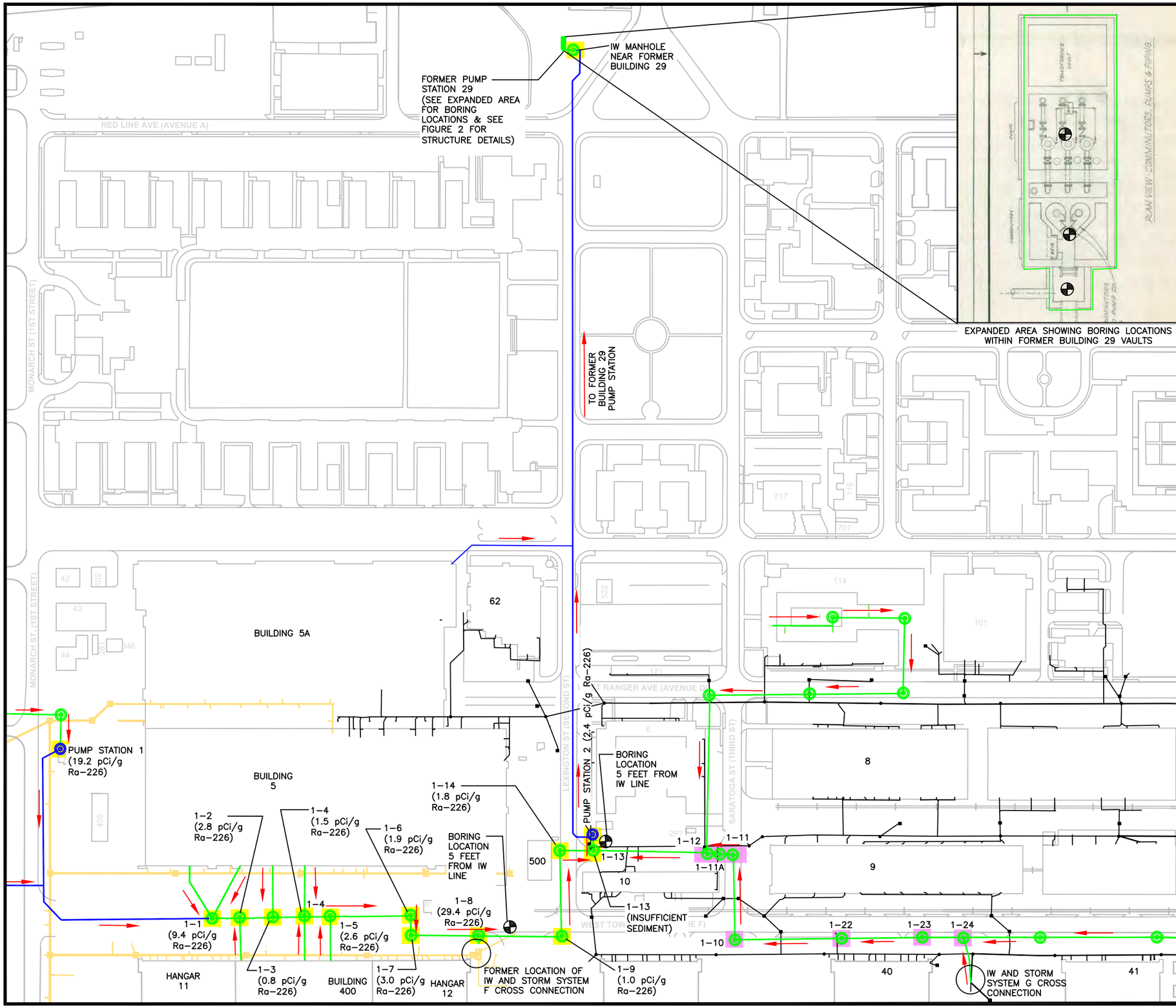
Because the objective of the borings and the collection of samples is to establish the location of IC boundaries that are expected to require no excavation or pavement removal to avoid contact with the IW piping and ensure the safety of future excavations outside the IC boundary, the borings will be advanced approximately 5 feet away from the center of the pipe in the absence of significant damaged piping. Each boring will be logged by a geologist, and gamma readings will be collected on the cores. Using a combination of logs and gamma readings is considered the best way to identify potential contaminants. Two samples will be collected from each boring

based on field evaluation of the logs and gamma readings. The samples will be analyzed for Ra-226, metals, VOCs, and semi- SVOCs based on the history of the wastes discharged to the IW line.

If gamma readings show that sediment may contain elevated material, two samples will be collected for analysis and another boring will be advanced further from the piping at a distance approximately 2 feet from the first boring. Step-outs will continue every 2 feet until gamma readings do not indicate potential contamination. Since gamma readings may be indicative of natural materials, the samples from the boring closest to the line will be analyzed first. If the OU-2C remedial goal for Ra-226 is not exceeded, then other samples will not be analyzed. If no contamination is found within samples collected in borings advanced 5 feet from the pipe, then a minimum of a 5 feet IC boundary may be established.

Sump in Paint Room on Northeast Side of Building 5A

Inside the paint room on the northeast side of Building 5A where there is an industrial waste line connection, the sump in the subsurface trench will be accessed and checked for sediment. If sediment is present, all of the sediment will be removed and sampled for Ra-226.



LEGEND

- INDUSTRIAL WASTE FORCE MAIN (CAST IRON PIPING)
- INDUSTRIAL WASTE GRAVITY LINES (VITRIFIED CLAY PIPING)
- INDUSTRIAL WASTE MANHOLE
- INDUSTRIAL WASTE PUMP STATION
- INDUSTRIAL WASTE SYSTEM DIRECTION OF FLOW
- INDUSTRIAL WASTE MANHOLE TO BE SAMPLED FOR METALS, VOCs, AND SVOCs
- INDUSTRIAL WASTE PUMP STATION VAULT TO BE SAMPLED FOR METALS, VOCs, AND SVOCs
- INDUSTRIAL WASTE MANHOLE TO BE SAMPLED FOR Ra-226, METALS, VOCs, AND SVOCs
- STORM SYSTEM G
- REMOVED & REPLACED PORTION OF STORM SYSTEM F
- PROPOSED BORING LOCATION

ABBREVIATIONS

IR = INSTALLATION RESTORATION
IW = INDUSTRIAL WASTE
NAS = NAVAL AIR STATION
pCi/g = PICOCURIES PER GRAM
Ra-226 = RADIUM 226
SVOCs = SEMI VOLATILE ORGANIC COMPOUNDS
VOCs = VOLATILE ORGANIC COMPOUNDS

REFERENCES

1. FORMER NAS ALAMEDA HISTORICAL AS-BUILT CANVAS DRAWINGS
2. "NAVAL AIR STATION, ALAMEDA INDUSTRIAL WASTE SYSTEM". PWC DRAWING NUMBERS: 23996 (REV. 1991), 23997 (REV. 1995), & 23998 (REV. 1990).

125 0 125 250
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

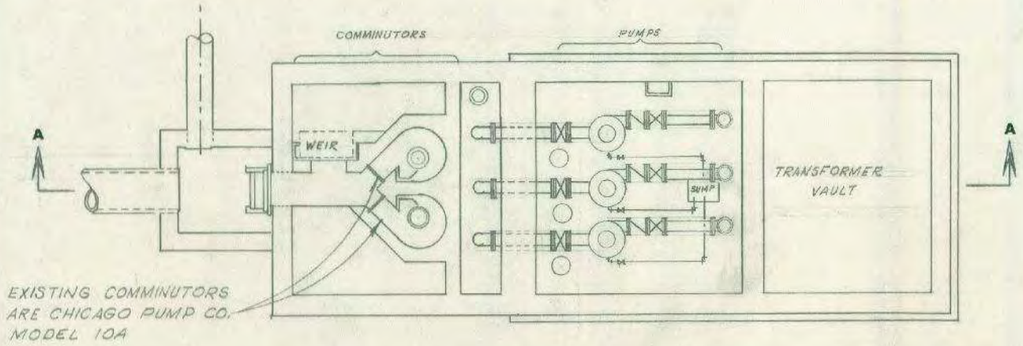
OPERABLE UNIT 2C IR SITES 5 AND 10

FIGURE 1
INDUSTRIAL WASTE LINE INVESTIGATION

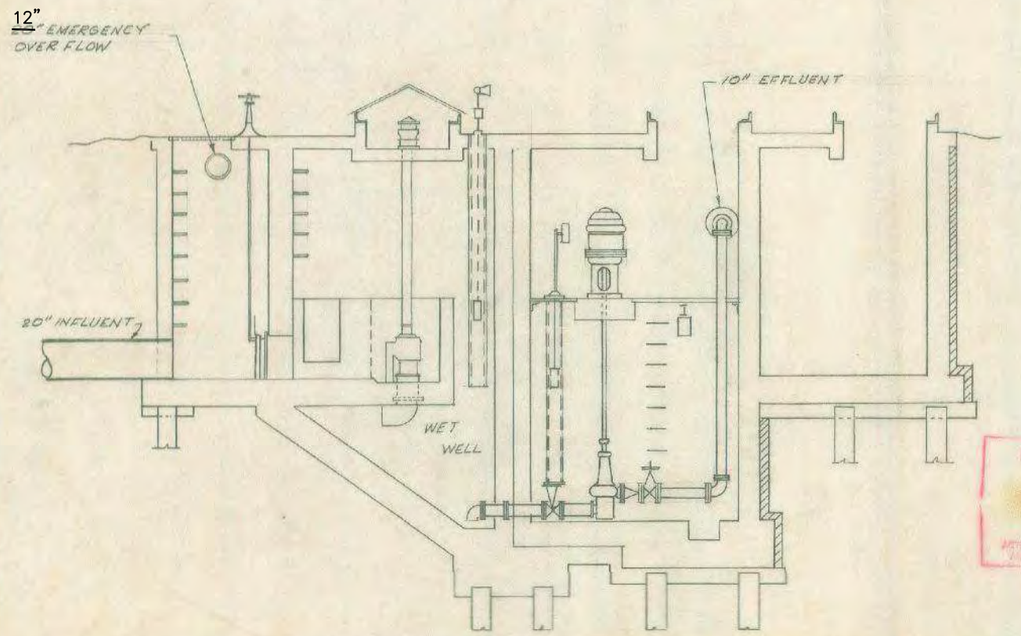
ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 1
AUTHOR: RS
DATE: MARCH 17, 2014

TETRA TECH EC, INC.



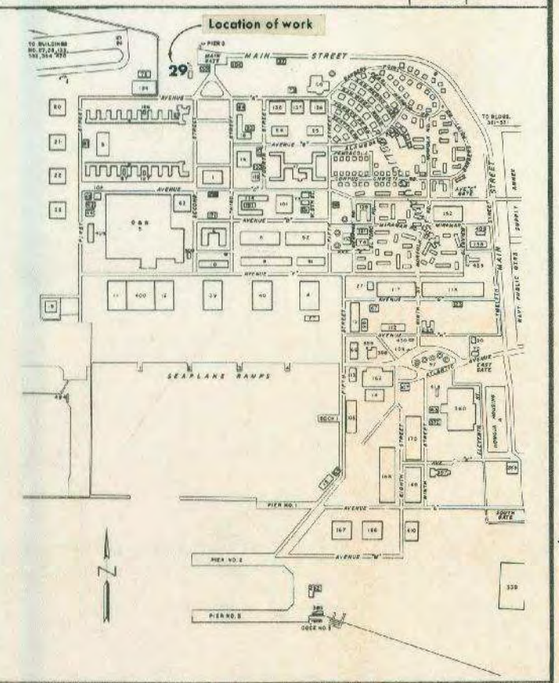
PLAN VIEW - COMMINUTORS, PUMPS & PIPING



SECTION A-A
EXISTING CONDITIONS AT STRUCTURE 29
SCALE 1/4" = 1'-0"

3.5 0 3.5 7
(ESTIMATED FEET)

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVED



LOCATION PLAN

GRAPHIC SCALE 0 1000 2000 3000 IN FEET

PROPERTY U S NAVY
OFFICER IN CHARGE OF CONSTRUCTION
U. S. NAVAL AIR STATION
ALAMEDA, CALIFORNIA

All copies other than those to be used during construction and/or as part of contractural documents, are to be returned not later than 15 days after bid opening.

PWC 62026

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NAVAL AIR STATION — ALAMEDA, CALIF.

DES IR
DRWN J. F. Ratcen
SUPV R.E.H.
CHK H.A.
IN CHARGE Reynolds 4/6/70
SATISFACTORY TO
TITLE DATE
APPROVED DATE

REPAIRS TO SEWAGE LIFT STATION
STRUCTURE No. 29

CODE IDENT. NO.	SIZE	PWO DRAWING NO	12243
80091	C	NAVFAC DRAWING NO	1250194
SCALE 1/4"=1'-0"	SPEC. 12 - 70 - 0037	SHEET 1 OF 1	

CONTRACT No. N62474 -70 - C -0037

12ND NABA 11012/3 (Rev 12-68)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

OPERABLE UNIT 2C IR SITES 5 AND 10

FIGURE 2
HISTORICAL FIGURE SHOWING DETAILS OF THE FORMER BUILDING 29 PUMP STATION

ALAMEDA POINT
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DATE: FEBRUARY 1, 2014

TETRA TECH EC, INC.

WORK INSTRUCTIONS (APPENDIX Q)

INSTALLATION RESTORATION SITES 5 AND 10
OPERABLE UNIT 2-C (OU-2C), SEWERLINE
RADIOLOGICAL STRATEGY AT ALAMEDA POINT,
ALAMEDA, CA

Contract No. N62473-10-D-0809
CTO No. 0005

WORK INSTRUCTION
VACUUM EXCAVATION OF
RADIOLOGICALLY IMPACTED SOILS

June 15, 2012

ALAMEDA POINT
ALAMEDA, CALIFORNIA

TETRA TECH EC, INC.
1230 Columbia Street, Suite 750
San Diego, California 92101

Table of Contents

1.0 Purpose **1**

2.0 Vacuum System Description **1**

3.0 Air Monitoring Requirements **2**

4.0 Radioactive Material Control **2**

5.0 Special Considerations for the Guzzler Vacuum System Manufactured by Vactor ... **3**

1.0 Purpose

The purpose of this work instruction is to provide supporting information regarding the use of a vacuum system for removal of potentially radiologically contaminated soils and sediments at Alameda Naval Air Station (NAS), Alameda Point, Alameda, CA. The vacuum system will be operated in accordance with the manufacturer's operating procedure.

Work will be performed in accordance with the requirements of the Final Remedial Action Work Plan (RAWP), Installation Restoration Site 17 Seaplane Lagoon, Alameda Point Alameda California and the Tetra Tech EC, Inc. (TtEC) site specific Radioactive Work Permit (RWP) and activity hazard analysis (AHA) and this work instruction.

The primary use of this vacuum system is for vacuuming of soils and sediments in conjunction with the removal of potentially radiologically contaminated storm drains and sanitary sewers.

2.0 Vacuum System Description

The system is a powerful, efficient, heavy duty, dust-free, single mode, mobile vacuum loading unit for the pneumatic removal of dry materials, sludges, slurries and liquids from remote and inaccessible locations through suction lines. The system consists of a positive displacement type vacuum pump, hydraulic and pneumatic control systems, multiple air filtration systems, and a dump type hydraulically sealed payload debris tank. It is capable of vacuuming a wide range of wet or dry materials in a variety of viscosities and weights.

The system has a four-stage filtration system that includes an 18-cubic yard debris tank which creates a velocity drop releasing the materials into the tank that removes approximately 98% of the solid materials from the air flow; a cyclone separator where centrifugal force hurls finer particles to the cyclone wall and spirals them downward into a collection hopper; followed by a baghouse containing sixty 70-inch Dacron filters that remove fine particles down to 5 micron; and a final micro strainer that prevents foreign objects from entering the blower. Vacuum units of this type are widely used for removing soil and sediments from around utilities without

causing damage, as well as for industrial cleaning where mixtures of coarse materials and fine dusts must be removed and contained.

3.0 Air Monitoring Requirements

To minimize potential worker exposure during excavation activities, air monitoring for radiological constituents will be performed continuously in accordance with standard operating procedure (SOP) 9, *Air Sampling and Analysis*. Air sampling will be performed in the immediate vicinity of the removal action by taking an upwind sample, a downwind, a grab sample of the location of the removal and at the exhaust of the air inlet silencer during operation. Upwind, downwind and the exhaust of the air inlet silencer will be sampled 100% of the time during operation. A minimum of one 20 min grab sample will be collected during each operation.

If airborne concentrations exceed 10 percent of the DAC, as identified in Table 4-1 of the RAWP, ongoing activities will cease and the affected location will be posted until the source of the airborne concentration is eliminated and levels are confirmed to be below 10 percent of the DAC.

4.0 Radioactive Material Control

At the conclusion of project operations with the vacuum system, materials and equipment that may have potential internal contamination that cannot be decontaminated will be segregated and stored in an approved Radioactive Materials Area for possible reuse. Potentially contaminated items will be surveyed to the maximum extent practicable before being inventoried and controlled under the applicable radioactive materials license. Potentially contaminated items will be permanently identified and marked. In the event disposal of these potentially internally contaminated items is necessary, they will be managed according to the Department of the Navy's LLRW program. Filters will not be released back to the vendor after having been used during excavation, and will be disposed of as LLRW.

Free release surveys of all tools, materials, and equipment associated with the vacuum system will be conducted in accordance with SOP 1, *Radiation and Contamination Surveys*. *Surveys* will

focus on the baghouse, the cyclone separator, in the debris body, and in other areas where the potentially contaminated media and air mixture came into contact with the machine. Items that cannot be adequately surveyed, based on how they were used and surface accessibility, will be disposed of as LLRW. To minimize generation of radiological waste streams, surveys will be completed prior to any chemical decontamination method being used. If radioactive contamination is identified that is above the appropriate release criteria in Table 4-3 of the RAWP, decontamination will be performed in accordance with SOP 7, *Decontamination of Tools and Equipment.*

5.0 Special Considerations for the Guzzler Vacuum System Manufactured by Vactor

- To prevent material from escaping from the suction hose when not in use, the suction hose will be sealed using the water tight cap supplied by the manufacturer. Cap installation will be verified by the radiological control technician prior to allowing the system to be transferred between radiological areas.
- Periodically during operation and prior to movement of the system, the exterior radiation levels will be checked by an RCT. If radiation levels are found to be greater than 2 mrem/hr operations with system will be stopped and the RSO will be notified.
- To prevent material from escaping from the rear valve on the debris body when not in use, the rear valve will be sealed using the water tight plug supplied by the manufacturer and the valve will be placed in the shut position. Plug installation and valve position will be verified by the radiological control technician prior to allowing the system to be transferred between radiological areas.
- Occasionally the system will need to be transported between radiological areas. In these cases, the system will remain under the constant supervision of a radiologically trained worker while in transit in accordance with TtEC's license procedure NLP-02, Radioactive Material Accountability.
- With the exception of during transport between radiologically controlled areas, the system will be stored inside radiological areas until a free release survey of the system is

performed in accordance with SOP 3 *Release of Materials and Equipment from Radiologically Controlled Areas*.

- A visual inspection for debris, damage and deterioration of the rear door gaskets will be performed in order to ensure a proper seal of the debris body before every use. If necessary, the gasket will be cleaned of materials that could prevent a seal before closing the debris body after emptying a load.
- To prevent material from escaping from the rear door of the debris body when not in use or during transport the integrity of the seal will be visually inspected for leaks prior to allowing the system to be transferred between radiological areas.
- After the system has emptied a load, the inside of the debris body and exterior of the system will be cleaned, visually verified free of debris, large area wiped and gamma scanned after each time that the system is emptied in order to minimize the possibility of contaminating future remediated soils that may be left in the debris body and to ensure that the system is not externally contaminated prior to transport to another radiologically controlled area.
- If at any time during use the exterior of the system becomes contaminated or visual debris is found on the system's exterior, the system will be cleaned, visually verified free of debris, large area wiped and gamma scanned in order to minimize the possibility of contaminating future remediated soils that may be left in the debris body and to ensure that the system is not externally contaminated prior to transport to another radiologically controlled area.
- If water saturated soil or sediment is being vacuum excavated, the rear valve on the debris body will be carefully opened over the dewatering pad in the radiological screening yard to determine the water content of the load. If controlled discharge of the load cannot be accomplished due to excessive water, water will be drained from the load, through the valve, onto the dewatering pad, prior to opening the rear door and discharging the soil load. Wet material will only be allowed to be emptied onto screening pads specifically designed for dewatering.

APPENDIX G

INDUSTRIAL WASTE LINE CAMERA INSPECTION SUMMARY TABLES AND VIDEO FILES (on CD)

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Table G-1
Industrial Waste Line
Sediment Volume Calculation

Date	Reach (MH to MH)	Approximate Reach Length (feet)	Pipe Diameter (inch)	Estimated % of Sediment/Debris in Line	Estimated Volume (cubic yards)	Length of Inspection (feet)	Comment
7/22/2014	1-24-to 1-23	105	12	40%	1.2	20	Refusal due to sediment
	1-23 to 1-24	105	12	40%		29.2	Refusal due to sediment
	1-23 to 1-22	206	12	50%	3.0	9.9	Refusal due to sediment
	1-22 to 1-23	206	12	30%		17.1	Refusal due to sediment
	1-22 to 1-10	273	12	50%	4.0	4.7	Refusal due to sediment
7/23/2014	1-10 to 1-22	273	12	50%		20.1	Refusal due to sediment
	1-10 to 1-11	220	12	40%	2.6	2.7	Refusal due to sediment
	1-11 to 1-10	220	12	30%		21.7	Refusal due to sediment
	1-11 to 1-11A	45	12	30%	0.4	41.7	Refusal due to sediment
	1-11A to 1-11	45	12	40%		43.1	Refusal due to sediment
7/24/2014	1-11A to 1-12	33	12	60%	0.6	4.4	Refusal due to sediment
	1-12 to 1-11A	33	12	40%		39	Refusal due to sediment
	1-12 to 1-13	292	12	50%	4.2	206	Refusal due to sediment
	1-13 to 1-12	292	12	50%		83.9	Stopped survey at known location
	1-13 to PS 2	41	12	20%	0.2	37.7	Reached PS 2
7/28/2014	1-13 to 1-14	87	12	50%		4.2	Refusal due to sediment
	PS 2 to MH 29	2066	10	0%	0.0	5	Reached 1st bend
7/29/2014	PS 1 to 1-1	850	4	0%	0.0	19	Reached 1st bend
	1-1 to PS 1	385	4	0%		0	Line capped at MH
	1-1 to 1-2	70	8	50%	0.5	0	Line blocked at MH
	1-2 to 1-1	70	8	50%		0	Refusal due to sediment
	1-2 to 1-3	85	8	50%	0.5	0.5	Refusal due to sediment
7/30/2014	1-3 to 1-2	85	8	50%		4.6	Refusal due to sediment
	1-3 to 1-4	80	8	75%	0.8	0	Refusal due to sediment
	1-4 to 1-3	80	8	75%		1.5	Refusal due to sediment
	1-4 to 1-5	66	8	30%	0.3	30.7	Refusal due to sediment
7/31/2014	1-5 to 1-4	66	8	30%		19	Refusal due to sediment
	1-5 to 1-6	205	8	30%	0.8	4.5	Refusal due to sediment
	1-6 to 1-5	205	8	30%		30	Refusal due to sediment
	1-6 to 1-7	52	8	50%	0.3	0	Refusal due to sediment
	1-7 to 1-6	52	8	50%		0	Refusal due to sediment
	1-7 to 1-8	173	8	0%	0.0	0	Refusal due to sediment
	1-8 to 1-7	173	8	50%		10.9	Refusal due to sediment

Table G-1
Industrial Waste Line
Sediment Volume Calculation

Date	Reach (MH to MH)	Approximate Reach Length (feet)	Pipe Diameter (inch)	Estimated % of Sediment/Debris in Line	Estimated Volume (cubic yards)	Length of Inspection (feet)	Comment
	1-8 to 1-9	172	8	50%	1.1	0	Refusal due to sediment
8/4/2014	1-9 to 1-8	172	8	50%		0	Refusal due to sediment
	1-9 to 1-14	213	8	80%	2.2	5.1	Refusal due to sediment
	1-14 to 1-9	213	8	80%		10.9	Refusal due to sediment
	1-14 to 1-13	87	12	50%	1.3	19.5	Refusal due to sediment
	MH 29 to PS 2	2066	10	0%	0.0	29.8	Reached a tee in the line
8/26/2014	PS 1 Upstream	90	8	30%	0.3	26.3	Pipe was plugged with debris
	PS 1 to 1-1	850	4	0%		29	Reinspected with different camera in order to inspect beyond the 1st bend. At 10 feet beyond the 1st bend (29 feet total), the pipe was capped with concrete.
				Total	**24.3**	**831.7**	

Table G-2
Industrial Waste Line
Video Inspection Details

Date	Manhole Line	Upstream Manhole	Downstream Manhole	Pipe Diameter	Video Inspection (linear feet)	Pipe Condition	Pipe Visible Damage Comments
7/29/2014	MH1-1 to MH1-2	MH1-1	MH1-2	8” VCP	1	Failed	At 1.0' abandoned survey due to gravel rock debris in the pipe, collapsed pipe roof 1 to 3 feet.
7/29/2014	MH1-1 to PS 1	PS-1	MH1-1	4” CIP Force Main	0	Unknown	Force main line plugged at manhole MH1-1, cannot run camera. Minor leakage through plug, heavy encrustations on pipe walls.
7/29/2014	MH1-2 to MH1-1	MH1-1	MH1-2	8” VCP	1	Fair	Deposits attached encrustation in line and gravel rock; unable to investigate. Pipe diameter reduced to approximately 4 inches.
7/29/2014	MH1-2 to MH1-3	MH1-2	MH1-3	8” VCP	0.5	Fair	At 0.5' water and encrustation in line, camera zoomed in heavy sedimentation; unable to investigate. Heavy encrustations, pipe joint displaced (minor).
7/30/2014	MH1-3 to MH1-2	MH1-2	MH1-3	8” VCP	4.6	Poor	At 4.6' a lot of gravel debris; unable to continue investigation. Pipe has heavy encrustations.
7/30/2014	MH1-3 to MH1-4	MH1-3	MH1-4	8” VCP	1	Poor	At 1.0' into the pipe, concrete debris in the line; unable to investigate. Heavy encrustations, wire or hose debris observed.
7/30/2014	MH1-4 to MH1-3	MH1-3	MH1-4	8” VCP	1.5	Fair	At 1.5' into the pipe a lot of mixed sediment and debris; unable to continue investigation. Encrustations.
7/30/2014	MH1-4 to MH1-5	MH1-4	MH1-5	8” VCP	31.2	Good	At 5.4' - 30.7' into the pipe sediment and asphalt debris in the line, camera cannot continue. Pipe with minor encrustations. Rock at 25'. Joints good.
7/31/2014	MH1-5 to MH1-4	MH1-4	MH1-5	8” VCP	4.3	Fair	At 4.3' into the pipe a lot of sediment in the line, camera cannot continue. Minor encrustations, spalling, with several inches of sediments. Joints good.
7/31/2014	MH1-5 to MH1-6	MH1-5	MH1-6	8” VCP	4.5	Fair	Big chunk of asphalt mixed with sediment debris; camera cannot continue. Pipe joints tight. Large debris chunks.

Table G-2
Industrial Waste Line
Video Inspection Details

Date	Manhole Line	Upstream Manhole	Downstream Manhole	Pipe Diameter	Video Inspection (linear feet)	Pipe Condition	Pipe Visible Damage Comments
7/31/2014	MH1-6 to MH1-5	MH1-5	MH1-6	8” VCP	31.5	Fair	At 9.0' into the pipe a lot of sediment in the line but no visible damage to the pipe. Camera cannot continue at 31.5' due to sediment blocking. Minor excavations, with several inches of sediment. Joints okay.
7/31/2014	MH1-6 to MH1-7	MH1-6	MH1-7	8” VCP	1	Unknown	At 1.0' into the pipe concrete debris blocking camera; cannot continue. Pipe nearly fully blocked with debris and heavy encrustations.
7/31/2014	MH1-7 to MH1-6	MH1-6	MH1-7	8” VCP	1	Unknown	At 1.0' into the pipe sediment and debris blocking the line; camera cannot continue. Heavy encrustations.
7/31/2014	MH1-7 to MH1-8	MH1-7	MH1-8	8” VCP	0.9	Unknown	At 0.9' big piece of concrete debris blocking the line; camera cannot continue. Heavy encrustations on bottom.
7/31/2014	MH1-8 to MH1-7	MH1-7	MH1-8	8” VCP	11	Fair	At 11.0' water sag pipe full of water; camera cannot continue. Minor encrustations. At 5' heavy encrustations have spalled.
7/31/2014	MH1-8 to MH1-9	MH1-8	MH1-9	8” VCP	1	Fair	At 1.0' sediment and debris blocking the camera; cannot continue. Heavy debris on bottom of pipe.
8/4/2014	MH1-9 to MH1-8	MH1-9	MH1-8	8” VCP	0	Unknown	Pipe full of water; camera cannot inspect the line.
8/4/2014	MH1-9 to MH1-14	MH1-9	MH1-14	8” VCP	5.5	Fair	At 5.2' into the pipe camera cannot continue. Pipe fully blocked by debris.
7/23/2014	MH1-10 to MH1-11	MH1-10	MH1-11	12” VC.	2.7	Failed	At 1.8' pipe joint offset and cannot pass the pipe joint. Pipe offset 3 inches at top. Pipe >1/2 full water.
7/23/2014	MH1-10 to MH1-22	MH1-22	MH1-10	12” VC.	20.5	Fair	20.0' into the pipe heavy sediment at the bottom of the pipe; camera cannot continue. Heavy sediments on bottom. @ 2.4' joint damage.

Table G-2
Industrial Waste Line
Video Inspection Details

Date	Manhole Line	Upstream Manhole	Downstream Manhole	Pipe Diameter	Video Inspection (linear feet)	Pipe Condition	Pipe Visible Damage Comments
7/23/2014	MH1-11 to MH1-10 Upstream	MH1-10	MH1-11	12” VC.	21.7	Fair	At 4.8' into the pipe some visible cracks on top and sides of pipe. A lot of sediment in pipe. At 16' joint offset, @ 20' joint minor offset. Bubbling from bottom at 25.5'. At 162.7' pipe circumference cracks water weeping. At 217 water gushing in from pipe joint and longitudinal crack.
7/23/2014	MH1-11 to MH1-11A	MH1-11	MH1-11A	12” VC.	41.7	Fair	At 22.0' into the pipe, groundwater gushing into the pipe from cracked joint & longitudinal (>5 gpm). At 27 feet longitudinal crack at top of pipe. At 33 feet weeping from crack. At 38 feet infiltration weep from crack. A lot of sediment at the bottom of the pipe, at 41.7' camera under water and cannot continue.
7/23/2014	MH1-11A to MH1-11 Upstream	MH1-11	MH1-11A	12” VC.	43.1	Fair	At 20.0' into pipe heavy sediment on the bottom of the pipe. At 21.8' infiltration leakage. At 27.9' infiltration leakage @ 32.8 ' infiltration leakage. At 43.1' same gushing leak identified in MH1-11 to MH1-11A identified above.
7/24/2014	MH1-11A to MH1-12	MH1-11A	MH1-12	12” VC.	6	fair	At 6.0' into the pipe, sediment present in the pipe; camera cannot continue. Encrusted pipe.
7/24/2014	MH1-12 to MH1-11A Upstream	MH1-11A	MH1-12	12” VC.	40	poor	At 5.5' into the pipe water running in from pipe joint (<5 gpm) from numerous cracks at top of pipe. Thick debris at bottom of pipe to 1/3 diam. At 25 to 36 feet pipe 1/2 full of sediment. At 40 feet pipe misaligned at joint.
7/24/2014	MH1-12 to MH1-13	MH1-12	MH1-13	12” VC.	206	fair to poor	At 145.8' mixed debris and sediment accumulated in the pipe water flow slows down. Heavy encrustations at 173' with pipe 1/2 full of sediments. 171.6' water dripping from pipe joint. At 206.0' debris mixed with sediment camera cannot continue.

Table G-2
Industrial Waste Line
Video Inspection Details

Date	Manhole Line	Upstream Manhole	Downstream Manhole	Pipe Diameter	Video Inspection (linear feet)	Pipe Condition	Pipe Visible Damage Comments
7/24/2014	MH1-13 to MH1-12 Upstream	MH1-12	MH1-13	12” VC.	83.9	fair	A lot of sediment on the pipe walls. At 38.7' sediment at the bottom of the pipe with wall encrustations. Leakage at 83.8 from top of pipe through encrustations that appears to have a hole through the top of the pipe. Encrustations blocking further pipe inspection.
7/28/2014	MH1-13 to MH1-14	MH1-14	MH1-13	12” VC.	4.2	fair	At 4.2' cannot continue survey; camera underwater and can't pass sediment.
7/24/2014	MH1-13 to PS 2	MH1-13	PS-2	12” VC.	37.7	fair	Heavy sediment at the bottom of the pipe at 7.0'. Camera opens to daylight at Pump Station 2.
8/4/2014	MH1-14 to MH1-9	MH1-9	MH1-14	8” VC.	10.7	Poor	At 2.0' heavy encrustation, sediment mix with asphalt debris at 10.9'; camera cannot pass through.
8/4/2014	MH1-14 to MH1-13	MH1-14	MH1-13	12” VC.	19.5	Fair	Heavy encrustation in the pipe. At 19.5' heavy sediment; camera cannot continue.
7/22/2014	MH1-22 to MH1-10	MH1-22	MH1-10	12” VC.	7.3	Fair	At 7.3' camera cannot continue, a lot of sediment in the line. At 6.3 leak from top of pipe, stalactites.
7/22/2014	MH1-22 to MH1-23	MH1-23	MH1-22	12” VC.	17.1	Fair	At 1.7 water sipping at pipe joint. Sediment present in the pipe; water flow not moving. At 17.1' camera cannot continue; heavy sediment blocking with water dripping from top of pipe.
7/22/2014	MH1-23 to MH1-22	MH1-23	MH1-22	12” VC.	8	Fair	Sand mixed with debris present in the pipe at 8.0'; camera cannot continue, pipe over half filled with gravel and sediments.
7/22/2014	MH1-23 to MH1-24	MH1-24	MH1-23	12” VC.	35	Fair	Debris and sand at the bottom of the pipe; camera stopped at 30.3'.
7/22/2014	MH1-24 to MH1-23	MH1-24	MH1-23	12” VC.	20	Poor	At 2.0' into the pipe water seeping from joint. At 12 feet drippage seep at joint at top of pipe. At 20.0' camera cannot continue due to sediment and debris blocking.

Table G-2
Industrial Waste Line
Video Inspection Details

Date	Manhole Line	Upstream Manhole	Downstream Manhole	Pipe Diameter	Video Inspection (linear feet)	Pipe Condition	Pipe Visible Damage Comments
8/4/2014	MH 29 to PS 2	MH-29	PS-2	10” Force Main	30	Fair	From MH East to MH 29 old pipe. Pipe dry from entry to 15 feet. At 23.0' to 29 feet under waters; camera under water cannot really see too much; camera stopped at 30.0'.
7/28/2014	PS 2 to MH 29	PS-2	MH-29	10” Force Main	10	Fair	No visible damage; camera stopped at 5.0' but video remarks said that complete required footage. Pipe dry.
7/29/2014	PS-1 to MH1-1	PS-1	MH1-1	4” CIP Force Main	19	Fair	Pipe is dry. No visible damage to the pipe, heavily encrusted. Video up to pipe making left turn.

Abbreviations and Acronyms:
CIP – cast iron piping
VC – vitrified clay
VCP – vitrified clay piping

APPENDIX H

FORMER BUILDING 29 PUMP STATION GEOPHYSICAL RESULTS (on CD)

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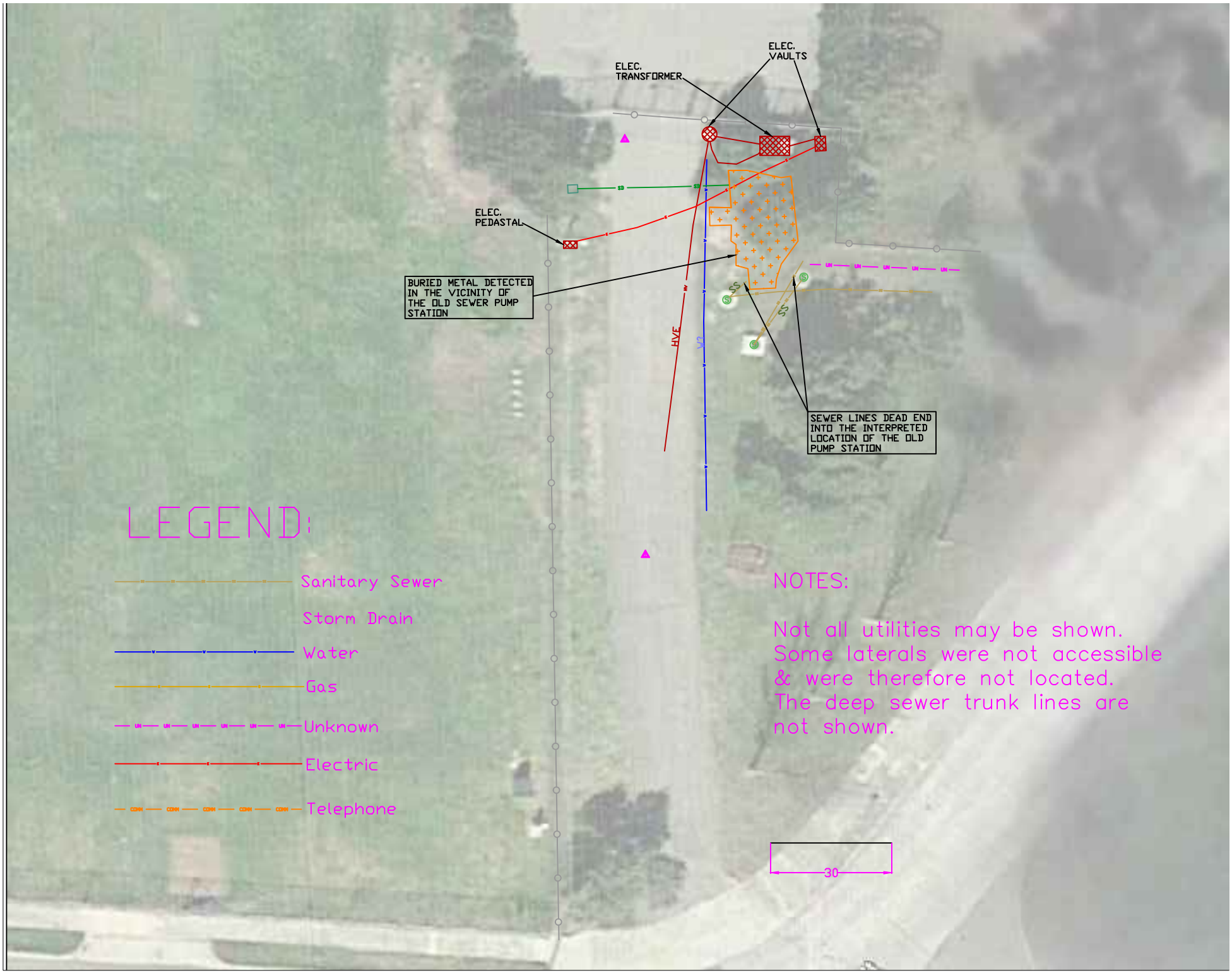
ELEC. VAULTS
ELEC. TRANSFORMER
ELEC. PEDASTAL
BURIED METAL DETECTED IN THE VICINITY OF THE OLD SEWER PUMP STATION
SEWER LINES DEAD END INTO THE INTERPRETED LOCATION OF THE OLD PUMP STATION
HVE
V2
SD
SS
UN
LEGEND:
Sanitary Sewer
Storm Drain
Water
Gas
Unknown
Electric
Telephone
NOTES:
Not all utilities may be shown.
Some laterals were not accessible & were therefore not located.
The deep sewer trunk lines are not shown.
30

APPENDIX I

SOIL BORING LOGS
(on CD)

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TETRA TECH EC, INC.

LOG OF BORING IWL-BLDG29-SB01

(Sheet 1 of 1)

Client: U.S Navy	Drilling Company: National EWP
Project: IWL	Drilling Method: Direct Push
Project Number: FZ-02	Sampling Method: Dual Tube
Location: Alameda Point, Alameda CA	Borehole Diameter: 4"
Geologist: D. Almanza	Northing:
Date Started: August 18, 2014	Easting:
Date Completed: August 18, 2014	Ground Surface Elevation:
Total Depth: 11.5 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	Samples	Sample Number	Time	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION*	Elevation (ft.)
										0 to 3 ft. No Recovery	
								SM		3 to 5 ft. 85% Poorly Graded fine to medium Sand, 15%non to low plasticity fines, Moist, 10YR 5/2	
5										5 to 9 ft. No Recovery	
				X	IWL-BLDG29-SB1-02	1000		SM		9 to 9.7 ft. 85% Poorly Graded fine to medium Sand, 15%non to low plasticity fines, Moist, 10YR 5/2	
10	▼							SM		9.7 to 10 ft. 85% Poorly Graded medium Sand, 15% non plastic fines, Wet, 10YR 3/1	
				X	IWL-BLDG29-SB1-01	1000		SM		10 to 11.5 ft. 85% Poorly Graded medium Sand, 15% non plastic fines, Wet, 10YR 4/1	
										11.5 Concrete	

Notes:
bgs = below ground surface
AMSL = above mean sea level
NA = not applicable
CPM = Counts per Minute
NAD 83 = North American Datum of 1983

TETRA TECH EC, INC.

LOG OF BORING IWL-BLDG29-SB02

(Sheet 1 of 1)

Client: U.S Navy	Drilling Company: National EWP
Project: IWL	Drilling Method: Direct Push
Project Number: FZ-02	Sampling Method: Dual Tube
Location: Alameda Point, Alameda CA	Borehole Diameter: 4"
Geologist: D. Almanza	Northing:
Date Started: August 18, 2014	Easting:
Date Completed: August 18, 2014	Ground Surface Elevation:
Total Depth: 10.5 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	Samples	Sample Number	Time	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION*	Elevation (ft.)
										0 to 3 ft. No Recovery	
								SM		3 to 5 ft. 85% Poorly Graded fine to medium Sand, 15%non to low plasticity fines, Moist, 10YR 5/2	
5										5 to 7 ft. No Recovery	
				X	IWL-BLDG29-SB02-02	1120		SM		7 to 8.5 ft. 85% Poorly Graded fine to medium Sand, 15%non to low plasticity fines, Moist to Wet, 10YR 5/2	
10	▼			X	IWL-BLDG29-SB02-01	1115		SM		8.5 to 10.5 ft. 80% Poorly Graded medium Sand, 20% non plastic fines, Moist to Wet, 10YR 3/1	

Notes:
bgs = below ground surface
AMSL = above mean sea level
NA = not applicable
CPM = Counts per Minute
NAD 83 = North American Datum of 1983

TETRA TECH EC, INC.

LOG OF BORING IWL-BLDG29-SB03

(Sheet 1 of 1)

Client: U.S Navy	Drilling Company: National EWP
Project: IWL	Drilling Method: Direct Push
Project Number: FZ-02	Sampling Method: Dual Tube
Location: Alameda Point, Alameda CA	Borehole Diameter: 4"
Geologist: D. Almanza	Northing:
Date Started: August 18, 2014	Easting:
Date Completed: August 18, 2014	Ground Surface Elevation:
Total Depth: 20.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	Samples	Sample Number	Time	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION*	Elevation (ft.)
										0 to 3 ft. No Recovery	
								SM		3 to 5 ft. 85% Poorly Graded fine to medium Sand, 15% non plastic fines, Moist, 10YR 5/2	
5										5 to 9 ft. No Recovery	
								SM		9 to 10 ft. 85% Poorly Graded fine to medium Sand, 15%non to low plasticity fines, Moist, 10YR 5/1	
10										10 to 13 ft. No Recovery	
	▼			☒	IWL-BLDG29-SB03-02	1220		SM		13 to 15 ft. 85% Poorly Graded fine to medium Sand, 15% non plastic fines, Wet, 10YR 4/1	
15											
20				☒	IWL-BLDG29-SB03-01	1211		SM		19 to 20 ft. 85% Poorly Graded fine to medium Sand, 15% non plastic fines, Wet, 10YR 4/1	

Notes:
bgs = below ground surface
AMSL = above mean sea level
NA = not applicable
CPM = Counts per Minute
NAD 83 = North American Datum of 1983

TETRA TECH EC, INC.

LOG OF BORING IWL-SB1

(Sheet 1 of 1)

Client: U.S Navy	Drilling Company: National EWP
Project: IWL	Drilling Method: Direct Push
Project Number: FZ-02	Sampling Method: Dual Tube
Location: Alameda Point, Alameda CA	Borehole Diameter: 4"
Geologist: D. Almanza	Northing:
Date Started: August 18, 2014	Easting:
Date Completed: August 18, 2014	Ground Surface Elevation:
Total Depth: 15.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	Samples	Sample Number	Time	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION*	Elevation (ft.)
										0 to 1 ft. No Recovery	
								SP-SM		1 to 5 ft. 90% Poorly Graded fine to medium Sand, 10%non plastic fines, Moist, 10YR 6/2	
5										5 to 6 ft. No Recovery	
								SM		6 to 9 ft. 80% Poorly Graded fine Sand, 20% non to low plasticity fines, Moist, 10YR 4/3	
				X	IWL-SB1-02	1400		SM		9 to 10 ft. 85% Poorly Graded fine Sand, 15% non plastic fines, Moist, 10YR 6/1	
10	▼							SM		10 to 14 ft. 80% Poorly Graded fine Sand, 20% non to low plasticity fines, Wet, 10YR 6/1	
				X	IWL-SB1-01	1355		SP-SM		14 to 15 ft. 90% Poorly Graded fine Sand, 10% non plastic fines, Wet, 10YR 4/1	

Notes:
bgs = below ground surface
AMSL = above mean sea level
NA = not applicable
CPM = Counts per Minute
NAD 83 = North American Datum of 1983

TETRA TECH EC, INC.

LOG OF BORING IWL-SB2

(Sheet 1 of 1)

Client: U.S Navy	Drilling Company: National EWP
Project: IWL	Drilling Method: Direct Push
Project Number: FZ-02	Sampling Method: Dual Tube
Location: Alameda Point, Alameda CA	Borehole Diameter: 4"
Geologist: D. Almanza	Northing:
Date Started: August 18, 2014	Easting:
Date Completed: August 18, 2014	Ground Surface Elevation:
Total Depth: 15.0 Feet bgs	Top of Casing Elevation:

Depth (ft.)	Water Level	Well/Boring Completion	Well/Boring Remarks	Samples	Sample Number	Time	PID Readings PPM	USCS	Graphic Log	LITHOLOGIC DESCRIPTION*	Elevation (ft.)
										0 to 1 ft. No Recovery	
								SP-SM		1 to 4 ft. 90% Poorly Graded fine Sand, 10% non plastic fines, Moist, 10YR 4/3	
										4 to 5 ft. No Recovery	
5								SP-SC		5 to 10 ft. 90% Poorly Graded fine Sand, 10% non to medium plasticity fines, Moist to Wet, 10YR 3/2	
10	▼			☒	IWL-SB02-02	1515		SP-SC		10 to 13 ft. 90% Poorly Graded fine to medium Sand, 10% non to medium plasticity fines, Wet, 10YR 4/1	
				☒	IWL-SB02-01	1500		SC		13 to 15 ft. 80% Poorly Graded fine Sand, 20% non to medium plasticity fines, Wet, 10YR 4/1	

Notes:
bgs = below ground surface
AMSL = above mean sea level
NA = not applicable
CPM = Counts per Minute
NAD 83 = North American Datum of 1983

APPENDIX J

ALTERNATIVES COST SUMMARY
(on CD)

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Base Realignment and Closure
Program Management Office West
33000 Nixie Way, Bldg. 50
San Diego, California 92147

CONTRACT NO. N62473-10-D-0809
CTO NO. 0005

APPENDIX J

FINAL

ALTERNATIVES COST SUMMARY

TECHNICAL MEMORANDUM
OPERABLE UNIT 2C DRAIN LINES
STORM DRAIN LINES A, B, G AND INDUSTRIAL WASTE LINE

January 2016

ALAMEDA POINT
ALAMEDA, CALIFORNIA

DCN: RMAC-0809-0005-0006

Prepared by:

TETRA TECH EC, INC.

1230 Columbia Street, Suite 750
San Diego, California 92101-8536

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ATTACHMENTS

Attachment 1 Cost Estimate Spreadsheets for Modified Alternatives

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ABBREVIATIONS AND ACRONYMS

cy	cubic yard
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
IC	institutional control
LLRW	low-level radioactive waste
O&M	operation and maintenance
OU	operable unit
ROD	Record of Decision

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1.0 INTRODUCTION

This appendix presents the costs for modified alternatives for the Operable Unit (OU)-2C drain lines at Alameda Point, Alameda, California. The Final OU-2C Feasibility Study (FS) Addendum (TtEC 2012) described six alternatives for portions of the OU-2C drain lines that originate in and are located outside of Buildings 5 and 400 at Alameda Point. The Proposed Plan for OU-2C that was issued in 2012 presented the preferred alternative for these drain lines, which is Alternative D5 (Navy 2012).

Alternative D5 is titled "Hydro-jetting, Limited Excavation, and Disposal for Main Trunk of Storm Drain Lines A, B, and G and Institutional Controls (ICs) for the Industrial Waste Line." Remediation activities for the storm drain lines in Alternative D5 included conducting hydro-jetting, performing camera verification of sediment removal, conducting radiological surveys, performing limited excavation and removal activities, and disposing of the waste generated.

Information obtained during further investigation of these lines in 2013 and 2014, presented in the Technical Memorandum for the OU-2C Drain Lines, requires modifications to Alternatives D5 and D6. No new remedial technologies are included in these modified alternatives.

In order to further characterize the storm drain lines, it was necessary to conduct the remediation activities specified in Alternative D5. The investigation/remediation activities and limited removal of Storm Drain Lines A, B, and G revealed no evidence of radiological contamination of these lines. In addition, the camera verification activities conducted following the hydro-jetting revealed that no residual sediment was present in the lines. Therefore, no further action was necessary for Storm Drain Lines A, B, and G, and they were removed from the modified remedial alternatives.

For the industrial waste line, investigation results indicated that an additional portion of the line should be included in modified Alternatives D5 and D6. Both the investigation activities and the associated results of the 2013–2014 investigation indicated that there is no sediment inside the force main portions of the industrial waste line. The concern is the potential for radiological contamination to be affixed to the inside of the piping.

Three modified alternatives (Modified Alternatives mD5A, mD5B, and mD6) are presented in this appendix. Based on results of the investigation, the Technical Memorandum recommends Alternative mD5A as the preferred alternative. Attachment 1 of this appendix presents the cost estimates associated with the three modified alternatives.

The remainder of this appendix is organized as follows:

- Section 2.0 describes the purpose of the estimates.
- Section 3.0 presents the types of cost-estimating methods used.
- Section 4.0 summarizes the cost estimating methodology.
- Section 5.0 describes the components considered in each cost estimate.
- Section 6.0 provides assumptions used for each cost estimate.
- Section 7.0 summarizes the total costs for each alternative.
- Section 8.0 lists the references used in preparing the cost estimate.

2.0 PURPOSE OF ESTIMATES

The cost estimates developed for this Technical Memorandum follow the same general guidelines as for FSs. Cost estimates are developed for FSs primarily to compare remedial alternatives during the remedy selection process, and not to establish project budgets or to negotiate Superfund enforcement settlements. The cost estimates that will be presented in the Record of Decision (ROD) will reflect any changes to the remedial alternatives that will have occurred during the remedy selection process as a result of new information or public comments (EPA 2000).

Cost estimates developed during the detailed analysis phase of an FS are used to compare alternatives and support remedy selection. The National Oil and Hazardous Substances Pollution Contingency Plan includes the following language in its description of the cost criteria for the detailed analysis and remedy selection:

> The types of costs that shall be assessed include the following: (1) capital costs, including both direct and indirect costs; (2) Annual operations and maintenance costs; and (3) Net present values of capital and O&M [operation and maintenance] costs (Title 40 Code of Federal Regulations § 300.430 [e][9][ii][G] [EPA 2000]).

The costs presented in this appendix are for comparison only; the estimated accuracy is within the expected accuracy range of cost estimates (i.e., -30 to +50 percent), in accordance with the guidelines for developing and documenting cost estimates for FSs under the Comprehensive Environmental Response, Compensation, and Liability Act (EPA 2000).

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3.0 TYPES OF COST ESTIMATING METHODS

The cost estimates presented in this appendix are derived from semiquantitative analyses based on engineering judgment, and unit costs from previous actions. The costs were developed using detailed and parametric approaches, both of which are accepted by the U.S. Environmental Protection Agency (EPA). These approaches are described below.

The detailed approach estimates costs on an item-by-item basis. Detailed methods typically rely on compiled sources of unit cost data for each item, taken either from a built-in database or other sources. This method, also known as “bottom up” estimating, is used when design information is available (EPA 2000).

The parametric approach relies on relationships between cost and design parameters. These relationships are usually either statistically based or model based. Statistically based approaches rely on scaled-up or scaled-down versions of projects where historical data on costs are available. Model-based approaches use a generic design linked to a cost database and are adjusted for site-specific information. This method, also known as “top down” estimating, is used when design information is not available (EPA 2000).

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4.0 METHODOLOGY

Cost estimates for this Technical Memorandum were prepared in accordance with the EPA guidance document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study* (EPA 2000). Costs were derived from semiquantitative analysis based on engineering judgment and unit costs from previous actions, such as the OU-2C time-critical removal action for storm drain lines.

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5.0 COMPONENTS OF COST ESTIMATES

The cost estimates for the remediation modified alternatives presented in this Technical Memorandum included six components: grand total, total capital costs, total direct costs, annual operations and maintenance (O&M) costs, net present value of O&M costs, and contingency costs. Cost estimate spreadsheets are included as Attachment 1.

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6.0 INDIVIDUAL COST ESTIMATE ASSUMPTIONS

This section identifies the cost estimate components and specific assumptions for the modified alternatives.

6.1 COST ASSUMPTIONS FOR ALTERNATIVE mD5A

Under Alternative mD5A, institutional controls (ICs) would be implemented for the portions of the industrial waste line outlined in the Technical Memorandum, which provides recommendations related to the nature of the ICs based on results of the 2013–2014 investigation. The cost estimate is based on the details for the ICs recommended in the Technical Memorandum. The ICs will be presented and finalized in the ROD. Assumptions used in the cost estimate include conducting periodic monitoring/maintenance to ensure protectiveness. Five-year reviews are included to evaluate the continued protectiveness of the ICs.

Capital costs are incurred in year zero. Annual O&M costs for the ICs are incurred in years 1 through 30 for annual inspections and 5-year review evaluations.

The Remedial Design and Project Management line item is for the land use control remedial design. Capital costs for implementing ICs are incurred in year zero. Annual O&M costs are incurred in years 1 through 30 for annual inspections and 5-year review evaluations. The table below provides a breakdown of the estimated cost for Alternative mD5A.

Land Use Controls Remedial Design	**$75,000**
Operation and Maintenance	**$612,000**
20% Contingency	**$102,000**
***Total Estimated Additional Cost for Alternative mD5A**	**$789,000**

Notes:

Values rounded to the nearest $100.

*Total estimated additional cost has been rounded to the nearest hundred. The accuracy is within the expected range of -30% to +50%.

6.2 COST ASSUMPTIONS FOR ALTERNATIVE mD5B

Under Alternative mD5B, the force main portion of the system would be excavated and disposed. A simplified radiological screening process would be performed for the excavated soils because the manner in which the lines were constructed and operated does not indicate a potential exists for contamination of the soil due to a break in the line. All excavated soil would be used for backfill. Replacement of piping would not be necessary.

For the remainder of the industrial waste line, ICs would be implemented. The cost estimate is based on the details for the ICs recommended in the Technical Memorandum. The ICs will be presented and finalized in the ROD. Assumptions for the cost estimate include conducting periodic monitoring and maintenance to ensure protectiveness. Five-year reviews would be included to evaluate the continued protectiveness of the ICs.

Capital costs are incurred in year zero. Annual O&M costs for the ICs are incurred in years 1 through 30 for annual inspections and 5-year review evaluations.

The following assumptions apply to Alternative mD5B:

1. A total of 2,850 feet of force main industrial waste lines will be excavated, removed, and disposed.
2. The Contractor will be able to remove approximately 150 linear feet of pipe per work day.
3. The industrial waste force main pipe to be removed is approximately 5 feet deep, and approximately 6,400 cubic yards (cy) of material will be removed and reused on site (placed back in the trench). Volume was calculated using a 4-foot base, 6 feet deep (1 foot below the industrial waste line force main pipe), and a 45 degree angle of repose typical for wet sandy material.
4. Groundwater will not accumulate; therefore, no water management or water disposal costs are included in this estimate.
5. Minimal radiological controls will apply during removal. The removed soil will undergo a “health and safety” screening using a 2” x 2” sodium iodide detector.
6. Detection results during the “health and safety” screening will show that that none of the excavated soil will contain elevated readings or doses beyond background levels; therefore, all soil will be stockpiled adjacent to the excavated trench until the pipe is removed, and used as backfill material.
7. The removed piping will be disposed as low-level radioactive waste (LLRW).
8. The removed piping will not contain loose sediment inside the pipe that could spread throughout the trench during excavation. Scanning or sampling of the trench will not be required, and backfill processes will occur directly after the pipe is removed, and excavated soil has undergone the health and safety screening described above.
9. The construction crew will consist of 1 operator, 2 laborers, 1 teamster, and 2 radiological control technicians.
10. Pavement will be replaced in kind. The width of the excavation will be 16 feet, generating 45,600 square feet of 6-inch-thick pavement that will be replaced, or approximately 800 cy. A total of 50 percent of the pavement will be replaced with asphalt (400 cy*2 tons/cy = 800 tons) and 50 percent will be replaced with concrete (400 cy*2 tons/cy = 800 tons).
11. Sawcutting will be required to remove existing pavement prior to excavation.

12. Utility location and management will be required.
13. All removed asphalt and concrete will be stockpiled and recycled.

The table below provides a breakdown of the estimated cost for Alternative mD5B.

Remedial Design and Project Management	**$277,000**
Capital Costs	**$777,100**
Operation and Maintenance	**$612,000**
20% Contingency	**$231,500**
***Total Estimated Additional Cost for Alternative mD5B**	**$1,897,600**

Notes:

Values rounded to the nearest $100.

*Total estimated additional cost has been rounded to the nearest hundred. The accuracy is within the expected range of -30% to +50%.

6.3 COST ASSUMPTIONS FOR ALTERNATIVE mD6

Under Alternative mD6, the entire industrial waste line would be excavated and disposed using the minimal radiological controls for the force main portion of the industrial waste line. The following assumptions apply to the industrial waste force main portion of this modified version of Alternative D6. The gravity-fed portion of the industrial waste line for this modified alternative remains the same as presented in the FS Addendum (TtEC 2012):

1. A total of 20 feet of drain lines will be excavated, removed, and disposed.
2. The contractor will be able to remove and backfill the segment in 2 work days.
3. The industrial waste force main pipe to be removed will be approximately 5 feet deep, and approximately 50 cy of material will be removed. The volume was calculated using a 4-foot base, 6 feet deep (1 foot below the industrial waste line force main pipe), and a 45 degree angle of repose typical for wet sandy material.
4. Groundwater will not accumulate; therefore, no water management or water disposal costs are included in this estimate.
5. Minimal radiological controls will apply during removal. The removed soil will undergo a “health and safety” screening using a 2” x 2” sodium iodide detector.
6. Detection results during the “health and safety” screening will show that that none of the excavated soil will contain elevated readings or doses beyond background levels; therefore, all soil will be stockpiled adjacent to the excavated trench until the pipe is removed, and used as backfill material.
7. The removed piping will be disposed as LLRW.
8. The removed piping will not contain loose sediment that could spread throughout the trench during excavation. Scanning or sampling of the trench will not be required, and backfill processes will occur directly after the pipe is removed, and excavated soil has undergone the screening described above.

9. The construction crew will consist of 1 operator, 2 laborers, 1 teamster, and 2 radiological control technicians.
10. Pavement will be replaced in kind. The width of the excavation will be 16 feet, generating 800 square feet of 6-inch-thick pavement that will be replaced, or approximately 15 cy. A total of 50 percent of the pavement will be replaced with asphalt (7.5 cy*2 tons/cy = 15 tons) and 50 percent will be replaced with concrete (7.5 cy*2 tons/cy = 15 tons).
11. Sawcutting will be required to remove existing pavement prior to excavation.
12. Utility location and management will be required.
13. All removed asphalt and concrete will be stockpiled and recycled.

The table below provides a breakdown of the estimated cost for Alternative mD6.

Remedial Design and Project Management	**$1,383, 600**
Capital Costs	**$6,068,200**
20% Contingency	**$1,213,600**
***Total Estimated Additional Cost for Alternative mD6**	**$8,665,400**

Notes:

Values rounded to the nearest $100.

*Total estimated additional cost has been rounded to the nearest hundred. The accuracy is within the expected range of -30% to +50%.

7.0 SUMMARY

The total costs for modified Alternatives mD5A, mD5B, and mD6 are summarized below.

Alternative Name and Description	Estimated Cost*
Drain Line Alternatives	
Alternative mD5A – Institutional Controls for the Industrial Waste Line	**$789,000**
Alternative mD5B – Excavation and Disposal of the Force Main Portions of the Industrial Waste Line and Institutional Controls for the Gravity-Fed Portion of the Industrial Waste Line	**$1,897,600**
Alternative mD6 – Excavation and Disposal of the Industrial Waste Line	**$8,665,400**

Notes:

*Rounded to the nearest $100.

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8.0 REFERENCES

EPA (U.S. Environmental Protection Agency). 2000. A Guide to Developing and Documenting Cost Estimates During the Feasibility Study. 540-R-00-002 OSWER 9355.0-75.

Navy (United States Navy). 2012. Proposed Plan for Operable Unit 2C, Installation Restoration Sites 5, 10, and 12, Former NAS Alameda. September.

TtEC (Tetra Tech EC, Inc.). 2012. Final Addendum 1 to the Operable Unit 2C Feasibility Study Report IR Sites 5 and 10. January.

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ATTACHMENT 1

COST ESTIMATE SPREADSHEETS FOR MODIFIED ALTERNATIVES

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Attachment 1 - Cost Estimate Spreadsheet

Alternative mD5B – Excavation and Disposal of Force Main Portions of the Industrial Waste Line and Institutional Controls for Gravity-Fed Portion of the Industrial Waste Line

Feasibility Study Addendum, OU-2C Alameda Point

	Description	Quantity	Measure	Unit Cost	Extended Cost		Source
Remedial Design and Project Management							
	Professional Labor Management						
	Remedial Design	6%	LS	-	$46,624.75		EPA FS Guidance 2000
	Land Use Controls Remedial Design	1	LS	-	$75,000.00		EPA FS Guidance 2000
	Project Management	12%	LS	-	$93,249.50		EPA FS Guidance 2000
	Construction Management	8%	LS	-	$62,166.34		EPA FS Guidance 2000
	Total Remedial Design and Project Management Costs				**$277,040.59**		
Capital Costs							
	Excavation of Drain Lines						
	Mobilization/Demobilization						
	Mobilization/Demobilization and Site Setup includes water treatment plant mobilization, and demobilization and mobilization surveys.	1	Lot	$150,000.00	$150,000.00		Engineer's estimate
					$150,000.00		
	Asphalt/Concrete Removal and Replacement						
	Concrete/Asphalt Cutting.	6,000	LF	$3.20	$19,200.00		Engineer's estimate based on similar projects at Alameda
	Concrete Repair includes Labor, Equipment, Material.	400	CY	$290.04	$116,016.00		Engineer's estimate based on similar projects at Alameda
	Asphalt Repair includes Labor, Equipment, Material.	800	TON	$106.00	$84,800.00		Engineer's estimate based on similar projects at Alameda
	Compaction Testing includes Gradation ASTM C 136, Alterberg limits, ASTM D 4318, Proctor Test ASTM D 1557.	28	EA	$375.00	$10,500.00		Engineer's estimate based on similar projects at Alameda
	Compaction Testing includes Geotechnical Engineer Hours and Professional Geologist Hours.	100	HR	$180.00	$18,000.00		Engineer's estimate based on similar projects at Alameda
					$248,516.00		
	Excavation Equipment and Labor						
	Soil excavation and excavated soil handling includes craft labor and heavy equipment costs. Includes radiological control technicians, radiation detection equipment, and misc. radiological supplies, post-job survey.	1	MO	$187,000.00	$187,000.00		Engineer's estimate based on similar projects at Alameda
					$187,000.00		
	Backfill Material						
	Clean Fill, including Delivery for Base.	1,700	Ton	$18.25	31,025.00		Engineer's estimate
					$31,025.00		
	Off-Site Disposal						
	Non-Hazardous Waste						
	Recycling of Asphalt and Concrete.	1,700	Ton	$18.25	31,025.00		Vendor Quote from FS Report for OU-2C (Battelle 2011)
					$31,025.00		
			Off-Site Disposal Subtotal		**$31,025.00**		

Attachment 1 - Cost Estimate Spreadsheet

Alternative mD5B – Excavation and Disposal of Force Main Portions of the Industrial Waste Line and Institutional Controls for Gravity-Fed Portion of the Industrial Waste Line

Feasibility Study Addendum, OU-2C Alameda Point

	Description	Quantity	Measure	Unit Cost	Extended Cost		Source
			Subtotal Capital Costs		**$647,566.00**		
			Contingency (20%)		**$129,513.20**		
			Total Capital Costs		**$777,079.20**		
Operations and Maintenance							
	Enforcing Institutional Controls						
	Institutional Control Review (Annually, 30 years)	1	LS	$2,000.00	$2,000.00		Engineer's estimate
			Subtotal-Annual		**$2,000.00**		
	5-Year Reviews and Reporting						
	5-Year Reviews (per event)	1	LS	$75,000.00	$75,000.00		Engineer's estimate
				Subtotal	**$75,000.00**		
	Subtotal Operations and Maintenance (Years 1-30) Costs				**$510,000.00**		
			Contingency (20%)		**$102,000.00**		
	Total Operations and Maintenance Costs				**$612,000.00**		
			Total Contingency (20%)		**$231,513.20**		
				Total Costs	**$1,897,632.99**		

Abbreviations and Acronyms:

ASTM - American Society for Testing and Materials
CY - Cubic Yard
EA - Each
EPA - U.S. Environmental Protection Agency
FS - Feasibility Study
HR - Hour
LF - Linear Foot
LS - Lump Sum
MO - Month
OU - Operable Unit

APPENDIX K

DATA QUALITY ASSESSMENT FINDINGS FOR VALIDATED ANALYTICAL RESULTS (on CD)

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DATA QUALITY ASSESSMENT

This data quality assessment was prepared to evaluate the implementation of the sampling and analysis procedures detailed in the original and in Addendum 2 to the Final Sampling and Analysis Plan (SAP) for the Installation Restoration Site 17 Seaplane Lagoon at Alameda Point, California (Tetra Tech EC, Inc. [TtEC] 2014). Analytical results discussed herein are associated with the sampling events conducted by TtEC in 2014.

The samples were analyzed by TestAmerica laboratory located in St. Louis, Missouri. This laboratory is state of California-certified and Department of Defense (DoD)-accredited laboratory. Subsequently, a third-party data validation company (Laboratory Data Consultants, Inc.) performed validation on all sample analyses except for the following samples: effluent discharge, influent water screening, and spent carbon. The validation was conducted in accordance with criteria listed in SAP Worksheets #35 and #36 (TtEC 2014). Twenty percent of the samples were validated in accordance with a United States Environmental Protection Agency (EPA) Level IV-equivalent protocol. The remainder of the samples were validated with an EPA Level III-equivalent protocol.

A summary of the validated analytical results discussed herein is presented in the main text of the SAP report. In addition, the chain-of-custody records and laboratory analytical results are included in an appendix to the SAP, along with the data tables. The complete analytical data packages (including raw data) and data validation report will be provided to the Navy Administrative Record in the final version of this report only.

The following sections describe the fulfillment of the field quality control (QC) sampling objectives and analytical QC objectives for this project, and the validation findings based on the validator's evaluation of the data.

1.1 FIELD QUALITY CONTROL SAMPLING OBJECTIVES

In accordance with SAP Worksheet #12 (TtEC 2014), field QC sampling objectives included the collection of matrix spike (MS)/matrix spike duplicates (MSDs), and equipment rinsates. For this project, all field QC sampling objectives were met.

1.1.1 Matrix Spike and Matrix Spike Duplicate Samples

MS/MSD samples are prepared by spiking a sample and a sample duplicate with a known amount of a target analyte. Once the spike is added to the MS/MSD samples, the samples are carried through the complete sample preparation process along with the other samples in the batch. The percent recoveries (%R) for the MS/MSD samples are compared against each other and against the known amount of the spike to measure the accuracy of the analytical method. In addition,

relative percent difference (RPD) values from the MS/MSD samples are also calculated to evaluate the analytical precision of the method.

For the MS/MSDs that were collected for this project, the %R and RPDs were within the specified QC limits described in SAP Worksheet #28 (TtEC 2014), except for the samples and associated analytes listed in Table 1. For radiological analyses, a laboratory duplicate is prepared instead of an MS/MSD. The duplicate error ratio was within QC limits for all samples.

1.1.2 Equipment Rinsate

The equipment rinsate sample evaluates the effectiveness of the decontamination procedure and is required to be collected at a frequency of one per day if non-disposal sampling equipment is used. Equipment rinsate samples are analyte-free water collected from the final rinse during the decontamination process and analyzed for the same analytes as the original samples. (Equipment blank samples are not required for monitored natural attenuation parameter analysis or waste characterization samples.) Equipment rinsate samples that had results qualified are listed in Table 1.

1.2 ANALYTICAL DATA QUALITY OBJECTIVES

The following sections describe the fulfillment of the analytical data quality objectives for this project in terms of precision, accuracy, representativeness, completeness, and comparability parameters, as described in the SAP (TtEC 2014).

1.2.1 Precision and Accuracy

In accordance with the criteria listed in SAP Worksheets #35 and #36 (TtEC 2014), the following parameters were assessed by the validator as applicable to the analyses, and associated results were qualified when QC requirements were not achieved:

- Holding times
- Calibration
- Method blanks
- Surrogates
- Laboratory control samples
- Internal standards
- Metals serial dilution
- MS/MSDs

Table 1 summarizes the laboratory-reported results and final validation qualifiers. In addition, an "X" is placed in the result column to indicate which of the above parameters exceeded QC

requirements, resulting in the data being flagged. Note that the laboratory is required to report laboratory qualifiers based on the DoD *Quality Systems Manual*; however, some of those laboratory qualifiers do not carry over into the validator's final qualifiers.

1.2.2 Representativeness

Representative data were obtained through selection of sampling locations and analytical parameters to meet the data quality objectives of this project. Proper collection and handling of samples and the use of established field and laboratory procedures, as described in the SAP (TtEC 2014), were followed.

1.2.3 Completeness

The percent completeness is defined as the percentage of measurements that are judged to be valid. The completeness goal is to generate a sufficient amount of valid data to meet project objectives. Completeness is calculated and reported for each method, matrix, and analyte combination. The number of valid results divided by the number of possible individual analyte results, expressed as a percentage, determines the completeness of the data set. For completeness requirements, valid results are all results not qualified with an "R" flag as rejected. The requirement for completeness for this project is 95 percent. The percent completeness for results associated with this project is 100 percent, thereby meeting the completeness goal for this project.

1.2.4 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. Sample results should be comparable with other measurements for similar samples and sample conditions. The objective for the quality assurance/QC program is to produce data with the greatest possible degree of comparability. The number of matrices that are sampled and the range of field conditions encountered are considered in determining comparability. Comparability was achieved for this project by using standard methods for sampling and analysis, reporting data in standard units, and using standard and comprehensive reporting formats.

1.3 OVERALL ASSESSMENT OF DATA

The data collected during field activities, as discussed herein, are valid and usable and have been qualified for analytical parameters that did not meet criteria as described above. All samples were collected and validated in accordance with the criteria listed in the SAP (TtEC 2014). All results were found to be of appropriate quality to support the data assessment detailed herein.

1.4 REFERENCES

TtEC (Tetra Tech EC, Inc.). 2014. Addendum 2 to the Final Sampling and Analysis Plan (SAP) for the Installation Restoration Site 17 Seaplane Lagoon Alameda Point, California. June.

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TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-23-01	6020A	160-7559	Antimony	62.8	mg/kg		J								X
IWL-MH1-23-01	6020A	160-7559	Barium	384	mg/kg		J								X
IWL-MH1-23-01	6020A	160-7559	Cadmium	96.1	mg/kg		J								X
IWL-MH1-23-01	6020A	160-7559	Iron	58100	mg/kg	B	J								X
IWL-MH1-23-01	6020A	160-7559	Lead	784	mg/kg		J								X
IWL-MH1-23-01	6020A	160-7559	Molybdenum	36.7	mg/kg		J								X
IWL-MH1-23-01	6020A	160-7559	Selenium	3.34	mg/kg	U	UJ								X
IWL-MH1-23-01	6020A	160-7559	Silver	19.0	mg/kg		J								X
IWL-MH1-23-01	6020A	160-7559	Zinc	4440	mg/kg	B	J								X
IWL-MH1-23-01	7471B	160-7559	Mercury	5.20	mg/kg		J								X
IWL-MH1-23-01	8260C	160-7559	1,1,1-Trichloroethane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	1,1,2,2-Tetrachloroethane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	1,1,2-Trichloroethane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	1,1-Dichloroethane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	1,1-Dichloroethene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	1,2-Dichloroethane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	1,2-Dichloropropane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	2-Butanone	186	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	2-Hexanone	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	4-Methyl-2-Pentanone	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Acetone	186	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Benzene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Bromodichloromethane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Bromoform	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Bromomethane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Carbon tetrachloride	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Chlorobenzene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Chloroethane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Chloroform	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Chloromethane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	cis-1,2-Dichloroethene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	cis-1,3-Dichloropropene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Dibromochloromethane	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Ethylbenzene	74.3	ug/kg	U	UJ				X				

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-23-01	8260C	160-7559	Methyl tert-butyl ether	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Methylene Chloride	186	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Styrene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Tetrachloroethene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Toluene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Total Xylenes	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	trans-1,2-Dichloroethene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	trans-1,3-Dichloropropene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Trichloroethene	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8260C	160-7559	Vinyl chloride	74.3	ug/kg	U	UJ				X				
IWL-MH1-23-01	8270D	160-7559	4-Nitrophenol	14700	ug/kg	U	UJ		X						
IWL-MH1-23-02	6020A	160-7559	Antimony	18.0	mg/kg		J								X
IWL-MH1-23-02	6020A	160-7559	Barium	762	mg/kg		J								X
IWL-MH1-23-02	6020A	160-7559	Cadmium	263	mg/kg		J								X
IWL-MH1-23-02	6020A	160-7559	Iron	46800	mg/kg	B	J								X
IWL-MH1-23-02	6020A	160-7559	Lead	1590	mg/kg		J								X
IWL-MH1-23-02	6020A	160-7559	Molybdenum	107	mg/kg		J								X
IWL-MH1-23-02	6020A	160-7559	Silver	59.2	mg/kg		J								X
IWL-MH1-23-02	6020A	160-7559	Zinc	3350	mg/kg	B	J								X
IWL-MH1-23-02	7471B	160-7559	Mercury	4.27	mg/kg		J								X
IWL-MH1-23-02	8260C	160-7559	1,1,1-Trichloroethane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	1,1,2,2-Tetrachloroethane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	1,1,2-Trichloroethane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	1,1-Dichloroethane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	1,1-Dichloroethene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	1,2-Dichloroethane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	1,2-Dichloropropane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	2-Butanone	395	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	2-Hexanone	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	4-Methyl-2-Pentanone	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Acetone	395	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Bromodichloromethane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Bromoform	158	ug/kg	U	UJ				X				

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-23-02	8260C	160-7559	Bromomethane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Carbon tetrachloride	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Chlorobenzene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Chloroethane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Chloroform	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Chloromethane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	cis-1,2-Dichloroethene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	cis-1,3-Dichloropropene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Dibromochloromethane	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Ethylbenzene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Methyl tert-butyl ether	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Methylene Chloride	395	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Styrene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Tetrachloroethene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Toluene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	trans-1,2-Dichloroethene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	trans-1,3-Dichloropropene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Trichloroethene	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8260C	160-7559	Vinyl chloride	158	ug/kg	U	UJ				X				
IWL-MH1-23-02	8270D	160-7559	4-Nitrophenol	31100	ug/kg	U	UJ		X						
IWL-MH1-24-01	6020A	160-7559	Antimony	11.1	mg/kg		J								X
IWL-MH1-24-01	6020A	160-7559	Barium	388	mg/kg		J								X
IWL-MH1-24-01	6020A	160-7559	Cadmium	113	mg/kg		J								X
IWL-MH1-24-01	6020A	160-7559	Iron	37900	mg/kg	B	J								X
IWL-MH1-24-01	6020A	160-7559	Lead	668	mg/kg		J								X
IWL-MH1-24-01	6020A	160-7559	Molybdenum	42.6	mg/kg		J								X
IWL-MH1-24-01	6020A	160-7559	Selenium	4.23	mg/kg	U	UJ								X
IWL-MH1-24-01	6020A	160-7559	Silver	64.6	mg/kg		J								X
IWL-MH1-24-01	6020A	160-7559	Zinc	2160	mg/kg	B	J								X
IWL-MH1-24-01	7471B	160-7559	Mercury	1.27	mg/kg		J								X
IWL-MH1-24-01	8270D	160-7559	4-Nitrophenol	17900	ug/kg	U	UJ		X						
IWL-MH1-24-02	6020A	160-7559	Antimony	34.2	mg/kg		J								X
IWL-MH1-24-02	6020A	160-7559	Barium	1130	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-24-02	6020A	160-7559	Cadmium	90.9	mg/kg		J								X
IWL-MH1-24-02	6020A	160-7559	Iron	84300	mg/kg	B	J								X
IWL-MH1-24-02	6020A	160-7559	Lead	2150	mg/kg		J								X
IWL-MH1-24-02	6020A	160-7559	Molybdenum	52.6	mg/kg		J								X
IWL-MH1-24-02	6020A	160-7559	Selenium	3.71	mg/kg	U	UJ								X
IWL-MH1-24-02	6020A	160-7559	Silver	88.8	mg/kg		J								X
IWL-MH1-24-02	6020A	160-7559	Zinc	4790	mg/kg	B	J								X
IWL-MH1-24-02	7471B	160-7559	Mercury	0.0490	mg/kg	J	UJ								X
IWL-MH1-24-02	8270D	160-7559	4-Nitrophenol	16000	ug/kg	U	UJ		X						
IWL-MH1-10-01	6020A	160-7593	Antimony	5.18	mg/kg		J								X
IWL-MH1-10-01	6020A	160-7593	Barium	158	mg/kg		J								X
IWL-MH1-10-01	6020A	160-7593	Cadmium	16.8	mg/kg		J								X
IWL-MH1-10-01	6020A	160-7593	Iron	24100	mg/kg	B	J								X
IWL-MH1-10-01	6020A	160-7593	Lead	389	mg/kg		J								X
IWL-MH1-10-01	6020A	160-7593	Molybdenum	6.52	mg/kg		J								X
IWL-MH1-10-01	6020A	160-7593	Selenium	3.38	mg/kg	U	UJ								X
IWL-MH1-10-01	6020A	160-7593	Zinc	890	mg/kg	B	J								X
IWL-MH1-10-01	7471B	160-7593	Mercury	1.62	mg/kg		J								X
IWL-MH1-10-01	8270D	160-7593	4-Nitrophenol	13700	ug/kg	U	UJ		X						
IWL-MH1-10-02	6020A	160-7593	Barium	182	mg/kg		J								X
IWL-MH1-10-02	6020A	160-7593	Cadmium	8.69	mg/kg		J								X
IWL-MH1-10-02	6020A	160-7593	Iron	45000	mg/kg	B	J								X
IWL-MH1-10-02	6020A	160-7593	Lead	204	mg/kg		J								X
IWL-MH1-10-02	6020A	160-7593	Molybdenum	8.11	mg/kg		J								X
IWL-MH1-10-02	6020A	160-7593	Selenium	3.35	mg/kg	U	UJ								X
IWL-MH1-10-02	6020A	160-7593	Silver	5.44	mg/kg		J								X
IWL-MH1-10-02	6020A	160-7593	Zinc	615	mg/kg	B	J								X
IWL-MH1-10-02	7471B	160-7593	Mercury	1.43	mg/kg		J								X
IWL-MH1-10-02	8260C	160-7593	Chlorobenzene	68.7	ug/kg		J				X				
IWL-MH1-10-02	8260C	160-7593	Ethylbenzene	15.9	ug/kg		J				X				
IWL-MH1-10-02	8270D	160-7593	4-Nitrophenol	14800	ug/kg	U	UJ		X						
IWL-MH1-22-01	6020A	160-7593	Antimony	55.8	mg/kg		J								X
IWL-MH1-22-01	6020A	160-7593	Barium	355	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-22-01	6020A	160-7593	Cadmium	395	mg/kg		J								X
IWL-MH1-22-01	6020A	160-7593	Iron	23200	mg/kg	B	J								X
IWL-MH1-22-01	6020A	160-7593	Lead	1060	mg/kg		J								X
IWL-MH1-22-01	6020A	160-7593	Molybdenum	97.0	mg/kg		J								X
IWL-MH1-22-01	6020A	160-7593	Selenium	5.37	mg/kg	U	UJ								X
IWL-MH1-22-01	6020A	160-7593	Silver	185	mg/kg		J								X
IWL-MH1-22-01	6020A	160-7593	Zinc	1990	mg/kg	B	J								X
IWL-MH1-22-01	7471B	160-7593	Mercury	3.39	mg/kg		J								X
IWL-MH1-22-01	8270D	160-7593	4-Nitrophenol	23500	ug/kg	U	UJ		X						
IWL-MH1-22-02	6020A	160-7593	Antimony	213	mg/kg		J								X
IWL-MH1-22-02	6020A	160-7593	Barium	962	mg/kg		J								X
IWL-MH1-22-02	6020A	160-7593	Cadmium	454	mg/kg		J								X
IWL-MH1-22-02	6020A	160-7593	Iron	31900	mg/kg	B	J								X
IWL-MH1-22-02	6020A	160-7593	Lead	907	mg/kg		J								X
IWL-MH1-22-02	6020A	160-7593	Molybdenum	51.6	mg/kg		J								X
IWL-MH1-22-02	6020A	160-7593	Selenium	66.2	mg/kg		J								X
IWL-MH1-22-02	6020A	160-7593	Silver	91.9	mg/kg		J								X
IWL-MH1-22-02	6020A	160-7593	Zinc	2250	mg/kg	B	J								X
IWL-MH1-22-02	7471B	160-7593	Mercury	1.70	mg/kg		J								X
IWL-MH1-22-02	8270D	160-7593	4-Nitrophenol	14800	ug/kg	U	UJ		X						
IWL-MH1-11-01	6020A	160-7600	Antimony	11.9	mg/kg		J								X
IWL-MH1-11-01	6020A	160-7600	Barium	448	mg/kg	B	J								X
IWL-MH1-11-01	6020A	160-7600	Cadmium	271	mg/kg	B	J								X
IWL-MH1-11-01	6020A	160-7600	Chromium	3780	mg/kg	B	J								X
IWL-MH1-11-01	6020A	160-7600	Cobalt	93.4	mg/kg		J								X
IWL-MH1-11-01	6020A	160-7600	Copper	489	mg/kg	B	J								X
IWL-MH1-11-01	6020A	160-7600	Molybdenum	125	mg/kg		J								X
IWL-MH1-11-01	6020A	160-7600	Nickel	2720	mg/kg	B	J								X
IWL-MH1-11-01	6020A	160-7600	Silver	219	mg/kg	B	J								X
IWL-MH1-11-01	6020A	160-7600	Vanadium	15.4	mg/kg		J								X
IWL-MH1-11-01	7471B	160-7600	Mercury	3.28	mg/kg		J								X
IWL-MH1-11-01	8260C	160-7600	1,1,2,2-Tetrachloroethane	2.06	ug/kg	U *	U								
IWL-MH1-11-01	8260C	160-7600	1,1,2-Trichloroethane	2.06	ug/kg	U *	U								

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-11-01	8260C	160-7600	2-Hexanone	10.3	ug/kg	U *	U								
IWL-MH1-11-01	8260C	160-7600	4-Methyl-2-Pentanone	10.3	ug/kg	U *	U								
IWL-MH1-11-01	8260C	160-7600	Benzene	14.0	ug/kg		J				X				
IWL-MH1-11-01	8260C	160-7600	Bromoform	2.06	ug/kg	U *	UJ						X		
IWL-MH1-11-01	8260C	160-7600	Chlorobenzene	8.10	ug/kg	J *	J						X		
IWL-MH1-11-01	8260C	160-7600	cis-1,2-Dichloroethene	17.1	ug/kg		J				X				
IWL-MH1-11-01	8260C	160-7600	Dibromochloromethane	2.06	ug/kg	U *	U								
IWL-MH1-11-01	8260C	160-7600	Ethylbenzene	6.77	ug/kg	J *	J						X		
IWL-MH1-11-01	8260C	160-7600	Styrene	2.06	ug/kg	U *	UJ						X		
IWL-MH1-11-01	8260C	160-7600	Tetrachloroethene	2.06	ug/kg	U *	U								
IWL-MH1-11-01	8260C	160-7600	Toluene	4.17	ug/kg	J *	J				X				
IWL-MH1-11-01	8260C	160-7600	Total Xylenes	4.08	ug/kg	J *	J						X		
IWL-MH1-11-01	8260C	160-7600	trans-1,3-Dichloropropene	2.06	ug/kg	U *	U								
IWL-MH1-11-01	8270D	160-7600	4-Nitrophenol	20200	ug/kg	U	UJ		X						
IWL-MH1-11-02	6020A	160-7600	Antimony	6.98	mg/kg		J								X
IWL-MH1-11-02	6020A	160-7600	Arsenic	9.42	mg/kg		J								X
IWL-MH1-11-02	6020A	160-7600	Barium	375	mg/kg	B	J								X
IWL-MH1-11-02	6020A	160-7600	Cadmium	370	mg/kg	B	J								X
IWL-MH1-11-02	6020A	160-7600	Chromium	4990	mg/kg	B	J								X
IWL-MH1-11-02	6020A	160-7600	Cobalt	52.9	mg/kg		J								X
IWL-MH1-11-02	6020A	160-7600	Copper	571	mg/kg	B	J								X
IWL-MH1-11-02	6020A	160-7600	Molybdenum	67.9	mg/kg		J								X
IWL-MH1-11-02	6020A	160-7600	Nickel	2800	mg/kg	B	J								X
IWL-MH1-11-02	6020A	160-7600	Silver	350	mg/kg	B	J								X
IWL-MH1-11-02	6020A	160-7600	Vanadium	17.1	mg/kg		J								X
IWL-MH1-11-02	7471B	160-7600	Mercury	2.77	mg/kg		J								X
IWL-MH1-11-02	8260C	160-7600	1,1,2,2-Tetrachloroethane	1.89	ug/kg	U *	U								
IWL-MH1-11-02	8260C	160-7600	Bromoform	1.89	ug/kg	U *	U								
IWL-MH1-11-02	8260C	160-7600	cis-1,2-Dichloroethene	19.4	ug/kg		J				X				
IWL-MH1-11-02	8270D	160-7600	4-Nitrophenol	18700	ug/kg	U	UJ		X						
IWL-MH1-12-01	6020A	160-7600	Antimony	36.3	mg/kg		J								X
IWL-MH1-12-01	6020A	160-7600	Arsenic	16.8	mg/kg		J								X
IWL-MH1-12-01	6020A	160-7600	Barium	723	mg/kg	B	J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-12-01	6020A	160-7600	Cadmium	154	mg/kg	B	J								X
IWL-MH1-12-01	6020A	160-7600	Chromium	1780	mg/kg	B	J								X
IWL-MH1-12-01	6020A	160-7600	Cobalt	53.3	mg/kg		J								X
IWL-MH1-12-01	6020A	160-7600	Copper	646	mg/kg	B	J								X
IWL-MH1-12-01	6020A	160-7600	Molybdenum	66.2	mg/kg		J								X
IWL-MH1-12-01	6020A	160-7600	Nickel	1070	mg/kg	B	J								X
IWL-MH1-12-01	6020A	160-7600	Selenium	4.76	mg/kg	U	UJ								X
IWL-MH1-12-01	6020A	160-7600	Silver	86.0	mg/kg	B	J								X
IWL-MH1-12-01	6020A	160-7600	Vanadium	37.2	mg/kg		J								X
IWL-MH1-12-01	7471B	160-7600	Mercury	12.9	mg/kg		J								X
IWL-MH1-12-01	8260C	160-7600	1,1,2,2-Tetrachloroethane	2.10	ug/kg	U *	U								
IWL-MH1-12-01	8260C	160-7600	1,1,2-Trichloroethane	2.10	ug/kg	U *	U								
IWL-MH1-12-01	8260C	160-7600	2-Butanone	45.8	ug/kg		J				X				
IWL-MH1-12-01	8260C	160-7600	2-Hexanone	10.5	ug/kg	U *	U								
IWL-MH1-12-01	8260C	160-7600	4-Methyl-2-Pentanone	10.5	ug/kg	U *	U								
IWL-MH1-12-01	8260C	160-7600	Acetone	149	ug/kg		J				X				
IWL-MH1-12-01	8260C	160-7600	Benzene	12.9	ug/kg		J				X				
IWL-MH1-12-01	8260C	160-7600	Bromoform	2.10	ug/kg	U *	UJ						X		
IWL-MH1-12-01	8260C	160-7600	Chlorobenzene	5.31	ug/kg	J *	J						X		
IWL-MH1-12-01	8260C	160-7600	Dibromochloromethane	2.10	ug/kg	U *	U								
IWL-MH1-12-01	8260C	160-7600	Ethylbenzene	3.17	ug/kg	J *	J						X		
IWL-MH1-12-01	8260C	160-7600	Styrene	2.10	ug/kg	U *	UJ						X		
IWL-MH1-12-01	8260C	160-7600	Tetrachloroethene	2.10	ug/kg	U *	U								
IWL-MH1-12-01	8260C	160-7600	Toluene	4.66	ug/kg	J *	J				X				
IWL-MH1-12-01	8260C	160-7600	Total Xylenes	4.16	ug/kg	J *	J						X		
IWL-MH1-12-01	8260C	160-7600	trans-1,3-Dichloropropene	2.10	ug/kg	U *	U								
IWL-MH1-12-01	8270D	160-7600	4-Nitrophenol	20400	ug/kg	U	UJ		X						
IWL-MH1-12-02	6020A	160-7600	Antimony	9.69	mg/kg		J								X
IWL-MH1-12-02	6020A	160-7600	Arsenic	21.7	mg/kg		J								X
IWL-MH1-12-02	6020A	160-7600	Barium	1390	mg/kg	B	J								X
IWL-MH1-12-02	6020A	160-7600	Cadmium	467	mg/kg	B	J								X
IWL-MH1-12-02	6020A	160-7600	Chromium	7470	mg/kg	B	J								X
IWL-MH1-12-02	6020A	160-7600	Cobalt	124	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-12-02	6020A	160-7600	Copper	1130	mg/kg	B	J								X
IWL-MH1-12-02	6020A	160-7600	Molybdenum	157	mg/kg		J								X
IWL-MH1-12-02	6020A	160-7600	Nickel	3830	mg/kg	B	J								X
IWL-MH1-12-02	6020A	160-7600	Selenium	6.67	mg/kg	U	UJ								X
IWL-MH1-12-02	6020A	160-7600	Silver	371	mg/kg	B	J								X
IWL-MH1-12-02	6020A	160-7600	Vanadium	61.6	mg/kg		J								X
IWL-MH1-12-02	7471B	160-7600	Mercury	18.2	mg/kg		J								X
IWL-MH1-12-02	8260C	160-7600	1,1,2,2-Tetrachloroethane	3.26	ug/kg	U *	U								
IWL-MH1-12-02	8260C	160-7600	1,1,2-Trichloroethane	3.26	ug/kg	U *	U								
IWL-MH1-12-02	8260C	160-7600	2-Hexanone	16.3	ug/kg	U *	U								
IWL-MH1-12-02	8260C	160-7600	4-Methyl-2-Pentanone	16.3	ug/kg	U *	U								
IWL-MH1-12-02	8260C	160-7600	Acetone	143	ug/kg		J				X				
IWL-MH1-12-02	8260C	160-7600	Benzene	20.2	ug/kg		J				X				
IWL-MH1-12-02	8260C	160-7600	Bromoform	3.26	ug/kg	U *	UJ						X		
IWL-MH1-12-02	8260C	160-7600	Chlorobenzene	7.81	ug/kg	J *	J						X		
IWL-MH1-12-02	8260C	160-7600	Dibromochloromethane	3.26	ug/kg	U *	U								
IWL-MH1-12-02	8260C	160-7600	Ethylbenzene	3.37	ug/kg	J *	J						X		
IWL-MH1-12-02	8260C	160-7600	Styrene	3.26	ug/kg	U *	UJ						X		
IWL-MH1-12-02	8260C	160-7600	Tetrachloroethene	3.26	ug/kg	U *	U								
IWL-MH1-12-02	8260C	160-7600	Toluene	5.69	ug/kg	J *	J						X		
IWL-MH1-12-02	8260C	160-7600	Total Xylenes	15.4	ug/kg	J *	J						X		
IWL-MH1-12-02	8260C	160-7600	trans-1,3-Dichloropropene	3.26	ug/kg	U *	U								
IWL-MH1-12-02	8270D	160-7600	4-Nitrophenol	31800	ug/kg	U	UJ		X						
IWL-MH1-13-01	6020A	160-7636	Barium	584	mg/kg		J								X
IWL-MH1-13-01	6020A	160-7636	Cadmium	262	mg/kg		J								X
IWL-MH1-13-01	6020A	160-7636	Chromium	890	mg/kg		J								X
IWL-MH1-13-01	6020A	160-7636	Copper	617	mg/kg		J								X
IWL-MH1-13-01	6020A	160-7636	Lead	1030	mg/kg		J								X
IWL-MH1-13-01	6020A	160-7636	Nickel	395	mg/kg		J								X
IWL-MH1-13-01	7471B	160-7636	Mercury	3.21	mg/kg		J								X
IWL-MH1-13-01	8260C	160-7636	Carbon tetrachloride	22.1	ug/kg	U	UJ								X
IWL-MH1-13-01	8260C	160-7636	Vinyl chloride	22.1	ug/kg	U	UJ				X				
IWL-MH1-13-01	8270D	160-7636	4-Nitrophenol	42600	ug/kg	U	UJ		X						

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-13-02	6020A	160-7636	Barium	817	mg/kg		J								X
IWL-MH1-13-02	6020A	160-7636	Cadmium	694	mg/kg		J								X
IWL-MH1-13-02	6020A	160-7636	Chromium	1870	mg/kg		J								X
IWL-MH1-13-02	6020A	160-7636	Copper	1110	mg/kg		J								X
IWL-MH1-13-02	6020A	160-7636	Lead	2020	mg/kg		J								X
IWL-MH1-13-02	6020A	160-7636	Nickel	1020	mg/kg		J								X
IWL-MH1-13-02	7471B	160-7636	Mercury	3.29	mg/kg		J								X
IWL-MH1-13-02	8260C	160-7636	1,1,2,2-Tetrachloroethane	26.9	ug/kg	U *	U								
IWL-MH1-13-02	8260C	160-7636	Bromoform	26.9	ug/kg	U *	U								
IWL-MH1-13-02	8260C	160-7636	Vinyl chloride	26.9	ug/kg	U	UJ		X						
IWL-MH1-13-02	8270D	160-7636	4-Nitrophenol	55400	ug/kg	U	UJ		X						X
IWL-PS2-VAULT-01	6020A	160-7636	Barium	409	mg/kg		J								X
IWL-PS2-VAULT-01	6020A	160-7636	Cadmium	1360	mg/kg		J								X
IWL-PS2-VAULT-01	6020A	160-7636	Chromium	3490	mg/kg		J								X
IWL-PS2-VAULT-01	6020A	160-7636	Copper	1270	mg/kg		J								X
IWL-PS2-VAULT-01	6020A	160-7636	Lead	944	mg/kg		J								X
IWL-PS2-VAULT-01	6020A	160-7636	Nickel	1690	mg/kg		J								X
IWL-PS2-VAULT-01	7471B	160-7636	Mercury	4.07	mg/kg		J								X
IWL-PS2-VAULT-01	8260C	160-7636	1,1,2,2-Tetrachloroethane	16.1	ug/kg	U *	U								
IWL-PS2-VAULT-01	8260C	160-7636	2-Butanone	433	ug/kg		J				X				
IWL-PS2-VAULT-01	8260C	160-7636	Bromoform	16.1	ug/kg	U *	U								
IWL-PS2-VAULT-01	8260C	160-7636	Chlorobenzene	160	ug/kg		J				X				
IWL-PS2-VAULT-01	8260C	160-7636	Vinyl chloride	16.1	ug/kg	U	UJ		X						
IWL-PS2-VAULT-01	8270D	160-7636	4-Nitrophenol	31600	ug/kg	U	UJ		X						
IWL-PS2-VAULT-02	6020A	160-7636	Barium	466	mg/kg		J								X
IWL-PS2-VAULT-02	6020A	160-7636	Cadmium	879	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-PS2-VAULT-02	6020A	160-7636	Chromium	4160	mg/kg		J								X
IWL-PS2-VAULT-02	6020A	160-7636	Copper	1050	mg/kg		J								X
IWL-PS2-VAULT-02	6020A	160-7636	Lead	828	mg/kg		J								X
IWL-PS2-VAULT-02	6020A	160-7636	Nickel	1630	mg/kg		J								X
IWL-PS2-VAULT-02	7471B	160-7636	Mercury	2.37	mg/kg		J								X
IWL-PS2-VAULT-02	8260C	160-7636	1,1,2,2-Tetrachloroethane	13.2	ug/kg	U *	U								
IWL-PS2-VAULT-02	8260C	160-7636	Bromoform	13.2	ug/kg	U *	U								
IWL-PS2-VAULT-02	8260C	160-7636	Chlorobenzene	233	ug/kg		J				X				
IWL-PS2-VAULT-02	8260C	160-7636	Vinyl chloride	13.2	ug/kg	U	UJ		X						
IWL-PS2-VAULT-02	8270D	160-7636	4-Nitrophenol	26000	ug/kg	U	UJ		X						
IWL-MH1-1-01	6020A	160-7680	Barium	315	mg/kg		J								X
IWL-MH1-1-01	6020A	160-7680	Cobalt	10.9	mg/kg		J								X
IWL-MH1-1-01	6020A	160-7680	Copper	223	mg/kg		J								X
IWL-MH1-1-01	6020A	160-7680	Iron	22800	mg/kg		J								X
IWL-MH1-1-01	6020A	160-7680	Lead	383	mg/kg		J								X
IWL-MH1-1-01	6020A	160-7680	Molybdenum	8.85	mg/kg		J								X
IWL-MH1-1-01	6020A	160-7680	Nickel	118	mg/kg		J								X
IWL-MH1-1-01	6020A	160-7680	Selenium	4.63	mg/kg	U ^	U								
IWL-MH1-1-01	6020A	160-7680	Silver	4.67	mg/kg	B	J								X
IWL-MH1-1-01	6020A	160-7680	Vanadium	34.8	mg/kg		J								X
IWL-MH1-1-01	8260C	160-7680	Vinyl chloride	10.3	ug/kg	U *	U								
IWL-MH1-1-01	8270D	160-7680	Bis(2-chloroisopropyl) ether	3130	ug/kg	U	UJ		X						
IWL-MH1-1-02	6020A	160-7680	Barium	245	mg/kg		J								X
IWL-MH1-1-02	6020A	160-7680	Cobalt	11.2	mg/kg		J								X
IWL-MH1-1-02	6020A	160-7680	Copper	244	mg/kg		J								X
IWL-MH1-1-02	6020A	160-7680	Iron	34200	mg/kg		J								X
IWL-MH1-1-02	6020A	160-7680	Lead	389	mg/kg		J								X
IWL-MH1-1-02	6020A	160-7680	Molybdenum	10.7	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-1-02	6020A	160-7680	Nickel	123	mg/kg		J								X
IWL-MH1-1-02	6020A	160-7680	Selenium	1.40	mg/kg	J ^	J		X						
IWL-MH1-1-02	6020A	160-7680	Silver	2.50	mg/kg	J B	J								X
IWL-MH1-1-02	6020A	160-7680	Vanadium	31.6	mg/kg		J								X
IWL-MH1-1-02	8260C	160-7680	Vinyl chloride	8.85	ug/kg	U *	U								
IWL-MH1-1-02	8270D	160-7680	Bis(2-chloroisopropyl) ether	2740	ug/kg	U	UJ		X						
IWL-MH1-2-01	6020A	160-7680	Barium	524	mg/kg		J								X
IWL-MH1-2-01	6020A	160-7680	Cobalt	14.5	mg/kg		J								X
IWL-MH1-2-01	6020A	160-7680	Copper	554	mg/kg		J								X
IWL-MH1-2-01	6020A	160-7680	Iron	32500	mg/kg		J								X
IWL-MH1-2-01	6020A	160-7680	Lead	582	mg/kg		J								X
IWL-MH1-2-01	6020A	160-7680	Molybdenum	66.5	mg/kg		J								X
IWL-MH1-2-01	6020A	160-7680	Nickel	419	mg/kg		J								X
IWL-MH1-2-01	6020A	160-7680	Selenium	8.97	mg/kg	U ^	U								
IWL-MH1-2-01	6020A	160-7680	Silver	8.63	mg/kg	B	J								X
IWL-MH1-2-01	6020A	160-7680	Vanadium	37.3	mg/kg		J								X
IWL-MH1-2-01	8260C	160-7680	1,1,1-Trichloroethane	19.3	ug/kg	U	UJ		X						
IWL-MH1-2-01	8260C	160-7680	1,1,2,2-Tetrachloroethane	19.3	ug/kg	U *	U								
IWL-MH1-2-01	8260C	160-7680	1,1,2-Trichloroethane	19.3	ug/kg	U *	U								
IWL-MH1-2-01	8260C	160-7680	2-Hexanone	96.4	ug/kg	U *	U								
IWL-MH1-2-01	8260C	160-7680	4-Methyl-2-Pentanone	96.4	ug/kg	U *	U								
IWL-MH1-2-01	8260C	160-7680	Bromoform	19.3	ug/kg	U *	U								
IWL-MH1-2-01	8260C	160-7680	Carbon tetrachloride	19.3	ug/kg	U	UJ		X						
IWL-MH1-2-01	8260C	160-7680	Chlorobenzene	19.3	ug/kg	U *	U								
IWL-MH1-2-01	8260C	160-7680	Dibromochloromethane	19.3	ug/kg	U *	U								
IWL-MH1-2-01	8260C	160-7680	Ethylbenzene	96.3	ug/kg	J *	J				X				
IWL-MH1-2-01	8260C	160-7680	Styrene	19.3	ug/kg	U *	U								
IWL-MH1-2-01	8260C	160-7680	Tetrachloroethene	19.3	ug/kg	U *	U								
IWL-MH1-2-01	8260C	160-7680	Toluene	16.5	ug/kg	J *	J				X				
IWL-MH1-2-01	8260C	160-7680	Total Xylenes	96.0	ug/kg	J *	J		X						
IWL-MH1-2-01	8260C	160-7680	trans-1,3-Dichloropropene	19.3	ug/kg	U *	U								
IWL-MH1-2-01	8270D	160-7680	Bis(2-chloroisopropyl) ether	5830	ug/kg	U	UJ		X						
IWL-MH1-2-02	6020A	160-7680	Barium	608	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS (CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-2-02	6020A	160-7680	Cobalt	16.0	mg/kg		J								X
IWL-MH1-2-02	6020A	160-7680	Copper	569	mg/kg		J								X
IWL-MH1-2-02	6020A	160-7680	Iron	33700	mg/kg		J								X
IWL-MH1-2-02	6020A	160-7680	Lead	1550	mg/kg		J								X
IWL-MH1-2-02	6020A	160-7680	Molybdenum	41.9	mg/kg		J								X
IWL-MH1-2-02	6020A	160-7680	Nickel	421	mg/kg		J								X
IWL-MH1-2-02	6020A	160-7680	Selenium	7.45	mg/kg	U ^	U								
IWL-MH1-2-02	6020A	160-7680	Silver	8.15	mg/kg	B	J								X
IWL-MH1-2-02	6020A	160-7680	Vanadium	37.6	mg/kg		J								X
IWL-MH1-2-02	8260C	160-7680	Vinyl chloride	15.2	ug/kg	U *	U								
IWL-MH1-2-02	8270D	160-7680	Bis(2-chloroisopropyl) ether	4710	ug/kg	U	UJ		X						
IWL-MH2-3-01	6020A	160-7680	Barium	125	mg/kg		J								X
IWL-MH2-3-01	6020A	160-7680	Cobalt	10.2	mg/kg		J								X
IWL-MH2-3-01	6020A	160-7680	Copper	141	mg/kg		J								X
IWL-MH2-3-01	6020A	160-7680	Iron	19200	mg/kg		J								X
IWL-MH2-3-01	6020A	160-7680	Lead	120	mg/kg		J								X
IWL-MH2-3-01	6020A	160-7680	Nickel	63.2	mg/kg		J								X
IWL-MH2-3-01	6020A	160-7680	Selenium	1.11	mg/kg	J ^	J		X						
IWL-MH2-3-01	6020A	160-7680	Silver	2.36	mg/kg	J B	J								X
IWL-MH2-3-01	6020A	160-7680	Vanadium	36.1	mg/kg		J								X
IWL-MH2-3-01	8260C	160-7680	1,1,1-Trichloroethane	1.46	ug/kg	U	UJ		X						
IWL-MH2-3-01	8260C	160-7680	1,1,2,2-Tetrachloroethane	1.46	ug/kg	U *	U								
IWL-MH2-3-01	8260C	160-7680	Bromoform	1.46	ug/kg	U *	U								
IWL-MH2-3-01	8260C	160-7680	Carbon tetrachloride	1.46	ug/kg	U	UJ		X						
IWL-MH2-3-01	8260C	160-7680	Total Xylenes	7.28	ug/kg	U	UJ						X		
IWL-MH2-3-01	8270D	160-7680	Bis(2-chloroisopropyl) ether	2100	ug/kg	U	UJ		X						
IWL-MH2-3-02	6020A	160-7680	Barium	125	mg/kg		J								X
IWL-MH2-3-02	6020A	160-7680	Cobalt	12.4	mg/kg		J								X
IWL-MH2-3-02	6020A	160-7680	Copper	305	mg/kg		J								X
IWL-MH2-3-02	6020A	160-7680	Iron	21500	mg/kg		J								X
IWL-MH2-3-02	6020A	160-7680	Lead	238	mg/kg		J								X
IWL-MH2-3-02	6020A	160-7680	Molybdenum	5.24	mg/kg		J								X
IWL-MH2-3-02	6020A	160-7680	Nickel	88.2	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS (CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH2-3-02	6020A	160-7680	Selenium	1.56	mg/kg	J ^	J		X						
IWL-MH2-3-02	6020A	160-7680	Silver	4.96	mg/kg	B	J								X
IWL-MH2-3-02	6020A	160-7680	Vanadium	40.6	mg/kg		J								X
IWL-MH2-3-02	8260C	160-7680	1,1,1-Trichloroethane	1.67	ug/kg	U	UJ		X						
IWL-MH2-3-02	8260C	160-7680	1,1,2,2-Tetrachloroethane	1.67	ug/kg	U *	U								
IWL-MH2-3-02	8260C	160-7680	Bromoform	1.67	ug/kg	U *	U								
IWL-MH2-3-02	8260C	160-7680	Carbon tetrachloride	1.67	ug/kg	U	UJ		X						
IWL-MH2-3-02	8270D	160-7680	Bis(2-chloroisopropyl) ether	2430	ug/kg	U	UJ		X						
IWL-PS1VAULT-01	6020A	160-7680	Barium	972	mg/kg		J								X
IWL-PS1VAULT-01	6020A	160-7680	Cobalt	23.4	mg/kg		J								X
IWL-PS1VAULT-01	6020A	160-7680	Copper	802	mg/kg		J								X
IWL-PS1VAULT-01	6020A	160-7680	Iron	66200	mg/kg		J								X
IWL-PS1VAULT-01	6020A	160-7680	Lead	1190	mg/kg		J								X
IWL-PS1VAULT-01	6020A	160-7680	Molybdenum	71.1	mg/kg		J								X
IWL-PS1VAULT-01	6020A	160-7680	Nickel	174	mg/kg		J								X
IWL-PS1VAULT-01	6020A	160-7680	Selenium	7.89	mg/kg	U ^	U								
IWL-PS1VAULT-01	6020A	160-7680	Silver	10.3	mg/kg	B	J								X
IWL-PS1VAULT-01	6020A	160-7680	Vanadium	53.5	mg/kg		J								X
IWL-PS1VAULT-01	8260C	160-7680	1,1,2,2-Tetrachloroethane	18.6	ug/kg	U *	UJ								X
IWL-PS1VAULT-01	8260C	160-7680	1,1,2-Trichloroethane	18.6	ug/kg	U *	U								
IWL-PS1VAULT-01	8260C	160-7680	2-Hexanone	93.1	ug/kg	U *	U								
IWL-PS1VAULT-01	8260C	160-7680	4-Methyl-2-Pentanone	93.1	ug/kg	U *	U								
IWL-PS1VAULT-01	8260C	160-7680	Bromoform	18.6	ug/kg	U *	U								
IWL-PS1VAULT-01	8260C	160-7680	Chlorobenzene	18.6	ug/kg	U *	U								
IWL-PS1VAULT-01	8260C	160-7680	Dibromochloromethane	18.6	ug/kg	U *	U								

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS (CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-PS1VAULT-01	8260C	160-7680	Ethylbenzene	75.1	ug/kg	J *	J				X				
IWL-PS1VAULT-01	8260C	160-7680	Styrene	18.6	ug/kg	U *	U								
IWL-PS1VAULT-01	8260C	160-7680	Tetrachloroethene	18.6	ug/kg	U *	U								
IWL-PS1VAULT-01	8260C	160-7680	Toluene	69.0	ug/kg	J *	J				X				
IWL-PS1VAULT-01	8260C	160-7680	Total Xylenes	936	ug/kg	*	J				X				
IWL-PS1VAULT-01	8260C	160-7680	trans-1,3-Dichloropropene	18.6	ug/kg	U *	U								
IWL-PS1VAULT-01	8260C	160-7680	Vinyl chloride	18.6	ug/kg	U *	U								
IWL-PS1VAULT-01	8270D	160-7680	Bis(2-chloroisopropyl) ether	5540	ug/kg	U	UJ		X						
IWL-PS1VAULT-02	6020A	160-7680	Barium	704	mg/kg		J								X
IWL-PS1VAULT-02	6020A	160-7680	Cobalt	19.3	mg/kg		J								X
IWL-PS1VAULT-02	6020A	160-7680	Copper	733	mg/kg		J								X
IWL-PS1VAULT-02	6020A	160-7680	Iron	95300	mg/kg		J								X
IWL-PS1VAULT-02	6020A	160-7680	Lead	1140	mg/kg		J								X
IWL-PS1VAULT-02	6020A	160-7680	Molybdenum	69.3	mg/kg		J								X
IWL-PS1VAULT-02	6020A	160-7680	Nickel	125	mg/kg		J								X
IWL-PS1VAULT-02	6020A	160-7680	Selenium	3.87	mg/kg	J ^	J		X						
IWL-PS1VAULT-02	6020A	160-7680	Silver	10.6	mg/kg	B	J								X
IWL-PS1VAULT-02	6020A	160-7680	Vanadium	50.6	mg/kg		J								X
IWL-PS1VAULT-02	8260C	160-7680	1,1,2,2-Tetrachloroethane	21.8	ug/kg	U *	U								
IWL-PS1VAULT-02	8260C	160-7680	Bromoform	21.8	ug/kg	U *	U								
IWL-PS1VAULT-02	8260C	160-7680	Total Xylenes	1130	ug/kg		J				X				
IWL-PS1VAULT-02	8260C	160-7680	Vinyl chloride	21.8	ug/kg	U *	U								

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS (CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-PS1VAULT-02	8270D	160-7680	Bis(2-chloroisopropyl) ether	6670	ug/kg	U	UJ		X						
IWL-MH1-4-01	6020A	160-7699	Barium	291	mg/kg		J								X
IWL-MH1-4-01	6020A	160-7699	Cobalt	30.4	mg/kg		J								X
IWL-MH1-4-01	6020A	160-7699	Copper	511	mg/kg		J								X
IWL-MH1-4-01	6020A	160-7699	Iron	21900	mg/kg		J								X
IWL-MH1-4-01	6020A	160-7699	Lead	547	mg/kg		J								X
IWL-MH1-4-01	6020A	160-7699	Molybdenum	48.3	mg/kg		J								X
IWL-MH1-4-01	6020A	160-7699	Nickel	587	mg/kg		J								X
IWL-MH1-4-01	6020A	160-7699	Selenium	5.80	mg/kg	U ^	U								
IWL-MH1-4-01	6020A	160-7699	Silver	27.8	mg/kg	B	J								X
IWL-MH1-4-01	6020A	160-7699	Vanadium	25.7	mg/kg		J								X
IWL-MH1-4-01	7471B	160-7699	Mercury	1.56	mg/kg		J								X
IWL-MH1-4-01	8260C	160-7699	1,1,2,2-Tetrachloroethane	11.7	ug/kg	U *	U								
IWL-MH1-4-01	8260C	160-7699	Bromoform	11.7	ug/kg	U *	U								
IWL-MH1-4-01	8270D	160-7699	Bis(2-chloroisopropyl) ether	710	ug/kg	U	UJ		X						
IWL-MH1-4-02	6020A	160-7699	Barium	362	mg/kg		J								X
IWL-MH1-4-02	6020A	160-7699	Cobalt	90.3	mg/kg		J								X
IWL-MH1-4-02	6020A	160-7699	Copper	532	mg/kg		J								X
IWL-MH1-4-02	6020A	160-7699	Iron	29800	mg/kg		J								X
IWL-MH1-4-02	6020A	160-7699	Lead	549	mg/kg		J								X
IWL-MH1-4-02	6020A	160-7699	Molybdenum	63.9	mg/kg		J								X
IWL-MH1-4-02	6020A	160-7699	Nickel	840	mg/kg		J								X
IWL-MH1-4-02	6020A	160-7699	Selenium	6.10	mg/kg	U ^	U								
IWL-MH1-4-02	6020A	160-7699	Silver	27.0	mg/kg	B	J								X
IWL-MH1-4-02	6020A	160-7699	Vanadium	30.2	mg/kg		J								X
IWL-MH1-4-02	7471B	160-7699	Mercury	1.13	mg/kg		J								X
IWL-MH1-4-02	8270D	160-7699	Bis(2-chloroisopropyl) ether	758	ug/kg	U	UJ		X						
IWL-MH1-4-UP	6020A	160-7699	Barium	682	mg/kg		J								X
IWL-MH1-4-UP	6020A	160-7699	Cobalt	51.4	mg/kg		J								X
IWL-MH1-4-UP	6020A	160-7699	Copper	4700	mg/kg		J								X
IWL-MH1-4-UP	6020A	160-7699	Iron	32700	mg/kg		J								X
IWL-MH1-4-UP	6020A	160-7699	Lead	879	mg/kg		J								X
IWL-MH1-4-UP	6020A	160-7699	Molybdenum	47.7	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-4-UP	6020A	160-7699	Nickel	1170	mg/kg		J								X
IWL-MH1-4-UP	6020A	160-7699	Selenium	2.67	mg/kg	J ^	J		X						
IWL-MH1-4-UP	6020A	160-7699	Silver	28.4	mg/kg	B	J								X
IWL-MH1-4-UP	6020A	160-7699	Vanadium	38.1	mg/kg		J								X
IWL-MH1-4-UP	7471B	160-7699	Mercury	1.33	mg/kg		J								X
IWL-MH1-4-UP	8270D	160-7699	Bis(2-chloroisopropyl) ether	838	ug/kg	U	UJ		X						
IWL-MH1-5-01	6020A	160-7699	Barium	683	mg/kg		J								X
IWL-MH1-5-01	6020A	160-7699	Cobalt	28.7	mg/kg		J								X
IWL-MH1-5-01	6020A	160-7699	Copper	1060	mg/kg		J								X
IWL-MH1-5-01	6020A	160-7699	Iron	37800	mg/kg		J								X
IWL-MH1-5-01	6020A	160-7699	Lead	1620	mg/kg		J								X
IWL-MH1-5-01	6020A	160-7699	Molybdenum	62.4	mg/kg		J								X
IWL-MH1-5-01	6020A	160-7699	Nickel	648	mg/kg		J								X
IWL-MH1-5-01	6020A	160-7699	Selenium	1.87	mg/kg	J ^	J		X						
IWL-MH1-5-01	6020A	160-7699	Silver	34.8	mg/kg	B	J								X
IWL-MH1-5-01	6020A	160-7699	Vanadium	53.7	mg/kg		J								X
IWL-MH1-5-01	7471B	160-7699	Mercury	2.16	mg/kg		J								X
IWL-MH1-5-01	8260C	160-7699	1,1,2,2-Tetrachloroethane	11.3	ug/kg	U *	U								
IWL-MH1-5-01	8260C	160-7699	1,1-Dichloroethane	84.8	ug/kg		J				X				
IWL-MH1-5-01	8260C	160-7699	Bromoform	11.3	ug/kg	U *	U								
IWL-MH1-5-01	8260C	160-7699	Total Xylenes	56.7	ug/kg	U	UJ						X		
IWL-MH1-5-01	8270D	160-7699	Bis(2-chloroisopropyl) ether	672	ug/kg	U	UJ		X						
IWL-MH1-5-02	6020A	160-7699	Barium	832	mg/kg		J								X
IWL-MH1-5-02	6020A	160-7699	Cobalt	33.8	mg/kg		J								X
IWL-MH1-5-02	6020A	160-7699	Copper	1350	mg/kg		J								X
IWL-MH1-5-02	6020A	160-7699	Iron	30800	mg/kg		J								X
IWL-MH1-5-02	6020A	160-7699	Lead	1910	mg/kg		J								X
IWL-MH1-5-02	6020A	160-7699	Molybdenum	103	mg/kg		J								X
IWL-MH1-5-02	6020A	160-7699	Nickel	716	mg/kg		J								X
IWL-MH1-5-02	6020A	160-7699	Selenium	6.81	mg/kg	U ^	U								
IWL-MH1-5-02	6020A	160-7699	Silver	60.5	mg/kg	B	J								X
IWL-MH1-5-02	6020A	160-7699	Vanadium	36.9	mg/kg		J								X
IWL-MH1-5-02	7471B	160-7699	Mercury	2.31	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-5-02	8260C	160-7699	1,1,2,2-Tetrachloroethane	16.4	ug/kg	U *	U								
IWL-MH1-5-02	8260C	160-7699	Bromoform	16.4	ug/kg	U *	U								
IWL-MH1-5-02	8260C	160-7699	Total Xylenes	82.0	ug/kg	U	UJ						X		
IWL-MH1-5-02	8270D	160-7699	Bis(2-chloroisopropyl) ether	978	ug/kg	U	UJ		X						
IWL-MH1-5-UP-01	6020A	160-7699	Barium	210	mg/kg		J								X
IWL-MH1-5-UP-01	6020A	160-7699	Cobalt	10.0	mg/kg		J								X
IWL-MH1-5-UP-01	6020A	160-7699	Copper	1500	mg/kg		J								X
IWL-MH1-5-UP-01	6020A	160-7699	Iron	12400	mg/kg		J								X
IWL-MH1-5-UP-01	6020A	160-7699	Lead	1290	mg/kg		J								X
IWL-MH1-5-UP-01	6020A	160-7699	Molybdenum	29.9	mg/kg		J								X
IWL-MH1-5-UP-01	6020A	160-7699	Nickel	253	mg/kg		J								X
IWL-MH1-5-UP-01	6020A	160-7699	Selenium	3.44	mg/kg	U ^	U								
IWL-MH1-5-UP-01	6020A	160-7699	Silver	10.7	mg/kg	B	J								X
IWL-MH1-5-UP-01	6020A	160-7699	Vanadium	11.5	mg/kg		J								X
IWL-MH1-5-UP-01	7471B	160-7699	Mercury	0.192	mg/kg		J								X
IWL-MH1-5-UP-01	8270D	160-7699	Bis(2-chloroisopropyl) ether	452	ug/kg	U	UJ		X						
IWL-MH1-6-01	6020A	160-7699	Barium	310	mg/kg		J								X
IWL-MH1-6-01	6020A	160-7699	Cobalt	28.7	mg/kg		J								X
IWL-MH1-6-01	6020A	160-7699	Copper	434	mg/kg		J								X
IWL-MH1-6-01	6020A	160-7699	Iron	23200	mg/kg		J								X
IWL-MH1-6-01	6020A	160-7699	Lead	436	mg/kg		J								X
IWL-MH1-6-01	6020A	160-7699	Molybdenum	28.5	mg/kg		J								X
IWL-MH1-6-01	6020A	160-7699	Nickel	634	mg/kg		J								X
IWL-MH1-6-01	6020A	160-7699	Selenium	4.00	mg/kg	U ^	U								
IWL-MH1-6-01	6020A	160-7699	Silver	28.4	mg/kg	B	J								X
IWL-MH1-6-01	6020A	160-7699	Vanadium	21.3	mg/kg		J								X
IWL-MH1-6-01	7471B	160-7699	Mercury	0.717	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-6-01	8270D	160-7699	Bis(2-chloroisopropyl) ether	586	ug/kg	U	UJ		X						
IWL-MH1-6-02	6020A	160-7699	Barium	475	mg/kg		J								X
IWL-MH1-6-02	6020A	160-7699	Cobalt	25.6	mg/kg		J								X
IWL-MH1-6-02	6020A	160-7699	Copper	427	mg/kg		J								X
IWL-MH1-6-02	6020A	160-7699	Iron	32400	mg/kg		J								X
IWL-MH1-6-02	6020A	160-7699	Lead	494	mg/kg		J								X
IWL-MH1-6-02	6020A	160-7699	Molybdenum	33.4	mg/kg		J								X
IWL-MH1-6-02	6020A	160-7699	Nickel	702	mg/kg		J								X
IWL-MH1-6-02	6020A	160-7699	Selenium	4.29	mg/kg	U ^	U								
IWL-MH1-6-02	6020A	160-7699	Silver	21.4	mg/kg	B	J								X
IWL-MH1-6-02	6020A	160-7699	Vanadium	20.5	mg/kg		J								X
IWL-MH1-6-02	7471B	160-7699	Mercury	0.864	mg/kg		J								X
IWL-MH1-6-02	8260C	160-7699	1,1,2,2-Tetrachloroethane	10.0	ug/kg	U *	U								
IWL-MH1-6-02	8260C	160-7699	Bromoform	10.0	ug/kg	U *	U								
IWL-MH1-6-02	8260C	160-7699	Total Xylenes	50.1	ug/kg	U	UJ						X		
IWL-MH1-6-02	8270D	160-7699	Bis(2-chloroisopropyl) ether	622	ug/kg	U	UJ		X						
IWL-MH1-7-01	6020A	160-7718	Barium	393	mg/kg		J								X
IWL-MH1-7-01	6020A	160-7718	Cobalt	87.6	mg/kg		J								X
IWL-MH1-7-01	6020A	160-7718	Copper	602	mg/kg		J								X
IWL-MH1-7-01	6020A	160-7718	Iron	21600	mg/kg		J								X
IWL-MH1-7-01	6020A	160-7718	Lead	434	mg/kg		J								X
IWL-MH1-7-01	6020A	160-7718	Molybdenum	61.3	mg/kg		J								X
IWL-MH1-7-01	6020A	160-7718	Nickel	1210	mg/kg		J								X
IWL-MH1-7-01	6020A	160-7718	Selenium	2.95	mg/kg	J ^	J		X						
IWL-MH1-7-01	6020A	160-7718	Silver	31.0	mg/kg	B	J								X
IWL-MH1-7-01	6020A	160-7718	Vanadium	28.3	mg/kg		J								X
IWL-MH1-7-01	7471B	160-7718	Mercury	1.61	mg/kg		J								X
IWL-MH1-7-01	8260C	160-7718	1,1,2,2-Tetrachloroethane	1.84	ug/kg	U *	U								
IWL-MH1-7-01	8260C	160-7718	1,1,2-Trichloroethane	1.84	ug/kg	U *	U								
IWL-MH1-7-01	8260C	160-7718	1,1-Dichloroethane	15.4	ug/kg		J				X				
IWL-MH1-7-01	8260C	160-7718	2-Hexanone	9.20	ug/kg	U *	U								
IWL-MH1-7-01	8260C	160-7718	4-Methyl-2-Pentanone	9.20	ug/kg	U *	U								
IWL-MH1-7-01	8260C	160-7718	Acetone	49.3	ug/kg		J				X				

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-7-01	8260C	160-7718	Bromoform	1.84	ug/kg	U *	UJ						X		
IWL-MH1-7-01	8260C	160-7718	Chlorobenzene	1.84	ug/kg	U *	UJ						X		
IWL-MH1-7-01	8260C	160-7718	Chloroethane	120	ug/kg		J				X				
IWL-MH1-7-01	8260C	160-7718	Dibromochloromethane	1.84	ug/kg	U *	U								
IWL-MH1-7-01	8260C	160-7718	Ethylbenzene	1.84	ug/kg	U *	UJ						X		
IWL-MH1-7-01	8260C	160-7718	Styrene	1.84	ug/kg	U *	UJ						X		
IWL-MH1-7-01	8260C	160-7718	Tetrachloroethene	1.84	ug/kg	U *	U								
IWL-MH1-7-01	8260C	160-7718	Toluene	1.84	ug/kg	U *	U								
IWL-MH1-7-01	8260C	160-7718	Total Xylenes	9.20	ug/kg	U *	UJ						X		
IWL-MH1-7-01	8260C	160-7718	trans-1,3-Dichloropropene	1.84	ug/kg	U *	U								
IWL-MH1-7-01	8270D	160-7718	4-Nitrophenol	3540	ug/kg	U	UJ		X						
IWL-MH1-7-01	8270D	160-7718	Bis(2-chloroisopropyl) ether	531	ug/kg	U	UJ		X						
IWL-MH1-7-02	6020A	160-7718	Barium	1300	mg/kg		J								X
IWL-MH1-7-02	6020A	160-7718	Cobalt	88.7	mg/kg		J								X
IWL-MH1-7-02	6020A	160-7718	Copper	1250	mg/kg		J								X
IWL-MH1-7-02	6020A	160-7718	Iron	32300	mg/kg		J								X
IWL-MH1-7-02	6020A	160-7718	Lead	944	mg/kg		J								X
IWL-MH1-7-02	6020A	160-7718	Molybdenum	135	mg/kg		J								X
IWL-MH1-7-02	6020A	160-7718	Nickel	3130	mg/kg		J								X
IWL-MH1-7-02	6020A	160-7718	Selenium	1.63	mg/kg	J ^	J		X						
IWL-MH1-7-02	6020A	160-7718	Silver	113	mg/kg	B	J								X
IWL-MH1-7-02	6020A	160-7718	Vanadium	37.6	mg/kg		J								X
IWL-MH1-7-02	7471B	160-7718	Mercury	1.43	mg/kg		J								X
IWL-MH1-7-02	8260C	160-7718	1,1,2,2-Tetrachloroethane	1.96	ug/kg	U *	U								
IWL-MH1-7-02	8260C	160-7718	1,1,2-Trichloroethane	1.96	ug/kg	U *	U								
IWL-MH1-7-02	8260C	160-7718	2-Hexanone	9.78	ug/kg	U *	U								
IWL-MH1-7-02	8260C	160-7718	4-Methyl-2-Pentanone	9.78	ug/kg	U *	U								
IWL-MH1-7-02	8260C	160-7718	Acetone	101	ug/kg		J				X				
IWL-MH1-7-02	8260C	160-7718	Bromoform	1.96	ug/kg	U *	U								
IWL-MH1-7-02	8260C	160-7718	Chlorobenzene	4.24	ug/kg	J *	J				X				
IWL-MH1-7-02	8260C	160-7718	Chloroethane	49.3	ug/kg		J				X				
IWL-MH1-7-02	8260C	160-7718	Dibromochloromethane	1.96	ug/kg	U *	U								
IWL-MH1-7-02	8260C	160-7718	Ethylbenzene	1.96	ug/kg	U *	U								

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-7-02	8260C	160-7718	Styrene	1.96	ug/kg	U *	U								
IWL-MH1-7-02	8260C	160-7718	Tetrachloroethene	1.96	ug/kg	U *	U								
IWL-MH1-7-02	8260C	160-7718	Toluene	1.96	ug/kg	U *	U								
IWL-MH1-7-02	8260C	160-7718	Total Xylenes	9.78	ug/kg	U *	UJ						X		
IWL-MH1-7-02	8260C	160-7718	trans-1,3-Dichloropropene	1.96	ug/kg	U *	U								
IWL-MH1-7-02	8270D	160-7718	4-Nitrophenol	3860	ug/kg	U	UJ		X						
IWL-MH1-7-02	8270D	160-7718	Bis(2-chloroisopropyl) ether	578	ug/kg	U	UJ		X						
IWL-MH1-8-01	6020A	160-7718	Barium	645	mg/kg		J								X
IWL-MH1-8-01	6020A	160-7718	Cobalt	74.6	mg/kg		J								X
IWL-MH1-8-01	6020A	160-7718	Copper	1550	mg/kg		J								X
IWL-MH1-8-01	6020A	160-7718	Iron	45700	mg/kg		J								X
IWL-MH1-8-01	6020A	160-7718	Lead	1410	mg/kg		J								X
IWL-MH1-8-01	6020A	160-7718	Molybdenum	119	mg/kg		J								X
IWL-MH1-8-01	6020A	160-7718	Nickel	1130	mg/kg		J								X
IWL-MH1-8-01	6020A	160-7718	Selenium	6.15	mg/kg	U ^	U								
IWL-MH1-8-01	6020A	160-7718	Silver	46.6	mg/kg	B	J								X
IWL-MH1-8-01	6020A	160-7718	Vanadium	77.3	mg/kg		J								X
IWL-MH1-8-01	7471B	160-7718	Mercury	3.08	mg/kg		J								X
IWL-MH1-8-01	8260C	160-7718	1,1,2,2-Tetrachloroethane	13.1	ug/kg	U *	U								
IWL-MH1-8-01	8260C	160-7718	Bromoform	13.1	ug/kg	U *	U								
IWL-MH1-8-01	8260C	160-7718	Total Xylenes	65.4	ug/kg	U	UJ						X		
IWL-MH1-8-01	8270D	160-7718	4-Nitrophenol	5130	ug/kg	U	UJ		X						
IWL-MH1-8-01	8270D	160-7718	Bis(2-chloroisopropyl) ether	769	ug/kg	U	UJ		X						
IWL-MH1-8-02	6020A	160-7718	Barium	346	mg/kg		J								X
IWL-MH1-8-02	6020A	160-7718	Cobalt	36.9	mg/kg		J								X
IWL-MH1-8-02	6020A	160-7718	Copper	971	mg/kg		J								X
IWL-MH1-8-02	6020A	160-7718	Iron	61100	mg/kg		J								X
IWL-MH1-8-02	6020A	160-7718	Lead	814	mg/kg		J								X
IWL-MH1-8-02	6020A	160-7718	Molybdenum	44.8	mg/kg		J								X
IWL-MH1-8-02	6020A	160-7718	Nickel	533	mg/kg		J								X
IWL-MH1-8-02	6020A	160-7718	Selenium	2.47	mg/kg	J ^	J		X						
IWL-MH1-8-02	6020A	160-7718	Silver	27.7	mg/kg	B	J								X
IWL-MH1-8-02	6020A	160-7718	Vanadium	83.5	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS (CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-8-02	7471B	160-7718	Mercury	1.98	mg/kg		J								X
IWL-MH1-8-02	8260C	160-7718	1,1,2,2-Tetrachloroethane	9.29	ug/kg	U *	U								
IWL-MH1-8-02	8260C	160-7718	Acetone	189	ug/kg		J				X				
IWL-MH1-8-02	8260C	160-7718	Bromoform	9.29	ug/kg	U *	U								
IWL-MH1-8-02	8260C	160-7718	Total Xylenes	46.5	ug/kg	U	UJ						X		
IWL-MH1-8-02	8270D	160-7718	4-Nitrophenol	3770	ug/kg	U	UJ		X						
IWL-MH1-8-02	8270D	160-7718	Bis(2-chloroisopropyl) ether	565	ug/kg	U	UJ		X						
IWL-RINSE-01	6020A	160-7718	Beryllium	0.500	ug/L	U ^	U								
IWL-RINSE-01	6020A	160-7718	Molybdenum	3.00	ug/L	U ^	U								
IWL-RINSE-01	8260C	160-7718	Bromomethane	2.00	ug/L	U	UJ		X						
IWL-RINSE-01	8270D	160-7718	Bis(2-chloroisopropyl) ether	2.85	ug/L	U	UJ		X						
IWL-MH1-11-01	DOE SR-03-RC MOD	160-7722	Strontium-90	0.170	pCi/g		U			X					
IWL-MH1-12-01	DOE SR-03-RC MOD	160-7722	Strontium-90	0.135	pCi/g		U			X					
IWL-MH1-12-02	DOE SR-03-RC MOD	160-7722	Strontium-90	0.276	pCi/g		U			X					
IWL-MH1-23-02	DOE SR-03-RC MOD	160-7722	Strontium-90	0.344	pCi/g		U			X					
IWL-MH1-24-01	DOE SR-03-RC MOD	160-7722	Strontium-90	0.126	pCi/g		U			X					
IWL-MH1-09-01	6020A	160-7757	Antimony	9.92	mg/kg		J								X
IWL-MH1-09-01	6020A	160-7757	Barium	713	mg/kg	B	J								X
IWL-MH1-09-01	6020A	160-7757	Cadmium	878	mg/kg		J								X
IWL-MH1-09-01	6020A	160-7757	Chromium	1750	mg/kg		J								X
IWL-MH1-09-01	6020A	160-7757	Copper	465	mg/kg		J								X
IWL-MH1-09-01	6020A	160-7757	Iron	26300	mg/kg		J								X
IWL-MH1-09-01	6020A	160-7757	Lead	632	mg/kg		J								X
IWL-MH1-09-01	6020A	160-7757	Nickel	1320	mg/kg		J								X
IWL-MH1-09-01	6020A	160-7757	Zinc	3340	mg/kg		J								X
IWL-MH1-09-01	8260C	160-7757	1,1-Dichloroethane	76.7	ug/kg		J				X				
IWL-MH1-09-02	6020A	160-7757	Antimony	18.5	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-09-02	6020A	160-7757	Barium	1030	mg/kg	B	J								X
IWL-MH1-09-02	6020A	160-7757	Cadmium	1470	mg/kg		J								X
IWL-MH1-09-02	6020A	160-7757	Chromium	2540	mg/kg		J								X
IWL-MH1-09-02	6020A	160-7757	Copper	597	mg/kg		J								X
IWL-MH1-09-02	6020A	160-7757	Iron	32600	mg/kg		J								X
IWL-MH1-09-02	6020A	160-7757	Lead	918	mg/kg		J								X
IWL-MH1-09-02	6020A	160-7757	Nickel	1550	mg/kg		J								X
IWL-MH1-09-02	6020A	160-7757	Zinc	4480	mg/kg		J								X
IWL-MH1-09-02	8260C	160-7757	1,1,2,2-Tetrachloroethane	14.2	ug/kg	U *	U								
IWL-MH1-09-02	8260C	160-7757	Bromoform	14.2	ug/kg	U *	U								
IWL-MH1-14-01	6020A	160-7757	Antimony	8.41	mg/kg		J								X
IWL-MH1-14-01	6020A	160-7757	Barium	522	mg/kg	B	J								X
IWL-MH1-14-01	6020A	160-7757	Cadmium	1090	mg/kg		J								X
IWL-MH1-14-01	6020A	160-7757	Chromium	1830	mg/kg		J								X
IWL-MH1-14-01	6020A	160-7757	Copper	652	mg/kg		J								X
IWL-MH1-14-01	6020A	160-7757	Iron	28500	mg/kg		J								X
IWL-MH1-14-01	6020A	160-7757	Lead	638	mg/kg		J								X
IWL-MH1-14-01	6020A	160-7757	Nickel	477	mg/kg		J								X
IWL-MH1-14-01	6020A	160-7757	Zinc	2270	mg/kg		J								X
IWL-MH1-14-01	8260C	160-7757	1,1,2,2-Tetrachloroethane	12.7	ug/kg	U *	U								
IWL-MH1-14-01	8260C	160-7757	1,1,2-Trichloroethane	12.7	ug/kg	U *	U								
IWL-MH1-14-01	8260C	160-7757	2-Hexanone	63.6	ug/kg	U *	U								
IWL-MH1-14-01	8260C	160-7757	4-Methyl-2-Pentanone	63.6	ug/kg	U *	U								
IWL-MH1-14-01	8260C	160-7757	Bromoform	12.7	ug/kg	U *	U								
IWL-MH1-14-01	8260C	160-7757	Chlorobenzene	12.7	ug/kg	U *	U								
IWL-MH1-14-01	8260C	160-7757	Dibromochloromethane	12.7	ug/kg	U *	U								
IWL-MH1-14-01	8260C	160-7757	Ethylbenzene	16.0	ug/kg	J *	J				X				
IWL-MH1-14-01	8260C	160-7757	Styrene	12.7	ug/kg	U *	U								
IWL-MH1-14-01	8260C	160-7757	Tetrachloroethene	12.7	ug/kg	U *	U								
IWL-MH1-14-01	8260C	160-7757	Toluene	12.7	ug/kg	U *	U								
IWL-MH1-14-01	8260C	160-7757	Total Xylenes	63.6	ug/kg	U *	UJ						X		
IWL-MH1-14-01	8260C	160-7757	trans-1,3-Dichloropropene	12.7	ug/kg	U *	U								
IWL-MH1-14-02	6020A	160-7757	Antimony	8.49	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS (CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-14-02	6020A	160-7757	Barium	494	mg/kg	B	J								X
IWL-MH1-14-02	6020A	160-7757	Cadmium	1890	mg/kg		J								X
IWL-MH1-14-02	6020A	160-7757	Chromium	3780	mg/kg		J								X
IWL-MH1-14-02	6020A	160-7757	Copper	1000	mg/kg		J								X
IWL-MH1-14-02	6020A	160-7757	Iron	22800	mg/kg		J								X
IWL-MH1-14-02	6020A	160-7757	Lead	845	mg/kg		J								X
IWL-MH1-14-02	6020A	160-7757	Nickel	586	mg/kg		J								X
IWL-MH1-14-02	6020A	160-7757	Zinc	2480	mg/kg		J								X
IWL-MH1-14-02	8260C	160-7757	1,1,2,2-Tetrachloroethane	14.0	ug/kg	U *	U								
IWL-MH1-14-02	8260C	160-7757	1,1,2-Trichloroethane	14.0	ug/kg	U *	U								
IWL-MH1-14-02	8260C	160-7757	2-Hexanone	70.0	ug/kg	U *	UJ								X
IWL-MH1-14-02	8260C	160-7757	4-Methyl-2-Pentanone	70.0	ug/kg	U *	U								
IWL-MH1-14-02	8260C	160-7757	Acetone	318	ug/kg		J				X				
IWL-MH1-14-02	8260C	160-7757	Bromoform	14.0	ug/kg	U *	U								
IWL-MH1-14-02	8260C	160-7757	Carbon tetrachloride	14.0	ug/kg	U	UJ								X
IWL-MH1-14-02	8260C	160-7757	Chlorobenzene	14.0	ug/kg	U *	U								
IWL-MH1-14-02	8260C	160-7757	Dibromochloromethane	14.0	ug/kg	U *	U								
IWL-MH1-14-02	8260C	160-7757	Ethylbenzene	17.3	ug/kg	J *	J				X				
IWL-MH1-14-02	8260C	160-7757	Styrene	14.0	ug/kg	U *	UJ								X
IWL-MH1-14-02	8260C	160-7757	Tetrachloroethene	14.0	ug/kg	U *	U								
IWL-MH1-14-02	8260C	160-7757	Toluene	11.4	ug/kg	J *	J				X				
IWL-MH1-14-02	8260C	160-7757	Total Xylenes	70.0	ug/kg	U *	UJ						X		
IWL-MH1-14-02	8260C	160-7757	trans-1,3-Dichloropropene	14.0	ug/kg	U *	U								
IWL-MH1-14-02	8270D	160-7757	Benzo(a)pyrene	830	ug/kg	U *	U								
IWL-MH1-14-02	8270D	160-7757	Benzo(b)fluoranthene	830	ug/kg	U *	U								
IWL-MH1-14-02	8270D	160-7757	Benzo(g,h,i)perylene	830	ug/kg	U *	UJ						X		
IWL-MH1-14-02	8270D	160-7757	Benzo(k)fluoranthene	830	ug/kg	U *	U								
IWL-MH1-14-02	8270D	160-7757	Dibenz(a,h)anthracene	830	ug/kg	U *	UJ						X		
IWL-MH1-14-02	8270D	160-7757	Indeno(1,2,3-cd)pyrene	830	ug/kg	U *	UJ						X		
IWL-MH1-8-ND-02	6020A	160-7757	Antimony	4.70	mg/kg		J								X
IWL-MH1-8-ND-02	6020A	160-7757	Barium	294	mg/kg	B	J								X
IWL-MH1-8-ND-02	6020A	160-7757	Cadmium	1330	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-MH1-8-ND-02	6020A	160-7757	Chromium	1730	mg/kg		J								X
IWL-MH1-8-ND-02	6020A	160-7757	Copper	301	mg/kg		J								X
IWL-MH1-8-ND-02	6020A	160-7757	Iron	31200	mg/kg		J								X
IWL-MH1-8-ND-02	6020A	160-7757	Lead	584	mg/kg		J								X
IWL-MH1-8-ND-02	6020A	160-7757	Nickel	355	mg/kg		J								X
IWL-MH1-8-ND-02	6020A	160-7757	Zinc	2370	mg/kg		J								X
IWL-MH1-8-ND-02	8270D	160-7757	Bis(2-chloroisopropyl) ether	589	ug/kg	U	UJ		X						
IWL-MH1-8-UP-01	6020A	160-7757	Barium	149	mg/kg	B	J								X
IWL-MH1-8-UP-01	6020A	160-7757	Cadmium	759	mg/kg		J								X
IWL-MH1-8-UP-01	6020A	160-7757	Chromium	714	mg/kg		J								X
IWL-MH1-8-UP-01	6020A	160-7757	Copper	216	mg/kg		J								X
IWL-MH1-8-UP-01	6020A	160-7757	Iron	11100	mg/kg		J								X
IWL-MH1-8-UP-01	6020A	160-7757	Lead	225	mg/kg		J								X
IWL-MH1-8-UP-01	6020A	160-7757	Nickel	233	mg/kg		J								X
IWL-MH1-8-UP-01	6020A	160-7757	Zinc	1060	mg/kg		J								X
IWL-RINSE-02	6020A	160-7757	Beryllium	0.500	ug/L	U ^	U								
IWL-RINSE-02	6020A	160-7757	Cadmium	0.314	ug/L	J ^	J								
IWL-RINSE-02	6020A	160-7757	Selenium	4.77	ug/L	U ^	U								
IWL-RINSE-02	6020A	160-7757	Zinc	15.4	ug/L	B	U			X					
IWL-RINSE-02	8260C	160-7757	Bromomethane	2.00	ug/L	U	UJ		X						
IWL-RINSE-03	903.0 MOD	160-8005	Radium-226	0.0402	pCi/L		U			X					
IWL-PS1-VAULT-UP-01	6020A	160-8112	Barium	834	mg/kg		J								X
IWL-PS1-VAULT-UP-01	6020A	160-8112	Chromium	1280	mg/kg		J								X

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS (CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-PS1-VAULT-UP-01	6020A	160-8112	Copper	609	mg/kg		J								X
IWL-PS1-VAULT-UP-01	8260C	160-8112	1,1,1-Trichloroethane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	1,1,2,2-Tetrachloroethane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	1,1,2-Trichloroethane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	1,1-Dichloroethane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	1,1-Dichloroethene	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	1,2-Dichloroethane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	1,2-Dichloropropane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	2-Butanone	416	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	2-Hexanone	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	4-Methyl-2-Pentanone	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Acetone	2150	ug/kg	J B	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Benzene	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Bromodichloromethane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Bromoform	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Bromomethane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Carbon tetrachloride	166	ug/kg	U	UJ				X				

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-PS1-VAULT-UP-01	8260C	160-8112	Chlorobenzene	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Chloroethane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Chloroform	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Chloromethane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	cis-1,3-Dichloropropene	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Dibromochloromethane	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Methyl tert-butyl ether	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Methylene Chloride	469	ug/kg	J B	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Styrene	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Tetrachloroethene	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Toluene	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	trans-1,2-Dichloroethene	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	trans-1,3-Dichloropropene	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Trichloroethene	166	ug/kg	U	UJ				X				
IWL-PS1-VAULT-UP-01	8260C	160-8112	Vinyl chloride	166	ug/kg	U	UJ				X				
IWL-RINSE-04	6020A	160-8112	Nickel	1.14	ug/L	J B	U			X					
IWL-RINSE-04	8270D	160-8112	Indeno(1,2,3-cd)pyrene	2.84	ug/L	U	UJ		X						
IWL-RINSE-04	8270D	160-8112	N-Nitrosodiphenylamine	2.84	ug/L	U *	U								

TABLE 1

SUMMARY OF DATA VALIDATION FINDINGS
(CONTINUED)

SAMPLE ID	METHOD	LAB ID	ANALYTE	RESULTS	UNITS	LABORATORY QUALIFIER	FINAL VALIDATION QUALIFIER	VALIDATION FINDINGS							
								HOLDING TIME	CALIBRATION	MB	SURROGATES	LCS	IS	METALS SERIAL DILUTION	MS/MSD
IWL-PS1-VAULT-UP-01	EPA 901.1 MOD	160-8113	Radium-226	1.62	pCi/g		J								

Abbreviations and Acronyms:

^ - instrument related, QC exceeds the control limits
* - ISTD response or retention time outside acceptable limits
B - Method blank contamination
J - Estimated: The analyte was positively identified; the quantitation is an estimation
ID - identification
IS - internal standard
LCS - laboratory control sample
MB - method blank
ug/kg - micrograms per kilogram
ug/l - micrograms per liter
mg/kg - milligrams per kilogram
MS/MSD - matrix spike/matris spike duplicate
pCi/g - picograms per gram
RPD - relative percent difference
U - Not detected above the stated limit
UJ - Not detected above the stated estimated limit

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APPENDIX L

RESPONSES TO COMMENTS
(on CD)

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RESPONSE TO COMMENTS
DRAFT TECHNICAL MEMORANDUM
OPERABLE UNIT 2C DRAIN LINES, JULY 2015
STORM DRAIN LINES A, B, G AND INDUSTRIAL WASTE LINE
ALAMEDA POINT, ALAMEDA, CALIFORNIA

Comments from Roger Lupo
Senior Health Physicist
Radiological Assessment Unit, Radiological Health Branch
California Department of Public Health

Comments Dated: October 8, 2015

GENERAL COMMENTS	RESPONSE
Comment 1. The technical memorandum documents the findings of an investigation of drain lines A, B, G, and the Industrial Waste Line (IWL) in operable unit 2C, Alameda Point. As stated in the report "Following sediment removal, videos of the line interiors and radiological surveys do not show any indication of contamination in Storm Drain Lines A, B, and G." RHB agrees with the statement "No further action required."	**Response 1.** Thank you for this comment.
Comment 2. For the IWL additional work is needed for adequate characterization of the sections not accessible for video inspection and the areas adjacent to the IWL (Gravity feed sections) need additional borings to establish areal extent of any contamination that may have escaped the waste line.	**Response 2.** This investigation of the industrial waste line supplements previous industrial waste line sampling and extensive sampling of soil adjacent to known radiologically impacted drain lines. Section 2.2 of the Technical Memorandum summarized the sampling of the industrial waste lines but not the extensive soil sampling that was part of the same drain line project. The following text was added to Section 2.2, paragraph 3, following sentence 2: “During the TCRA, over 9,500 linear feet of known contaminated pipe, manhole structures, and catch basins from Storm Drain Line F and FF were removed and replaced. Line F is the storm drain line documented as radiologically impacted in the Historical Radiological Assessment for Alameda; its history indicates that Ra-226 paint wastes were discharged to this line prior to installation of the industrial waste lines. Sampling of sediment in Line F conducted prior to removal of the line showed a maximum concentration of 1,116.6 picocuries per gram (pCi/g). The history of Line F is similar to that of the industrial waste line, except that

Comments from Roger Lupo
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California Department of Public Health

Comments Dated: October 8, 2015

	the sampling of the current industrial waste line does not indicate such high levels of Ra-226. During the TCRA, the approach was to excavate to the level of the storm drain pipe, then remove the pipe and a minimum of 1 foot of soil below and to either side of the pipe. The storm drain system removed during the TCRA comprised a variety of materials, including polyvinyl chloride, high-density polyethylene, ductile iron, vitrified clay, and unreinforced and reinforced concrete. Pipe diameters ranged from 3 inches to 36 inches, and pipe depths ranged from approximately 4 feet to 11 feet below ground surface. Soils from around the pipe as well as the sides and floor of the trench excavation were screened and characterized. The areal extent of the excavation is well known based on data collected during the TCRA. The trench excavations were divided into 45 survey units. The TCRA report documents that any contamination located outside of the pipe is within 5 feet of either side of the pipe." The following text related to the effectiveness of ICs for the industrial waste line was added after sentence 1 in the last paragraph of Section 4.0: "Regarding effectiveness of ICs for the industrial waste line, during the TCRA, more than 9,500 linear feet of known contaminated pipe was removed, followed by extensive sampling of the surrounding soil; the TCRA report documented that any contamination located outside of the pipe was limited to within 5 feet of either side of the pipe. Therefore, in combination with the soil sampling conducted as part of the investigation documented in this Technical Memorandum, there is a high level of confidence that any Ra-226 associated with the industrial waste line would be confined to the soil less than 5 feet from the line."

Comments from Roger Lupo
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Radiological Assessment Unit, Radiological Health Branch
California Department of Public Health

Comments Dated: October 8, 2015

	To facilitate review of this response, Attachment 1 (presented at the end of the responses) shows a graphical scaled representation of each of the 45 trench survey units as well as a key map. These figures documented in the Installation Restoration Sites 5 & 10, Buildings 5 and 400 Storm Drain Line Removal CERCLA Time-Critical Removal Action (TCRA) Completion Report (TtEC 2011), show that any contamination located outside of the pipe is within 5 feet of either side of the pipe.
SPECIFIC COMMENTS	**RESPONSE**
Comment 1. Section 2.3.1. In the use of the RESRAD modeling were the daughter products of radium 226 included in the analysis and was the radon pathway turned on. Without the daughter products being taken into account the external dose may be underestimated by approximately 9X. I would like to see the RESRAD model runs to verify the input parameters.	**Response 1.** RESRAD modeling, cited in the Technical Memorandum, was conducted for the Feasibility Study Addendum and included the long-lived daughter products of radium-226. Details of the RESRAD modeling can be found in Appendix A of the Feasibility Study Addendum (See Response 3). Included as Attachment 2 to these responses is Section 2.0 of the FS Addendum, Radiological Risk Assessment Methodology, which provides an explanation of the RESRAD modeling method used and discusses daughter products.
Comment 2. Section 3.1.3. Assumptions are made about the manufacture of the pipes without verification of the pipe material with laboratory testing. Attributing the elevated measurements to the manufacture of the pipe without verification of the pipe material will make conclusions of the survey data based on these assumptions questionable at best. Strontium 90 is a pure beta emitter, Cesium 137 emits beta and gamma photon radiation, and Radium 226 plus daughter products emit alpha particles, beta particles and	**Response 2.** Radium-226 is the only radionuclide contaminant of concern (COC) identified for these OU-2C lines (documented in the Final FS Addendum and the Proposed Plan). The text states "…no alpha activity was identified. Ra-226 is primarily an alpha emitter." In order to avoid confusion, discussion of Sr-90 and Cs-137 was removed from the text throughout the Technical Memorandum.

Comments from Roger Lupo Senior Health Physicist Radiological Assessment Unit, Radiological Health Branch California Department of Public Health	Comments Dated: October 8, 2015
gamma photons. If the Radium 226 has been undisturbed for approximately 21 days the ingrown daughter products at that time give off easily detectable and identifiable gamma photons usable to quantify Radium 226.	
Comment 3. Section 3.1.3. Modeling of potential risk is documented in Feasibility Study Addendum. The FS Addendum was not available for review. I would like to see the RESRAD model runs to verify the input parameters.	**Response 3.** The FS Addendum document can be found on the Envirostor website: http://www.envirostor.dtsc.ca.gov/public/final_documents2.asp?global_id=01970005&doc_id=60254224 The RESRAD modeling is detailed in Appendix A of the FS Addendum. For convenience, Attachment 3 is included as part of these responses and presents the tables from Appendix A, which include input parameters used during the RESRAD modeling.

Comments from Roger Lupo
Senior Health Physicist
Radiological Assessment Unit, Radiological Health Branch
California Department of Public Health

Comments Dated: October 8, 2015

Comment 4. Table 2-1.	**Response 4.**
Note "The FS Addendum risk analysis and risks presented in the table are based on analytical results for the sediment that was subsequently removed from the storm drain lines." This total dose and risk for Ra-226 is of little use in determining a path forward for the lines in question as it is based on remediated soil data not on concentration of material left behind. And again I would like to see the RESRAD model runs to verify the input parameters in the dose modeling.	Please see the tables in Attachment 3 to these responses, and Response 3 above for the link to download the FS Addendum, which includes details of the RESRAD model run. In addition to sediment removal, gamma surveys of the lines were performed in 2012–2013, and a report was prepared (Appendix A of the Technical Memorandum). Based on the highest readings of the gamma survey, four sections of Storm Drain Lines A, B, and G were selected for excavation and further investigation. Figure 3-1, from the Technical Memorandum, identifies the locations of the four excavated sections. A location with higher gamma readings within each section was selected for investigation. Results from this investigation were used to support the conclusions presented in this Technical Memorandum.

ATTACHMENT 1 TO CDPH COMMENTS

TCRA COMPLETION REPORT, APPENDIX H, DETAILS FOR TRENCH SURVEY UNITS

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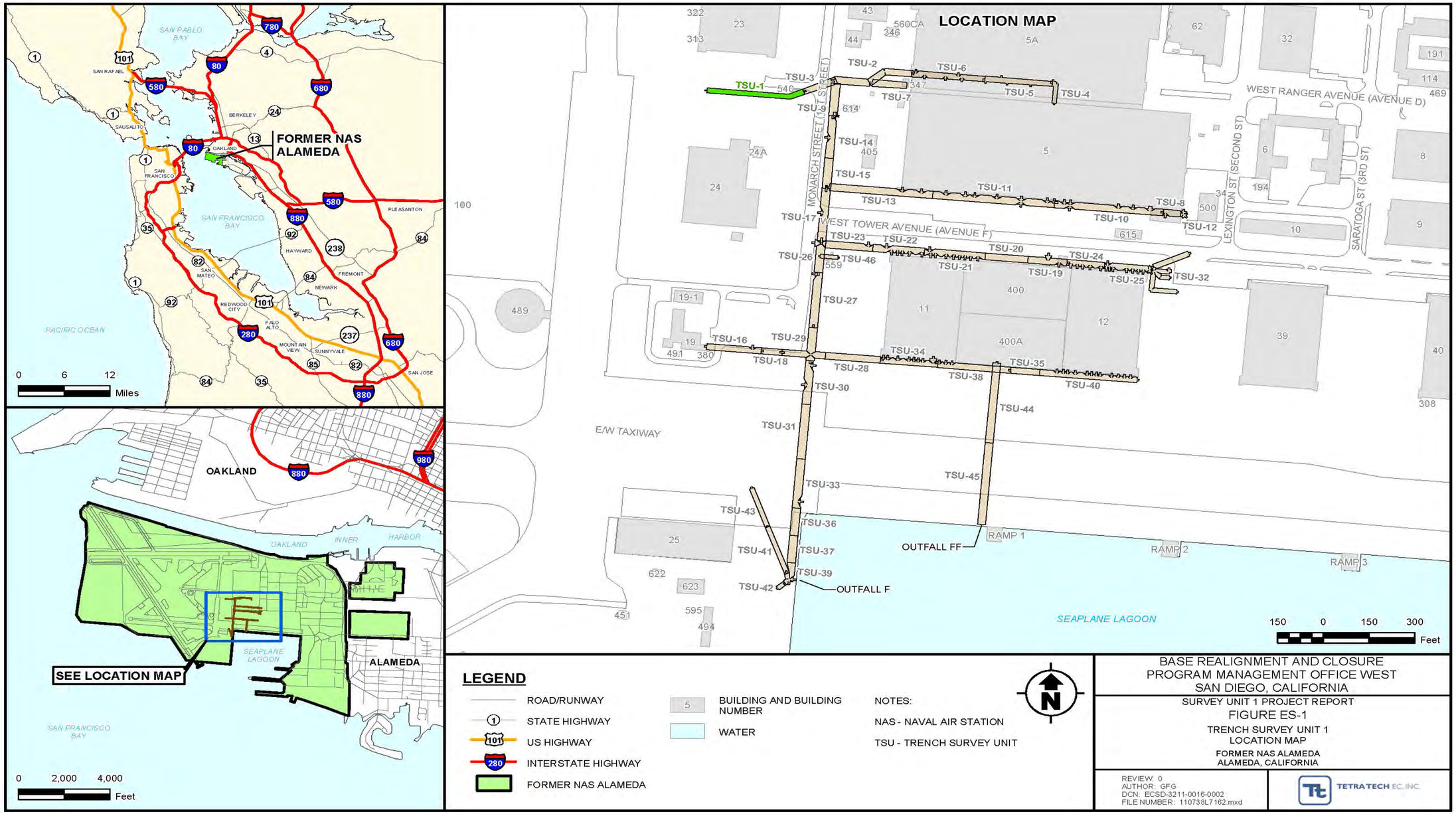
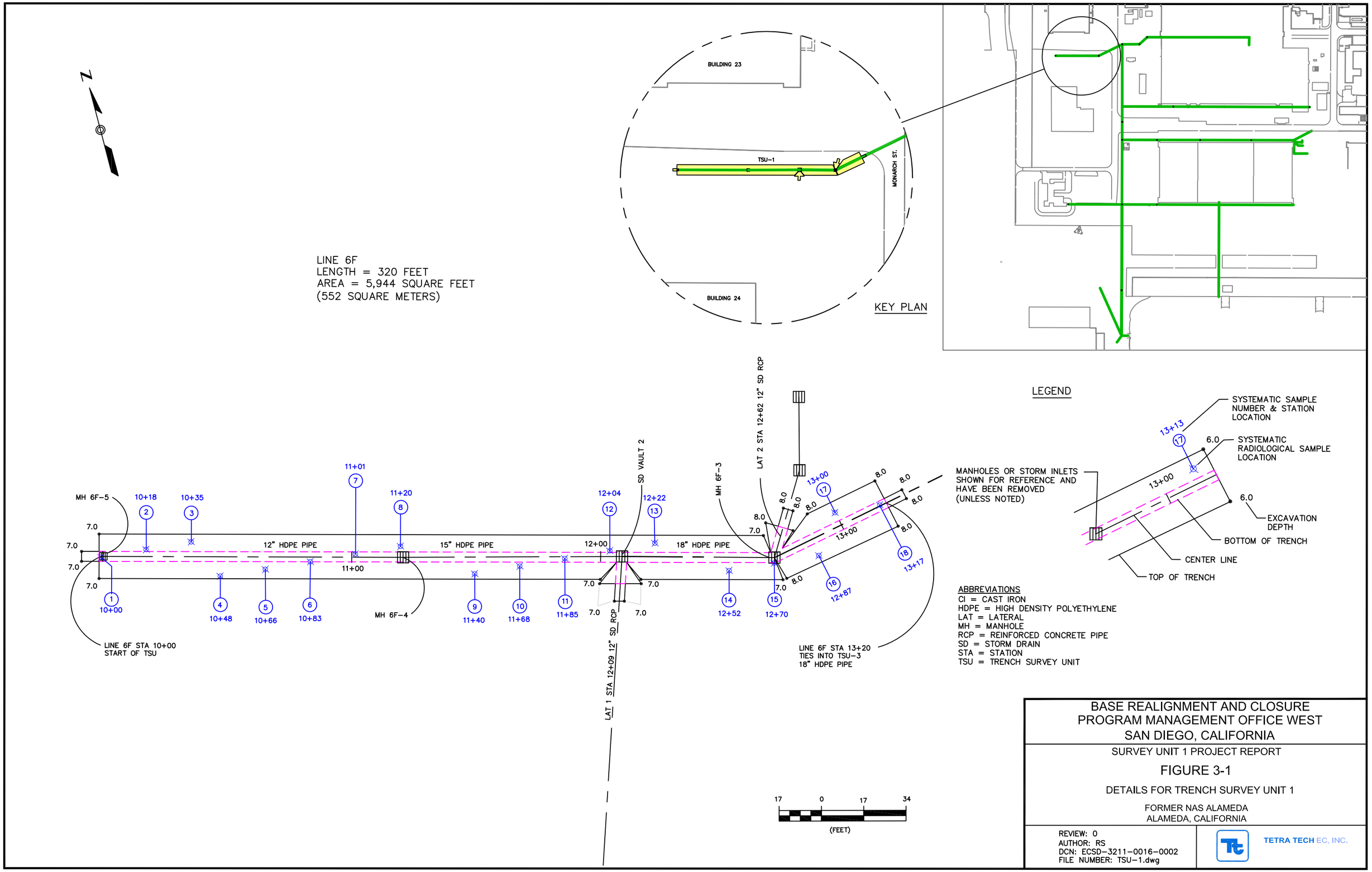

LOCATION MAP
FORMER NAS ALAMEDA
SAN PABLO BAY
SAN FRANCISCO BAY
PACIFIC OCEAN
SAN RAFAEL
SAUSALITO
BERKELEY
OAKLAND
SAN FRANCISCO
PLEASANTON
HAYWARD
FREMONT
NEWARK
SAN MATEO
REDWOOD CITY
PALO ALTO
MOUNTAIN VIEW
SUNNYVALE
SAN JOSE
0 6 12 Miles
OAKLAND
OAKLAND INNER HARBOR
SEAPLANE LAGOON
ALAMEDA
SEE LOCATION MAP
SAN FRANCISCO BAY
0 2,000 4,000 Feet
MONARCH STREET (1ST STREET)
WEST TOWER AVENUE (AVENUE F)
WEST RANGER AVENUE (AVENUE D)
LEXINGTON ST (SECOND ST)
SARATOGA ST (3RD ST)
E/W TAXIWAY
OUTFALL FF
OUTFALL F
RAMP 1
RAMP 2
RAMP 3
SEAPLANE LAGOON
150 0 150 300 Feet
TSU-1
TSU-2
TSU-3
TSU-4
TSU-5
TSU-6
TSU-7
TSU-8
TSU-9
TSU-10
TSU-11
TSU-12
TSU-13
TSU-14
TSU-15
TSU-16
TSU-17
TSU-18
TSU-19
TSU-20
TSU-21
TSU-22
TSU-23
TSU-24
TSU-25
TSU-26
TSU-27
TSU-28
TSU-29
TSU-30
TSU-31
TSU-32
TSU-33
TSU-34
TSU-35
TSU-36
TSU-37
TSU-38
TSU-39
TSU-40
TSU-41
TSU-42
TSU-43
TSU-44
TSU-45
TSU-46
LEGEND
ROAD/RUNWAY
STATE HIGHWAY
US HIGHWAY
INTERSTATE HIGHWAY
FORMER NAS ALAMEDA
BUILDING AND BUILDING NUMBER
WATER
NOTES:
NAS - NAVAL AIR STATION
TSU - TRENCH SURVEY UNIT
N
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA
SURVEY UNIT 1 PROJECT REPORT
FIGURE ES-1
TRENCH SURVEY UNIT 1
LOCATION MAP
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA
REVIEW: 0
AUTHOR: GFG
DCN: ECSD-3211-0016-0002
FILE NUMBER: 110738L7162.mxd
TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 1 PROJECT REPORT

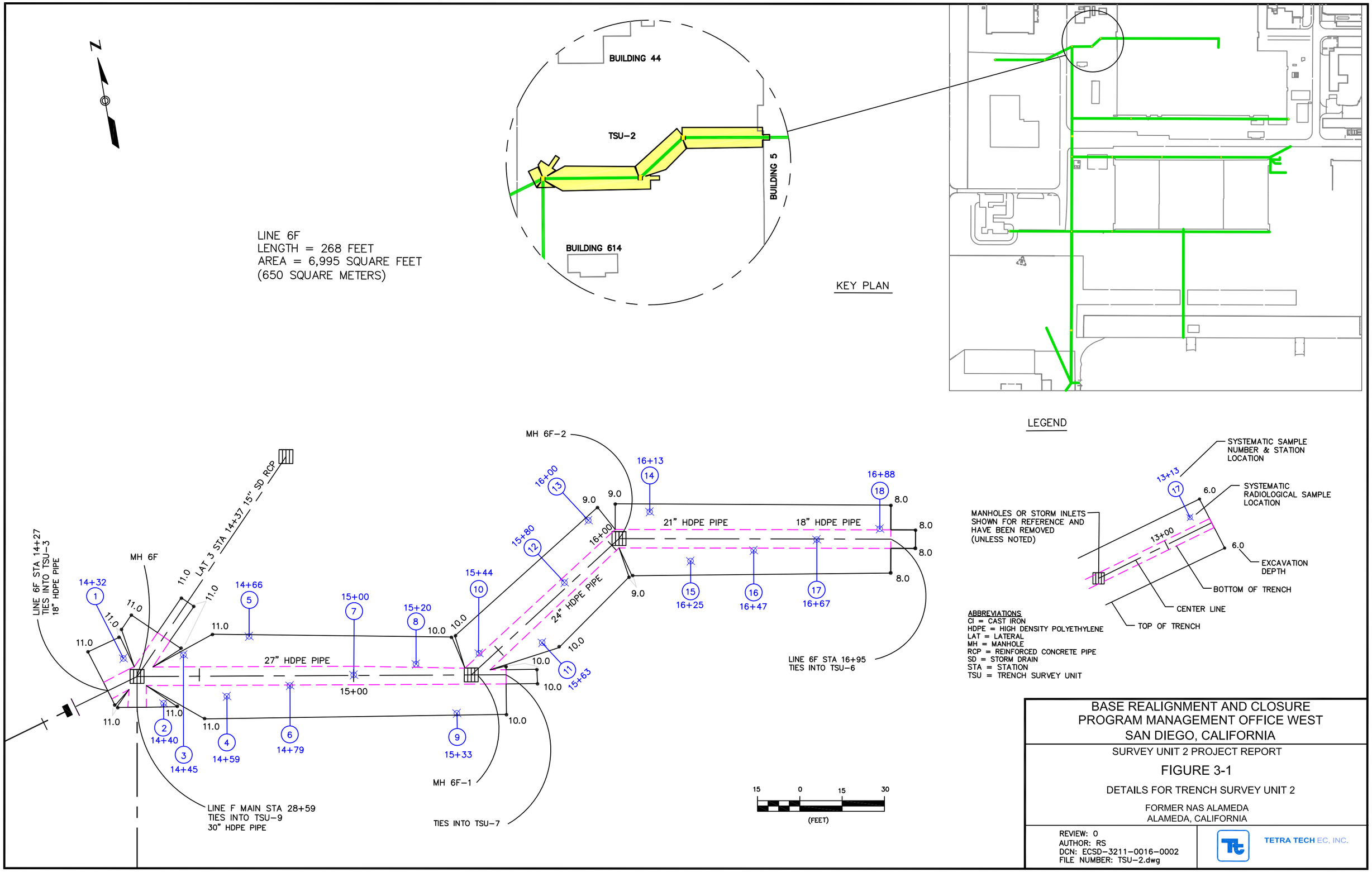
FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 1

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-1.dwg

TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 2 PROJECT REPORT

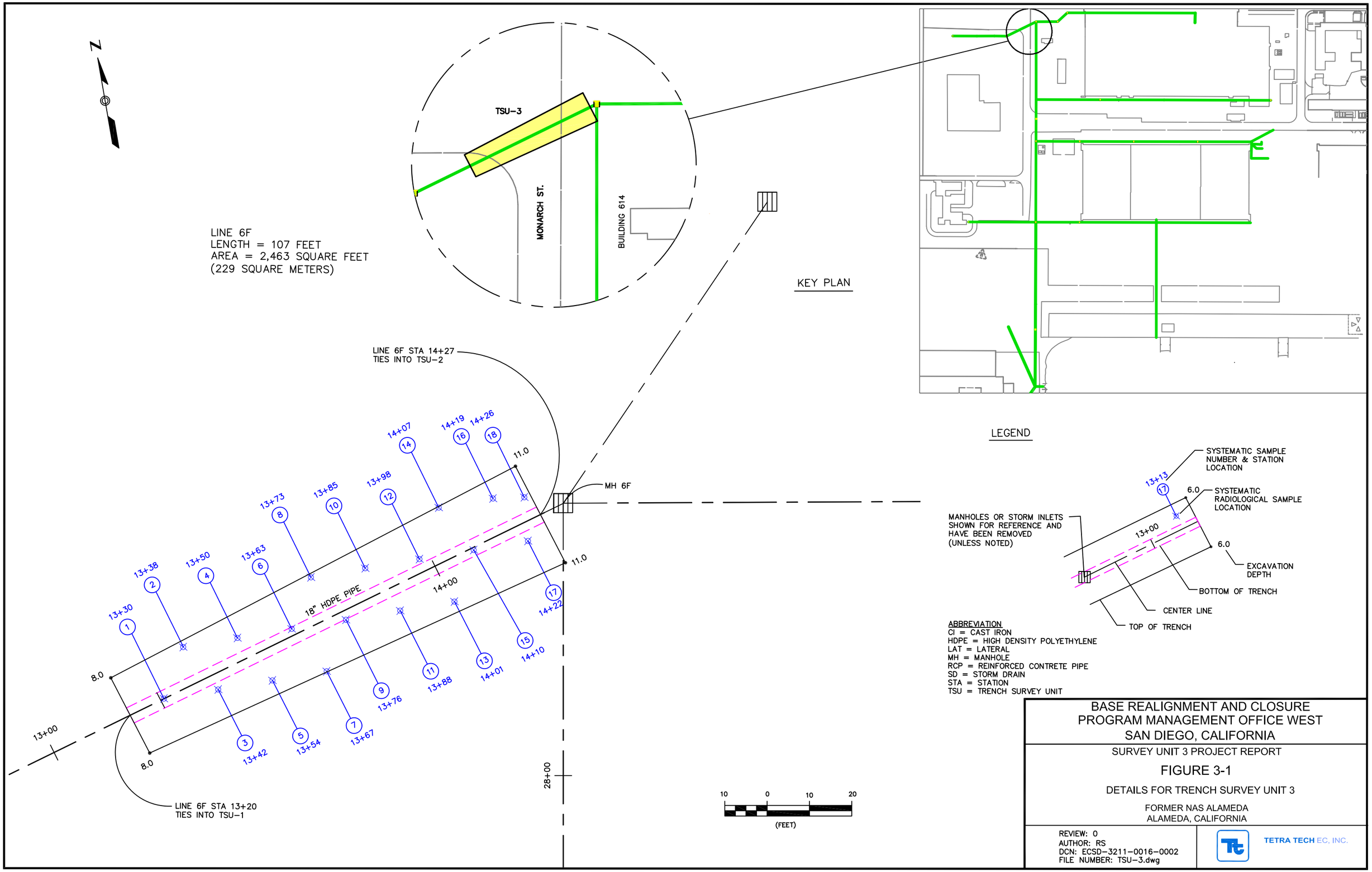
FIGURE 3-1

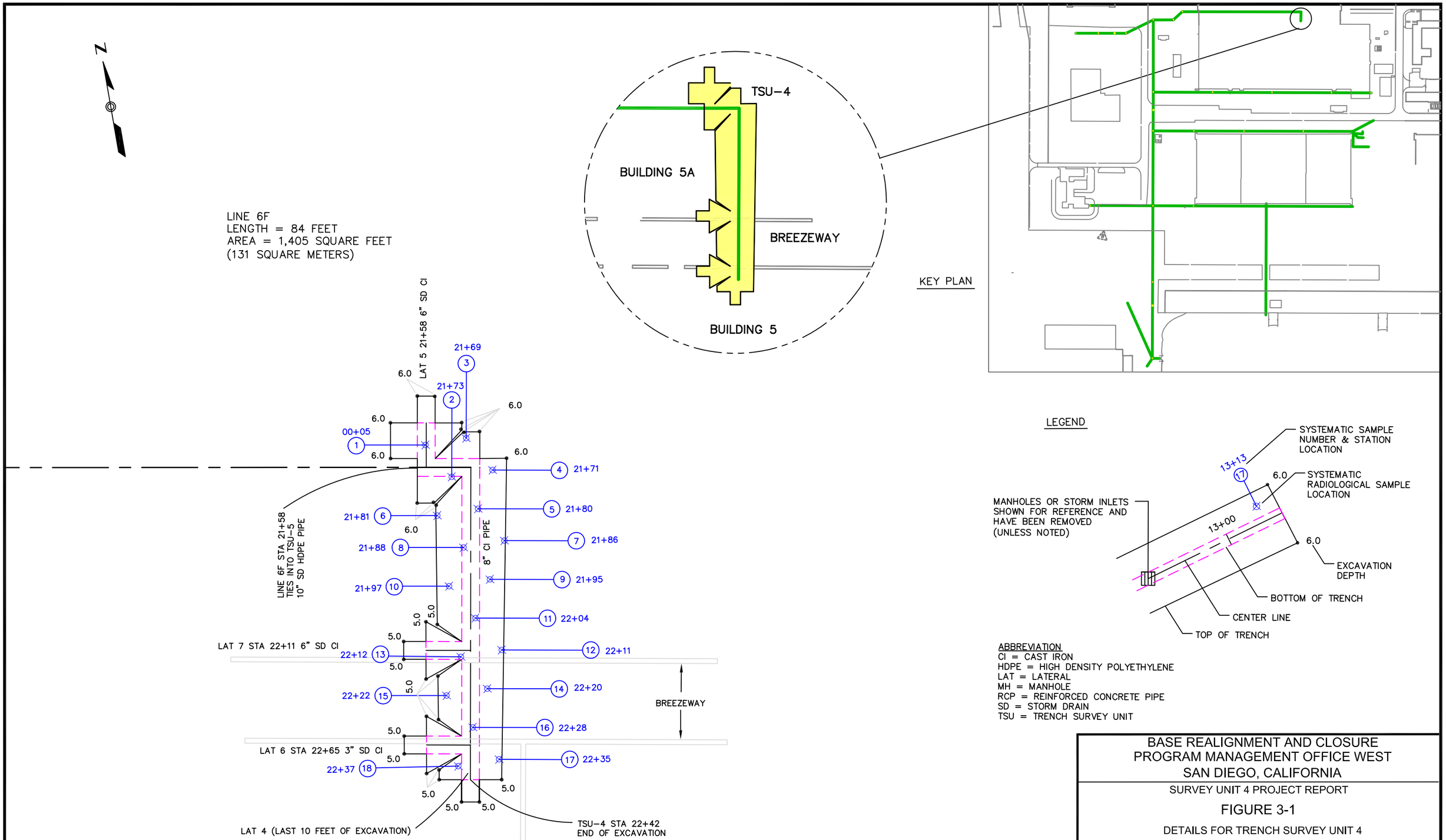
DETAILS FOR TRENCH SURVEY UNIT 2

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-2.dwg

TETRA TECH EC, INC.


N
TSU-3
MONARCH ST.
BUILDING 614
LINE 6F
LENGTH = 107 FEET
AREA = 2,463 SQUARE FEET
(229 SQUARE METERS)
KEY PLAN
LINE 6F STA 14+27
TIES INTO TSU-2
MH 6F
11.0
11.0
8.0
8.0
18" HDPE PIPE
14+00
13+00
28+00
13+30
13+38
13+50
13+63
13+73
13+85
13+98
14+07
14+19
14+26
14+22
14+10
14+01
13+88
13+76
13+67
13+54
13+42
LINE 6F STA 13+20
TIES INTO TSU-1
10 0 10 20
(FEET)
LEGEND
SYSTEMATIC SAMPLE NUMBER & STATION LOCATION
SYSTEMATIC RADIOLOGICAL SAMPLE LOCATION
MANHOLES OR STORM INLETS SHOWN FOR REFERENCE AND HAVE BEEN REMOVED (UNLESS NOTED)
6.0
6.0
EXCAVATION DEPTH
BOTTOM OF TRENCH
CENTER LINE
TOP OF TRENCH
ABBREVIATION
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONTRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA
SURVEY UNIT 3 PROJECT REPORT
FIGURE 3-1
DETAILS FOR TRENCH SURVEY UNIT 3
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-3.dwg
TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 4 PROJECT REPORT

FIGURE 3-1

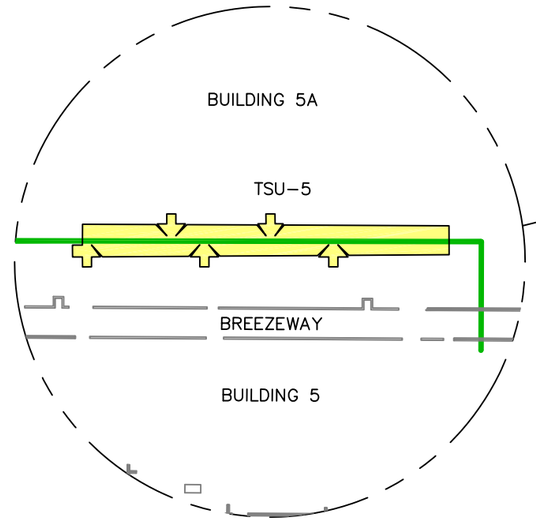
DETAILS FOR TRENCH SURVEY UNIT 4

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

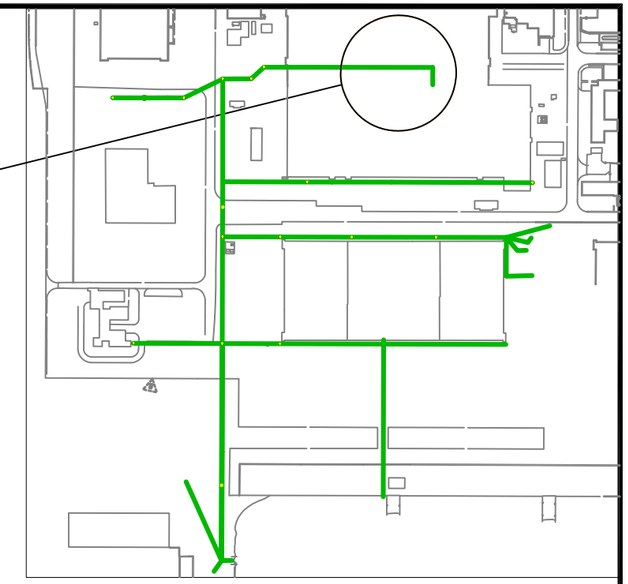
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-4.dwg

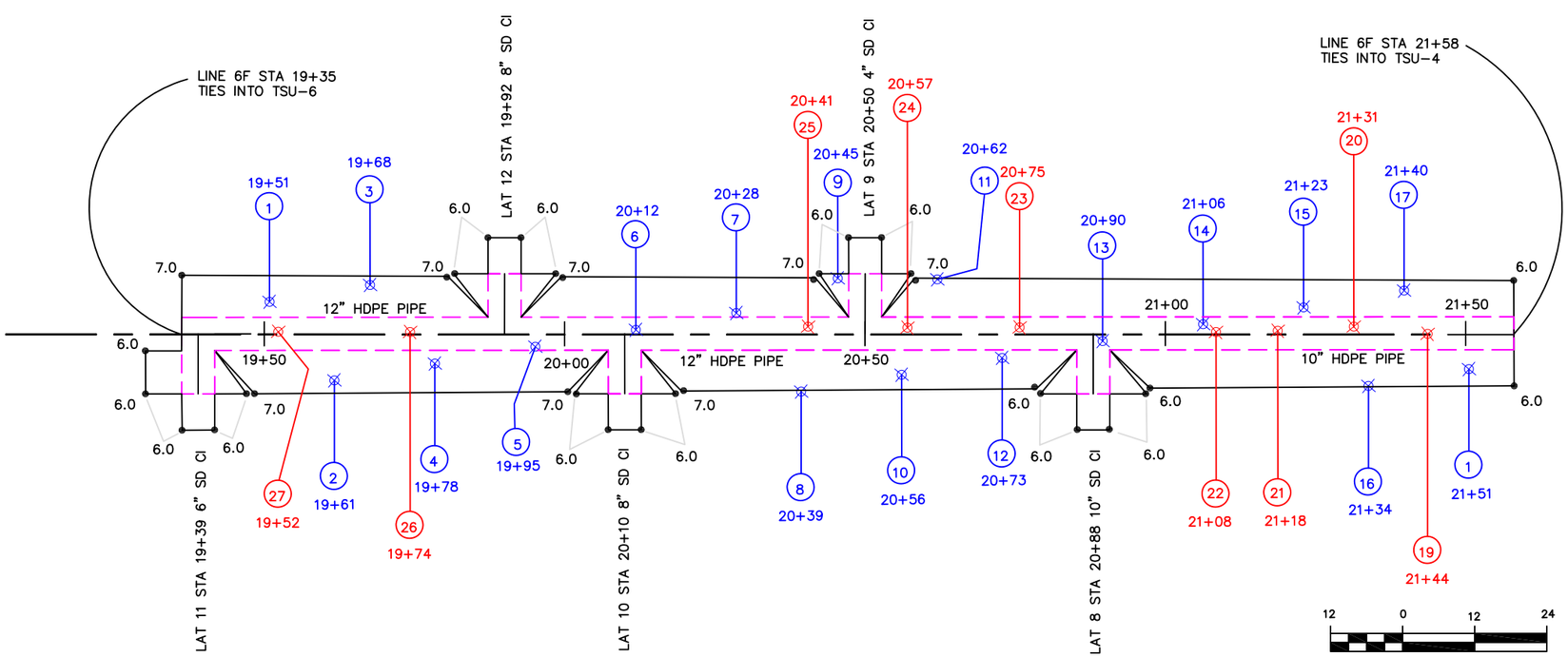
TETRA TECH EC, INC.

LINE 6F
LENGTH = 223 FEET
AREA = 4,381 SQUARE FEET
(407 SQUARE METERS)

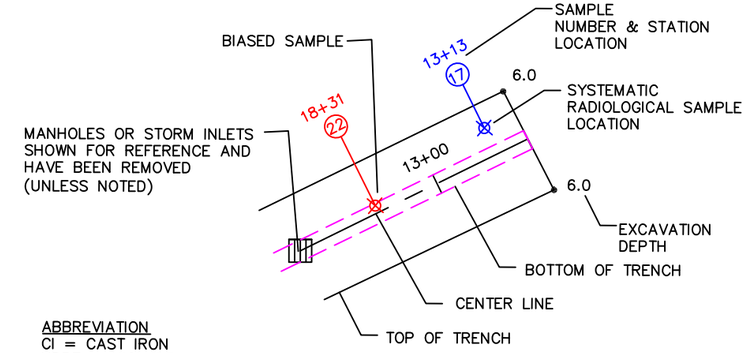


KEY PLAN





LEGEND



ABBREVIATION
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 5 PROJECT REPORT

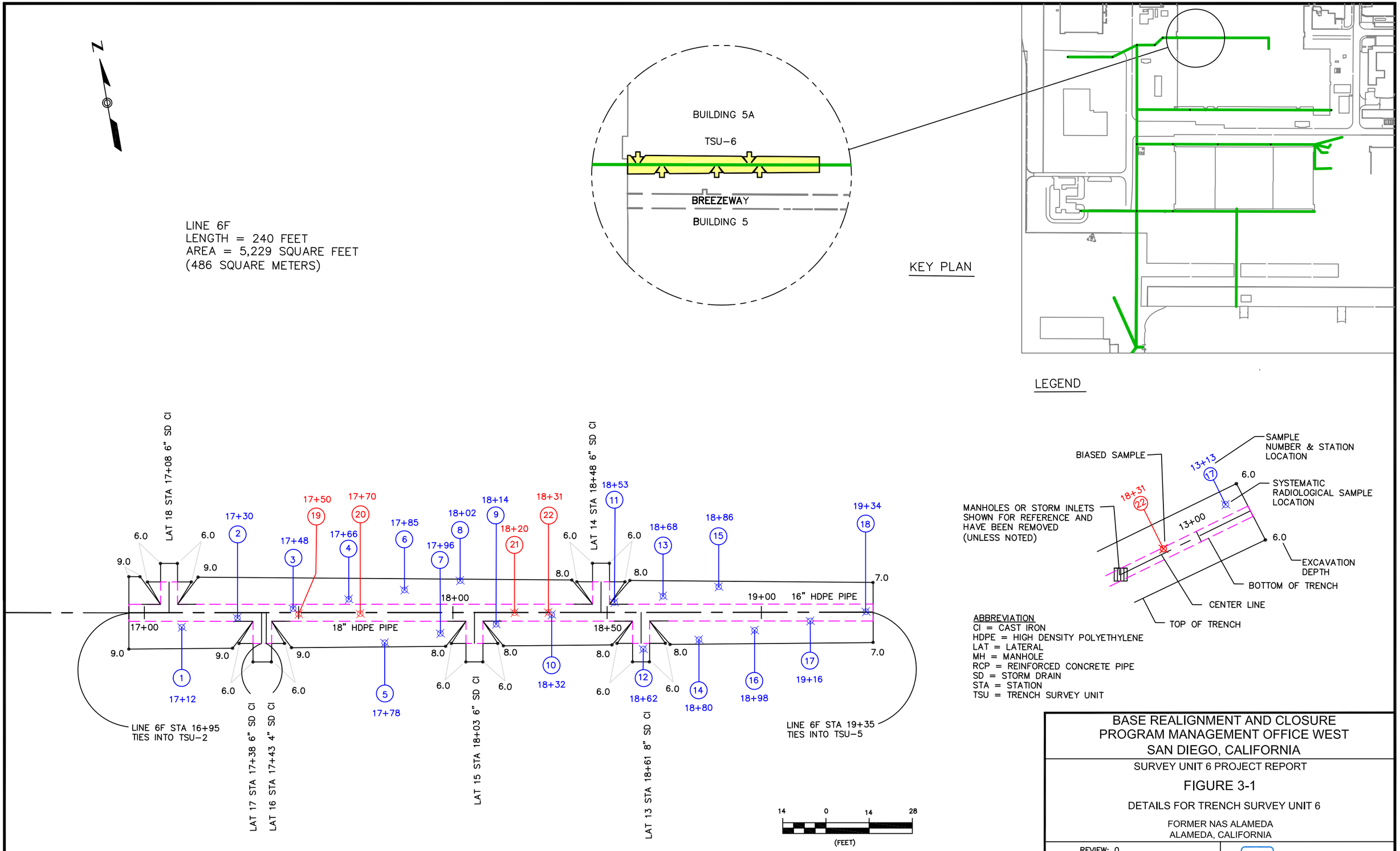
FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 5

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-5.dwg

TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 6 PROJECT REPORT

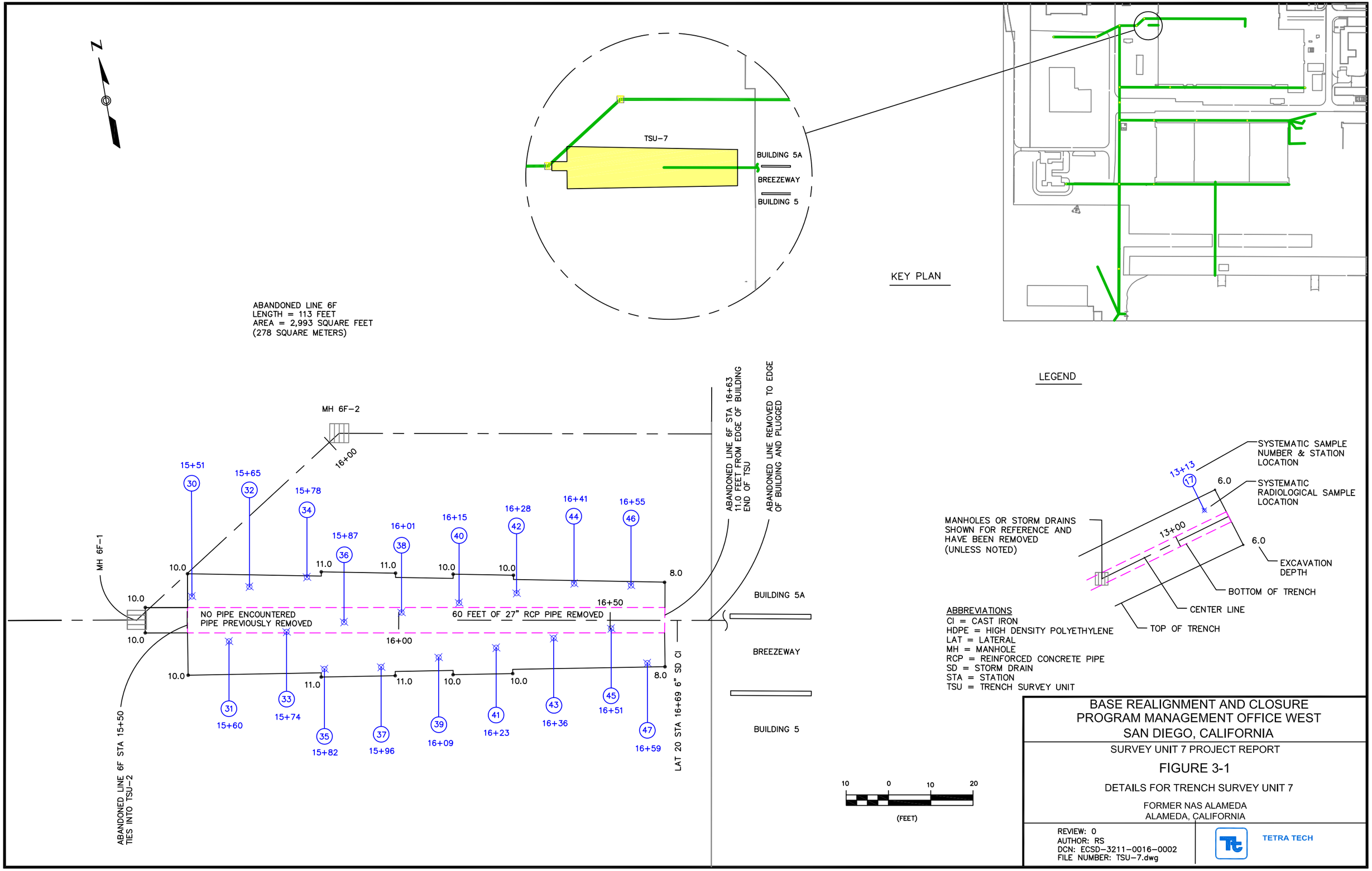
FIGURE 3-1

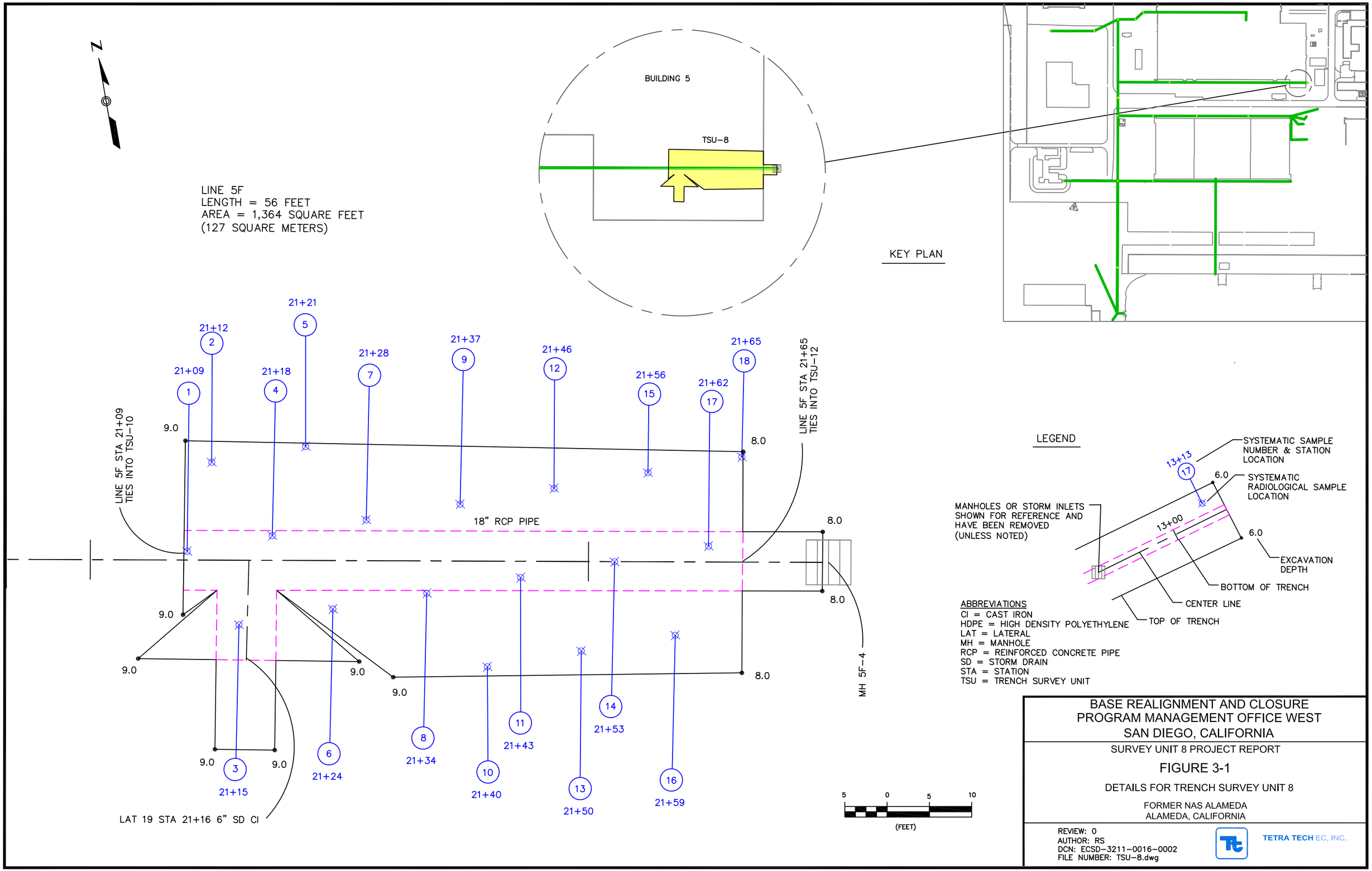
DETAILS FOR TRENCH SURVEY UNIT 6

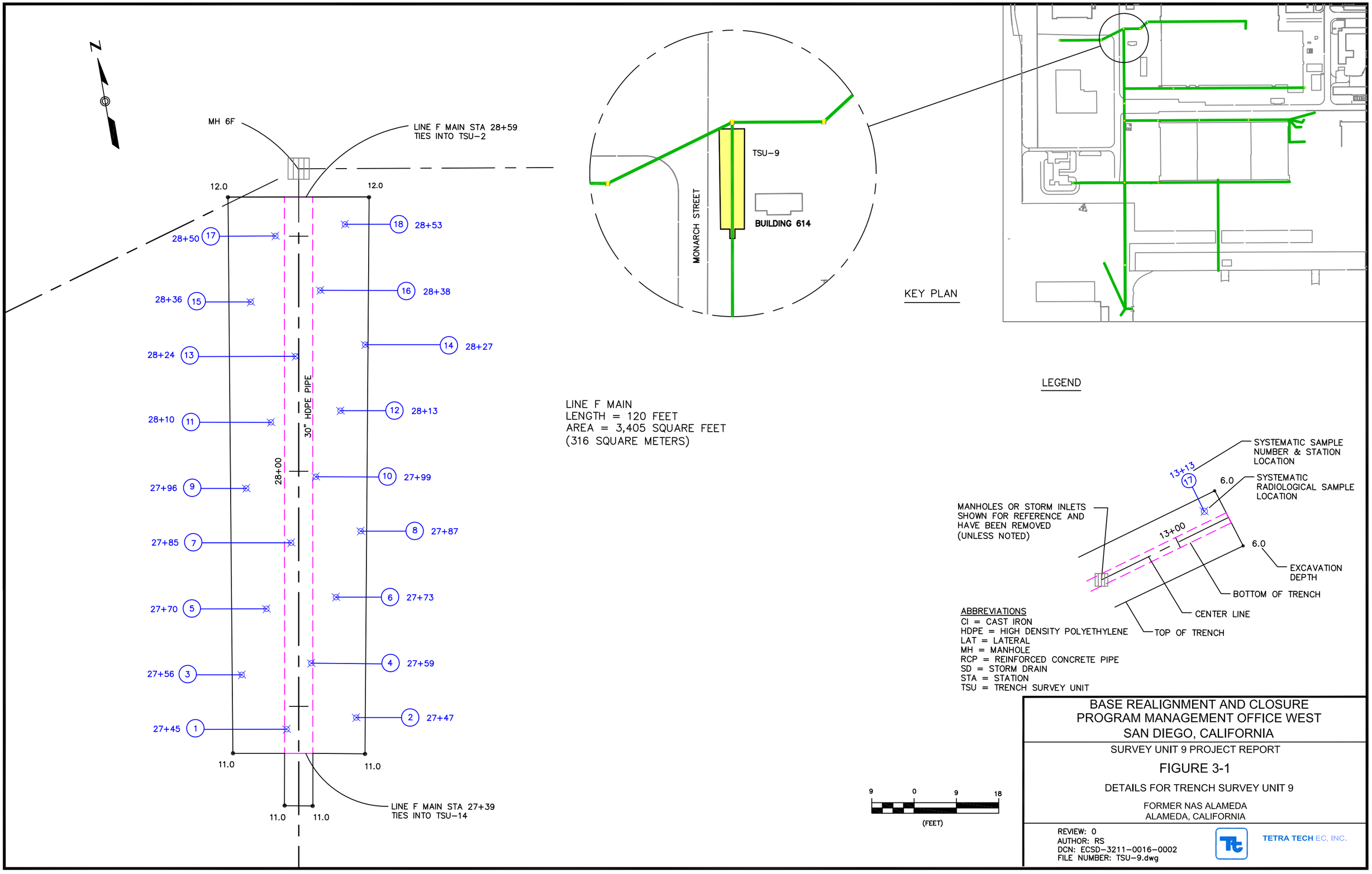
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

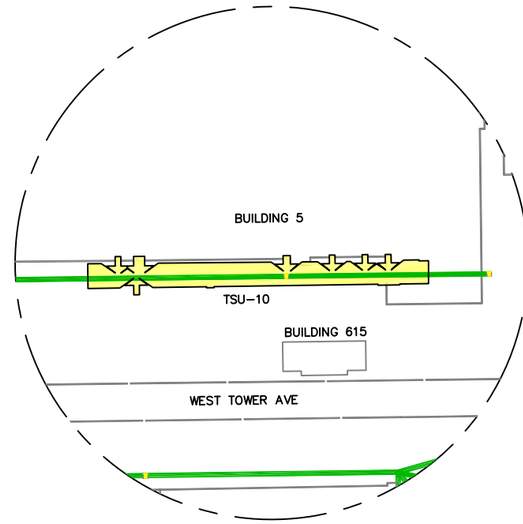
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-6.dwg

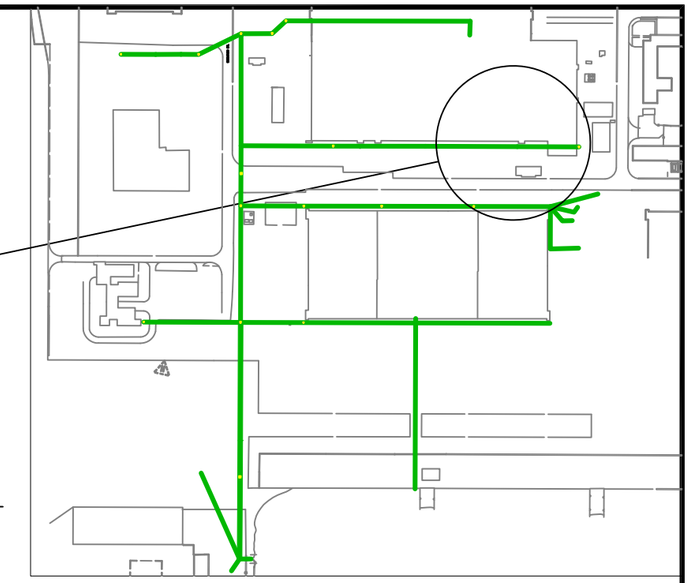
TETRA TECH EC, INC.


N
TSU-7
BUILDING 5A
BREEZEWAY
BUILDING 5
KEY PLAN
ABANDONED LINE 6F
LENGTH = 113 FEET
AREA = 2,993 SQUARE FEET
(278 SQUARE METERS)
MH 6F-2
16+00
MH 6F-1
15+51
15+65
15+78
15+87
16+01
16+15
16+28
16+41
16+55
30
32
34
36
38
40
42
44
46
10.0
11.0
8.0
16+50
NO PIPE ENCOUNTERED
PIPE PREVIOUSLY REMOVED
60 FEET OF 27" RCP PIPE REMOVED
31
33
35
37
39
41
43
45
47
15+60
15+74
15+82
15+96
16+09
16+23
16+36
16+51
16+59
ABANDONED LINE 6F STA 15+50
TIES INTO TSU-2
LAT 20 STA 16+69 6" SD CI
ABANDONED LINE 6F STA 16+63
11.0 FEET FROM EDGE OF BUILDING
END OF TSU
ABANDONED LINE REMOVED TO EDGE
OF BUILDING AND PLUGGED
BUILDING 5A
BREEZEWAY
BUILDING 5
10
0
10
20
(FEET)
LEGEND
13+13
17
6.0
SYSTEMATIC SAMPLE
NUMBER & STATION
LOCATION
SYSTEMATIC
RADIOLOGICAL SAMPLE
LOCATION
MANHOLES OR STORM DRAINS
SHOWN FOR REFERENCE AND
HAVE BEEN REMOVED
(UNLESS NOTED)
13+00
6.0
EXCAVATION
DEPTH
BOTTOM OF TRENCH
CENTER LINE
TOP OF TRENCH
ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA
SURVEY UNIT 7 PROJECT REPORT
FIGURE 3-1
DETAILS FOR TRENCH SURVEY UNIT 7
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-7.dwg
TETRA TECH


N
BUILDING 5
TSU-8
KEY PLAN
LINE 5F
LENGTH = 56 FEET
AREA = 1,364 SQUARE FEET
(127 SQUARE METERS)
21+09
21+12
21+15
21+18
21+21
21+24
21+28
21+34
21+37
21+40
21+43
21+46
21+50
21+53
21+56
21+59
21+62
21+65
LINE 5F STA 21+09 TIES INTO TSU-10
LINE 5F STA 21+65 TIES INTO TSU-12
9.0
8.0
18" RCP PIPE
MH 5F-4
LAT 19 STA 21+16 6" SD CI
5 0 5 10
(FEET)
LEGEND
13+13
13+00
SYSTEMATIC SAMPLE NUMBER & STATION LOCATION
SYSTEMATIC RADIOLOGICAL SAMPLE LOCATION
MANHOLES OR STORM INLETS SHOWN FOR REFERENCE AND HAVE BEEN REMOVED (UNLESS NOTED)
6.0
EXCAVATION DEPTH
BOTTOM OF TRENCH
CENTER LINE
TOP OF TRENCH
ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA
SURVEY UNIT 8 PROJECT REPORT
FIGURE 3-1
DETAILS FOR TRENCH SURVEY UNIT 8
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-8.dwg
TETRA TECH EC, INC.


N
MH 6F
LINE F MAIN STA 28+59
TIES INTO TSU-2
12.0
12.0
28+50 17
18 28+53
28+36 15
16 28+38
28+24 13
14 28+27
28+10 11
12 28+13
30" HDPE PIPE
28+00
27+96 9
10 27+99
27+85 7
8 27+87
27+70 5
6 27+73
27+56 3
4 27+59
27+45 1
2 27+47
11.0
11.0
11.0
11.0
LINE F MAIN STA 27+39
TIES INTO TSU-14
LINE F MAIN
LENGTH = 120 FEET
AREA = 3,405 SQUARE FEET
(316 SQUARE METERS)
TSU-9
BUILDING 614
MONARCH STREET
KEY PLAN
LEGEND
SYSTEMATIC SAMPLE
NUMBER & STATION
LOCATION
13+13
17
6.0
SYSTEMATIC
RADIOLOGICAL SAMPLE
LOCATION
MANHOLES OR STORM INLETS
SHOWN FOR REFERENCE AND
HAVE BEEN REMOVED
(UNLESS NOTED)
13+00
6.0
EXCAVATION
DEPTH
BOTTOM OF TRENCH
CENTER LINE
TOP OF TRENCH
ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT
9 0 9 18
(FEET)
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA
SURVEY UNIT 9 PROJECT REPORT
FIGURE 3-1
DETAILS FOR TRENCH SURVEY UNIT 9
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-9.dwg
TETRA TECH EC, INC.

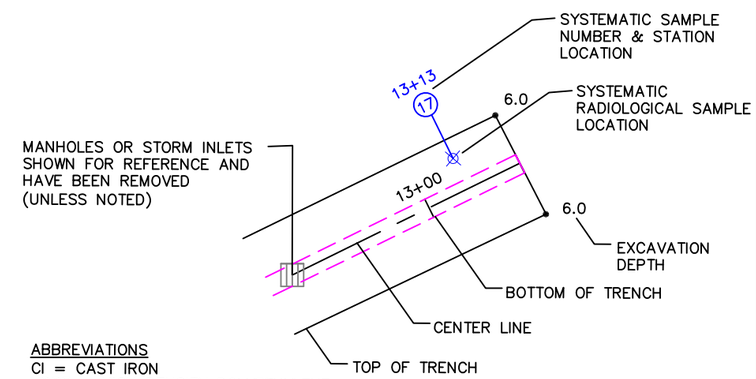


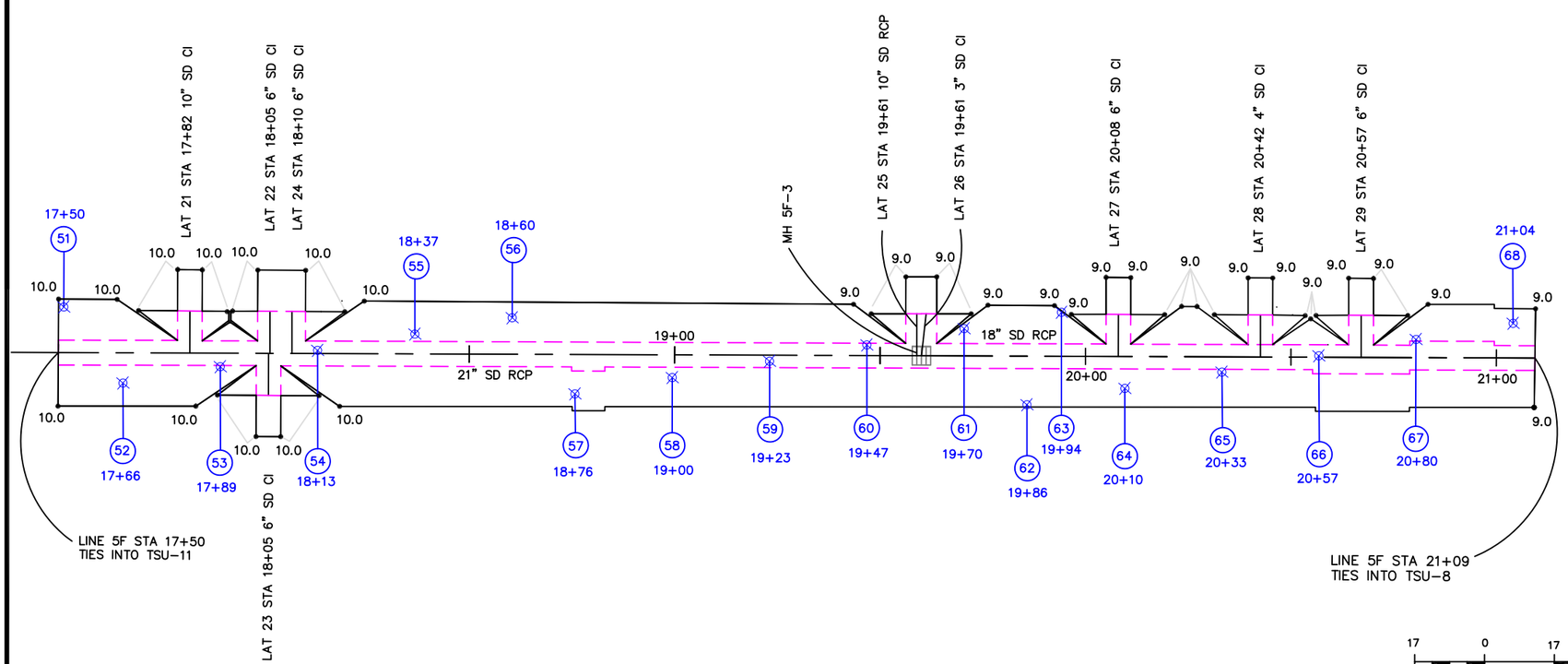


KEY PLAN

LINE 5F
LENGTH = 359 FEET
AREA = 8,984 SQUARE FEET
(835 SQUARE METERS)

LEGEND





ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 10 PROJECT REPORT

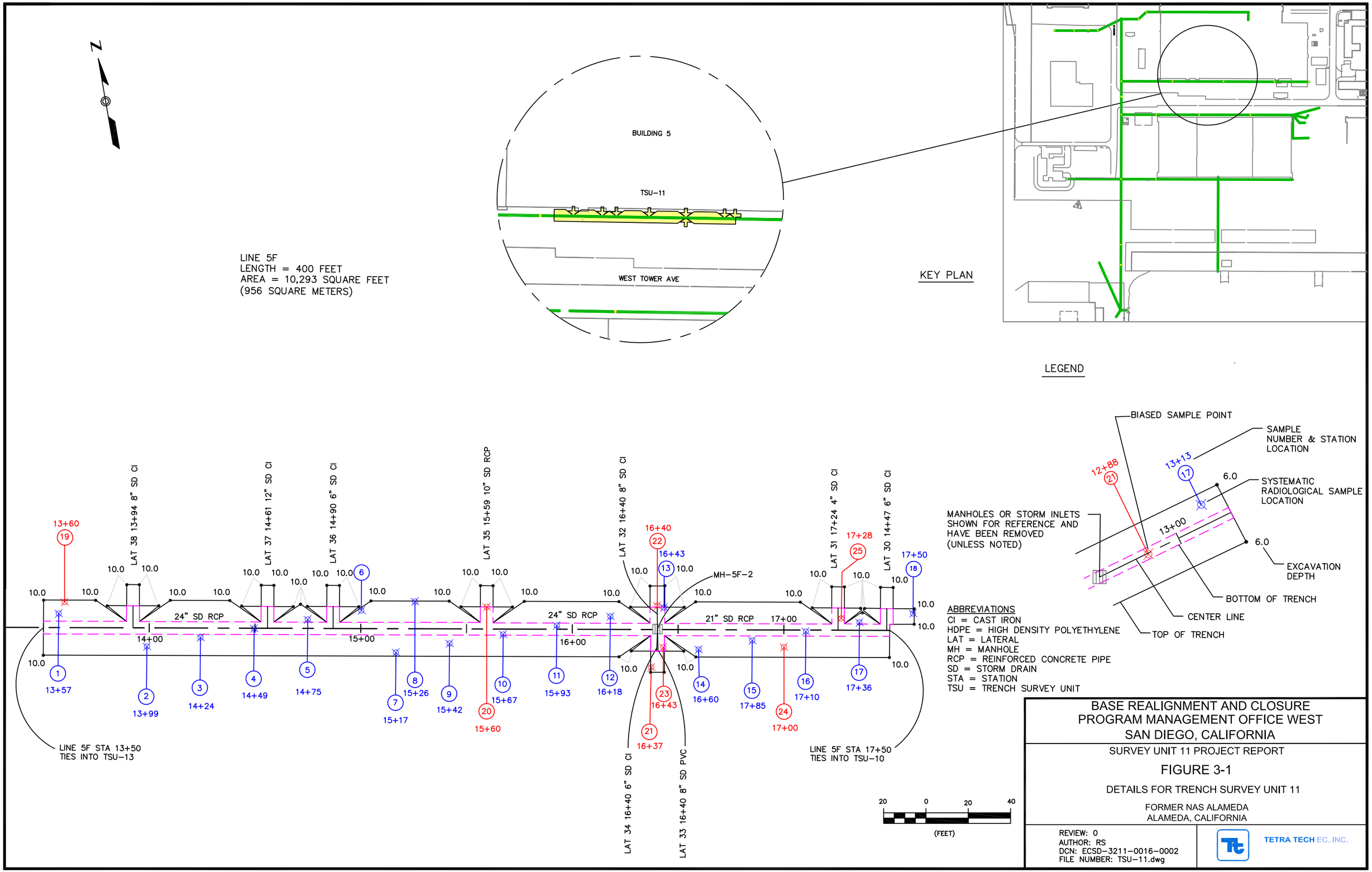
FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 10

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-10.dwg

TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 11 PROJECT REPORT

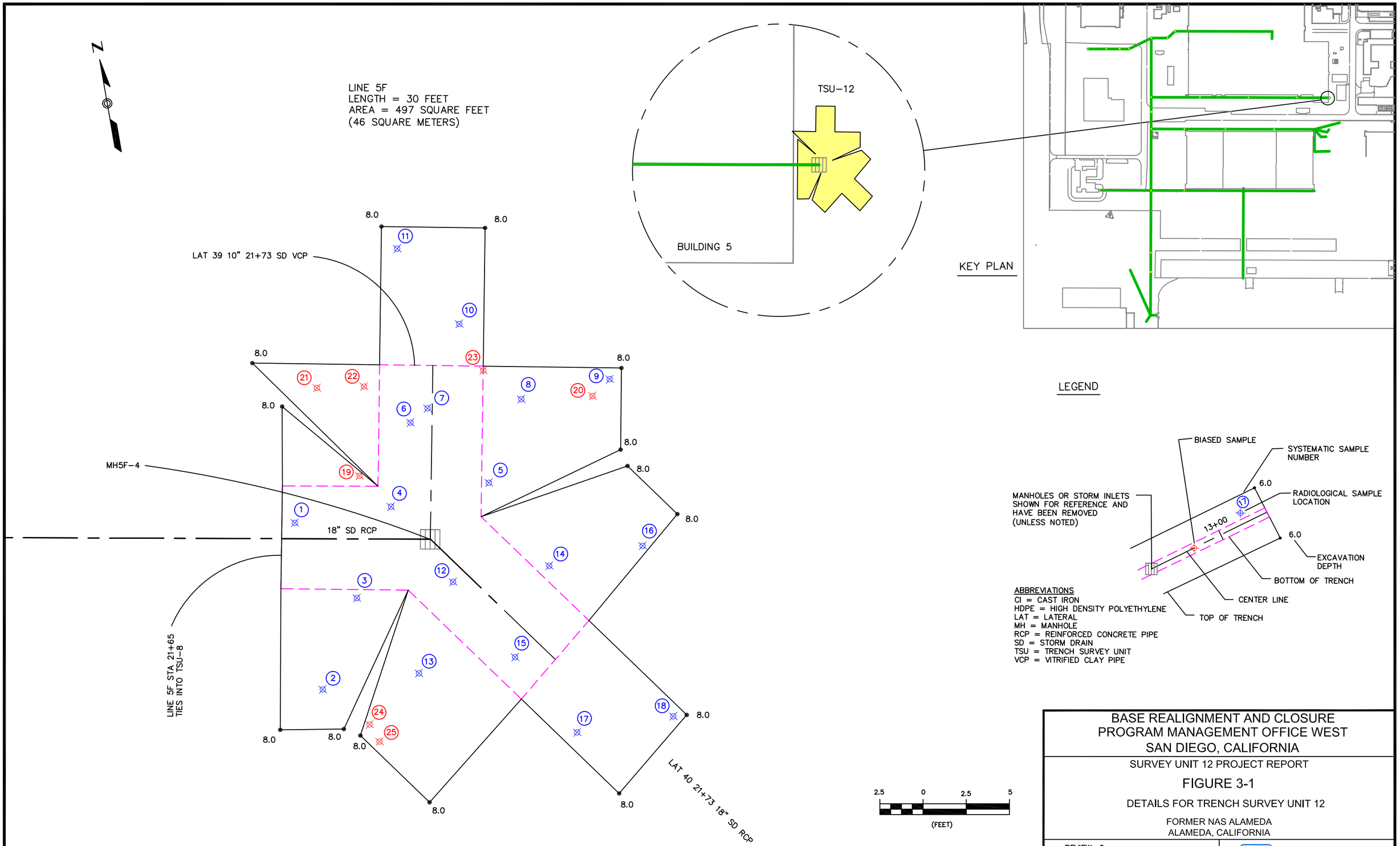
FIGURE 3-1

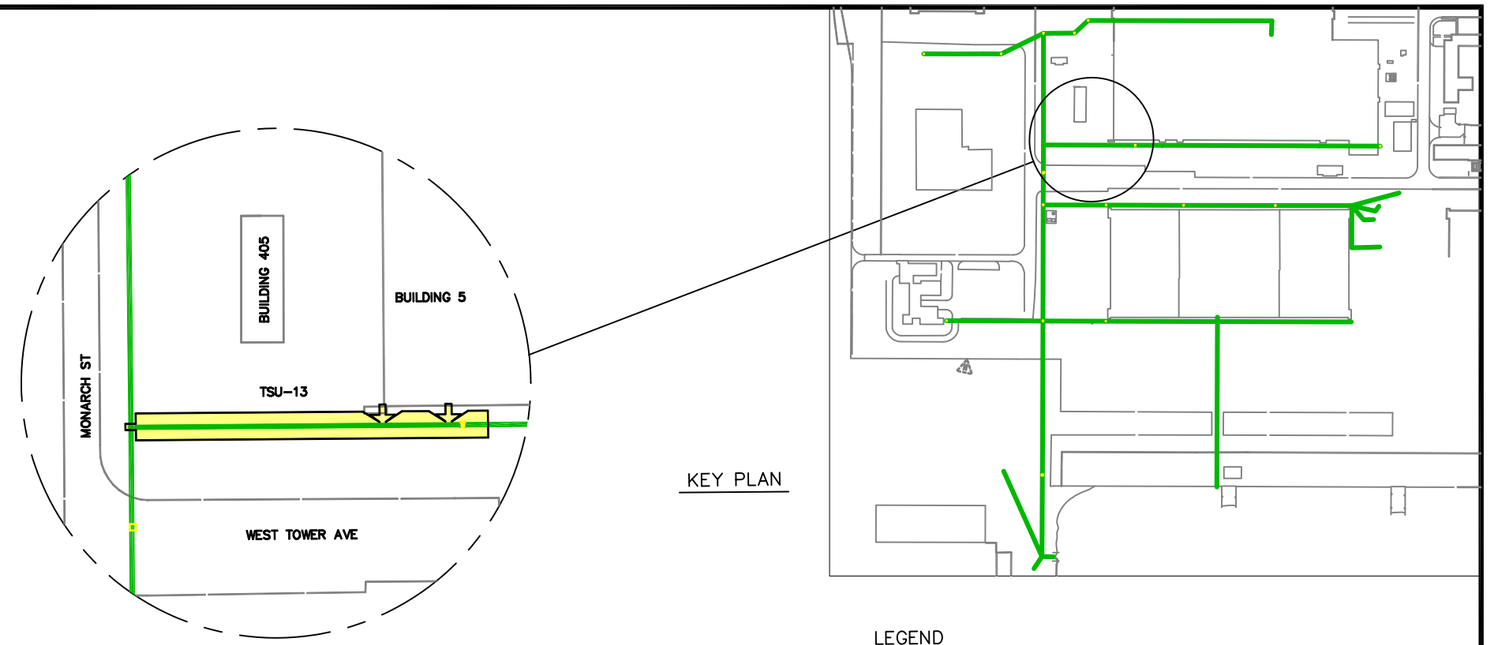
DETAILS FOR TRENCH SURVEY UNIT 11

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

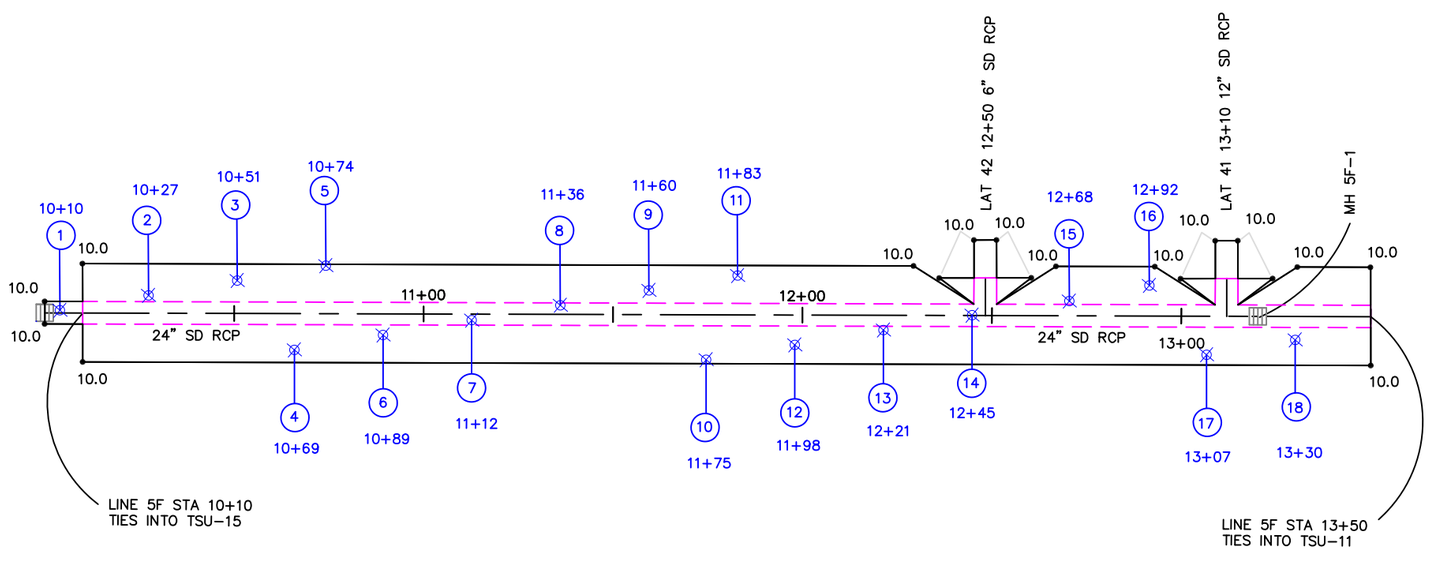
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-11.dwg

TETRA TECH EC, INC.

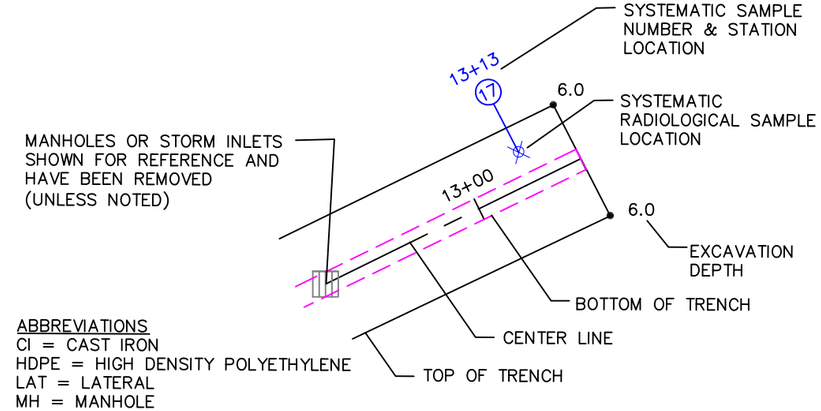

N
LINE 5F
LENGTH = 30 FEET
AREA = 497 SQUARE FEET
(46 SQUARE METERS)
TSU-12
BUILDING 5
KEY PLAN
LAT 39 10" 21+73 SD VCP
MH5F-4
18" SD RCP
LINE 5F STA 21+65
TIES INTO TSU-8
LAT 40 21+73 18" SD RCP
8.0
LEGEND
BIASED SAMPLE
SYSTEMATIC SAMPLE NUMBER
RADIOLOGICAL SAMPLE LOCATION
MANHOLES OR STORM INLETS SHOWN FOR REFERENCE AND HAVE BEEN REMOVED (UNLESS NOTED)
6.0
13+00
EXCAVATION DEPTH
BOTTOM OF TRENCH
CENTER LINE
TOP OF TRENCH
ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
TSU = TRENCH SURVEY UNIT
VCP = VITRIFIED CLAY PIPE
2.5 0 2.5 5
(FEET)
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA
SURVEY UNIT 12 PROJECT REPORT
FIGURE 3-1
DETAILS FOR TRENCH SURVEY UNIT 12
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-12.dwg
TETRA TECH EC, INC.



LINE 5F
LENGTH = 340 FEET
AREA = 8,774 SQUARE FEET
(815 SQUARE METERS)



LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

20 0 20 40
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 13 PROJECT REPORT

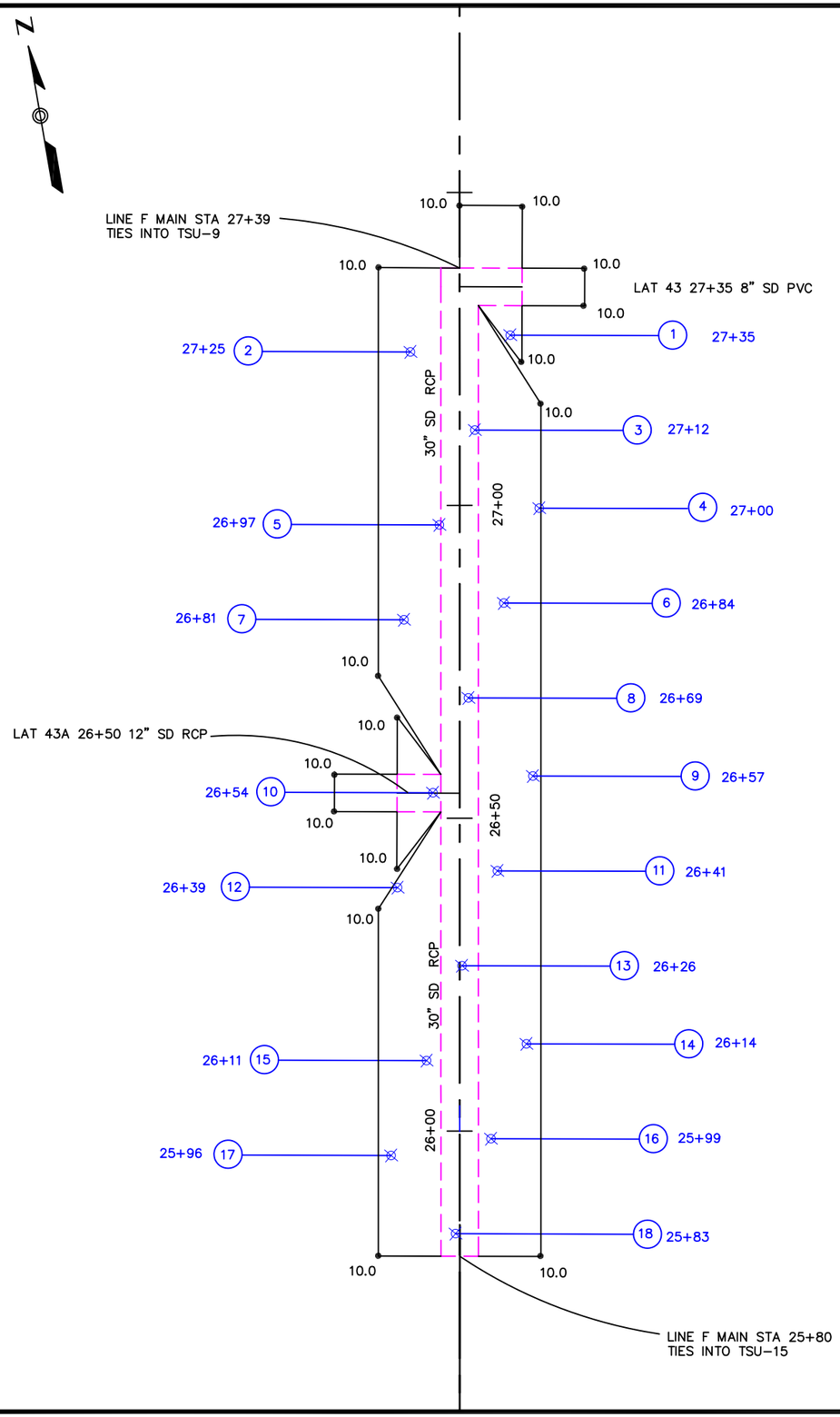
FIGURE 3-1

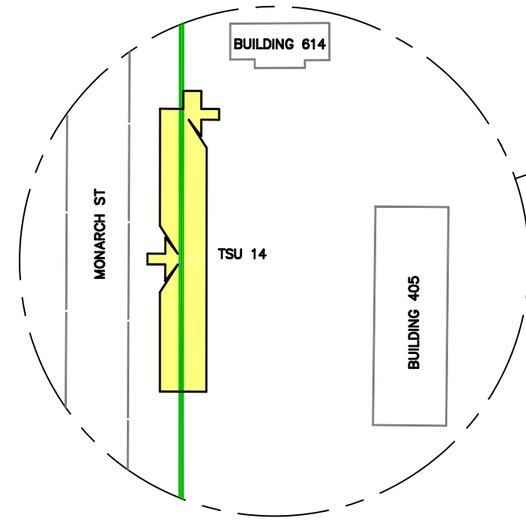
DETAILS FOR TRENCH SURVEY UNIT 13

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

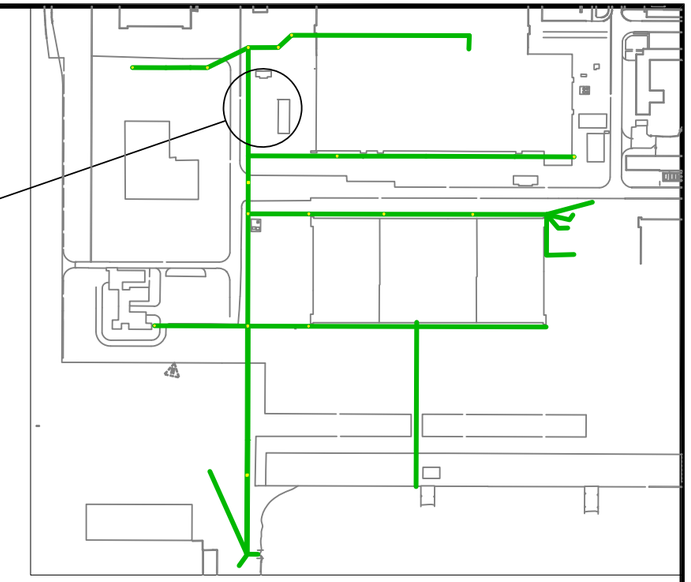
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-13.dwg

TETRA TECH EC, INC.



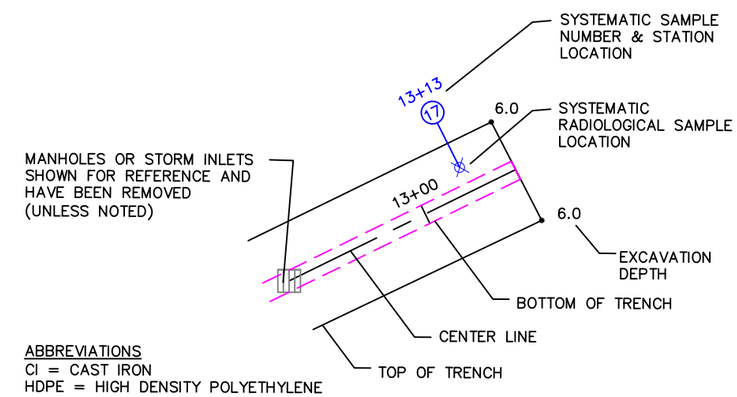


KEY PLAN



LINE F MAIN
LENGTH = 159 FEET
AREA = 4,149 SQUARE FEET
(385 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
PVC = POLYVINYL CHLORIDE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

11 0 11 22
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 14 PROJECT REPORT

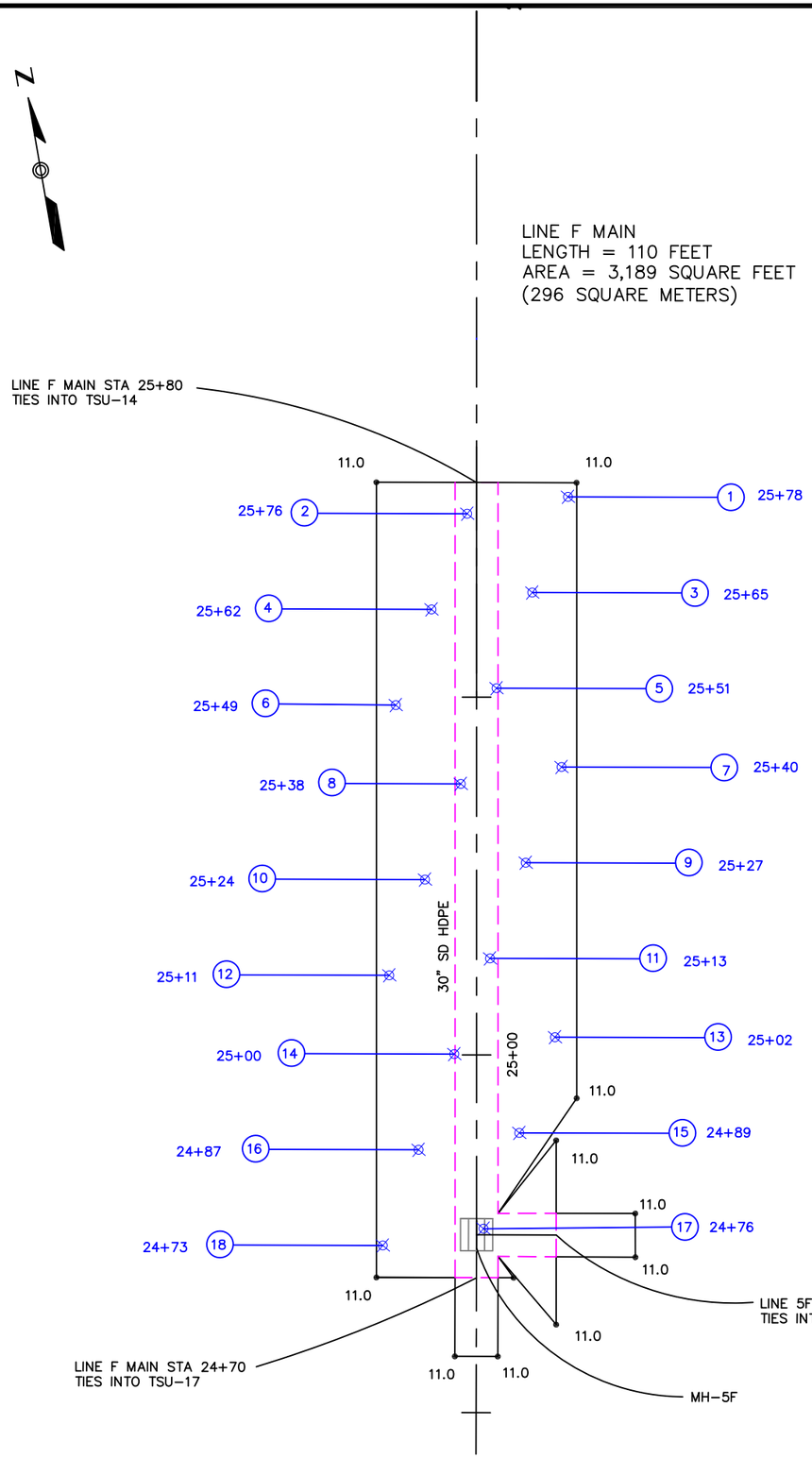
FIGURE 3-1

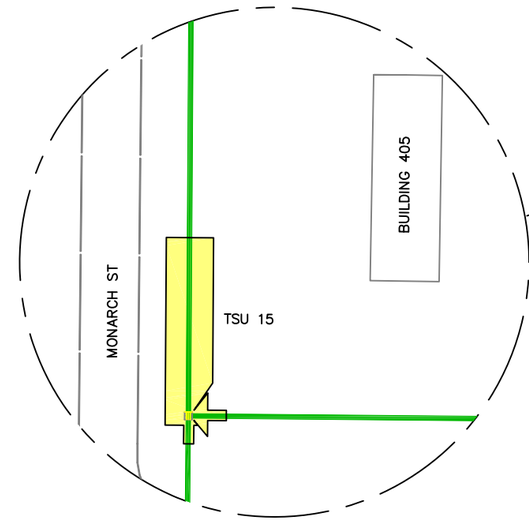
DETAILS FOR TRENCH SURVEY UNIT 14

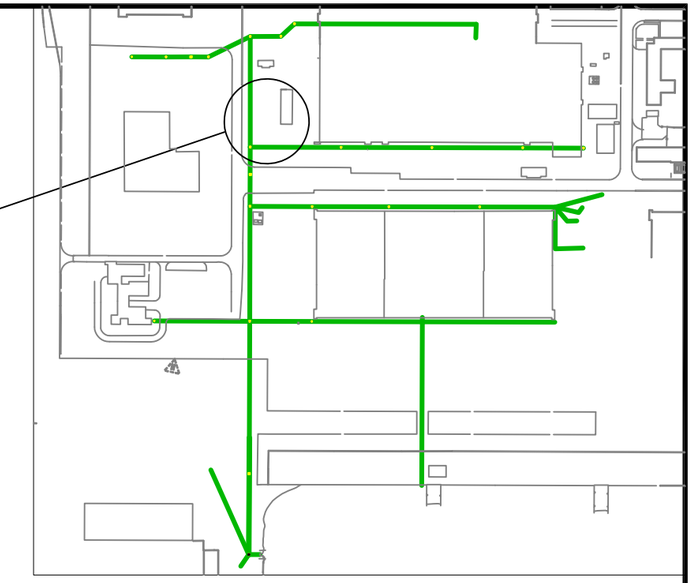
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-14.dwg

TETRA TECH EC, INC.

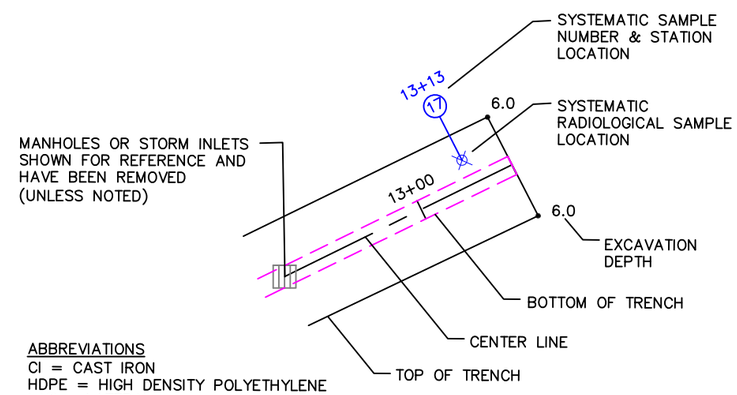






KEY PLAN

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

10 0 10 20
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 15 PROJECT REPORT

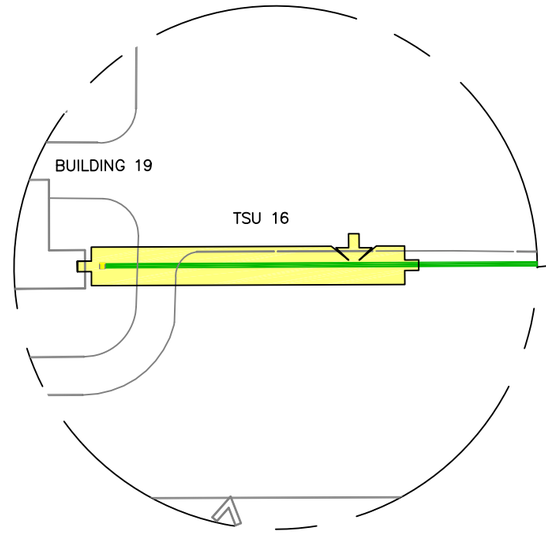
FIGURE 3-1

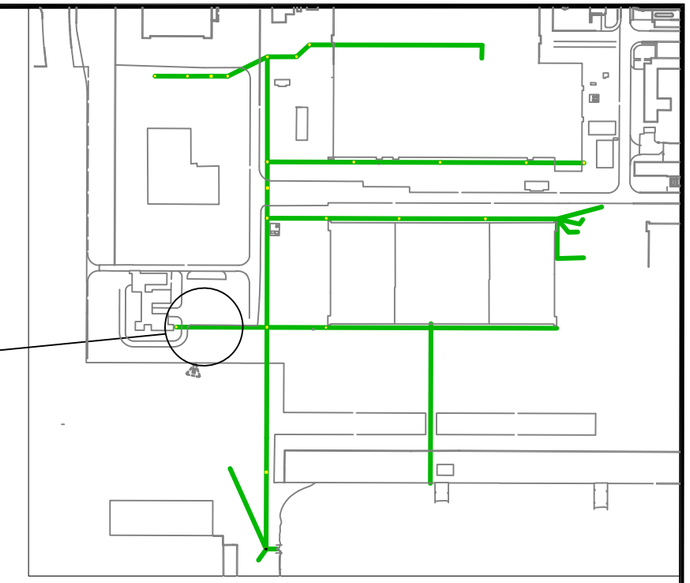
DETAILS FOR TRENCH SURVEY UNIT 15

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-15.dwg

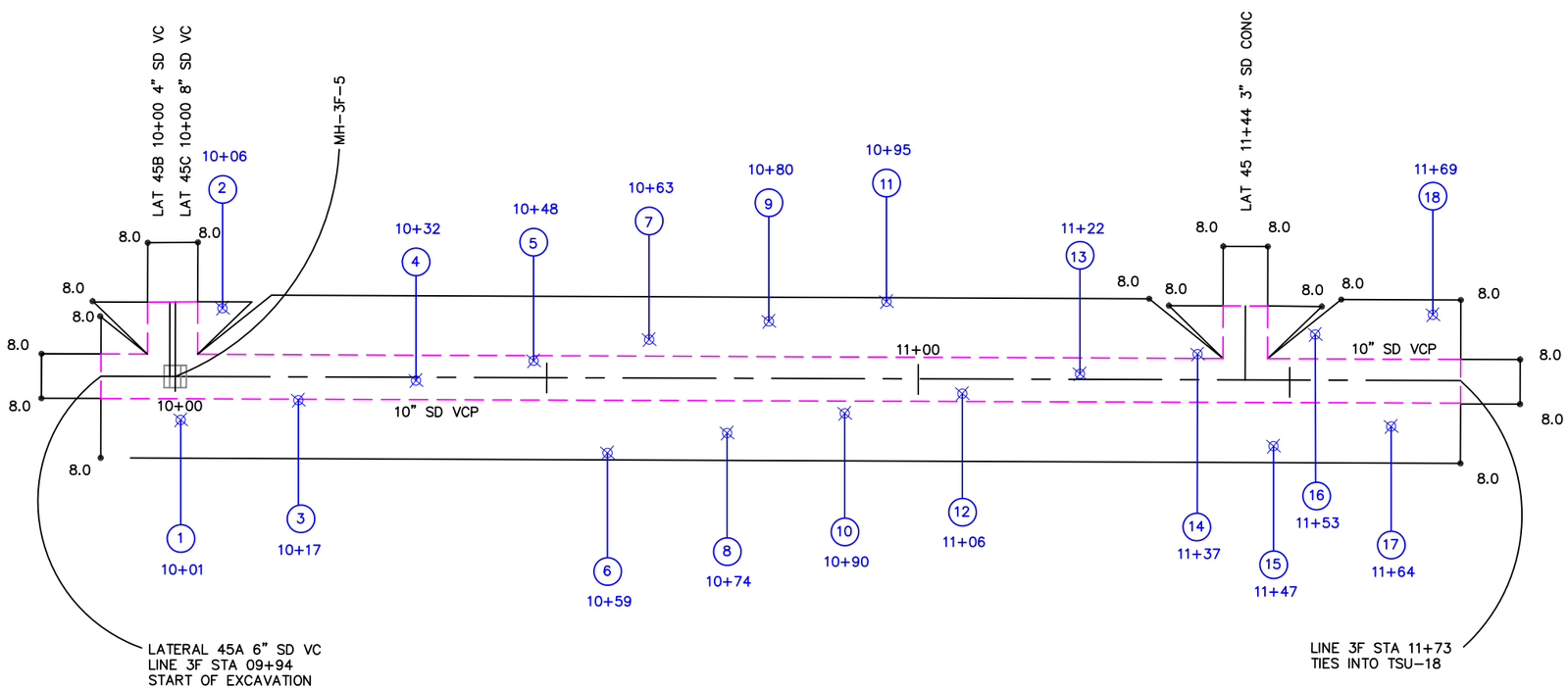
TETRA TECH EC, INC.



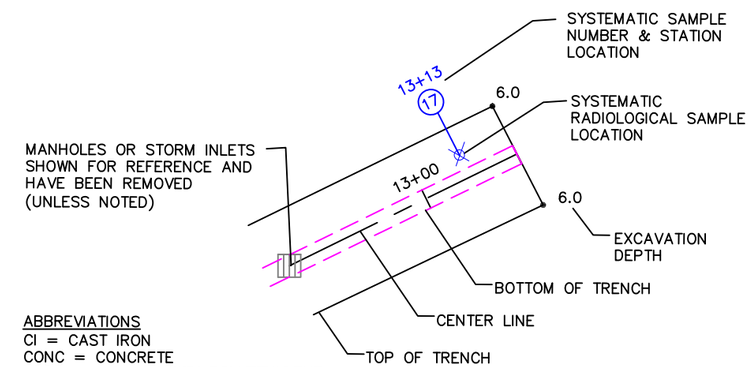


KEY PLAN

LINE 3F
LENGTH = 179 FEET
AREA = 4,073 SQUARE FEET
(378 SQUARE METERS)



LEGEND



ABBREVIATIONS
CI = CAST IRON
CONC = CONCRETE
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT
VCP = VITRIFIED CLAY PIPE

10 0 10 20
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 16 PROJECT REPORT

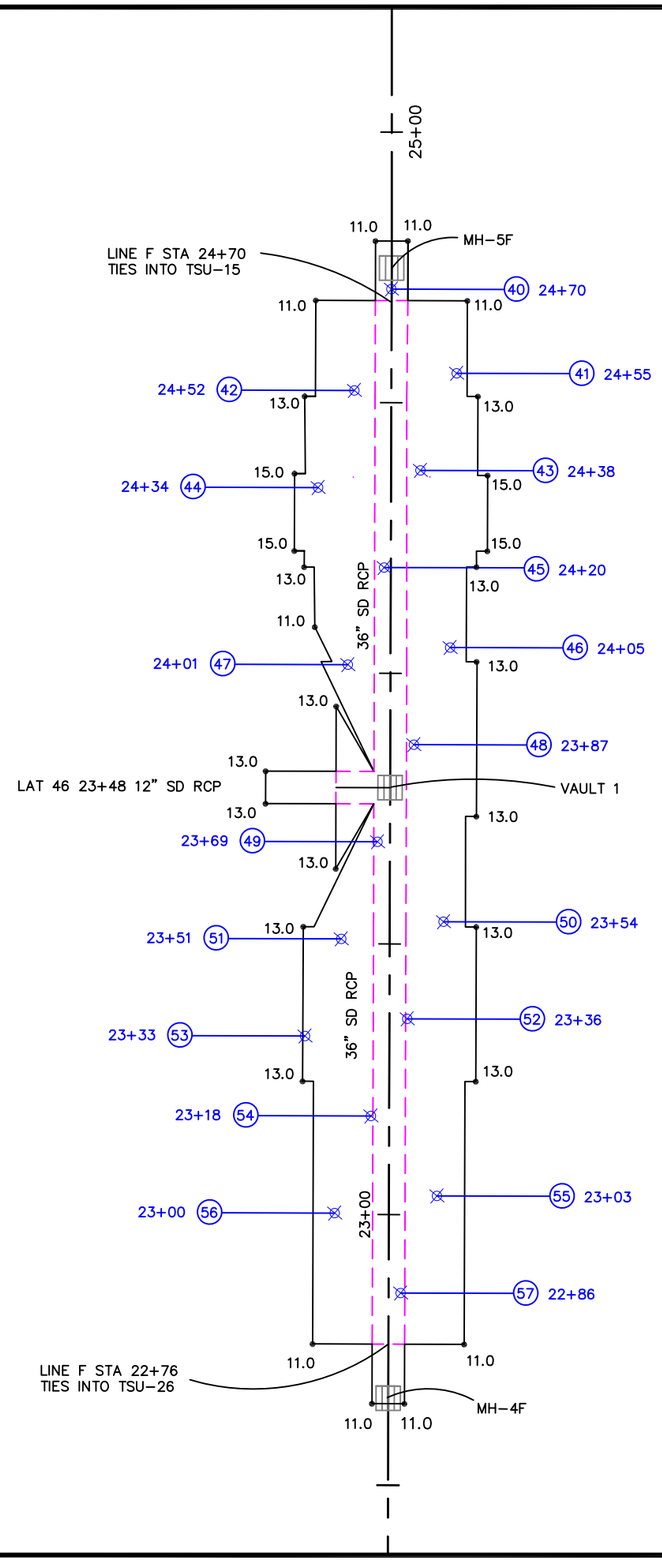
FIGURE 3-1

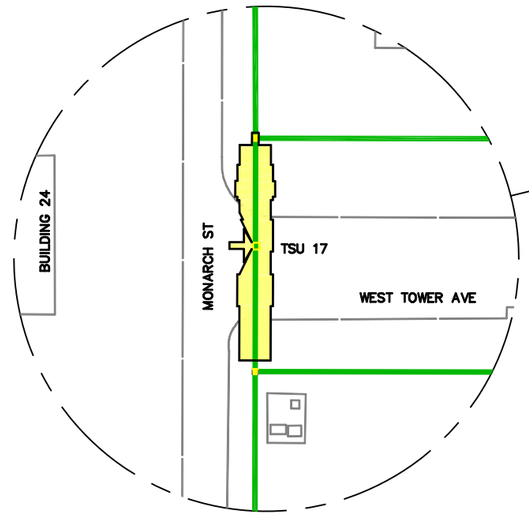
DETAILS FOR TRENCH SURVEY UNIT 16

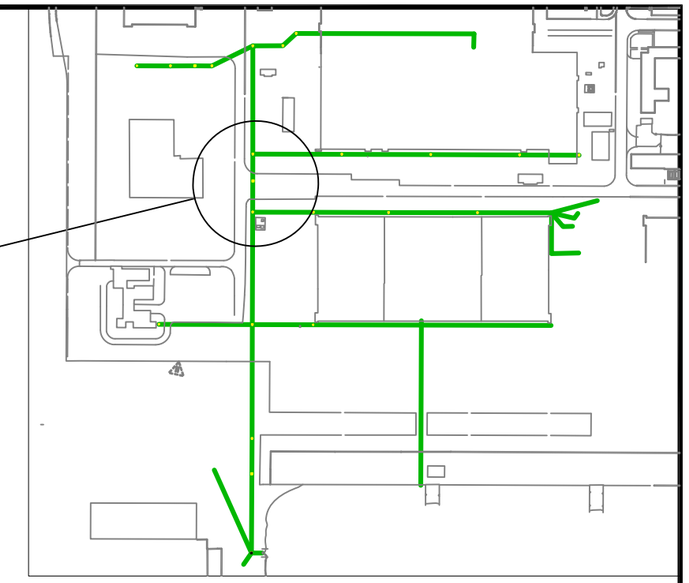
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-16.dwg

TETRA TECH EC, INC.



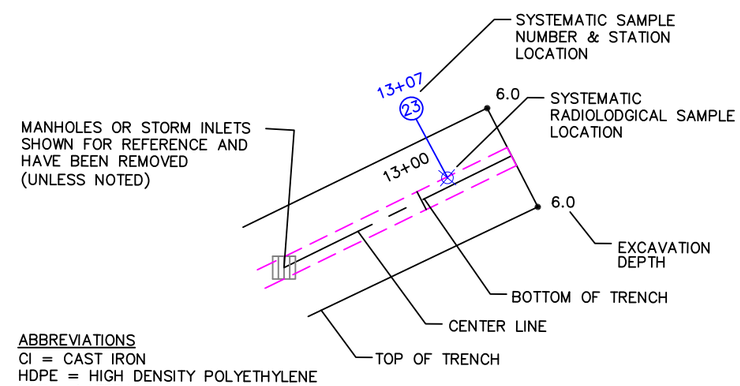




KEY PLAN

LINE F MAIN
LENGTH = 194 FEET
AREA = 5,757 SQUARE FEET
(535 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

14 0 14 28
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 17 PROJECT REPORT

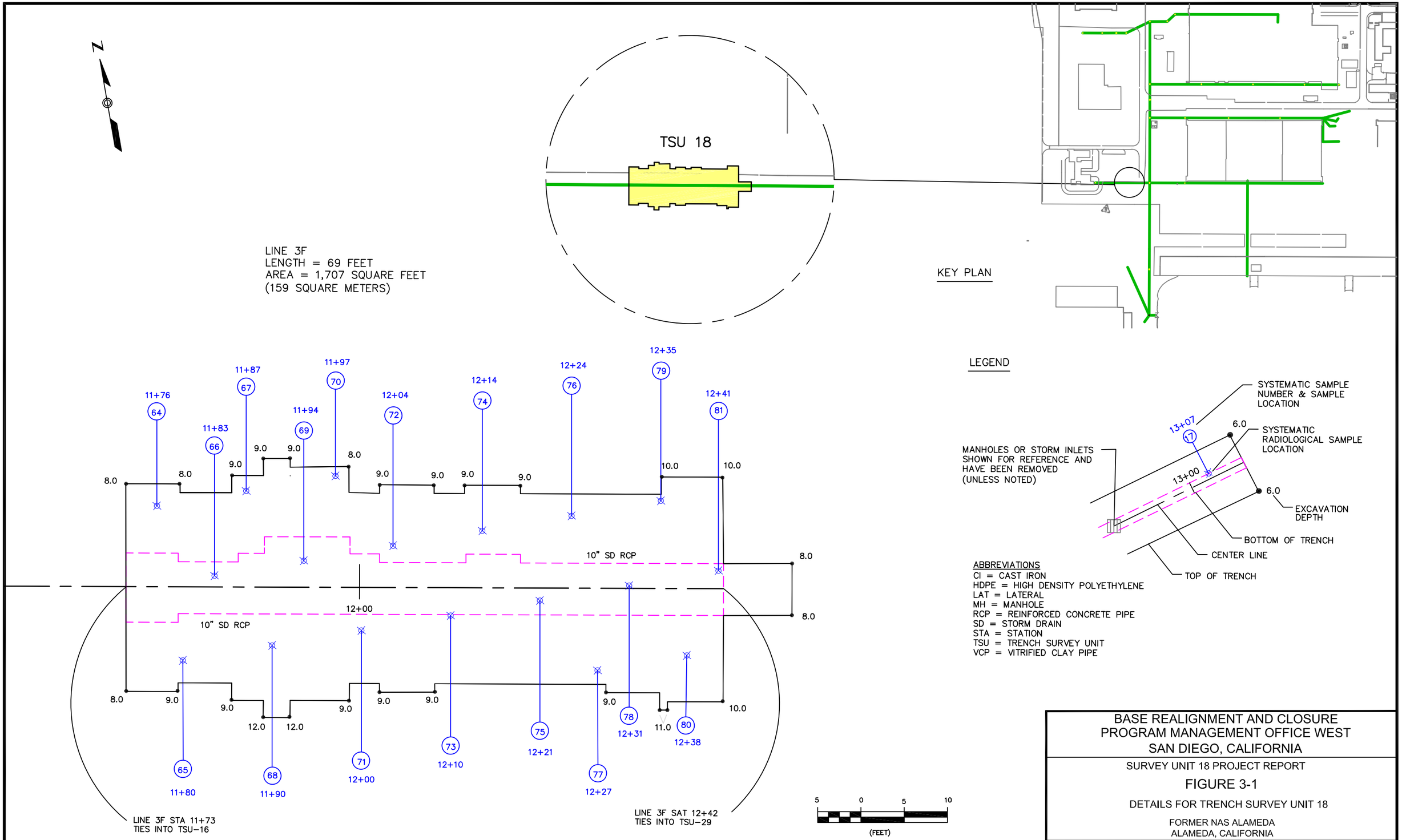
FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 17

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-17.dwg

TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 18 PROJECT REPORT

FIGURE 3-1

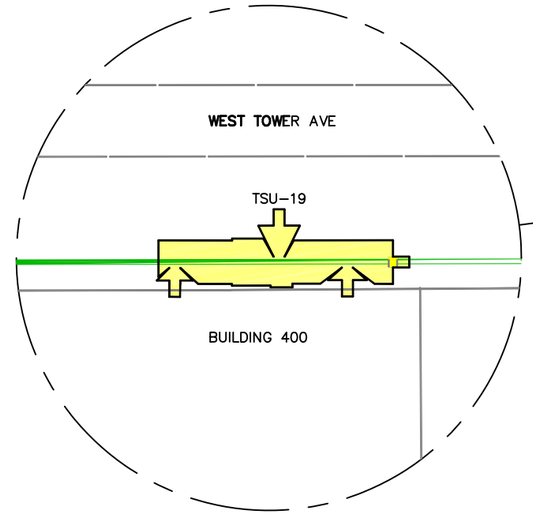
DETAILS FOR TRENCH SURVEY UNIT 18

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

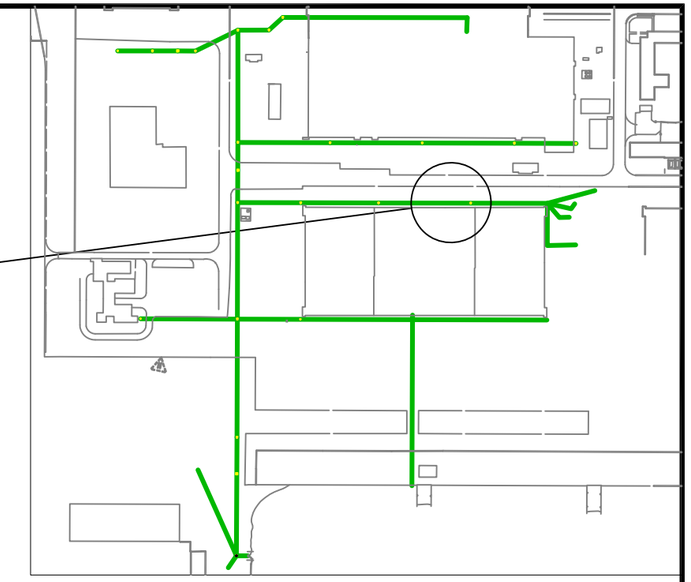
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-18.dwg

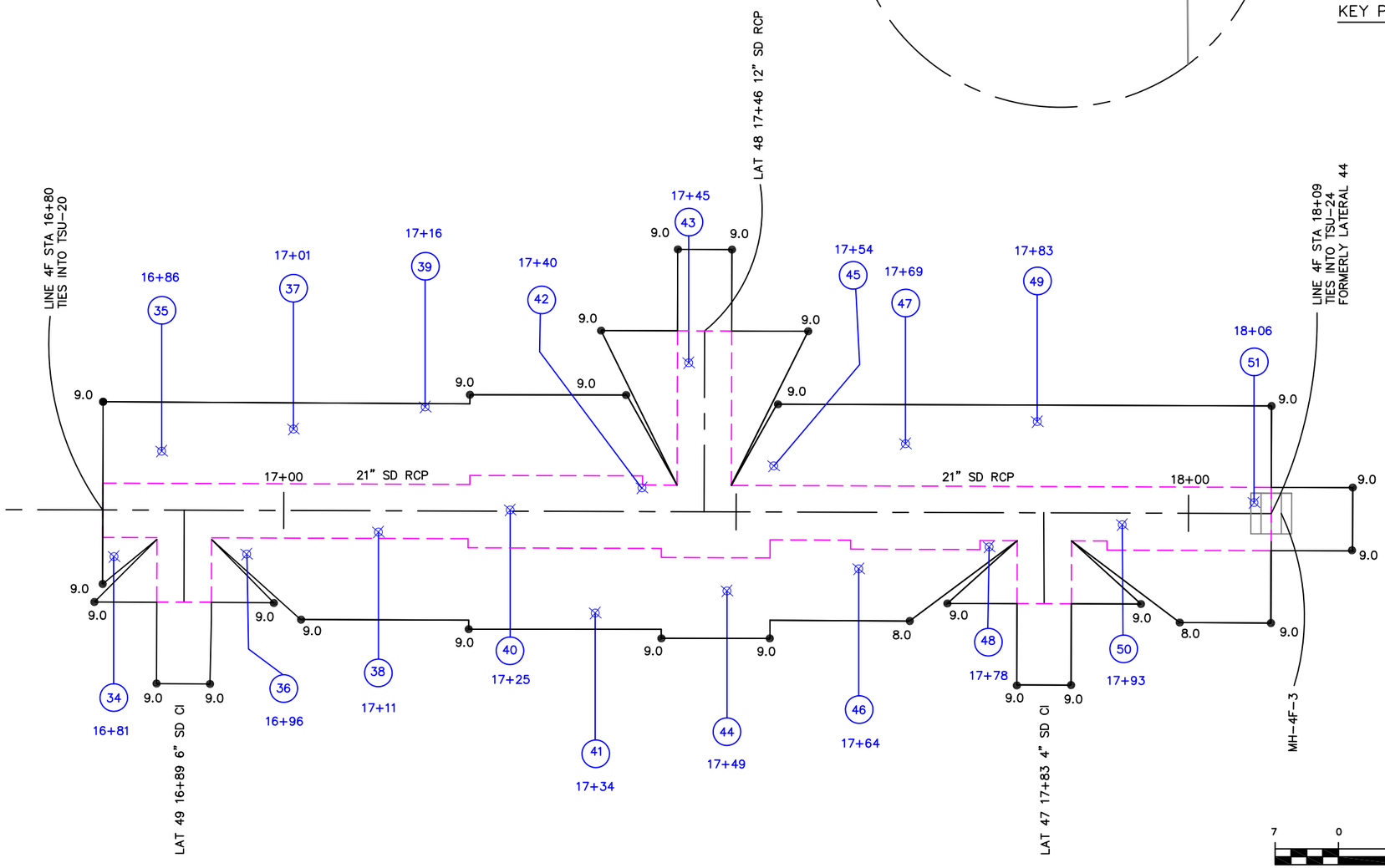
TETRA TECH EC, INC.

LINE 4F
LENGTH = 129 FEET
AREA = 3,408 SQUARE FEET
(317 SQUARE METERS)

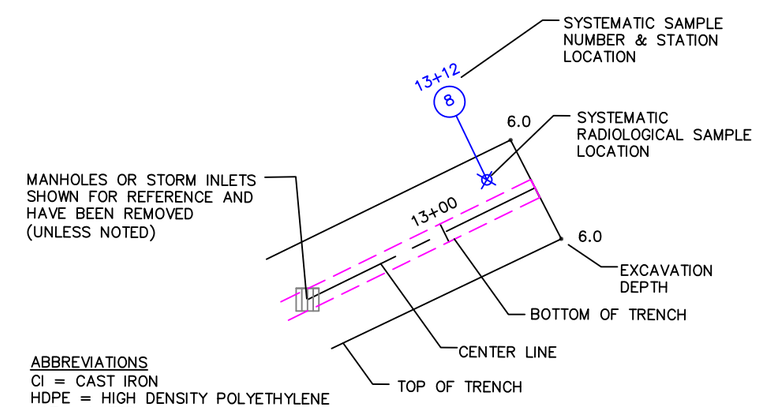


KEY PLAN





LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

7 0 7 14
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 19 PROJECT REPORT

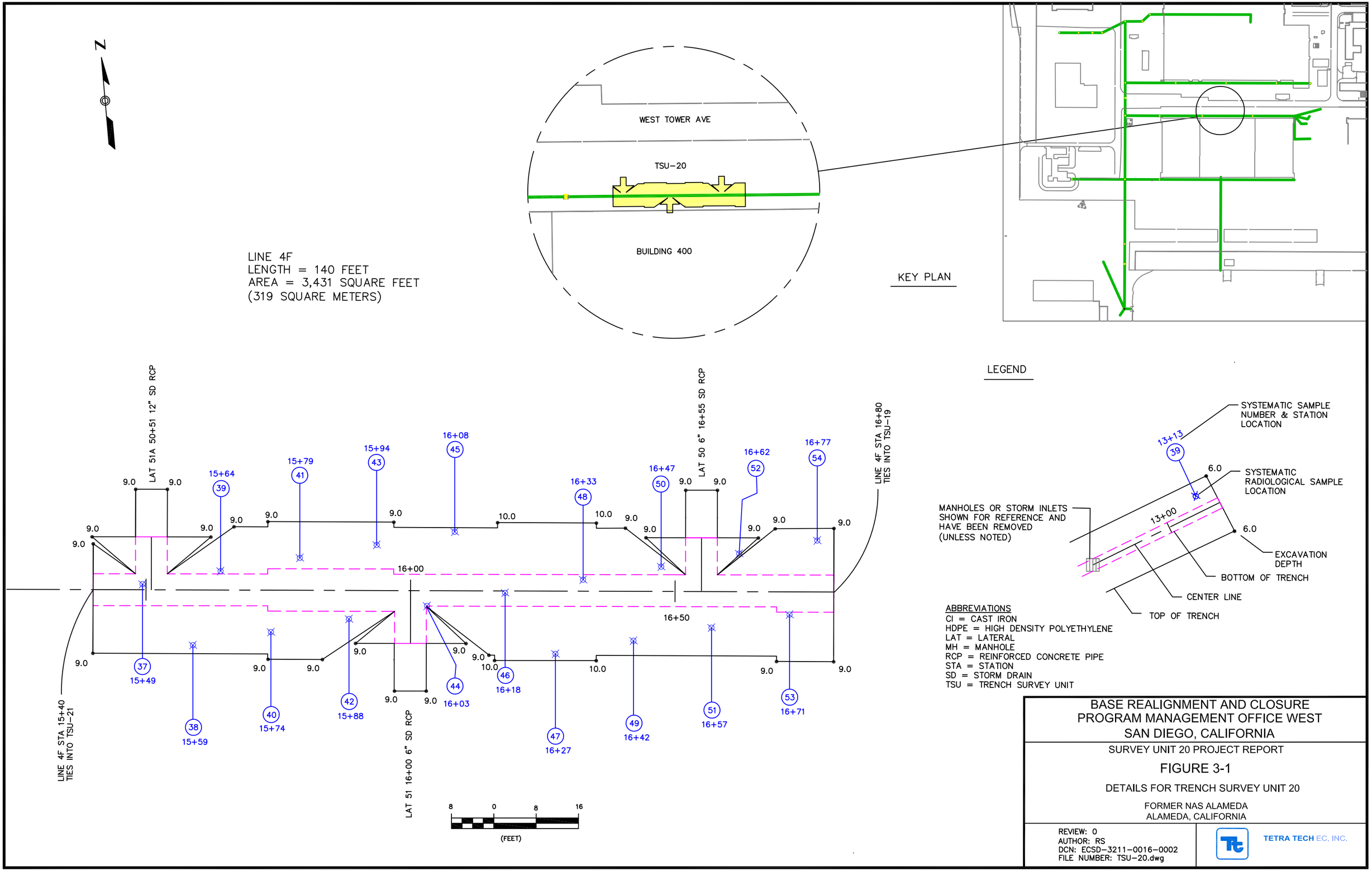
FIGURE 3-1

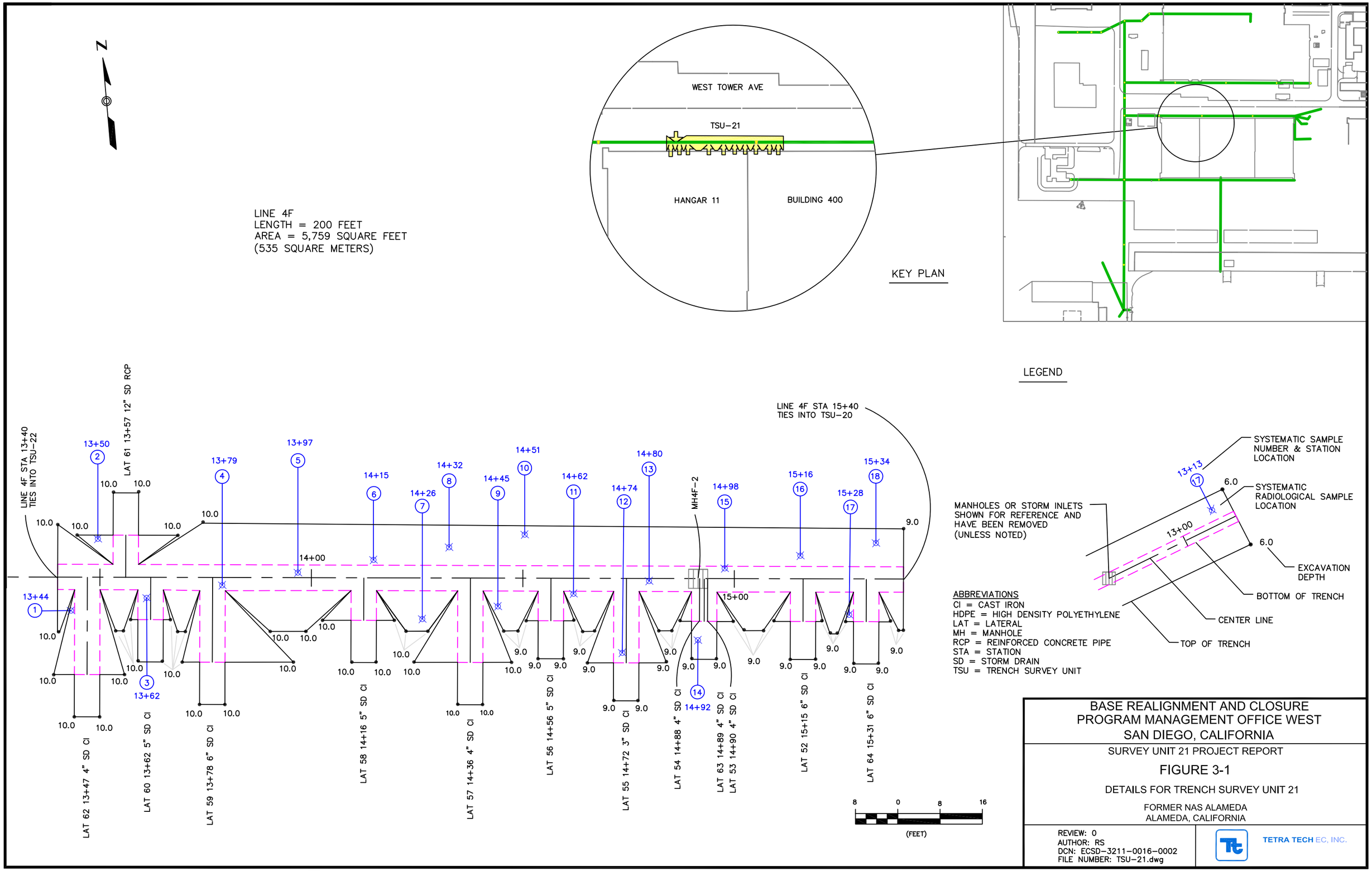
DETAILS FOR TRENCH SURVEY UNIT 19

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-19.dwg

TETRA TECH EC, INC.


N
WEST TOWER AVE
TSU-20
BUILDING 400
KEY PLAN
LINE 4F
LENGTH = 140 FEET
AREA = 3,431 SQUARE FEET
(319 SQUARE METERS)
LAT 51A 50+51 12" SD RCP
LAT 50 6" 16+55 SD RCP
LAT 51 16+00 6" SD RCP
LINE 4F STA 16+80 TIES INTO TSU-19
LINE 4F STA 15+40 TIES INTO TSU-21
15+49
15+59
15+64
15+74
15+79
15+88
15+94
16+03
16+08
16+18
16+27
16+33
16+42
16+47
16+50
16+57
16+62
16+71
16+77
16+00
(FEET)
LEGEND
SYSTEMATIC SAMPLE NUMBER & STATION LOCATION
SYSTEMATIC RADIOLOGICAL SAMPLE LOCATION
MANHOLES OR STORM INLETS SHOWN FOR REFERENCE AND HAVE BEEN REMOVED (UNLESS NOTED)
EXCAVATION DEPTH
BOTTOM OF TRENCH
CENTER LINE
TOP OF TRENCH
ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
STA = STATION
SD = STORM DRAIN
TSU = TRENCH SURVEY UNIT
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA
SURVEY UNIT 20 PROJECT REPORT
FIGURE 3-1
DETAILS FOR TRENCH SURVEY UNIT 20
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-20.dwg
TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 21 PROJECT REPORT

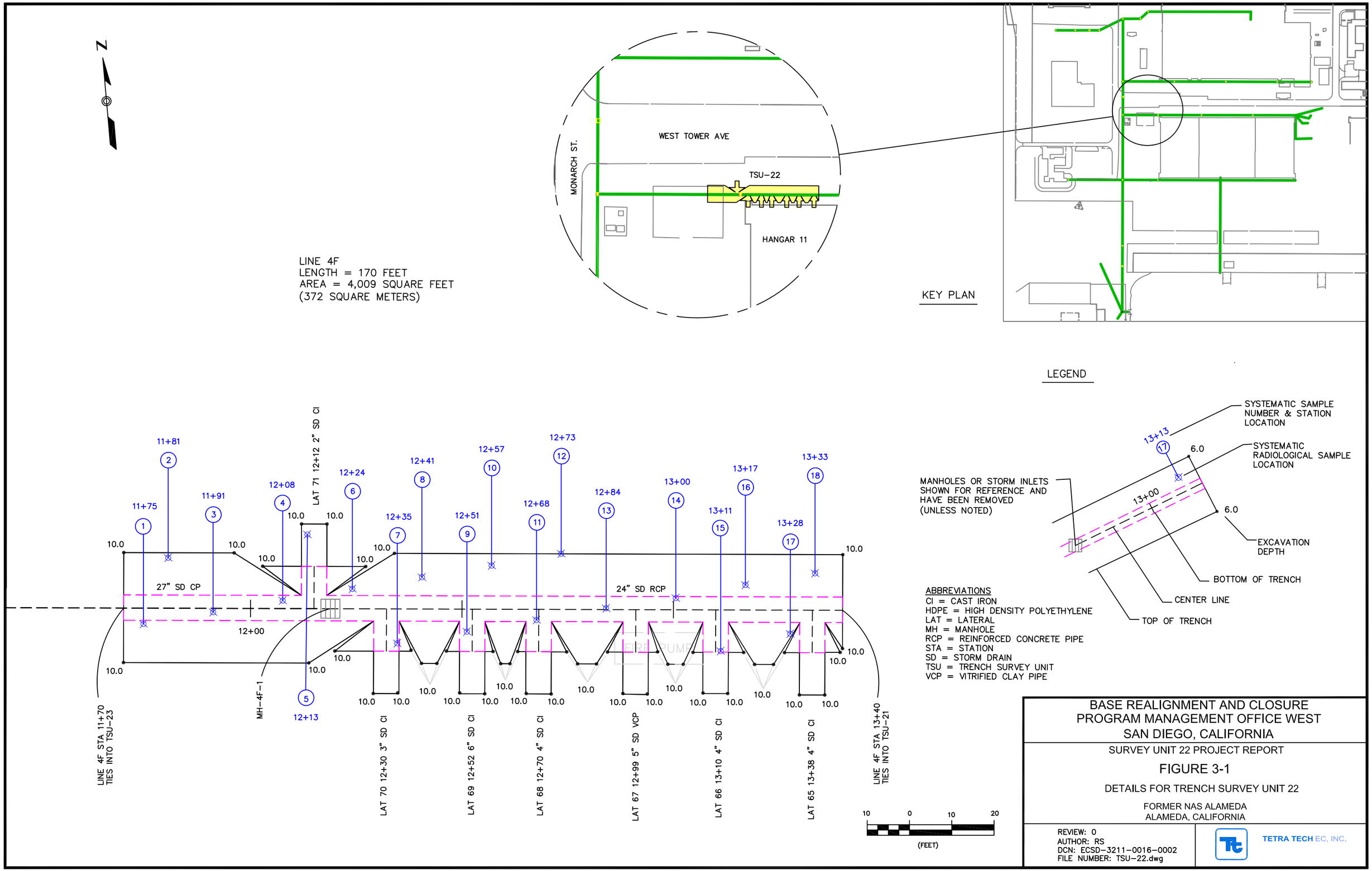
FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 21

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-21.dwg

TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 22 PROJECT REPORT

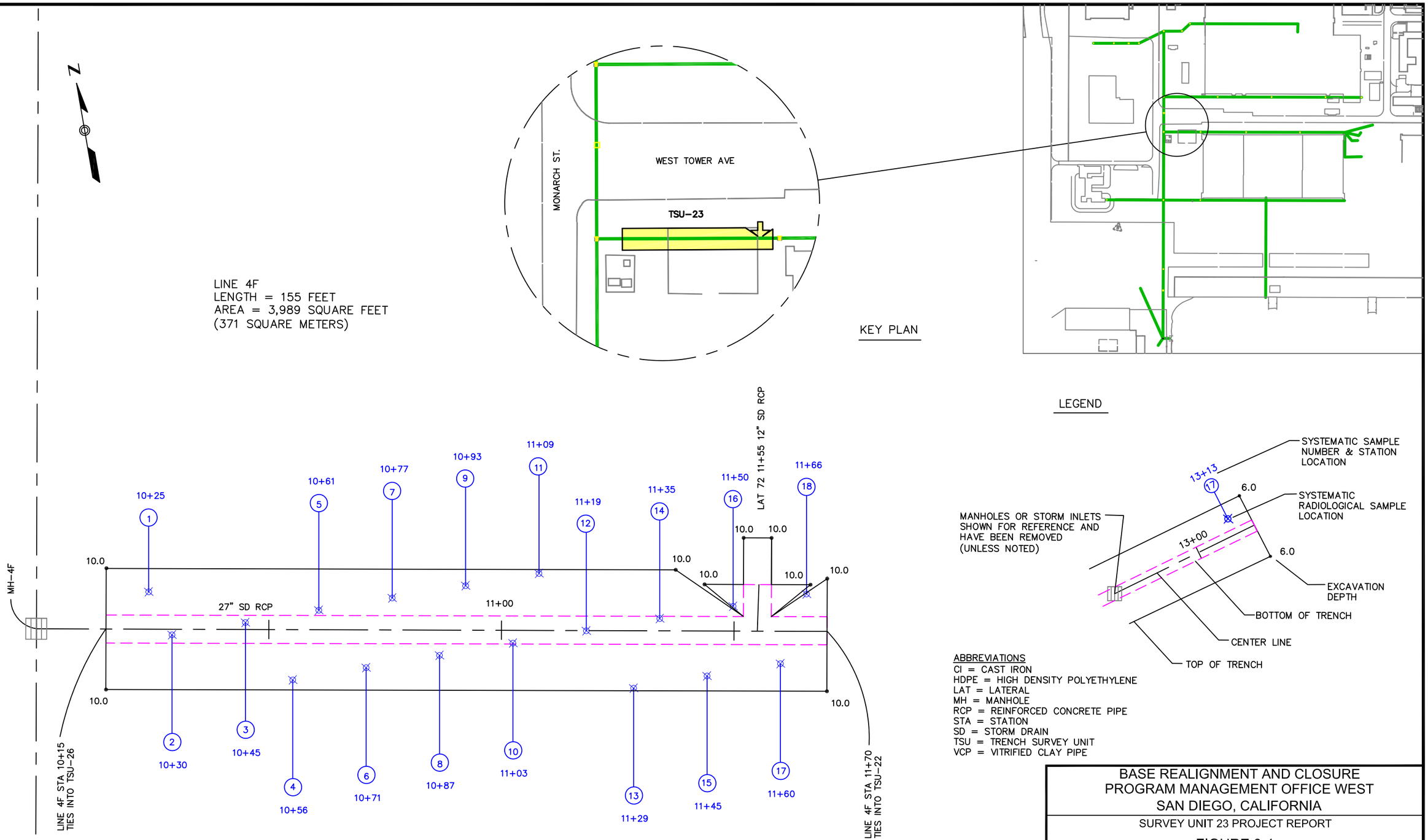
FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 22

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-22.dwg

TETRA TECH EC, INC.



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
STA = STATION
SD = STORM DRAIN
TSU = TRENCH SURVEY UNIT
VCP = VITRIFIED CLAY PIPE

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 23 PROJECT REPORT

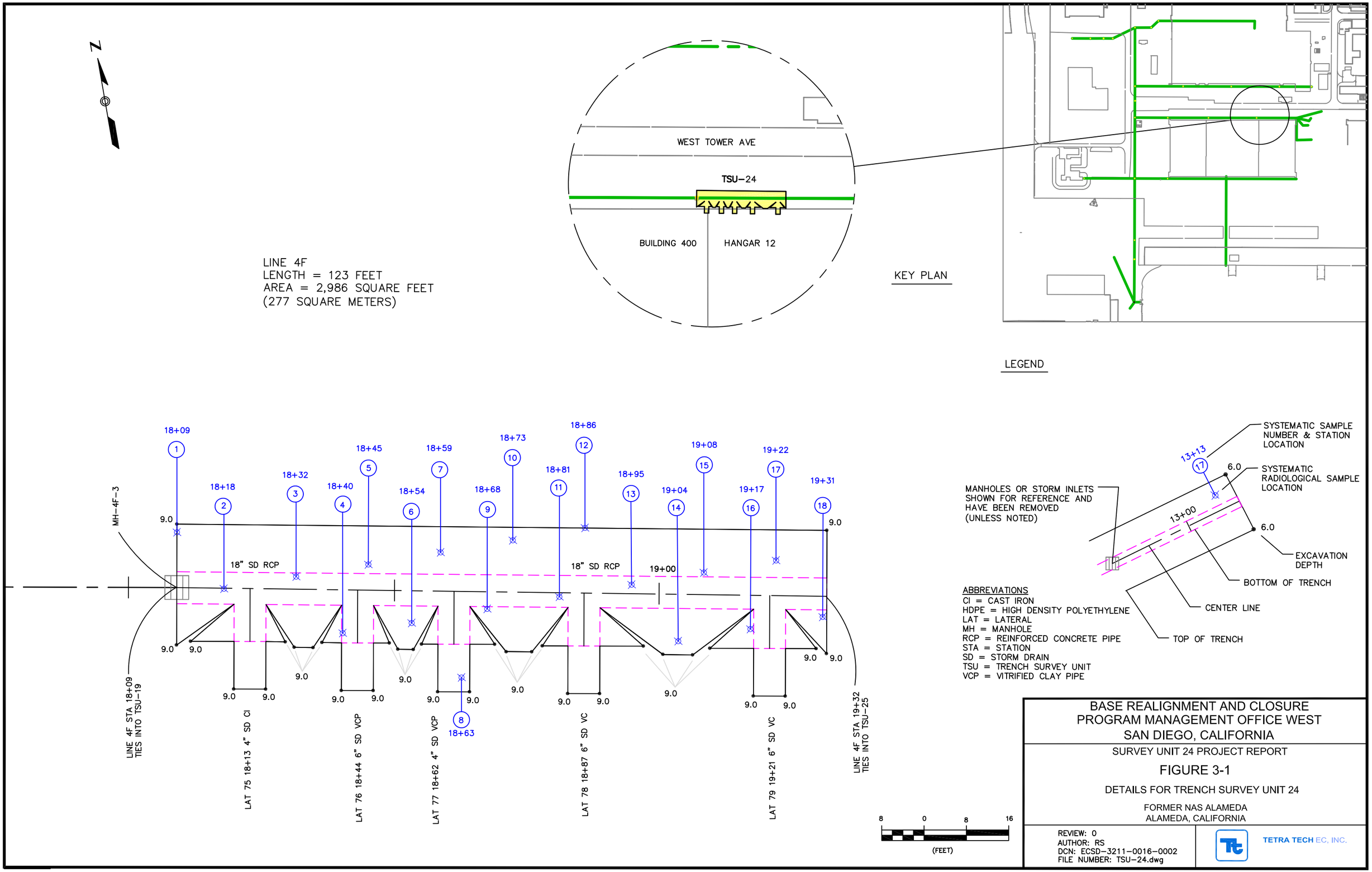
FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 23

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-23.dwg

TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 24 PROJECT REPORT

FIGURE 3-1

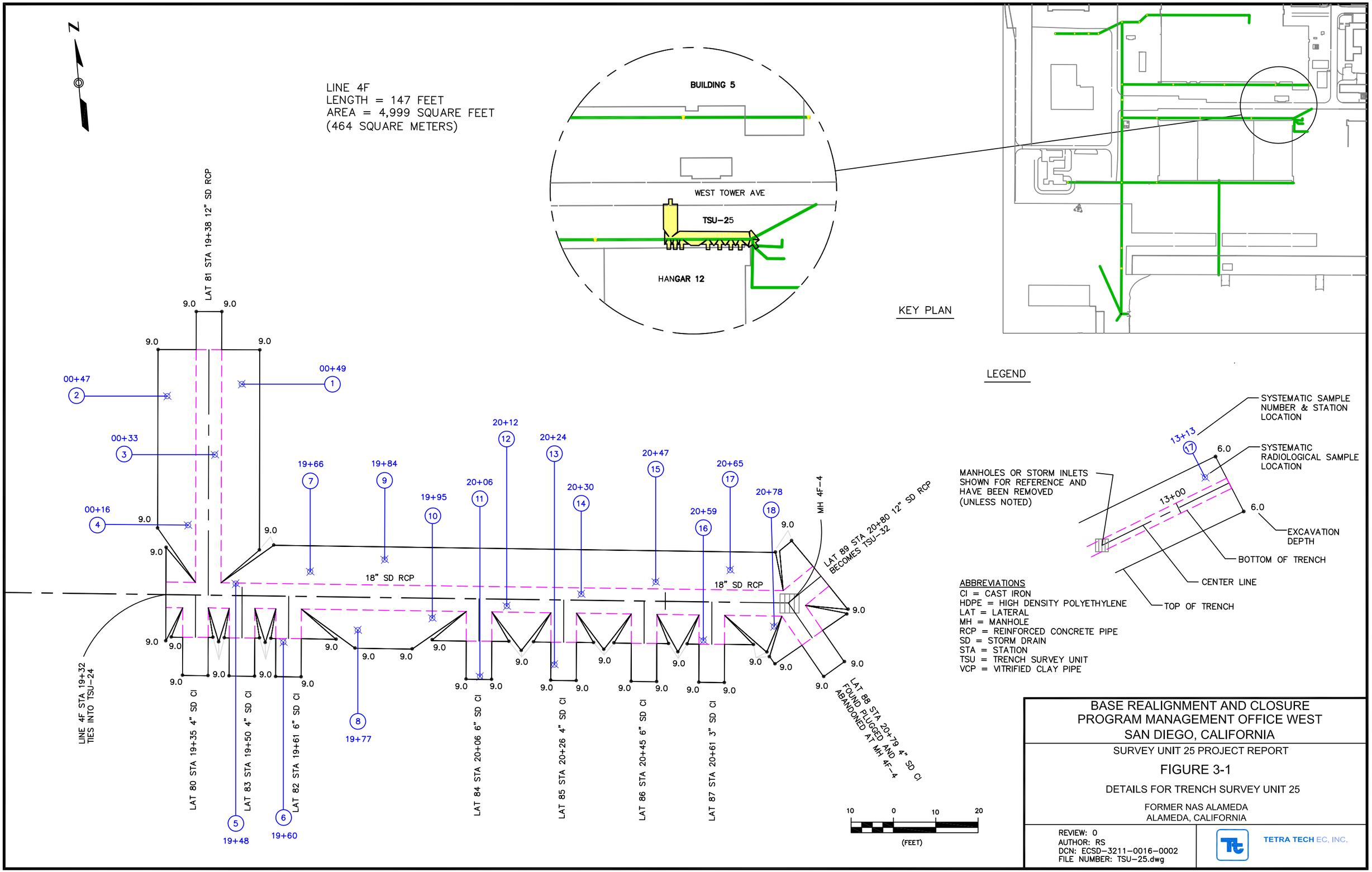
DETAILS FOR TRENCH SURVEY UNIT 24

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-24.dwg

TETRA TECH EC, INC.

LINE 4F
LENGTH = 147 FEET
AREA = 4,999 SQUARE FEET
(464 SQUARE METERS)



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 25 PROJECT REPORT

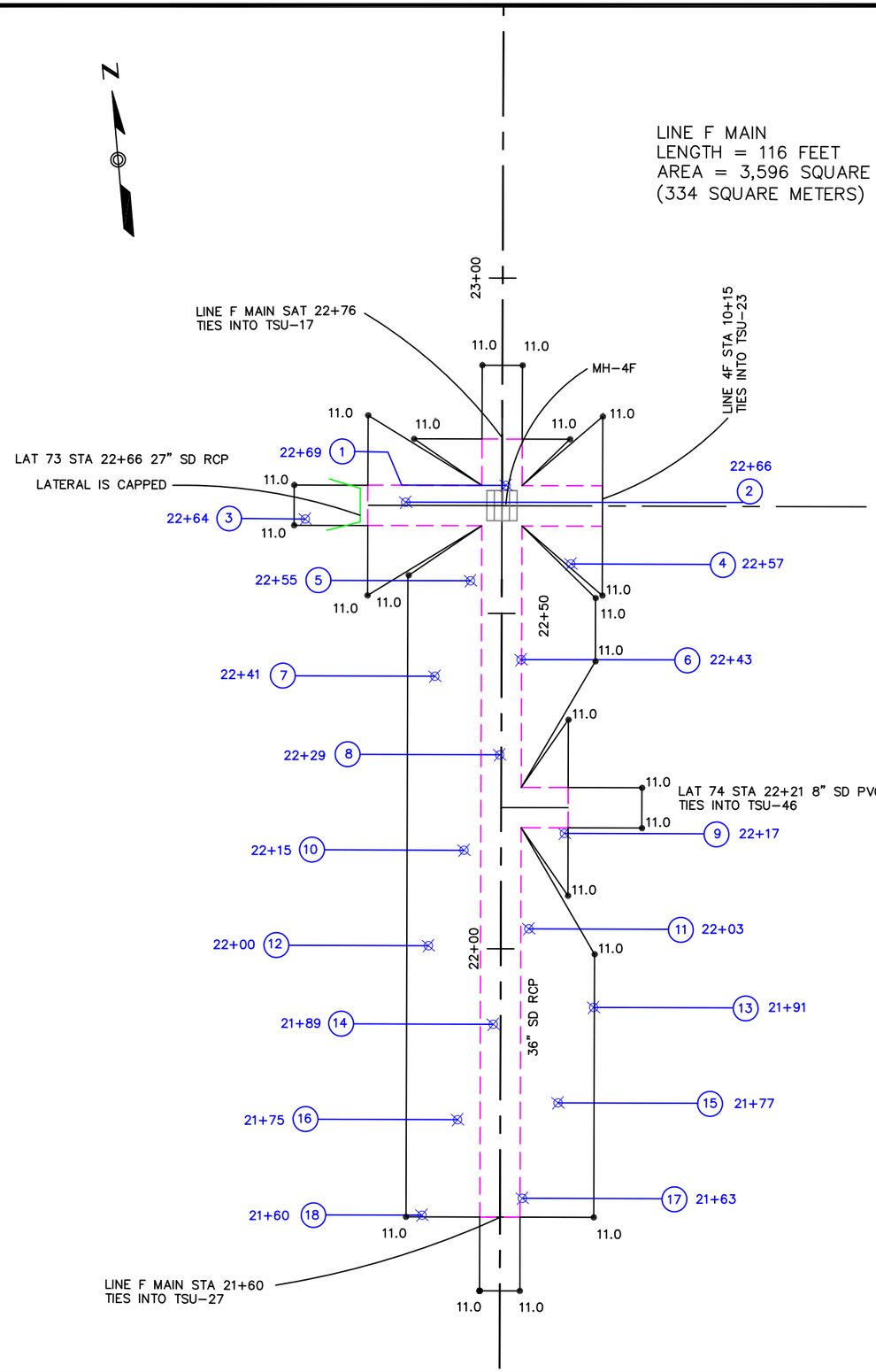
FIGURE 3-1

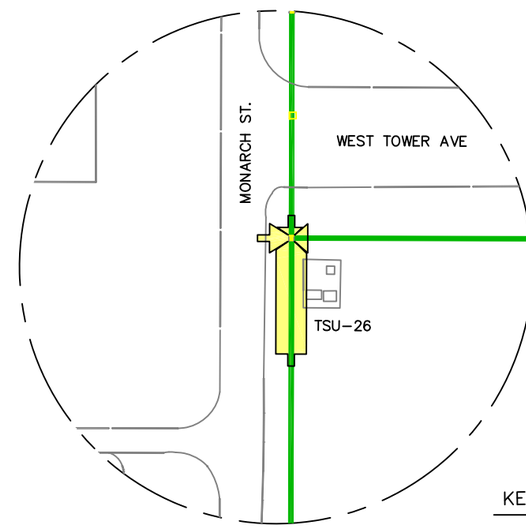
DETAILS FOR TRENCH SURVEY UNIT 25

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

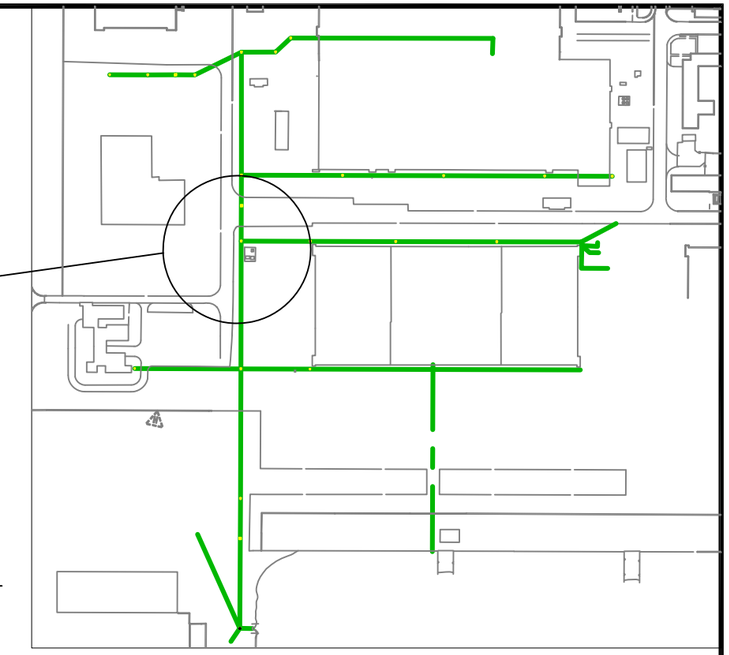
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-25.dwg

TETRA TECH EC, INC.

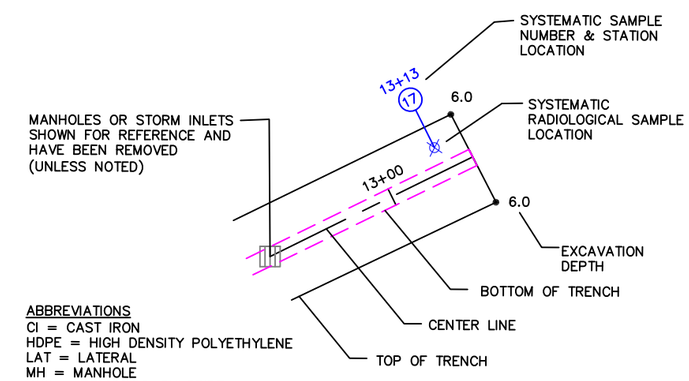




KEY PLAN



LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
PVC = POLYVINYL CHLORIDE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT
VCP = VITRIFIED CLAY PIPE

10 0 10 20
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 26 PROJECT REPORT

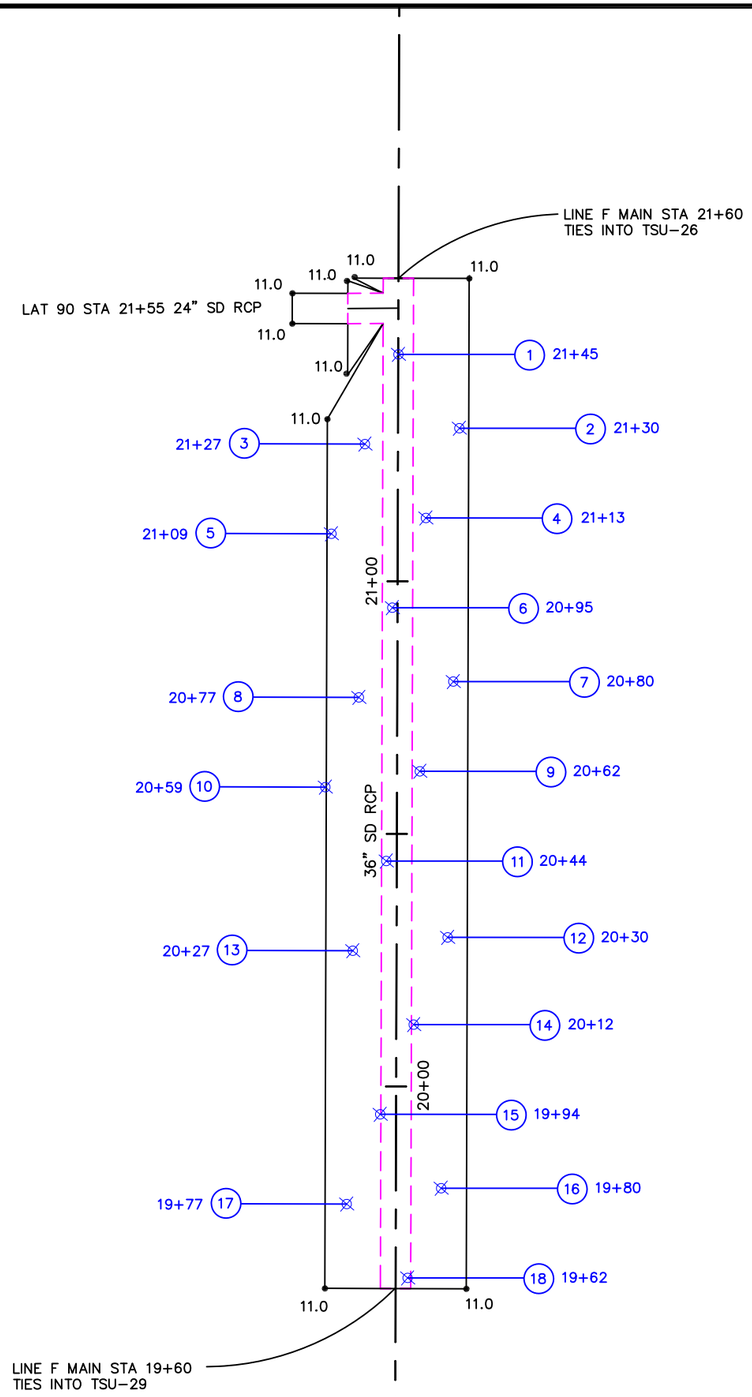
FIGURE 3-1

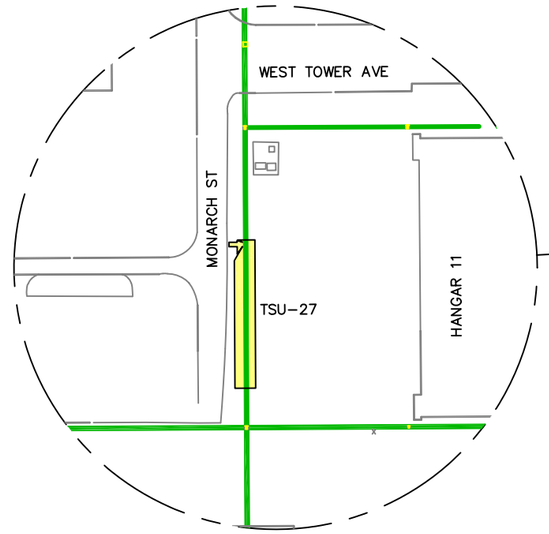
DETAILS FOR TRENCH SURVEY UNIT 26

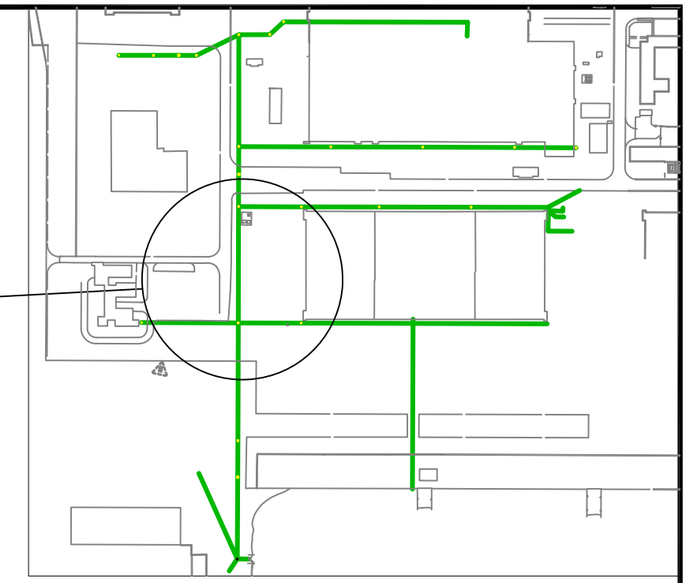
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-26.dwg

TETRA TECH EC, INC.



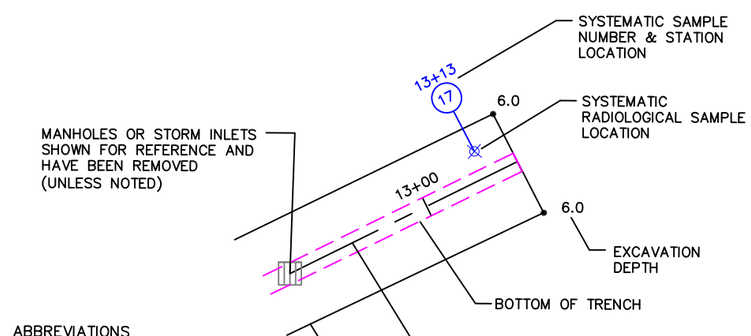




KEY PLAN

LINE F MAIN
LENGTH = 200 FEET
AREA = 5,558 SQUARE FEET
(516 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT
VCP = VITRIFIED CLAY PIPE

15 0 15 30
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 27 PROJECT REPORT

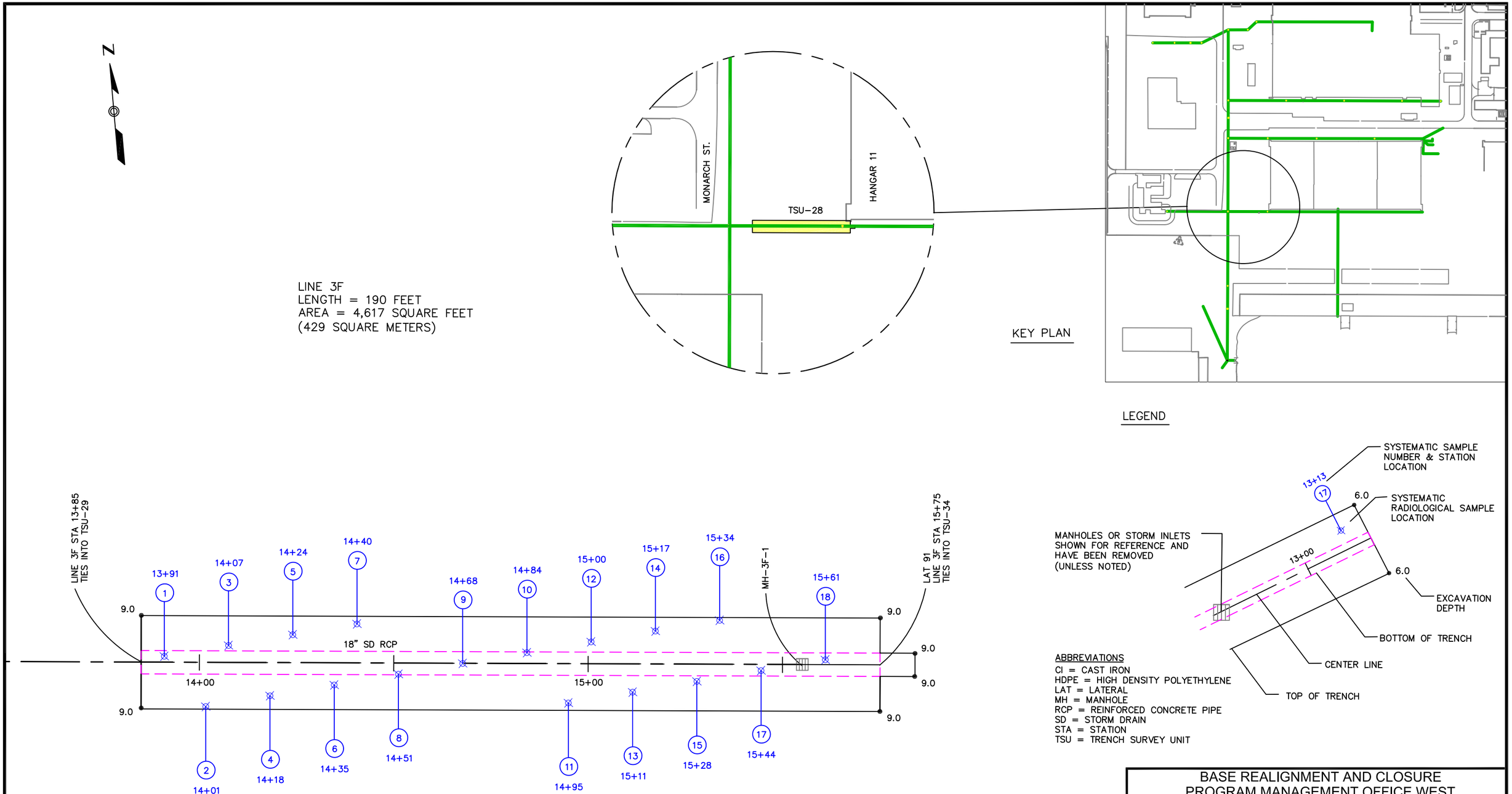
FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 27

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-27.dwg

TETRA TECH EC, INC.



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 28 PROJECT REPORT

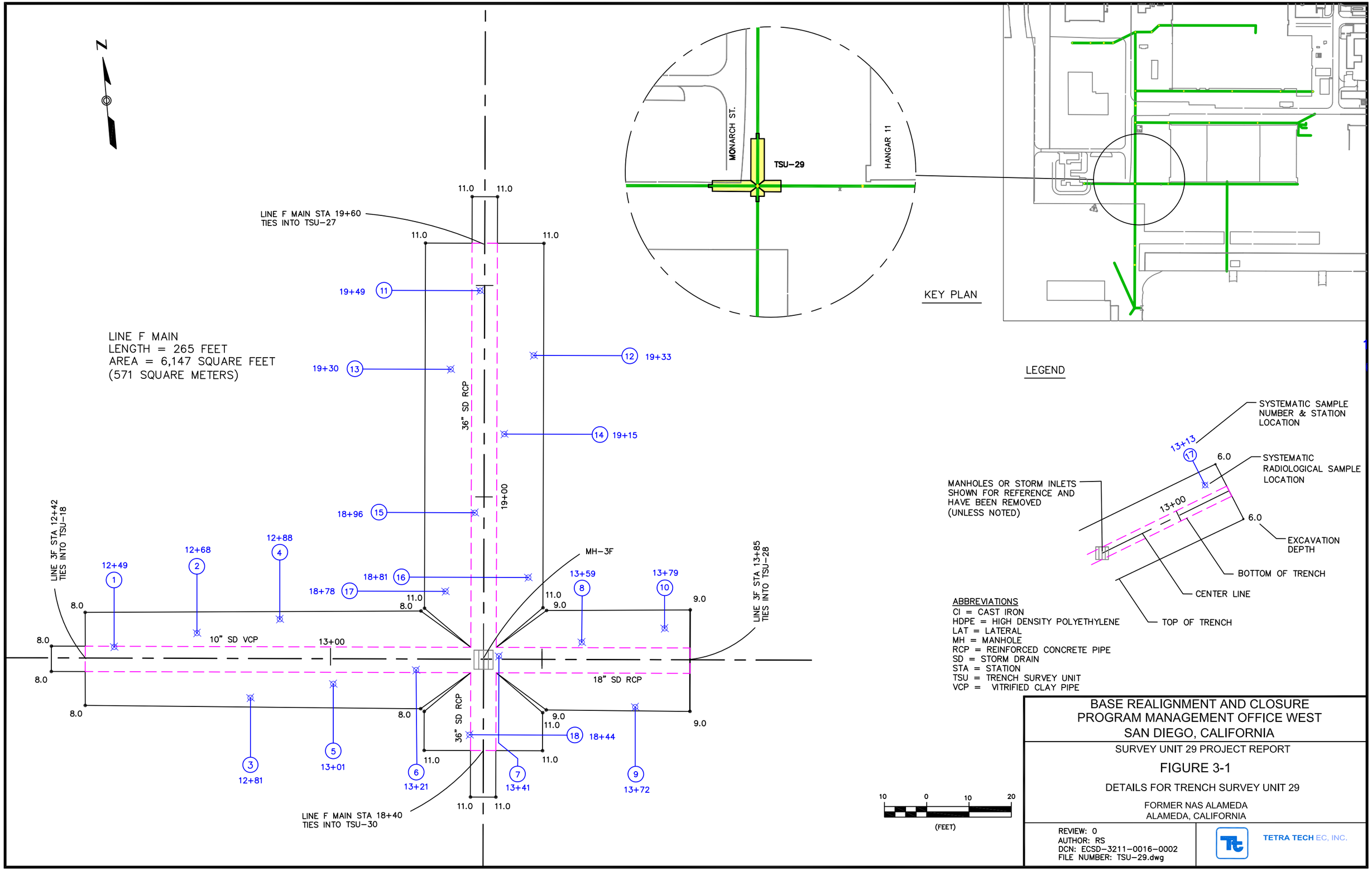
FIGURE 3-1

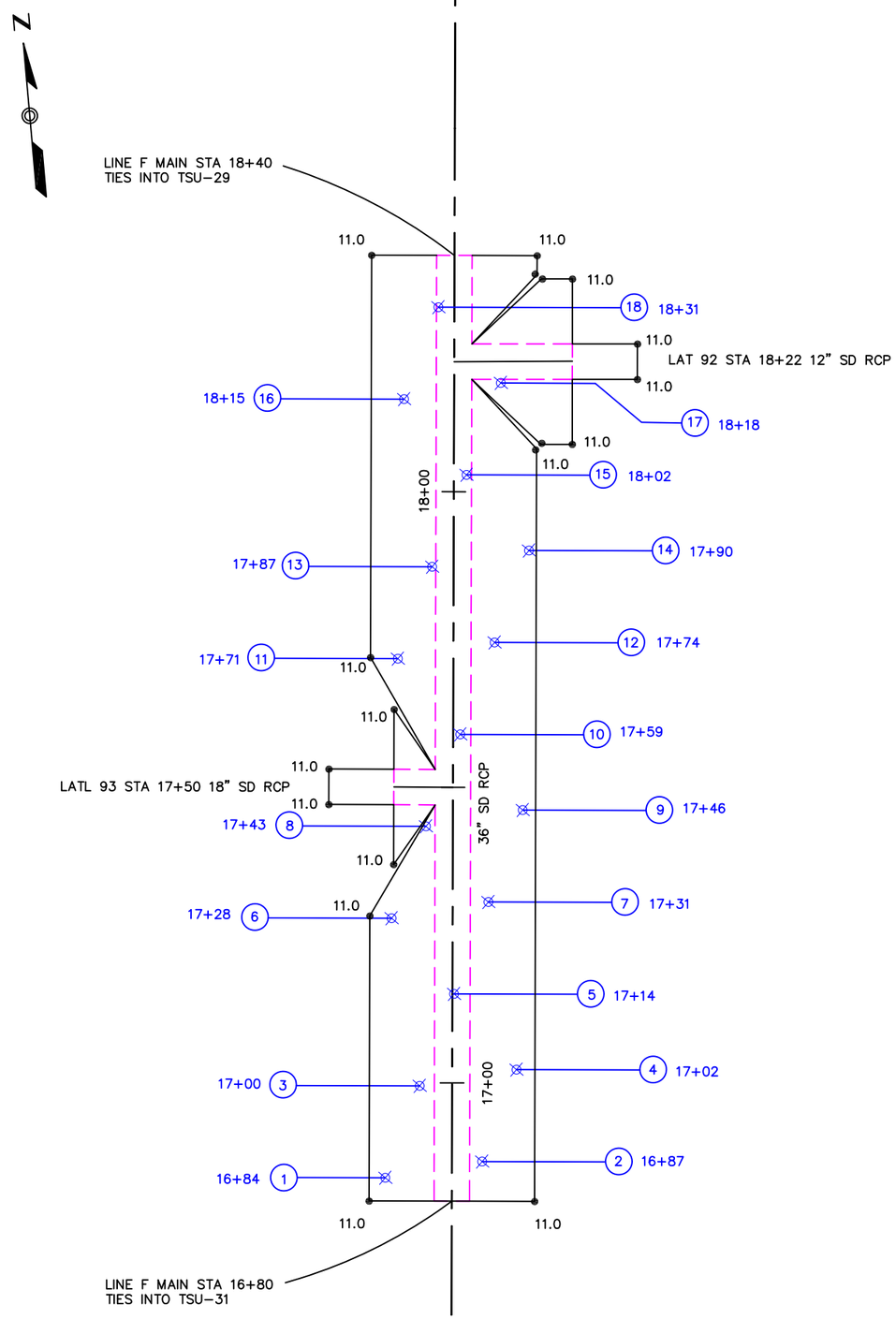
DETAILS FOR TRENCH SURVEY UNIT 28

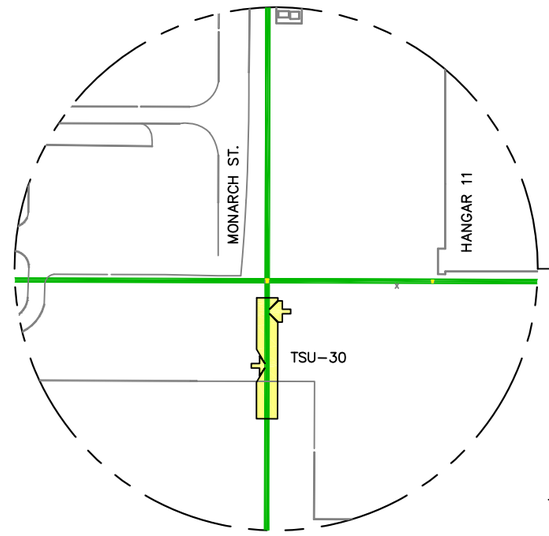
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-28.dwg

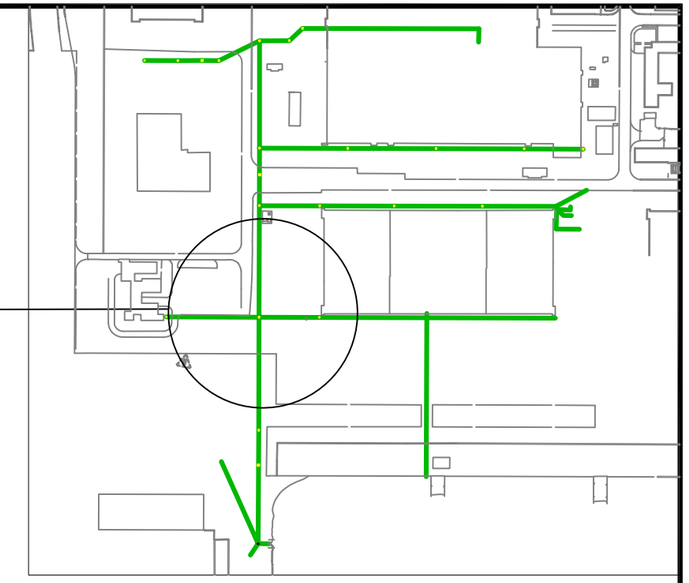
TETRA TECH EC, INC.


N
LINE F MAIN STA 19+60
TIES INTO TSU-27
LINE F MAIN
LENGTH = 265 FEET
AREA = 6,147 SQUARE FEET
(571 SQUARE METERS)
36" SD RCP
19+00
10" SD VCP
13+00
18" SD RCP
36" SD RCP
MH-3F
LINE 3F STA 12+42
TIES INTO TSU-18
LINE 3F STA 13+85
TIES INTO TSU-28
LINE F MAIN STA 18+40
TIES INTO TSU-30
11.0
8.0
9.0
19+49
19+30
19+33
19+15
18+96
18+81
18+78
18+44
12+49
12+68
12+88
12+81
13+01
13+21
13+41
13+59
13+72
13+79
MONARCH ST.
TSU-29
HANGAR 11
KEY PLAN
LEGEND
SYSTEMATIC SAMPLE NUMBER & STATION LOCATION
13+13
6.0
SYSTEMATIC RADIOLOGICAL SAMPLE LOCATION
MANHOLES OR STORM INLETS SHOWN FOR REFERENCE AND HAVE BEEN REMOVED (UNLESS NOTED)
13+00
EXCAVATION DEPTH
BOTTOM OF TRENCH
CENTER LINE
TOP OF TRENCH
ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT
VCP = VITRIFIED CLAY PIPE
10 0 10 20
(FEET)
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA
SURVEY UNIT 29 PROJECT REPORT
FIGURE 3-1
DETAILS FOR TRENCH SURVEY UNIT 29
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-29.dwg
TETRA TECH EC, INC.



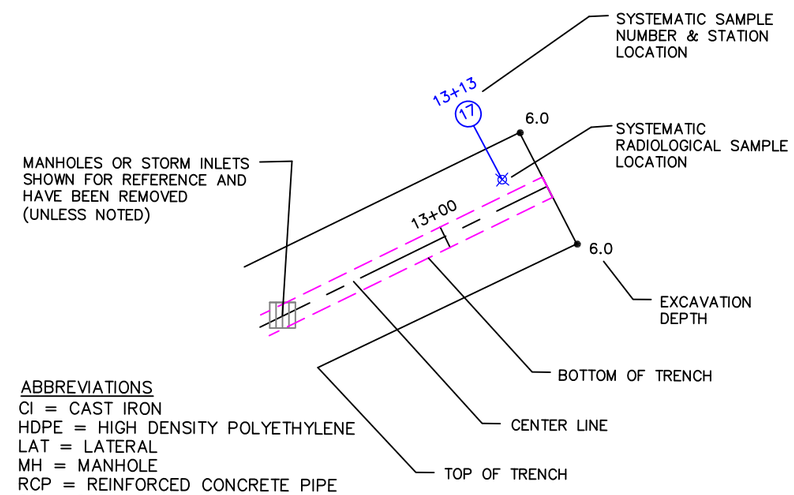


KEY PLAN



LINE F MAIN
LENGTH = 160 FEET
AREA = 4,603 SQUARE FEET
(428 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

12 0 12 24
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 30 PROJECT REPORT

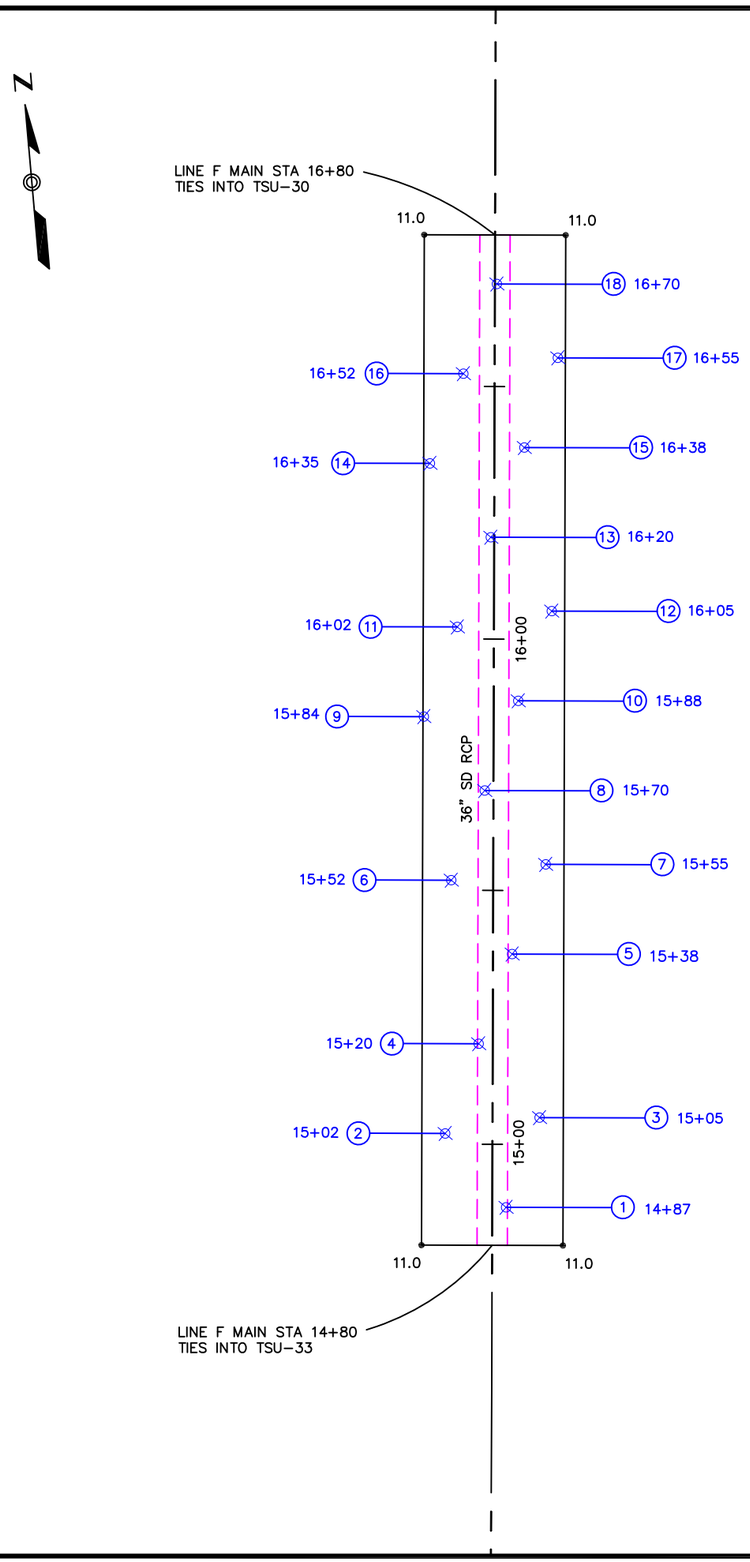
FIGURE 3-1

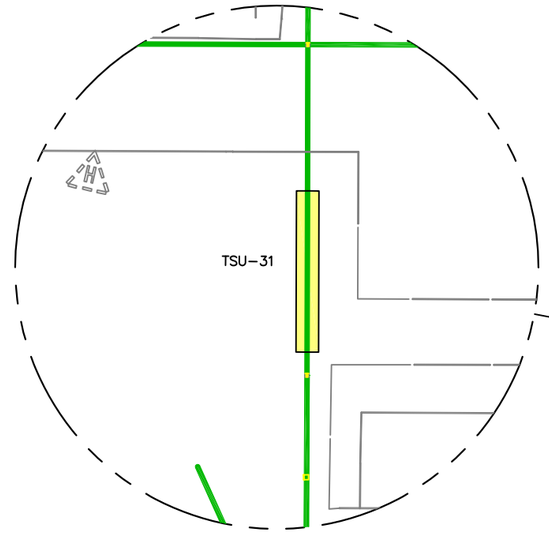
DETAILS FOR TRENCH SURVEY UNIT 30

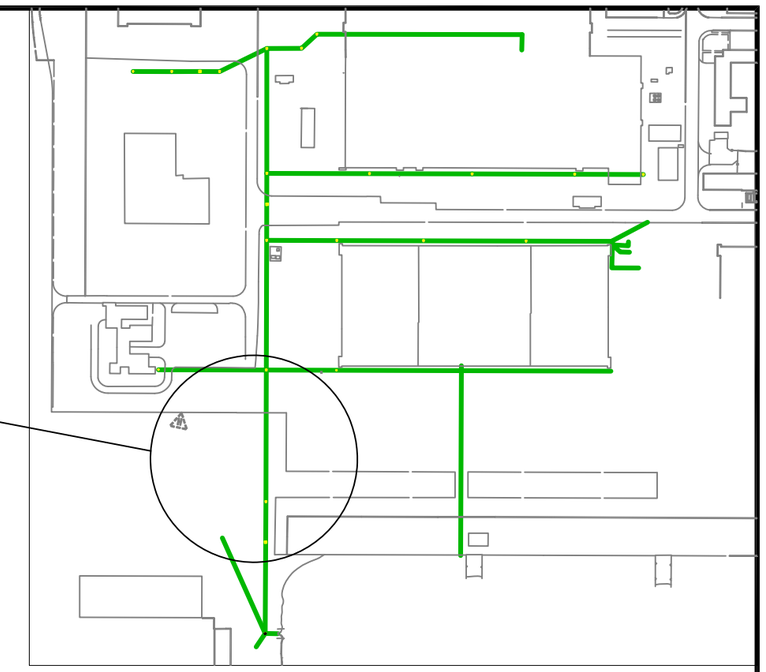
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-30.dwg

TETRA TECH EC, INC.



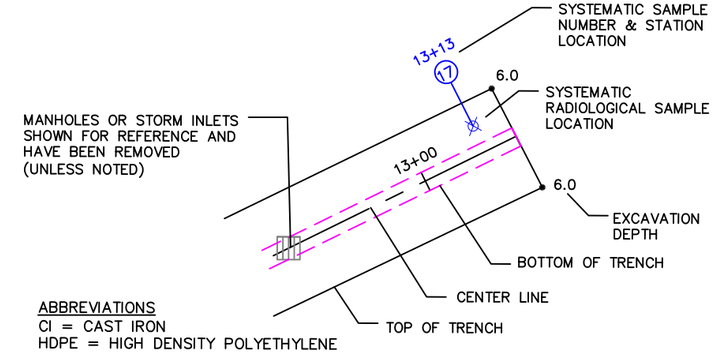




KEY PLAN

LINE F MAIN
LENGTH = 200 FEET
AREA = 5,600 SQUARE FEET
(520 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

15 0 15 30
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 31 PROJECT REPORT

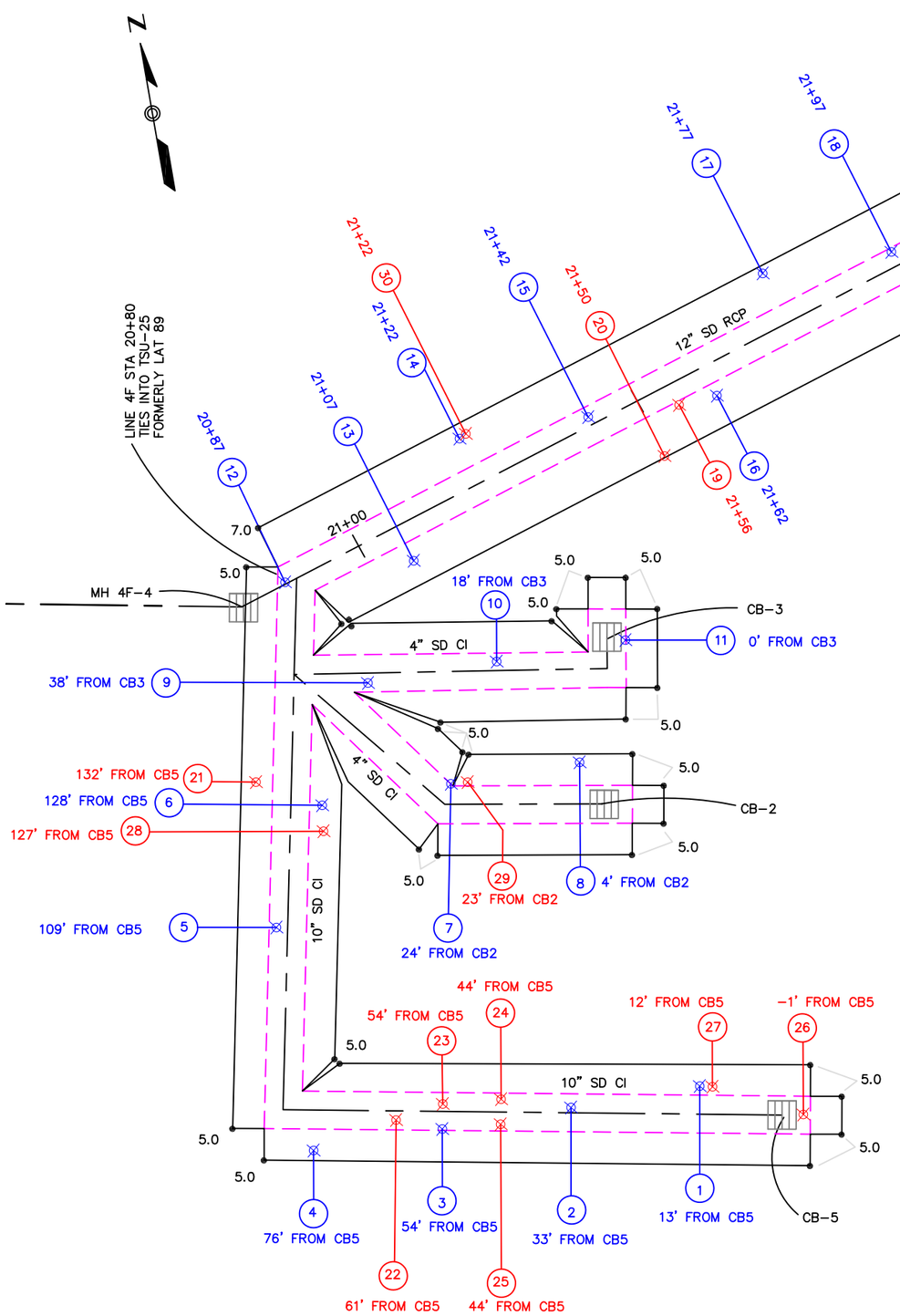
FIGURE 3-1

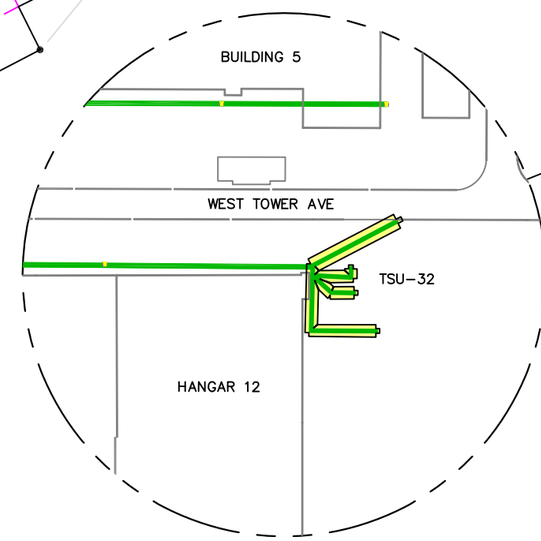
DETAILS FOR TRENCH SURVEY UNIT 31

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

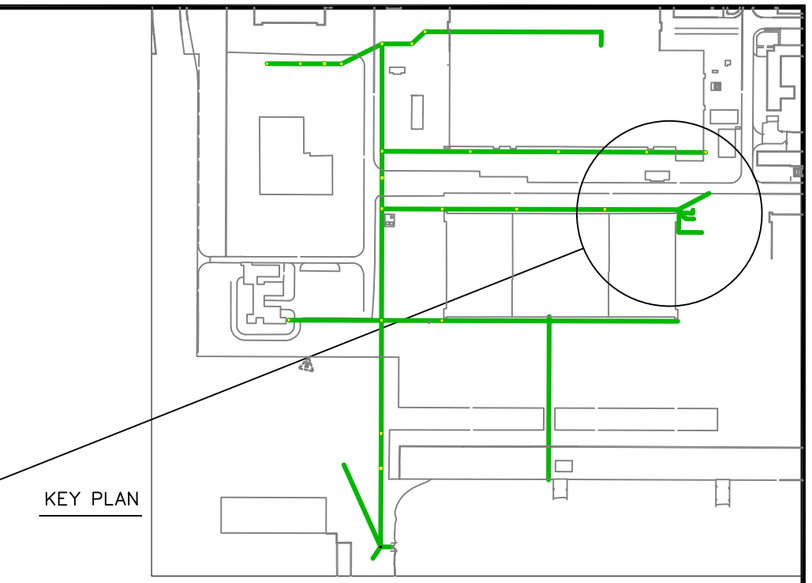
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-31.dwg

TETRA TECH EC, INC.

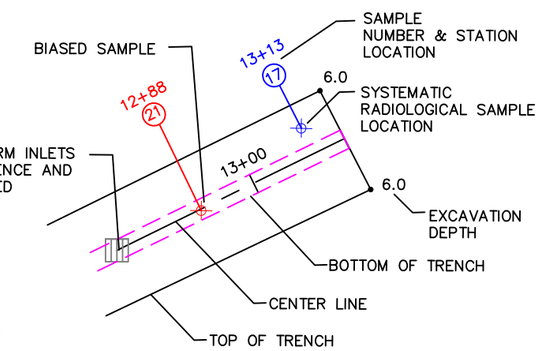




LINE 4F
LENGTH = 403 FEET
AREA = 6,729 SQUARE FEET
(625 SQUARE METERS)



LEGEND



ABBREVIATIONS
CB = CATCH BASIN
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

11 0 11 22
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 32 PROJECT REPORT

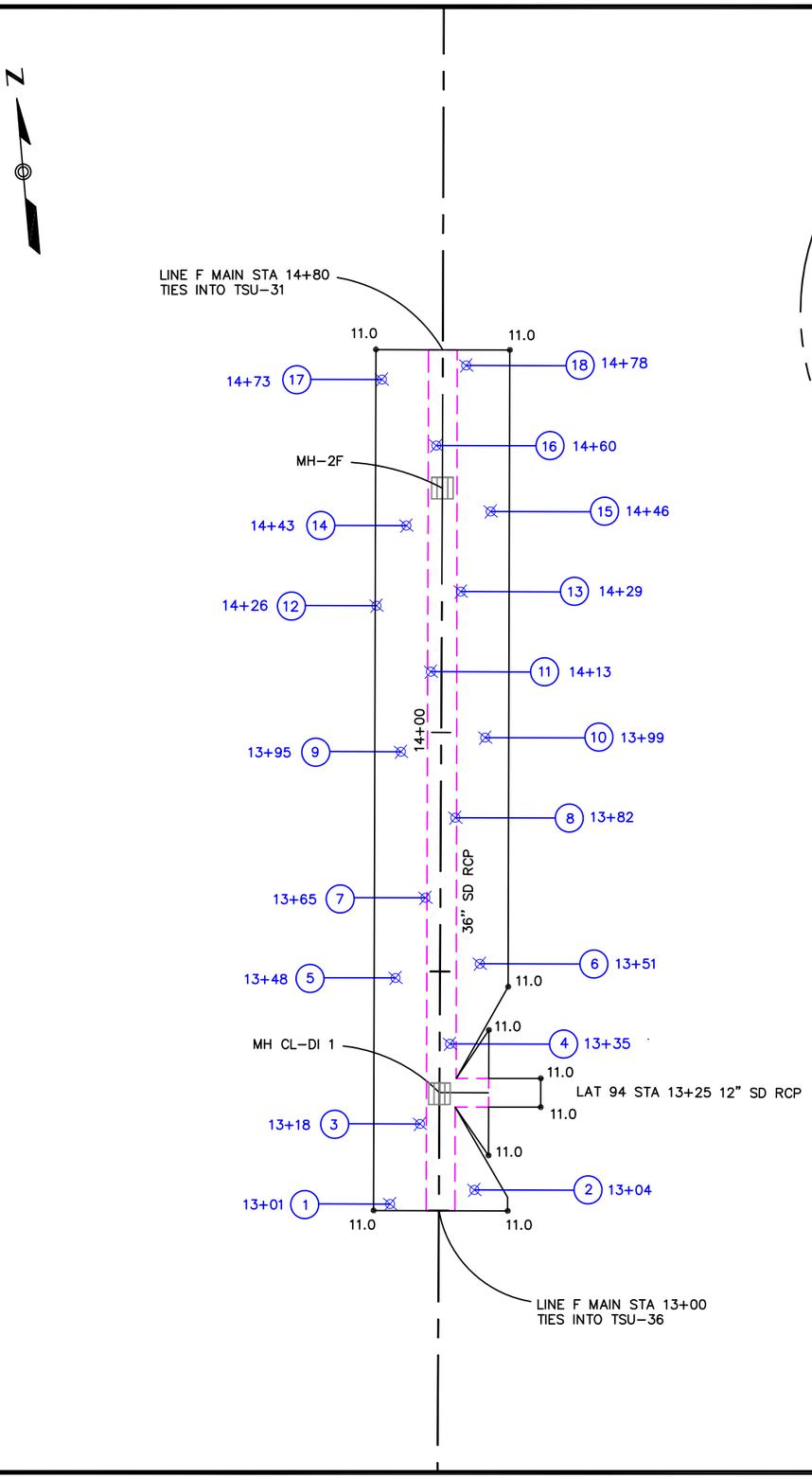
FIGURE 3-1

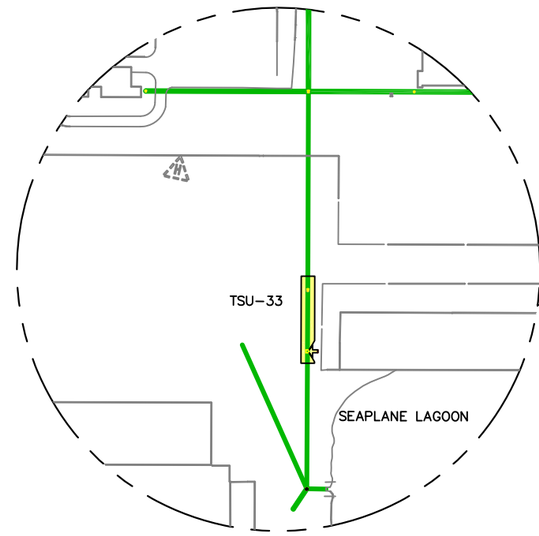
DETAILS FOR TRENCH SURVEY UNIT 32

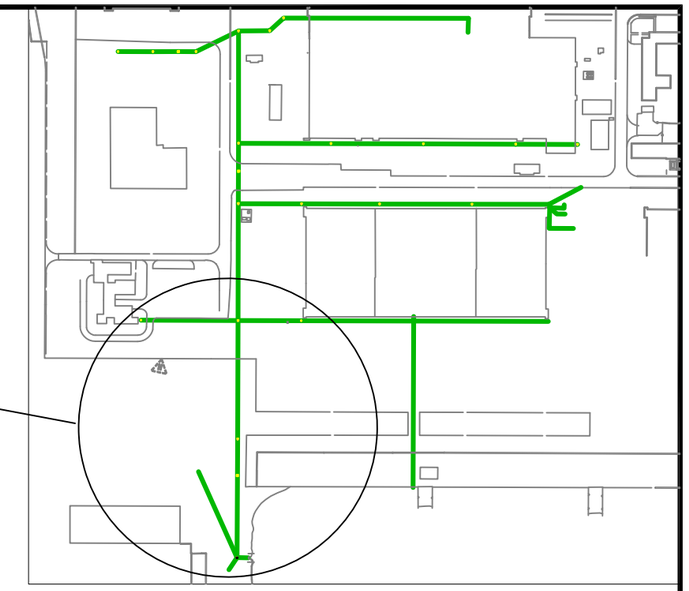
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-32.dwg

TETRA TECH EC, INC.



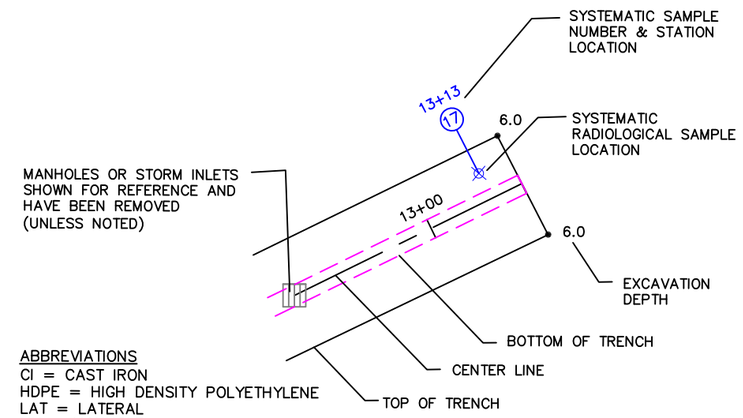




KEY PLAN

LINE F MAIN
LENGTH = 180 FEET
AREA = 4,948 SQUARE FEET
(460 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

15 0 15 30
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 33 PROJECT REPORT

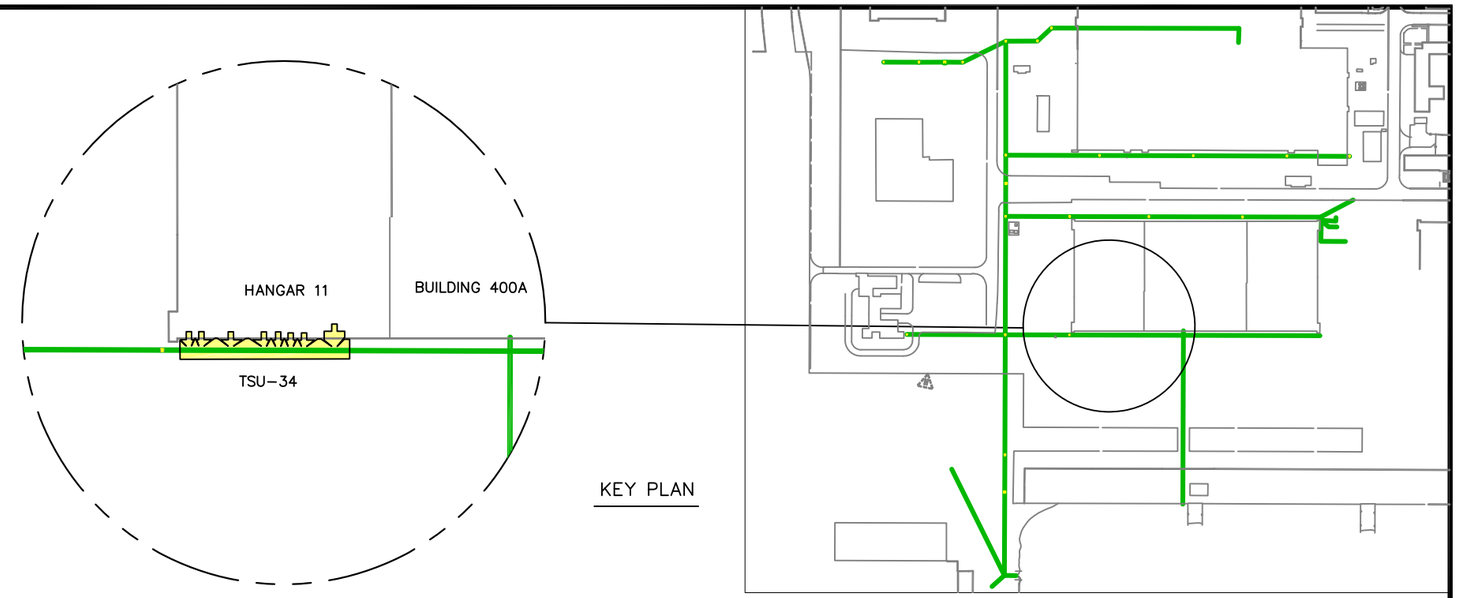
FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 33

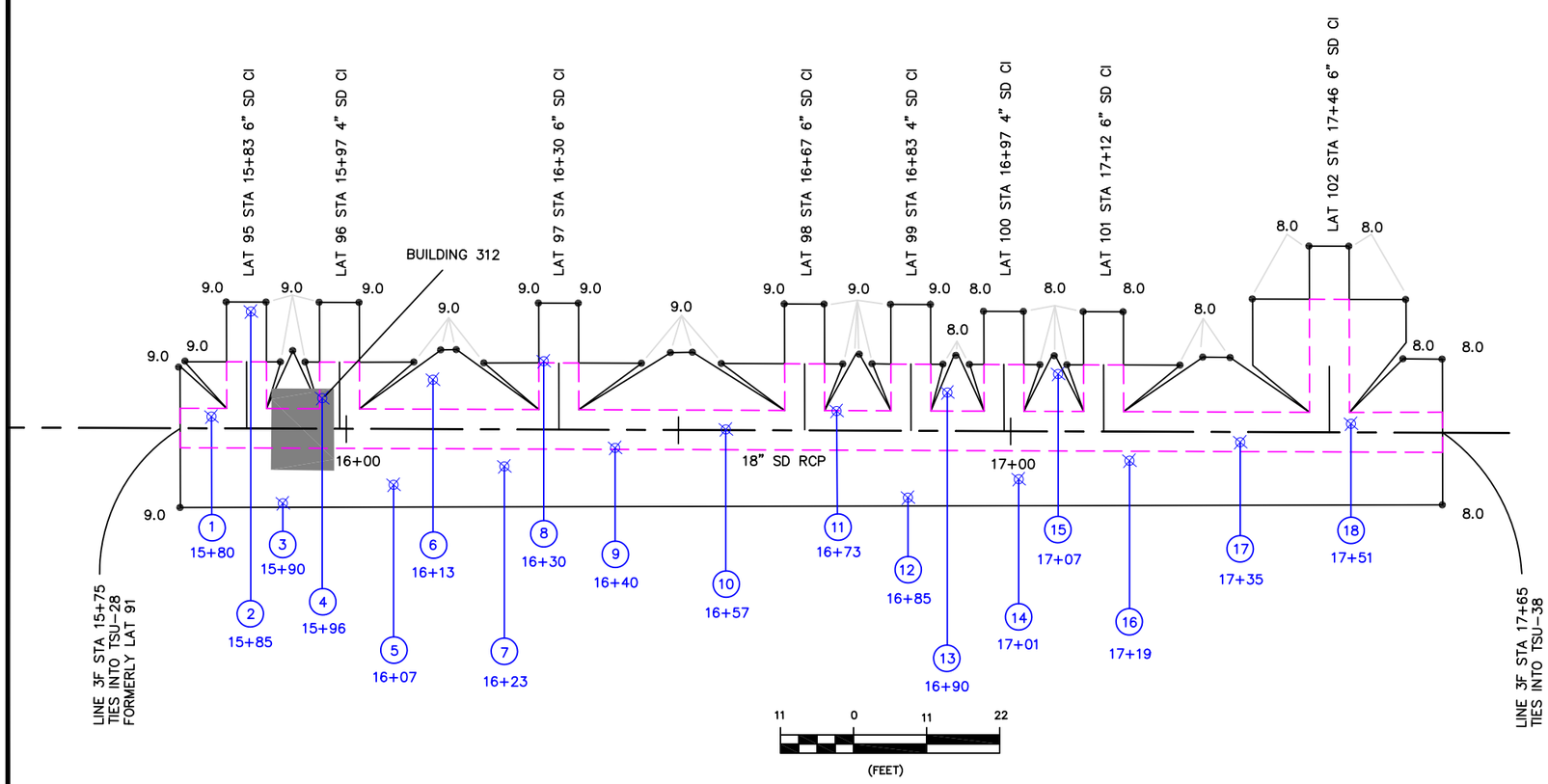
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-33.dwg

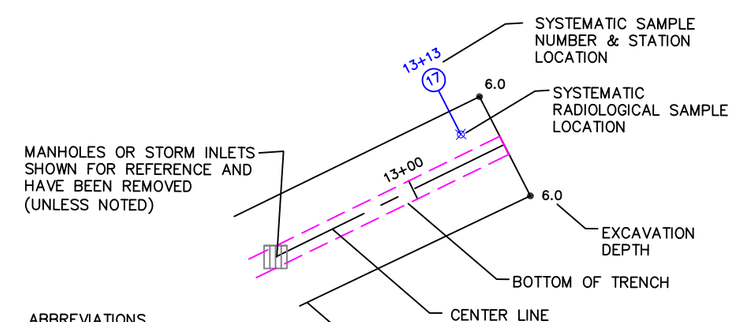
TETRA TECH EC, INC.



LINE 3F
LENGTH = 190 FEET
AREA = 4,678 SQUARE FEET
(435 SQUARE METERS)



LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 34 PROJECT REPORT

FIGURE 3-1

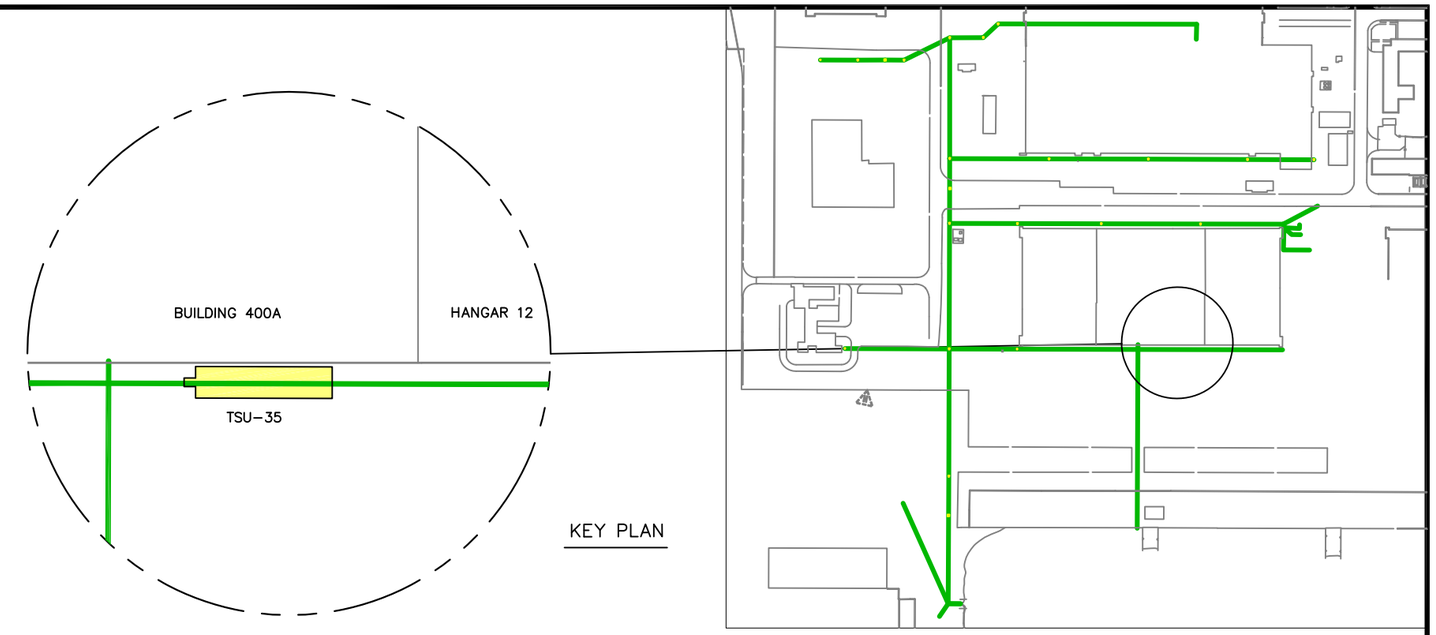
DETAILS FOR TRENCH SURVEY UNIT 34

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

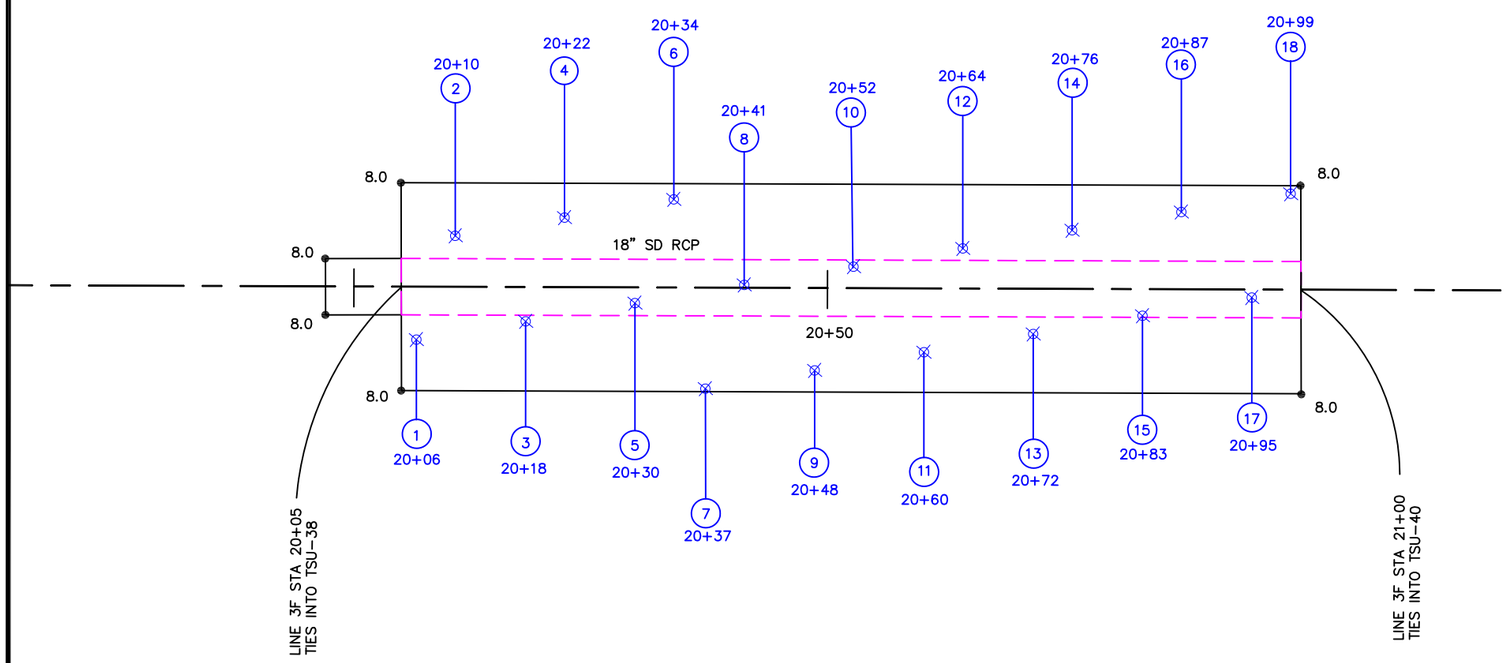
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-34.dwg

TETRA TECH EC, INC.

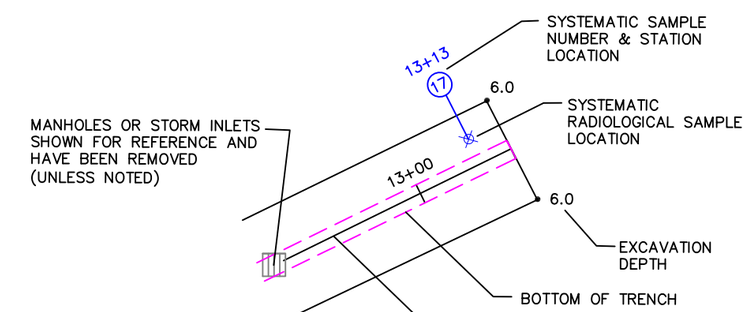
LINE 3F
LENGTH = 95 FEET
AREA = 2,038 SQUARE FEET
(189 SQUARE METERS)



KEY PLAN



LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

8 0 8 16
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 35 PROJECT REPORT

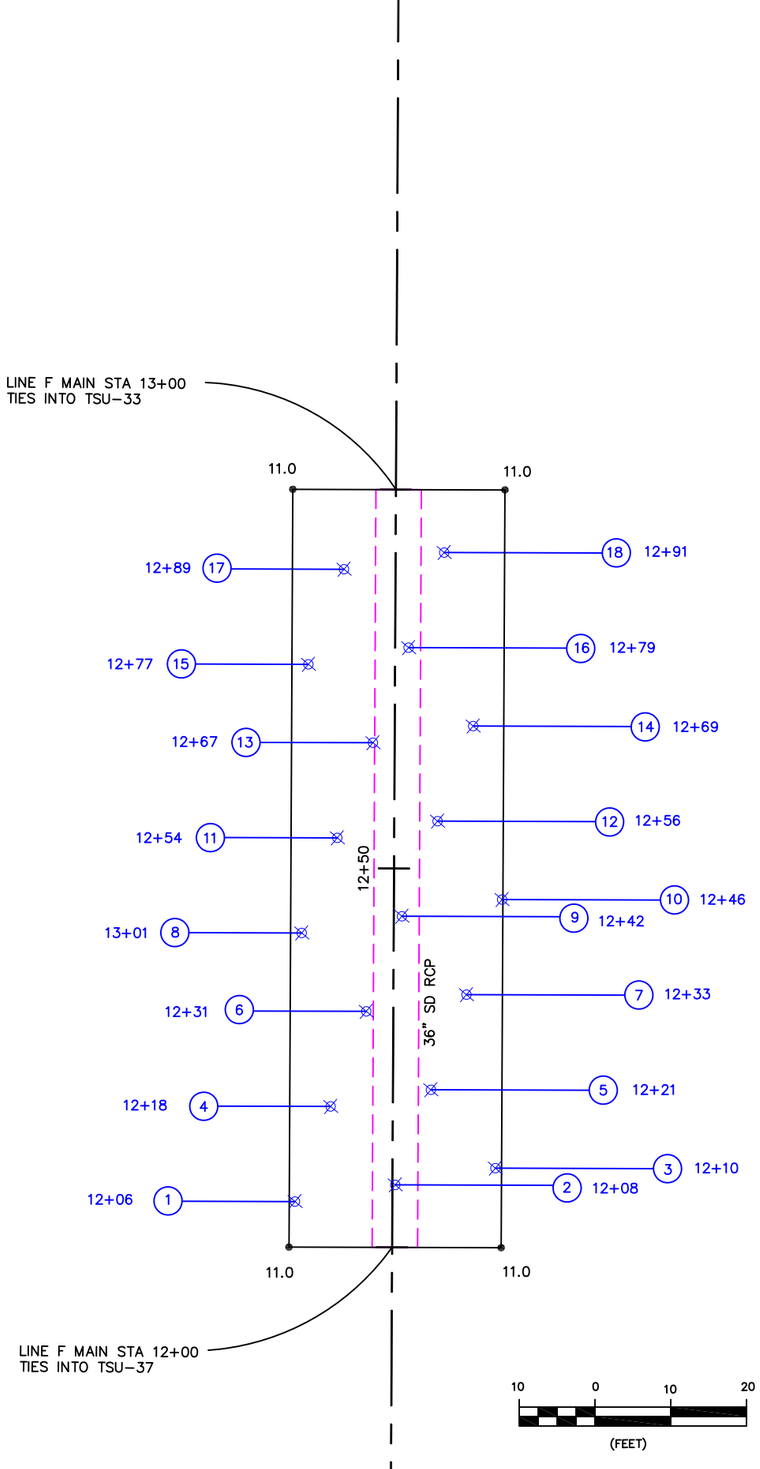
FIGURE 3-1

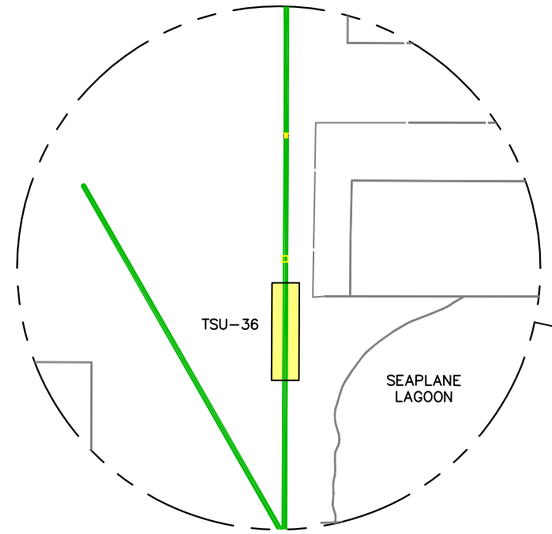
DETAILS FOR TRENCH SURVEY UNIT 35

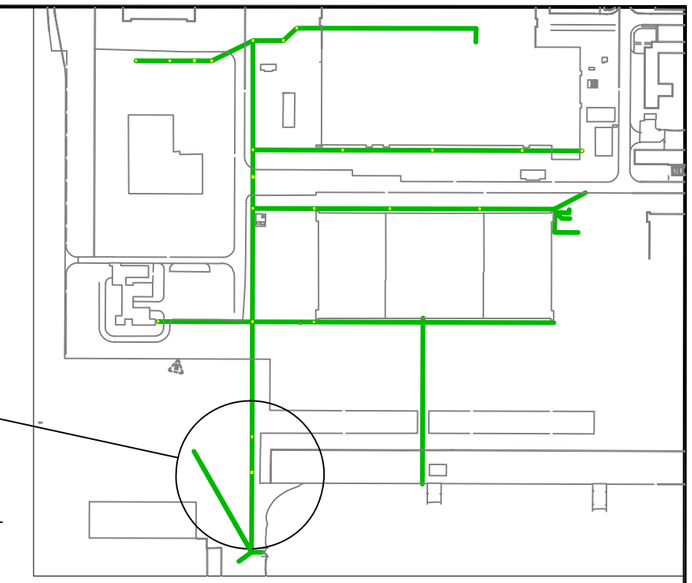
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-35.dwg

TETRA TECH EC, INC.



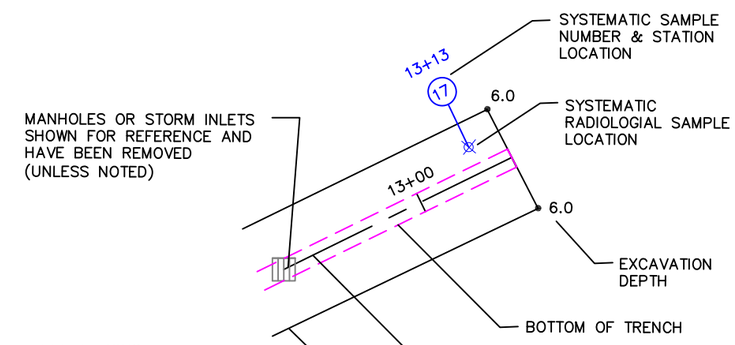




KEY PLAN

LINE F MAIN
LENGTH = 100 FEET
AREA = 2,800 SQUARE FEET
(260 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 36 PROJECT REPORT

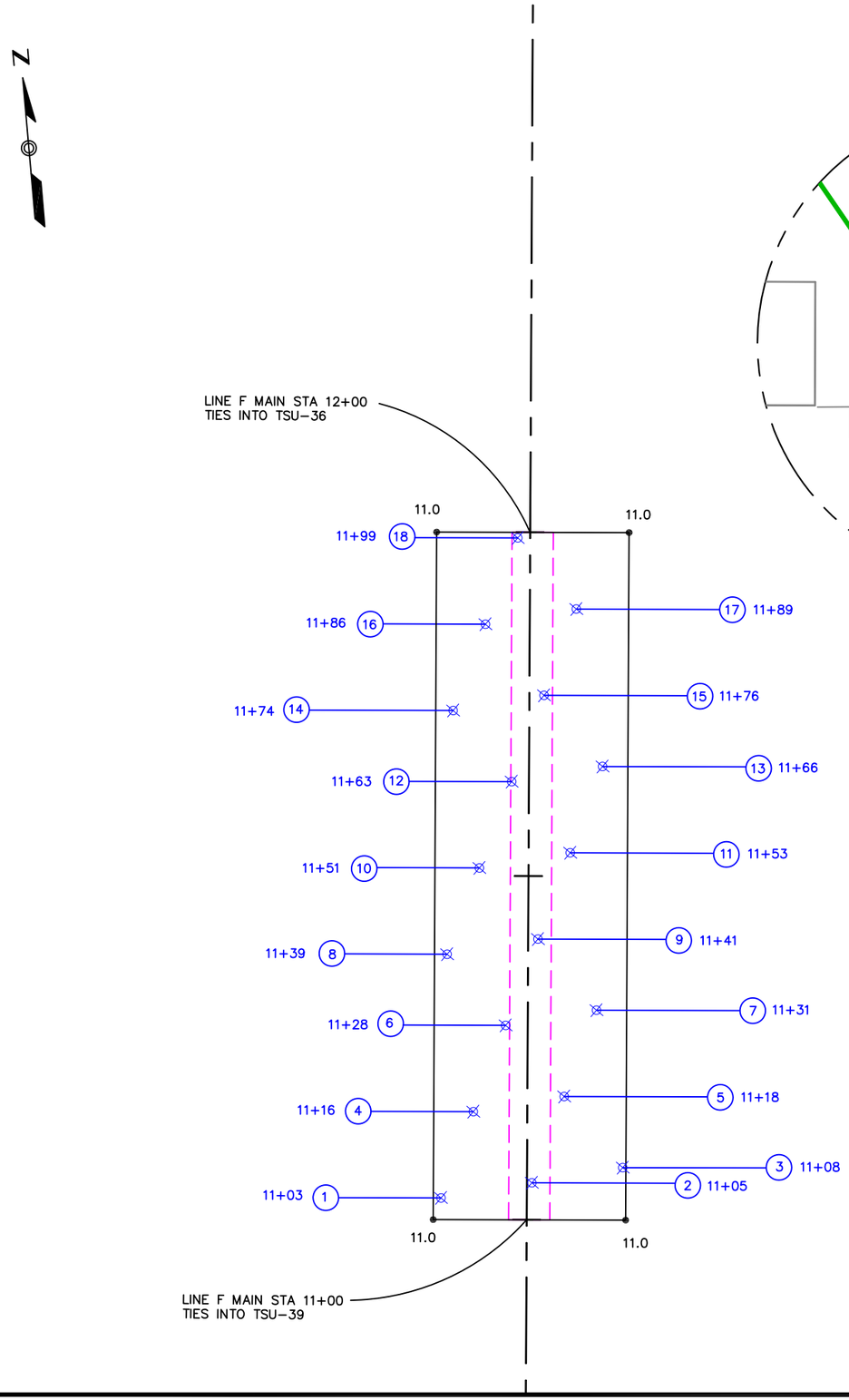
FIGURE 3-1

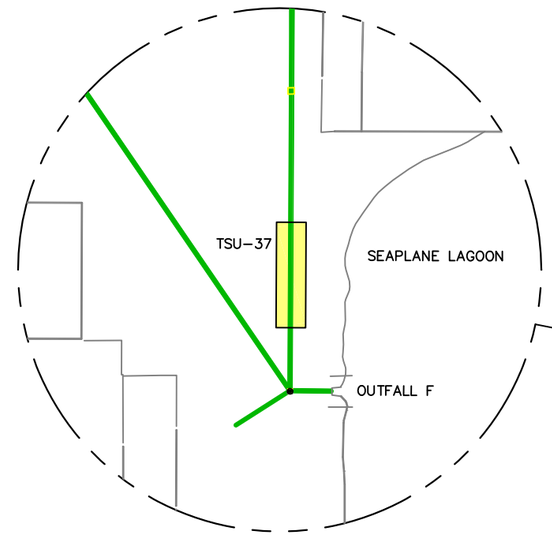
DETAILS FOR TRENCH SURVEY UNIT 36

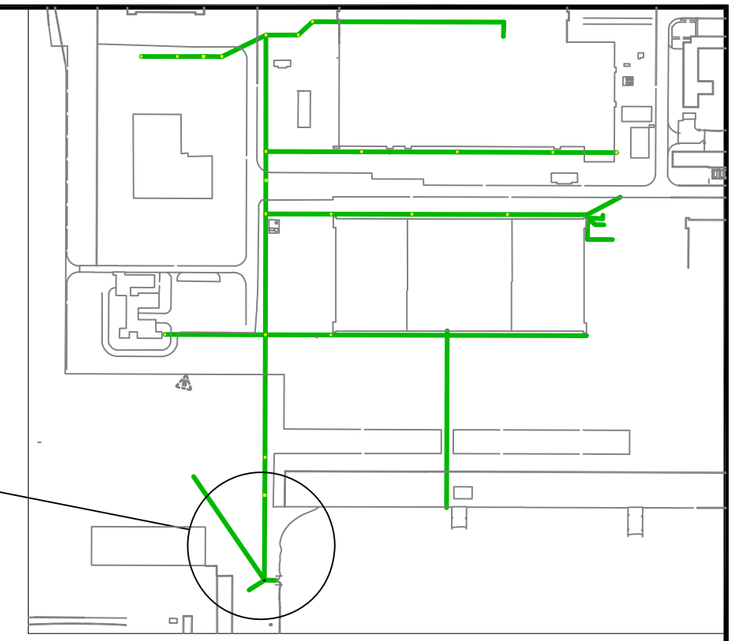
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3210-0016-0002
FILE NUMBER: TSU-36.dwg

TETRA TECH EC, INC.



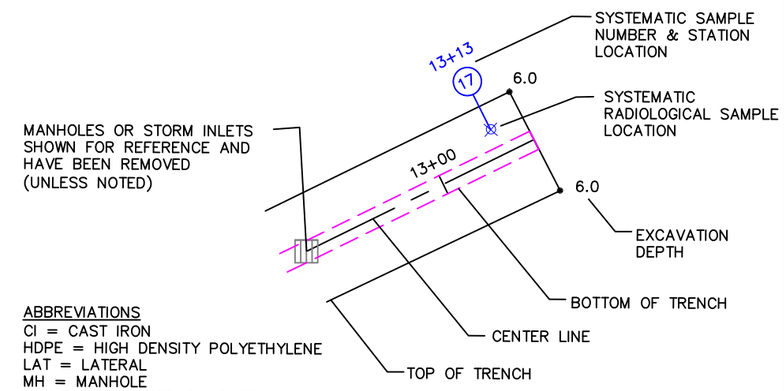




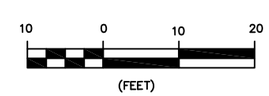
KEY PLAN

LINE F MAIN
LENGTH = 100 FEET
AREA = 2,800 SQUARE FEET
(260 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 37 PROJECT REPORT

FIGURE 3-1

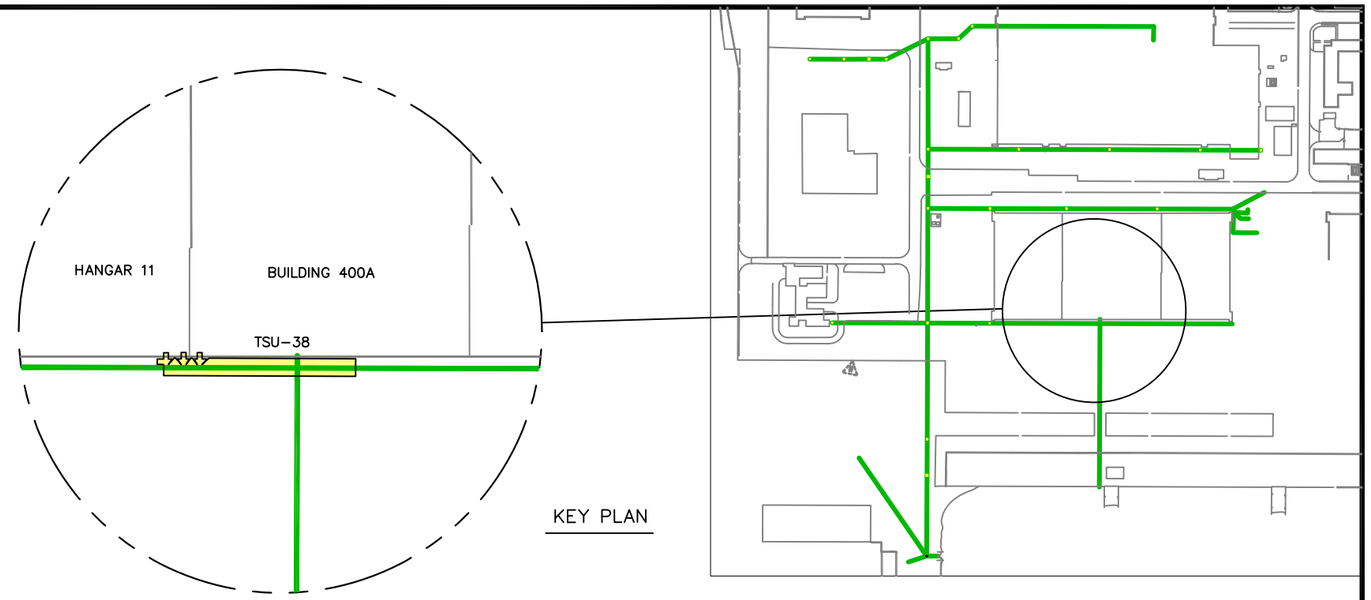
DETAILS FOR TRENCH SURVEY UNIT 37

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

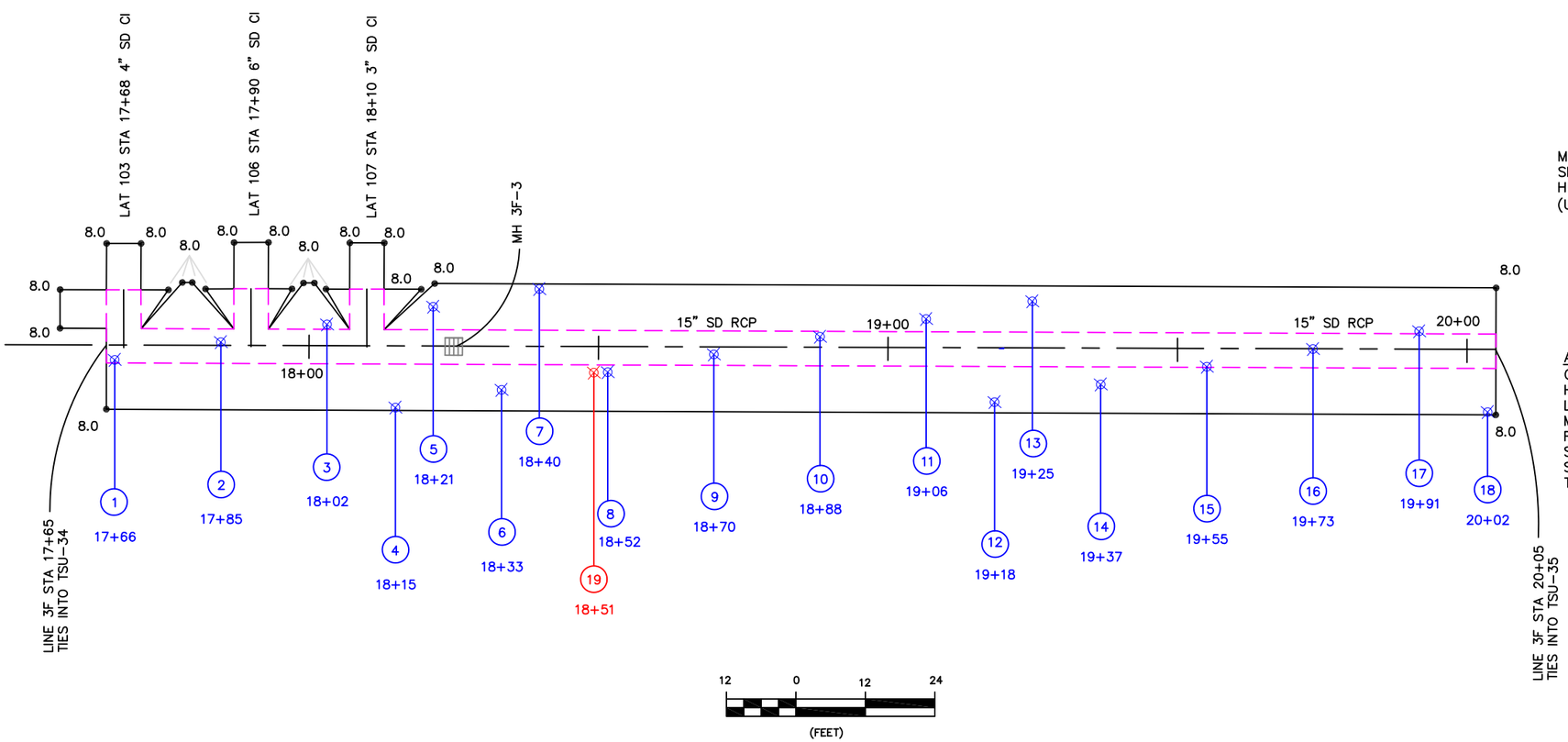
REVIEW: 0
AUTHOR: RS
DCN: ECSD-32101-0016-0002
FILE NUMBER: TSU-37.dwg

TETRA TECH EC, INC.

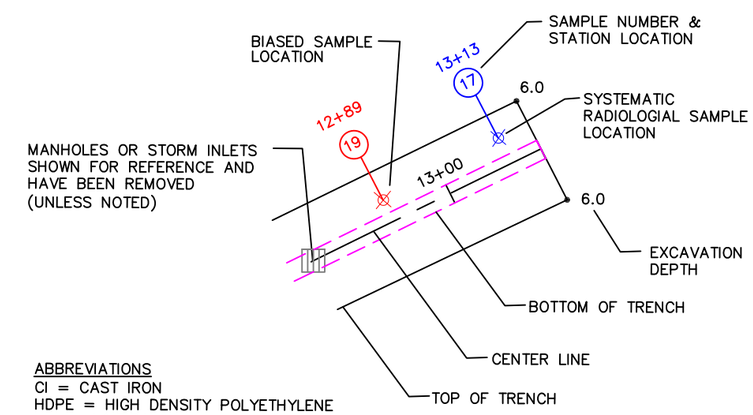
LINE 3F
LENGTH = 240 FEET
AREA = 5,385 SQUARE FEET
(500 SQUARE METERS)



KEY PLAN



LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 38 PROJECT REPORT

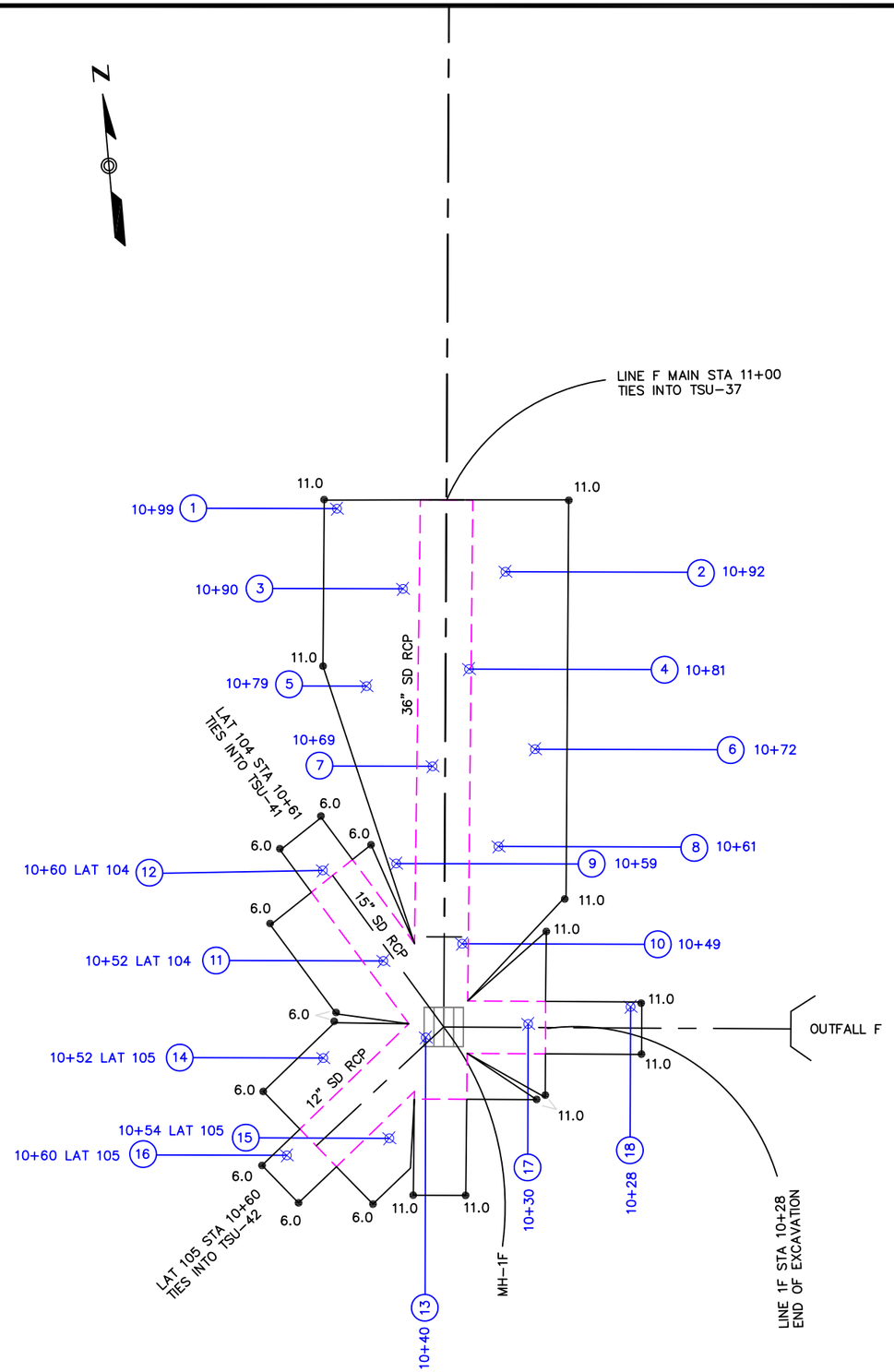
FIGURE 3-1

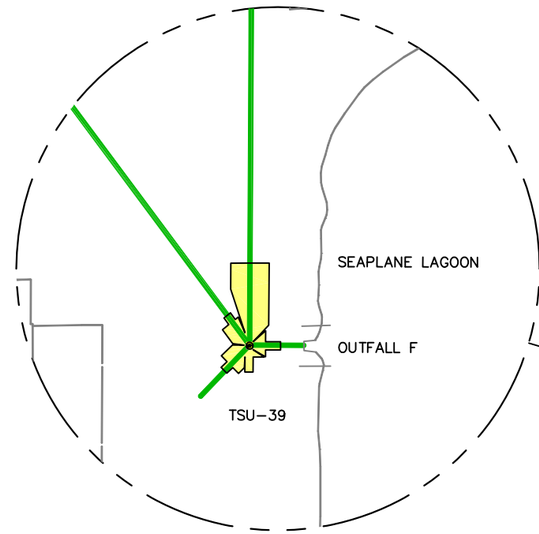
DETAILS FOR TRENCH SURVEY UNIT 38

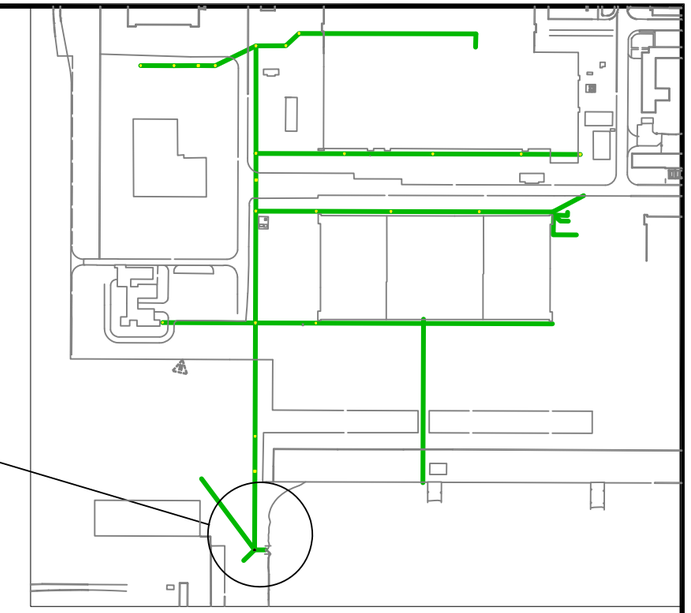
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-38.dwg

TETRA TECH EC, INC.



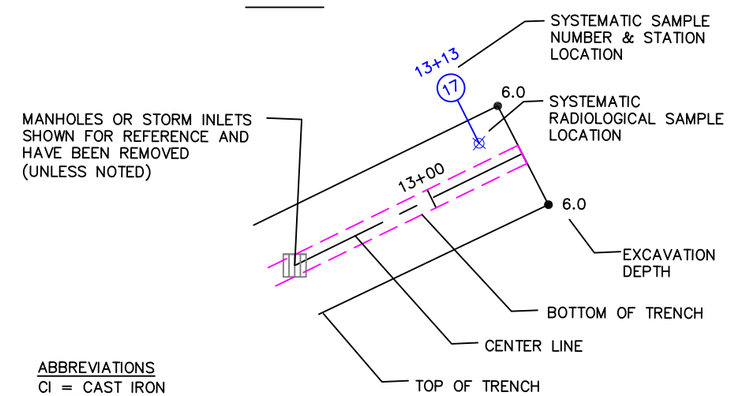




KEY PLAN

LINE F MAIN
LENGTH = 72 FEET
AREA = 2,202 SQUARE FEET
(205 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

8 0 8 16
(FEET)

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 39 PROJECT REPORT

FIGURE 3-1

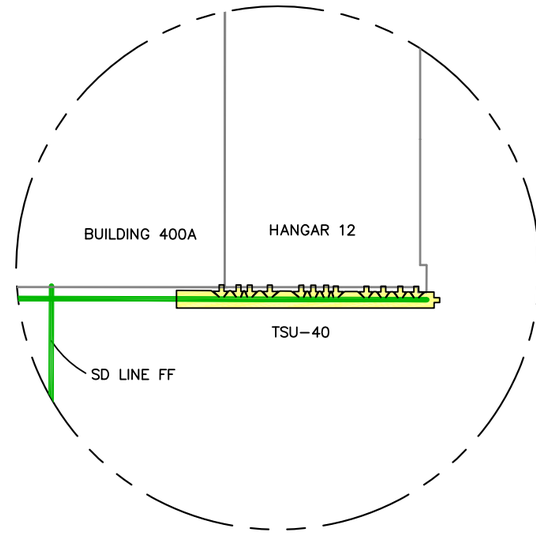
DETAILS FOR TRENCH SURVEY UNIT 39

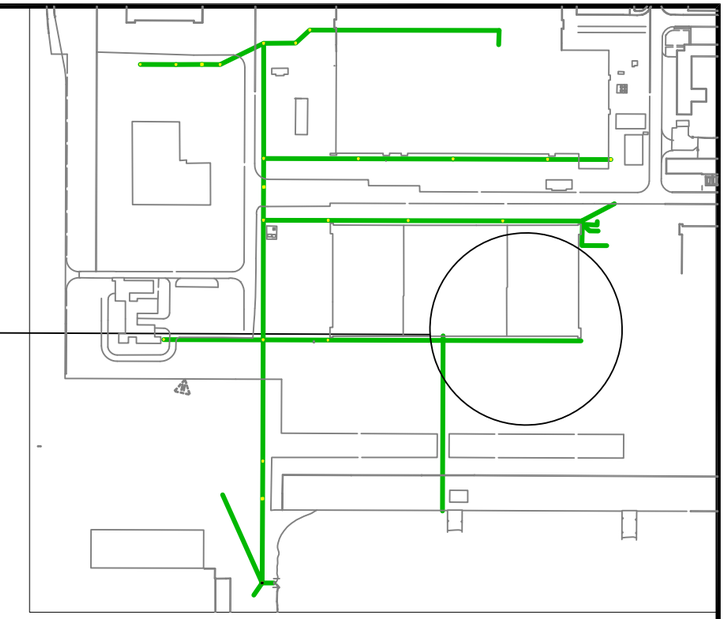
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

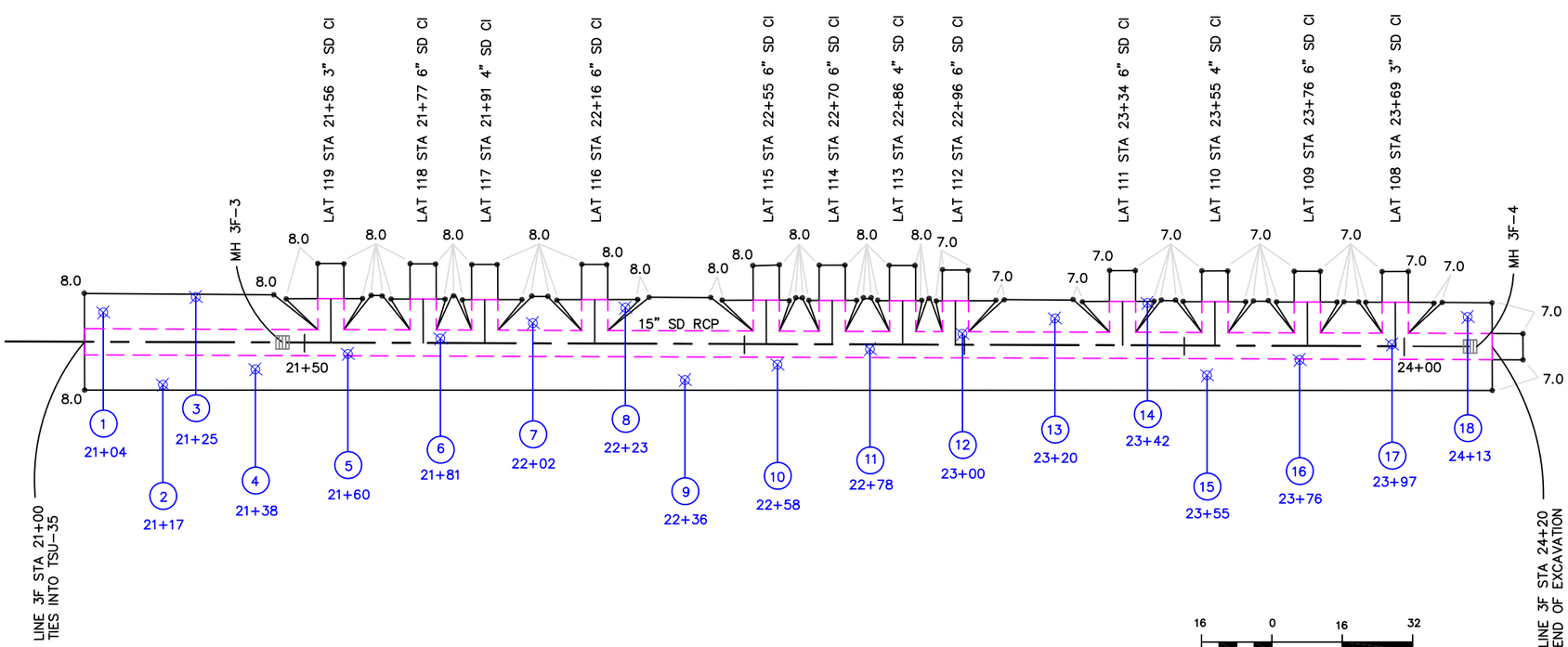
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-39.dwg

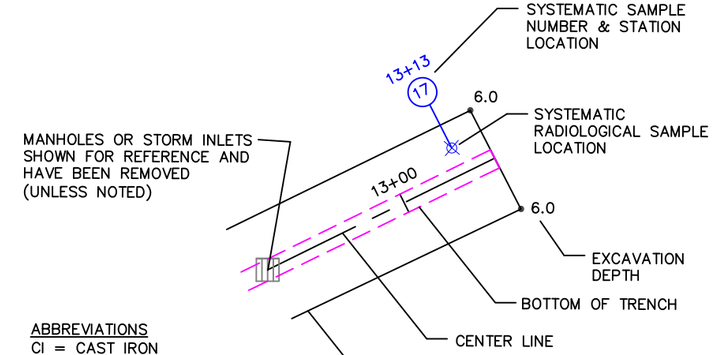
TETRA TECH EC, INC.

LINE 3F
LENGTH = 320 FEET
AREA = 7,090 SQUARE FEET
(659 SQUARE METERS)









ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 40 PROJECT REPORT

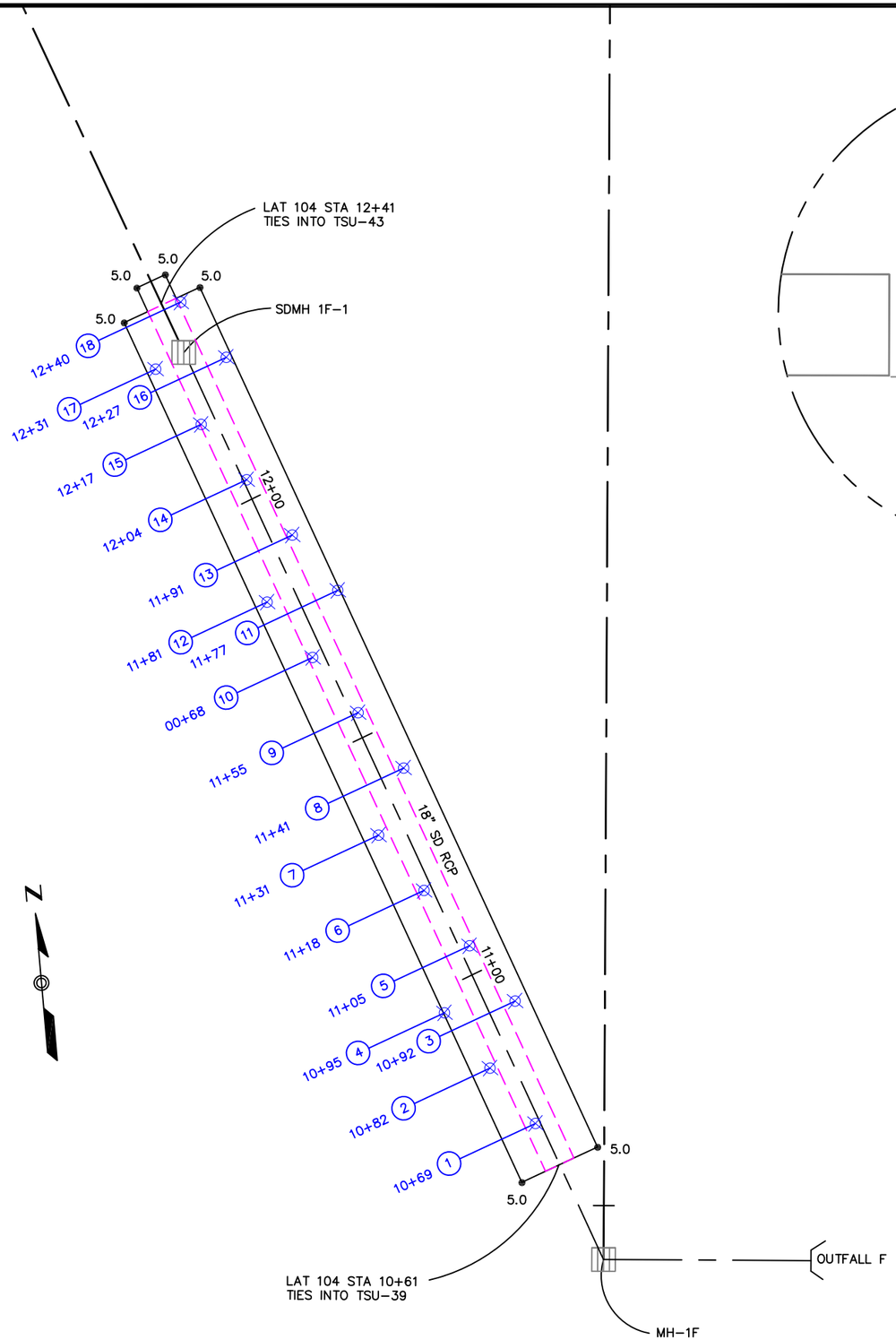
FIGURE 3-1

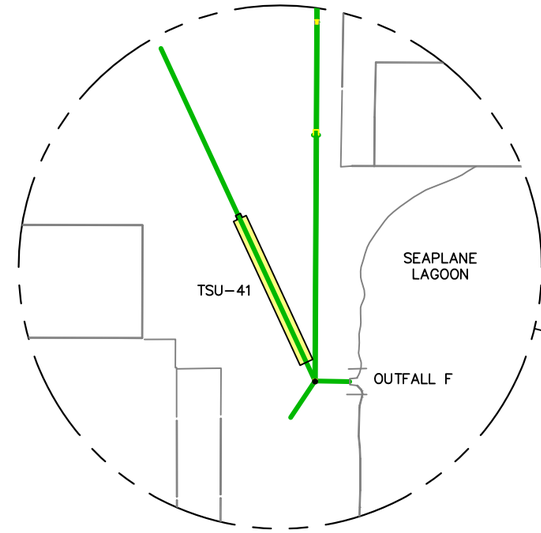
DETAILS FOR TRENCH SURVEY UNIT 40

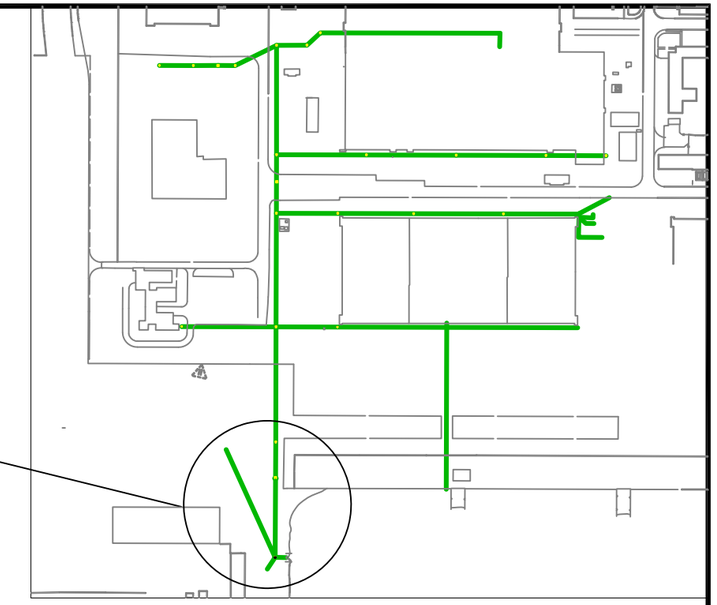
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-40.dwg

TETRA TECH EC, INC.



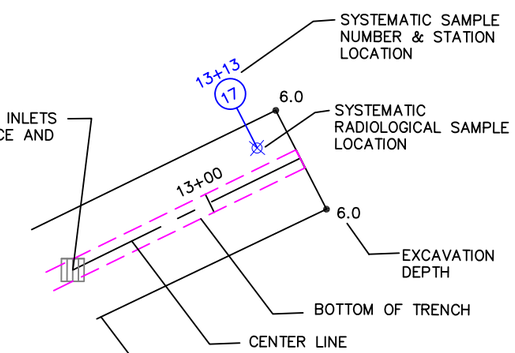




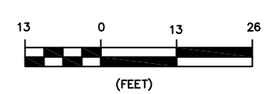
KEY PLAN

LAT 104
LENGTH = 180 FEET
AREA = 2,931 SQUARE FEET
(272 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 41 PROJECT REPORT

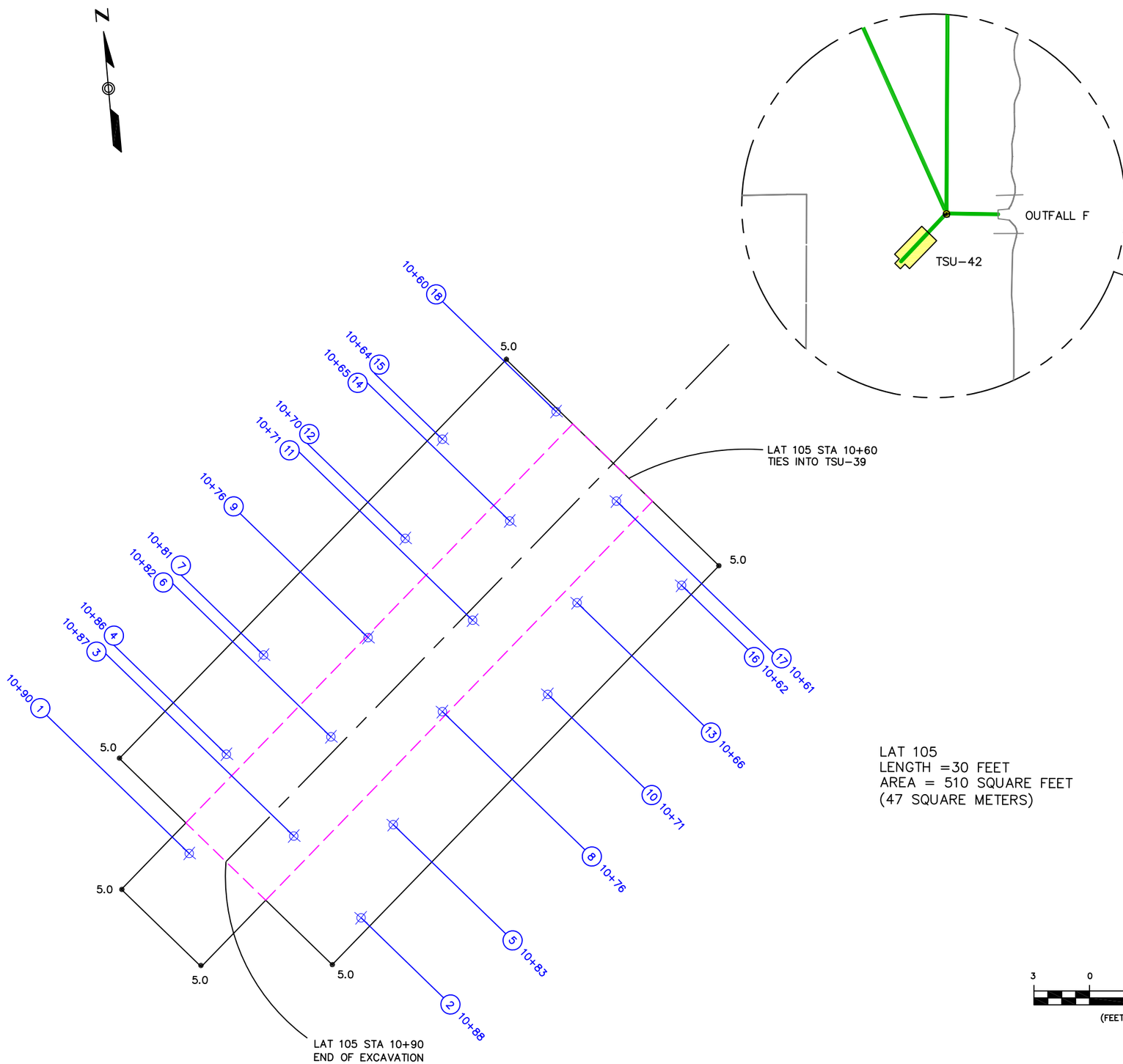
FIGURE 3-1

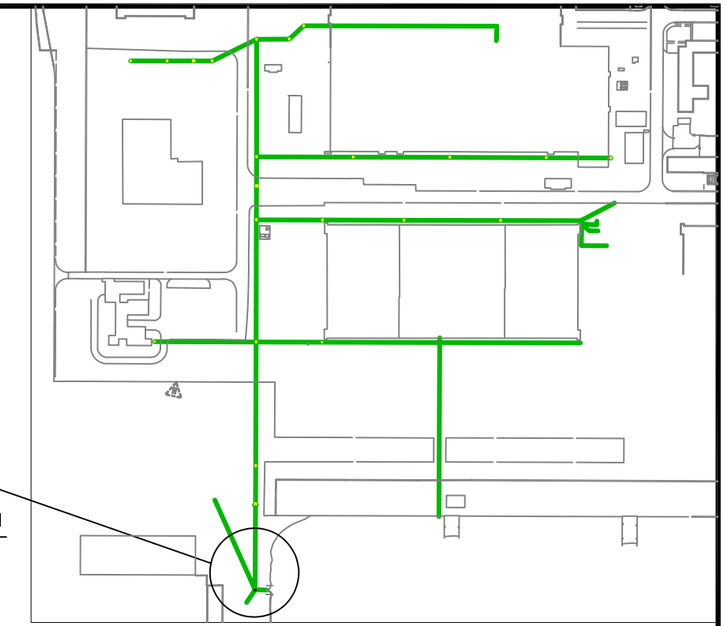
DETAILS FOR TRENCH SURVEY UNIT 41

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

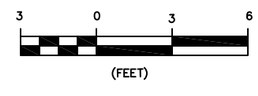
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-41.dwg

TETRA TECH EC, INC.

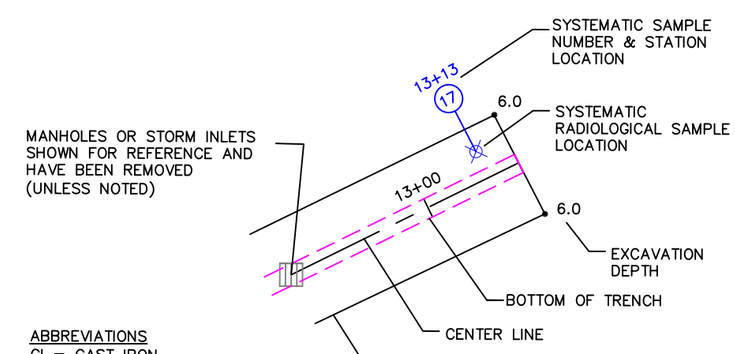




LAT 105
LENGTH =30 FEET
AREA = 510 SQUARE FEET
(47 SQUARE METERS)



LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 42 PROJECT REPORT

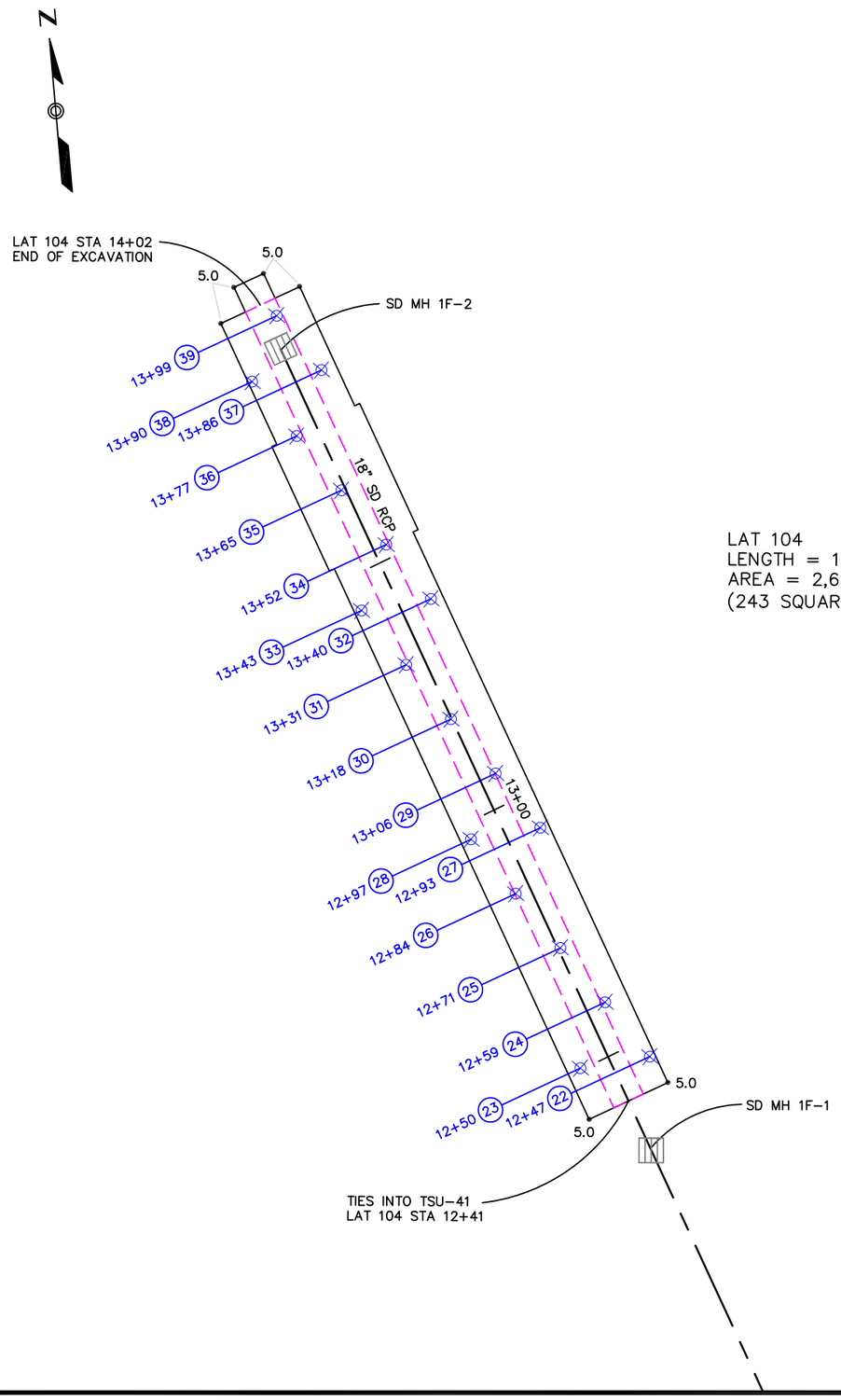
FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 42

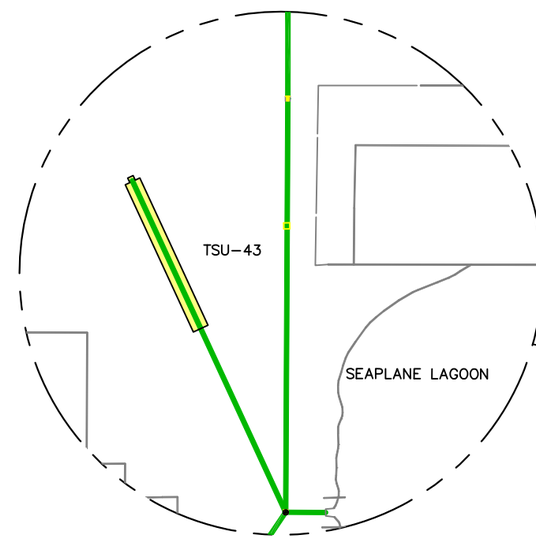
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

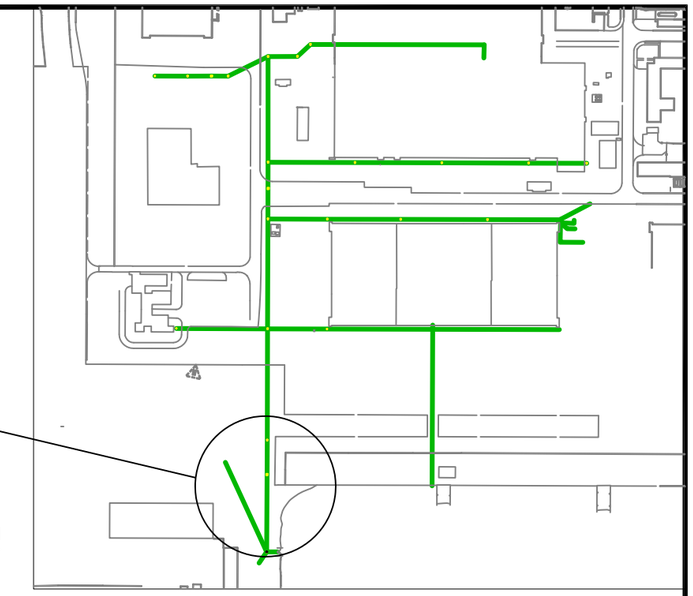
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-42.dwg

TETRA TECH EC, INC.



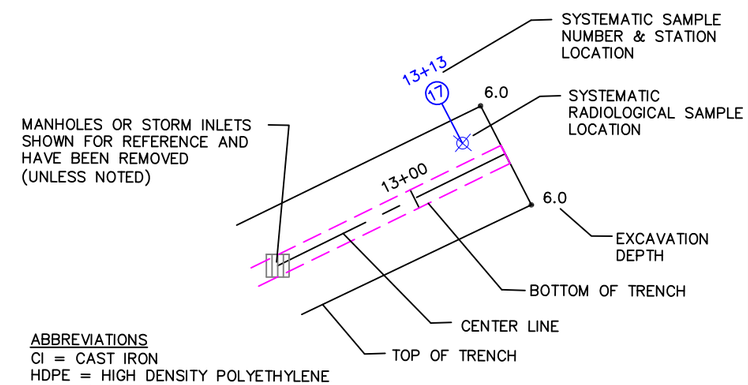
LAT 104
LENGTH = 161 FEET
AREA = 2,611 SQUARE FEET
(243 SQUARE METERS)



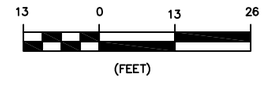


KEY PLAN

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 43 PROJECT REPORT

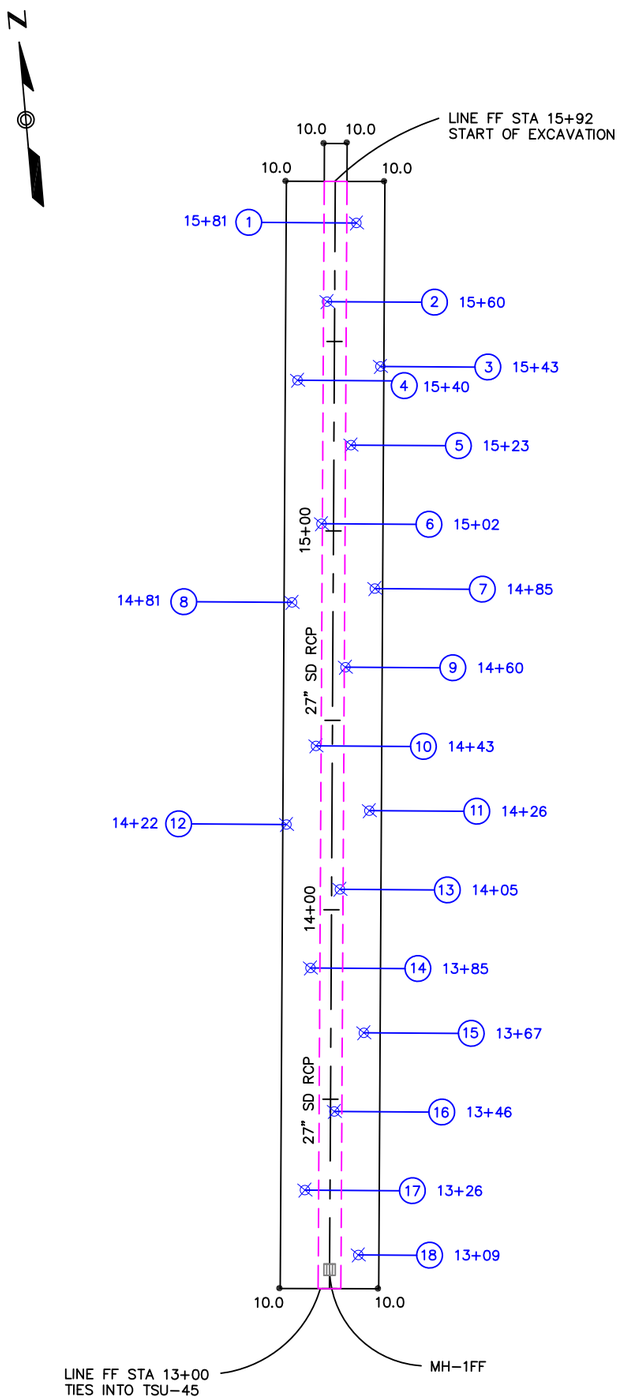
FIGURE 3-1

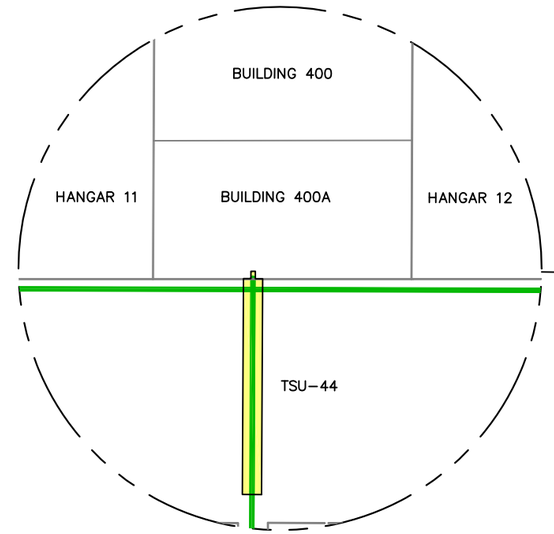
DETAILS FOR TRENCH SURVEY UNIT 43

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

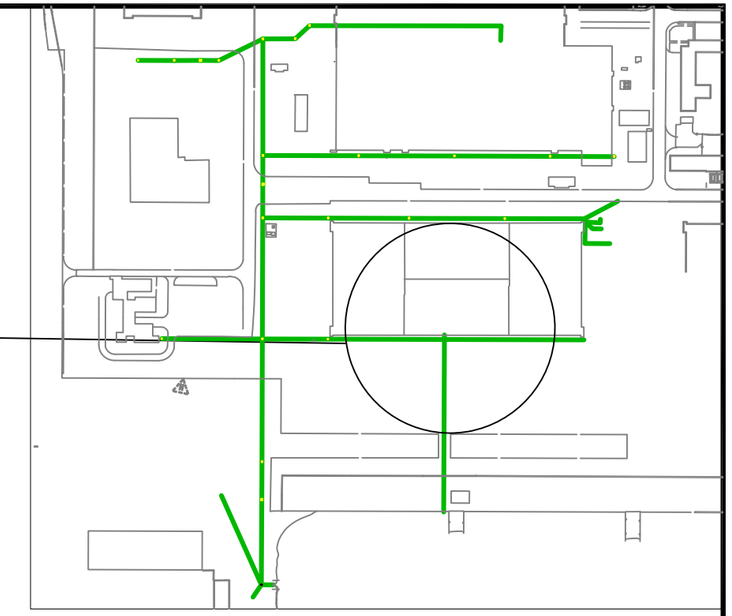
REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-43.dwg

TETRA TECH EC, INC.



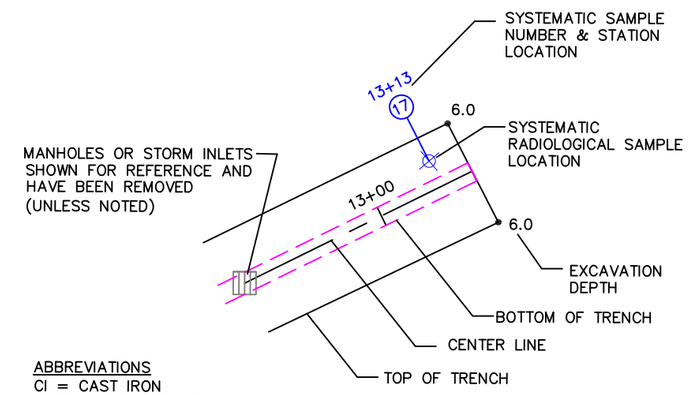


KEY PLAN

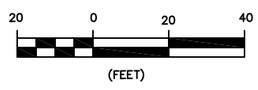


LINE FF
LENGTH = 292 FEET
AREA = 7,659 SQUARE FEET
(712 SQUARE METERS)

LEGEND



ABBREVIATIONS
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT



BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 44 PROJECT REPORT

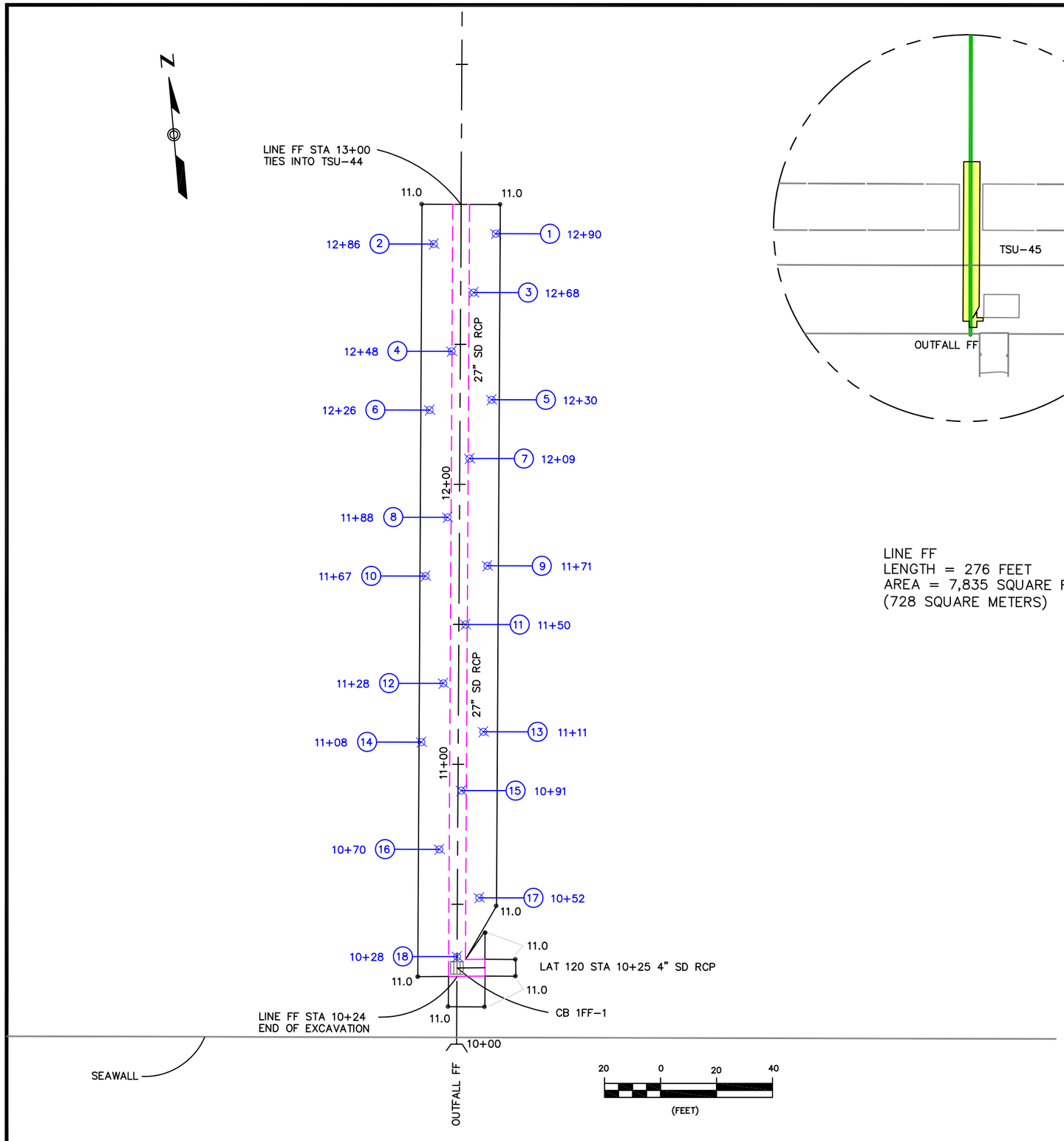
FIGURE 3-1

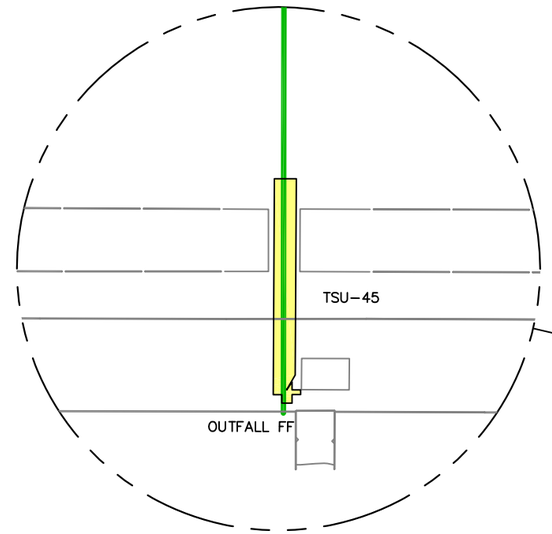
DETAILS FOR TRENCH SURVEY UNIT 44

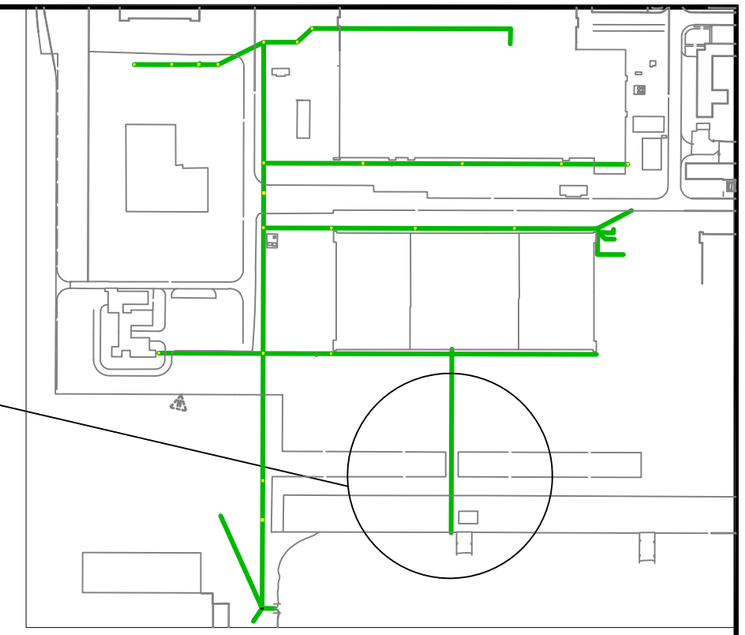
FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-44.dwg

TETRA TECH EC, INC.



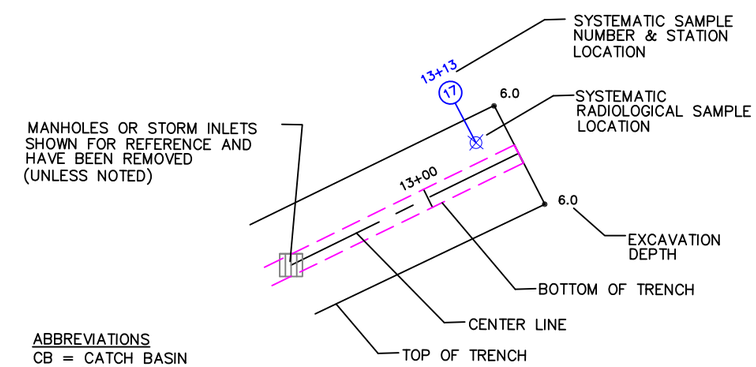




KEY PLAN

LINE FF
LENGTH = 276 FEET
AREA = 7,835 SQUARE FEET
(728 SQUARE METERS)

LEGEND



ABBREVIATIONS
CB = CATCH BASIN
CI = CAST IRON
HDPE = HIGH DENSITY POLYETHYLENE
LAT = LATERAL
MH = MANHOLE
RCP = REINFORCED CONCRETE PIPE
SD = STORM DRAIN
STA = STATION
TSU = TRENCH SURVEY UNIT

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT 45 PROJECT REPORT

FIGURE 3-1

DETAILS FOR TRENCH SURVEY UNIT 45

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: RS
DCN: ECSD-3211-0016-0002
FILE NUMBER: TSU-45.dwg

TETRA TECH EC, INC.

ATTACHMENT 2 TO CDPH COMMENTS

FS ADDENDUM, SECTION 2.0

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2.0 RADIOLOGICAL RISK ASSESSMENT METHODOLOGY

The computer code Residual Radioactivity (Model) (RESRAD) (DoD et al. 2000) was used to model risk to people from potentially radiologically impacted sites at OU-2C (e.g., drain lines and Oakland Inner Harbor). RESRAD uses the isotopes specified as radionuclides of interest and automatically includes the long-lived daughter products of these isotopes. The computer code RESRAD-BIOTA (DOE 2004) was used to calculate risk to aquatic animal and plant life in Oakland Inner Harbor. Because RESRAD-BIOTA has minimal input parameters, and the only parameters changed for risk modeling were the maximum radionuclide sample result values from Oakland Inner Harbor outfalls, further discussion of the use of RESRAD-BIOTA is limited to Section 5.2.

RESRAD was used to analyze the exposure scenarios that match planned reuse. According to the City of Alameda's Alameda Point General Plan, as amended May 7, 2003, the proposed future land use throughout OU-2C is commercial (City of Alameda 2003). This land use is shown in the Alameda Point Preliminary Development Concept, dated February 1, 2006 (ARRA 2006), and on Figure 2-5. Therefore, the future land use for the IR Site 5 and IR Site 10 areas addressed in this FS Addendum is commercial. The Record of Decision (ROD) for IR Site 20 OU-4C indicates that the planned future use is water taxi/ferry stop (DON 2008). The majority of the input parameters for RESRAD were left as default, except where noted.

The following discussion identifies the best processes to match each of the receptor-specific parameters for the EPA Radionuclide Preliminary Remediation Goal (PRG) calculator, from which the OU-2C TCRA screening levels for ^{137}Cs and ^{90}Sr were determined, and RESRAD analyses. Due to the manner in which indoor and outdoor fractions are used in RESRAD, and how they relate to exposure time and frequency as used in the EPA Radionuclide PRG calculator, it is impossible to implement all the steps necessary to perform a completely matching calculation.

The difficulty arises because the RESRAD indoor and outdoor fractions are pervasive across all calculations. Inhalation, soil ingestion, and exposure calculations all use the indoor and outdoor fractions. Inhalation and soil ingestion rates input into RESRAD are total annual rates regardless of location on- or off-site, whereas rates in the EPA Radionuclide PRG calculator correspond to rates only for time spent on-site. There are no indications as to what the receptor does off-site in the EPA Radionuclide PRG calculator. In order to match the total intake quantities (air or soil), either the intake rates or the total on-site fraction must be modified in RESRAD. In order to match the exposure period, the only mechanism available for RESRAD is to adjust the total on-site fraction. Therefore, when matching intake quantities, the preferential method is to modify the intake rates, since changes to the on-site fraction would prohibit effective matching of exposure period.

Table A.2-1 summarizes changes to RESRAD default parameters. In some cases, the changes to the parameters were necessary to make the receptor scenarios more closely match the EPA Radionuclide PRG calculator. In other cases, the changes were made to reflect site-specific conditions. All other RESRAD parameters were left at default values. The approach taken for changes to default parameters is described in the following sections.

2.1 RESRAD

The RESRAD code (NRC 2000) is used to estimate the potential risk to an individual from exposure to residual radionuclides in soil or soil-like media. It was used to evaluate the risk associated with impacted areas in OU-2C. Site-specific results were modeled using default RESRAD parameters for most values except for contaminated area size, the cover depth, the thickness of the contaminated zone, and as noted in the following sections.

When looking at various receptor scenarios, the goal of the RESRAD risk modeling approach was to be as consistent as possible with assumptions and inputs used in the EPA PRG calculation of radiological human health risk assessment. To achieve this goal, the development of representative parameters for receptor scenarios other than the RESRAD default was required. This was achieved by following the guidance of the EPA Exposure Factors Handbook (EPA 1997b) and the Risk Assessment Guidance for Superfund documents (EPA 1991). Receptor-specific RESRAD values were selected from these documents for recreational and outdoor worker, in addition to the default resident values. The simplest approach to modeling these scenarios would have been to use the values suggested by previous researchers for the various RESRAD receptor types. However, the exposure scenarios defined in the EPA PRG calculator are not based on the same assumptions used in developing the RESRAD receptor types. To achieve the best correlation, it was necessary to adjust each of the parameters based on receptor-specific information.

The differences between the parameters for the various receptors essentially are limited to variation among:

- Exposure duration
- Exposure frequency
- Exposure time
- Inhalation rate
- Soil ingestion rate

The following section provides an evaluation of the sensitivity of each of these parameters when used in performing calculations with RESRAD that directly parallel the exposure scenarios defined in the EPA Radionuclide PRG calculator. This evaluation presents the PRG calculator

ATTACHMENT 3 TO CDPH COMMENTS

FS ADDENDUM, APPENDIX A TABLES

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TABLE A.2-1

MODIFIED RESRAD INPUT PARAMETERS FOR RISK ASSESSMENT

	RESRAD	Resident		Recreational		Outdoor
	Default	**Adult**	**Child**	**Adult**	**Child**	**Worker**
Exposure duration (year)	30	24	6	24	6	25
Exposure fraction indoor (unitless)	IF:0.5	IF:0.684	IF:0.684	IF:0	IF:0	IF:0
Exposure fraction outdoor (unitless)	OF:0.25	OF:0.073	OF:0.073	OF:0.006	OF:0.006	OF:0.2055
Inhalation rate (cubic meters per year)	8,400	7,300	3,650	14,000	7,000	20,000
Soil ingestion rate (grams per year)	36.5	36.5	73.0	36.5	73.0	36.5
Area of contaminated zone (square meters)	10,000	100	100	10,000	10,000	100
Thickness of contaminated zone (meters)	2	0.1	0.1	2	2	0.1
Cover depth (meters)	0	1	1	0	0	0

Abbreviations and Acronyms:
IF – indoor fraction
OF – outdoor fraction

TABLE A.3-1

SITES AND SELECTED PARAMETERS FOR OU-2C FS ADDENDUM RADIOLOGICAL ANALYSIS

Site or Area	Planned Reuse*	Exposure Scenario	Cover Details
Oakland Inner Harbor	Waterway/ferry stop	Recreational user	No cover
Sanitary Sewers/ Storm Drains/ Industrial Waste	Commercial	Residential, outdoor worker	1 meter soil, no cover

Notes:

* Planned reuse from San Francisco Redevelopment Agency (1997).

Abbreviations and Acronyms:

FS – Feasibility Study

OU – operable unit

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	G	CB-2G-1-001	0.32003	0.05333	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-2G-1-002	1.09070	0.01385	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-2G-2-001	-0.06516	0.06889	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-2G-2-002	0.85872	0.02789	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-2G-1-001	0.17966	0.08428	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-2G-1-002	-0.00730	0.06374	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-2G-1-1-001	0.26583	0.28629	-0.02000	0.18000	0.12500	N/A
Storm Drain	G	CB-2G-1-1-002	0.02706	0.29171	-0.03000	0.36000	0.36900	N/A
Storm Drain	G	CB-2G-1-2-001	0.07129	0.08573	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-2G-1-2-002	0.23876	0.11908	0.08000	0.37000	0.02300	N/A
Storm Drain	G	MH-2G-2-001	0.36784	0.20762	-0.21000	0.62000	0.12200	N/A
Storm Drain	G	MH-2G-2-002	-0.04356	0.19503	0.04000	0.44000	0.12500	N/A
Storm Drain	G	MH-2G-3-001	0.30528	0.08644	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-2G-3-002	0.28279	0.11173	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-2G-4-001	No Sediment	No Sediment	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-2G-4-002	No Sediment	No Sediment	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-1-001	0.72278	0.12981	0.27000	0.48000	0.09500	N/A
Storm Drain	G	CB-3G-1-002	-0.41017	0.19127	0.14000	0.62000	0.09100	N/A
Storm Drain	G	CB-3G-2-001	0.89798	0.10757	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-2-002	0.75389	0.09932	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-3-001	0.86186	0.10628	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-3-002	1.06560	0.23374	0.00000	0.39000	0.10200	N/A
Storm Drain	G	CB-3G-4-001	0.65996	0.14902	0.09000	0.20000	0.15300	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	G	CB-3G-4-002	No Sediment	No Sediment	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-5-001	0.51645	0.13948	0.18000	0.51000	0.14500	N/A
Storm Drain	G	CB-3G-5-002	No Sediment	No Sediment	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-7-001	1.22420	0.06074	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-7-002	0.01876	0.02513	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-8-001	Abandon	Abandon	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-8-002	Abandon	Abandon	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-9-001	0.63259	0.34807	0.19000	0.59000	0.26000	N/A
Storm Drain	G	CB-3G-9-002	0.71514	0.10545	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-10-001	0.68544	0.07369	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-10-002	-0.30687	0.07120	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-11-001	-0.10855	0.08603	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-3G-11-002	1.06930	0.08131	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-4G-1-001	0.41081	0.07491	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-4G-1-002	-0.24485	0.10571	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-4G-2-001	0.49384	0.05712	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-4G-2-002	0.66097	0.05122	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-4G-1-001	0.51378	0.09699	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-4G-1-002	1.02550	0.10695	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-4G-2-001	0.45361	0.09438	Not analyzed	Not analyzed	Not analyzed	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	G	MH-4G-2-002	-0.29850	0.06983	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-4G-3-001	1.26630	0.14243	-0.04000	0.43000	0.21000	N/A
Storm Drain	G	MH-4G-3-002	-0.07376	0.14429	-0.14000	0.58000	0.18000	N/A
Storm Drain	G	MH-4G-4-001	0.71996	0.03002	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-4G-4-002	0.94081	0.05155	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-4G-5-001	0.38957	0.07279	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-4G-5-002	0.00192	0.11781	0.26000	0.54000	0.06200	N/A
Storm Drain	G	MH-4G-6-001	0.66464	-0.01425	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-4G-6-002	0.17410	0.03403	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-5G-1-001	1.12750	0.10754	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-5G-1-002	0.66031	0.02923	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-5G-2-001	0.49468	0.10359	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-5G-2-002	0.56682	0.16612	0.01000	0.50000	0.09600	N/A
Storm Drain	G	MH-5G-2A-001	1.12920	0.04203	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-5G-2A-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	MH-5G-3-001	0.52122	0.08727	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-5G-3-002	1.23480	0.19146	0.00000	0.47000	0.30100	N/A
Storm Drain	G	MH-5G-4-001	0.68965	0.08239	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-5G-4-002	0.12584	0.09270	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-5G-5-001	0.06192	0.13245	0.18000	0.49000	0.04200	N/A
Storm Drain	G	MH-5G-5-002	0.56512	0.10848	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-5G-6-001	0.17895	1.07090	0.11000	0.02000	0.94000	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	G	MH-5G-6-002	1.04030	0.19140	-0.03000	0.44000	0.10000	N/A
Storm Drain	G	CB-5G-1-001	0.87670	0.05749	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-5G-1-002	0.64653	0.08519	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-5G-2-001	0.60168	0.03366	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-5G-2-002	0.14408	0.07763	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-5G-3-001	0.34637	0.01173	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-5G-3-002	0.60649	0.07124	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-5G-4-001	0.09769	0.09243	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-5G-4-002	0.90751	0.13058	-0.23000	0.31000	-0.05000	N/A
Storm Drain	G	CB-5G-5-001	0.49141	0.07318	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-5G-5-002	0.54757	0.09852	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-5G-6-001	0.25460	0.12836	0.11000	0.09000	0.10100	N/A
Storm Drain	G	CB-5G-6-002	0.73787	0.12422	-0.03000	0.75000	0.03900	N/A
Storm Drain	G	CB-5G-7-001	0.62984	0.01515	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-5G-7-002	0.44103	0.04967	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-6G-1-001	-0.27077	0.06548	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-6G-1-002	0.78792	0.06804	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-6G-2-001	0.01670	0.11278	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-6G-2-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-6G-3-001	1.02020	0.21539	0.11000	0.53000	0.12000	N/A
Storm Drain	G	CB-6G-3-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	G	CB-6G-4-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-6G-4-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-6G-5-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-6G-5-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	MH-6G-1-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	MH-6G-1-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	MH-6G-16-001	0.02739	0.05252	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-6G-16-002	0.66740	0.05822	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-6G-16-1-001	0.68300	0.56876	0.16000	0.81000	0.62000	N/A
Storm Drain	G	CB-6G-16-1-002	0.48891	1.27900	-0.07000	0.68000	1.29000	N/A
Storm Drain	G	MH-6G-17-001	0.04652	0.13272	0.12000	0.46000	0.00090	N/A
Storm Drain	G	MH-6G-17-002	0.76930	0.14665	0.07000	0.19000	0.06700	N/A
Storm Drain	G	CB-6G-17-1-001	0.48929	0.11067	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-6G-17-1-002	0.15575	0.10326	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-6G-18-001	0.88844	0.24007	-0.06000	0.65000	0.15900	N/A
Storm Drain	G	MH-6G-18-002	0.64010	0.23347	0.34000	0.46000	0.34500	N/A
Storm Drain	G	CB-6G-18-1-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-6G-18-1-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-8G-1-001	0.25665	0.02285	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-8G-1-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-8G-2-001	0.19913	0.03241	Not analyzed	Not analyzed	Not analyzed	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	G	CB-8G-2-002	0.30410	0.00500	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-8G-3-001	0.06176	0.03733	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-8G-3-002	0.13672	0.02738	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-9G-1-001	-0.27674	0.05828	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-9G-1-002	0.23158	0.06676	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-9G-2-001	0.15341	0.09830	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-9G-2-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-9G-3-001	0.17990	0.10262	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-9G-3-002	0.46924	0.09468	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-10G-1-001	0.69140	0.06120	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-10G-1-002	0.46408	0.08135	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-10G-2-001	-0.29238	0.04889	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-10G-2-002	-0.00147	0.02125	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-10G-3-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-10G-3-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-11G-1-001	0.47293	0.04355	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-11G-1-002	0.19378	0.05869	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-12G-1-001	0.08268	0.01833	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-12G-1-002	-0.07254	0.08882	Not analyzed	Not analyzed	Not analyzed	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	G	CB-14G-1-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-14G-1-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-14G-2-001	0.21074	0.14167	-0.03000	0.23000	0.06500	N/A
Storm Drain	G	CB-14G-2-002	0.53338	0.15447	0.12000	0.41000	0.17100	N/A
Storm Drain	G	CB-14G-3-001	-0.12329	0.10800	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-14G-3-002	0.44685	0.15773	-0.04000	0.38000	0.09200	N/A
Storm Drain	G	MH 1-G-001	22.34900	0.11250	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH 1-G-002	0.28779	0.09093	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH 7-G-001	0.44760	0.09080	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH 7-G-002	0.33249	0.15087	0.06000	0.33000	0.03200	N/A
Storm Drain	G	MH 14-G-001	0.75924	0.29740	-0.03000	0.52000	0.42500	N/A
Storm Drain	G	MH 14-G-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	MH 15-G-001	1.08340	0.12906	-0.10000	0.61000	0.20100	N/A
Storm Drain	G	MH 15-G-002	11.70100	0.15324	0.02000	6.47000	0.27500	N/A
Storm Drain	G	MH-6G-2-001	0.58156	0.10635	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-6G-2-002	1.06830	0.04424	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-6G-3-001	0.56446	0.12991	-0.08710	0.30100	0.10900	N/A
Storm Drain	G	MH-6G-3-002	0.46102	0.09713	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-6G-3-2-001	0.60331	0.06254	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-6G-3-2-002	1.40380	0.21053	0.00000	0.51000	0.07030	N/A
Storm Drain	G	MH-6G-4-001	0.68515	0.15095	0.19100	0.26000	0.04000	N/A
Storm Drain	G	MH-6G-4-002	0.40871	0.15406	0.14700	0.14200	0.14500	N/A
Storm Drain	G	MH-6G-4A-001	0.48257	0.07867	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-6G-4A-002	1.02140	0.04455	Not analyzed	Not analyzed	Not analyzed	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	G	MH-6G-4B-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	MH-6G-4B-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-6G-4B-1-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-6G-4B-1-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	MH-6G-5-001	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-5-002	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-5A-001	1.25790	0.10328	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-6G-5A-002	1.00610	0.09021	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	CB-6G-5A-1-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-6G-5A-1-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-6G-5A-3-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	CB-6G-5A-3-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	MH-6G-6-001	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-6-002	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-7-001	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-7-002	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-8-001	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-8-002	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-9-001	0.88421	0.07676	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-6G-9-002	0.80933	0.21534	-0.31700	0.35500	0.21300	N/A
Storm Drain	G	MH-6G-9A-001	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-9A-002	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	CB-6G-9-1-001	0.72230	0.27715	-0.11500	0.41700	0.15100	N/A
Storm Drain	G	CB-6G-9-1-002	0.52800	0.41635	0.17000	0.20400	0.28600	N/A
Storm Drain	G	MH-6G-10-001	Abandon	Abandon	Abandon	Abandon	Abandon	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	G	MH-6G-10-002	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-11-001	0.55878	0.24122	0.00835	0.28600	0.23200	N/A
Storm Drain	G	MH-6G-11-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	G	MH-6G-12-001	0.15858	0.12377	0.16500	0.56900	0.11200	N/A
Storm Drain	G	MH-6G-12-002	0.67865	0.28271	-0.10500	0.50100	0.34400	N/A
Storm Drain	G	MH-6G-13-001	0.37884	0.04042	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-6G-13-002	0.70339	0.04260	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	G	MH-6G-14-001	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-14-002	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-15-001	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	G	MH-6G-15-002	Abandon	Abandon	Abandon	Abandon	Abandon	N/A
Storm Drain	A	MH-4A-1-001	0.91165	0.01179	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-4A-1-002	1.42350	0.22047	0.23400	0.47000	0.28100	N/A
Storm Drain	A	MH-4A-2-001	0.12419	0.07815	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-4A-2-002	0.46502	0.05748	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-4A-3-001	0.40301	0.10974	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-4A-3-002	-0.05447	0.12894	-0.01330	0.32700	0.06220	N/A
Storm Drain	A	CB-4A-4-001	-0.12542	0.11248	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	CB-4A-4-002	0.73569	0.07883	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-4A-10-001	0.61332	0.07304	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-4A-10-002	0.44495	0.09325	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-4A-12-001	0.81973	0.04457	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-4A-12-002	0.95288	0.02654	Not analyzed	Not analyzed	Not analyzed	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	A	MH-4A-14-001	0.77570	-0.00952	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-4A-14-002	0.64609	0.13610	0.03390	0.39700	0.05930	N/A
Storm Drain	A	MH-5A-1-001	0.15456	0.07230	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-5A-1-002	1.07290	0.07505	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-5A-2-001	0.72929	0.09085	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-5A-2-002	0.24651	0.08604	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-5A-3-001	Inaccessible	Inaccessible	Inaccessible	Inaccessible	Inaccessible	N/A
Storm Drain	A	MH-5A-3-002	Inaccessible	Inaccessible	Inaccessible	Inaccessible	Inaccessible	N/A
Storm Drain	A	MH-5A-6-001	-0.29675	0.09161	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-5A-6-002	0.37949	0.33529	0.10500	0.30600	0.20600	N/A
Storm Drain	A	MH-5A-8-001	0.70291	0.32534	-0.15900	0.40900	0.34100	N/A
Storm Drain	A	MH-5A-8-002	0.28628	0.22772	-0.15200	0.36600	0.35700	N/A
Storm Drain	A	MH-6A-1-001	0.43473	0.06855	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-6A-1-002	0.35217	0.05883	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-6A-2-001	1.14290	0.28838	0.01080	0.57000	0.28900	N/A
Storm Drain	A	MH-6A-2-002	1.41510	0.26095	-0.07720	0.50600	0.16500	N/A
Storm Drain	A	MH-6A-3-001	Inaccessible	Inaccessible	Inaccessible	Inaccessible	Inaccessible	N/A
Storm Drain	A	MH-6A-3-002	Inaccessible	Inaccessible	Inaccessible	Inaccessible	Inaccessible	N/A
Storm Drain	A	MH-6A-8-001	0.66712	0.13682	0.09620	0.51500	0.05670	N/A
Storm Drain	A	MH-6A-8-002	0.61535	0.08282	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-11A-001	0.51516	0.06870	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-11A-002	0.97039	0.06851	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-11A-1-001	0.98430	0.07838	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-11A-1-002	-0.03562	0.10926	Not analyzed	Not analyzed	Not analyzed	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	A	MH-11A-2-001	0.14564	0.59083	0.02230	0.27400	0.63800	N/A
Storm Drain	A	MH-11A-2-002	1.18790	0.76922	0.21100	0.15800	0.67400	N/A
Storm Drain	A	MH-12A-001	1.18220	0.15179	0.25800	0.20300	0.11700	N/A
Storm Drain	A	MH-12A-002	-0.42289	0.15754	0.19500	0.29900	0.12600	N/A
Storm Drain	A	MH-12A-5-001	0.74449	0.08643	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-12A-5-002	0.26751	0.10318	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH-12A-6-001	0.31375	0.28263	-0.07990	0.42400	0.35500	N/A
Storm Drain	A	MH-12A-6-002	0.51534	0.32514	0.01680	0.53700	0.29000	N/A
Storm Drain	A	MH-13A-001	0.82926	0.39177	0.07430	0.45500	0.40300	N/A
Storm Drain	A	MH-13A-002	1.02960	0.18063	0.37700	0.37300	0.14200	N/A
Storm Drain	A	MH 2-A-001	11.45200	0.12468	-0.14500	6.89000	0.18300	N/A
Storm Drain	A	MH 2-A-002	1.03700	0.11441	0.42300	0.65200	0.08090	N/A
Storm Drain	A	MH 4-A-001	0.60633	0.08815	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH 4-A-002	0.20896	0.08487	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	A	MH 5A-5-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	A	MH 5A-5-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	A	MH 7-A-001	0.80107	0.12433	0.31200	0.84100	0.20600	N/A
Storm Drain	A	MH 7-A-002	0.92640	0.14427	0.18900	0.81600	0.06500	N/A
Storm Drain	A	MH 8-A-001	2.04440	0.63460	0.00200	0.51800	0.67200	N/A
Storm Drain	A	MH 8-A-002	17.73600	0.51535	-0.06700	11.80000	0.50700	N/A
Storm Drain	A	MH 9-A-001	0.40314	0.88400	-0.01490	0.37700	0.99100	N/A
Storm Drain	A	MH 9-A-002	1.10180	0.71368	0.15600	0.48000	0.82900	N/A
Storm Drain	B	CB-1B-2-001	0.00516	0.07055	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	CB-1B-2-002	0.24217	0.07553	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	CB-2B-1-001	0.29022	0.12883	0.13000	0.47600	0.07530	N/A
Storm Drain	B	CB-2B-1-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	B	CB-2B-3-001	0.25178	0.08319	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	CB-2B-3-002	1.15170	0.09343	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	CB-2B-6-001	0.32253	0.04816	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	CB-2B-6-002	0.50876	0.07431	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	CB-2B-7-001	0.60200	0.06229	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	CB-2B-7-002	0.19503	0.03867	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-2B-1-001	0.40996	0.08290	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-2B-1-002	0.70170	0.08417	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-2B-2-001	-0.05319	0.04955	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-2B-2-002	0.42008	0.09495	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-2B-3-001	0.32383	0.13688	0.31100	0.35100	0.04190	N/A
Storm Drain	B	MH-2B-3-002	0.71109	0.13995	0.15100	0.29000	0.12000	N/A
Storm Drain	B	MH-2B-5-001	0.17621	0.01011	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-2B-5-002	0.32886	0.07036	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-3B-1-001	0.24528	0.23451	-0.10300	0.61700	0.25000	N/A
Storm Drain	B	MH-3B-1-002	0.43201	0.21792	-0.06570	0.53800	0.16200	N/A
Storm Drain	B	MH-3B-2-001	0.54207	0.04929	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-3B-2-002	0.85378	0.06863	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-3B-3-001	0.87279	0.07389	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-3B-3-002	0.89923	0.04335	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	CB-3B-2-1-001	Inaccessible	Inaccessible	Inaccessible	Inaccessible	Inaccessible	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	B	CB-3B-2-1-002	Inaccessible	Inaccessible	Inaccessible	Inaccessible	Inaccessible	N/A
Storm Drain	B	MH-4B-1-001	0.32097	0.51108	-0.08820	0.41400	0.47600	N/A
Storm Drain	B	MH-4B-1-002	0.23565	0.64282	0.03310	0.37900	0.65900	N/A
Storm Drain	B	MH-4B-2-001	0.83847	0.44443	0.15800	0.16300	0.42100	N/A
Storm Drain	B	MH-4B-2-002	0.58443	0.57408	0.21800	0.26900	0.69900	N/A
Storm Drain	B	MH-4B-3-001	Inaccessible	Inaccessible	Inaccessible	Inaccessible	Inaccessible	N/A
Storm Drain	B	MH-4B-3-002	Inaccessible	Inaccessible	Inaccessible	Inaccessible	Inaccessible	N/A
Storm Drain	B	MH-5B-1-001	0.70701	0.42237	0.02870	0.21300	0.33600	N/A
Storm Drain	B	MH-5B-1-002	1.45110	0.27509	-0.05220	0.96700	0.25200	N/A
Storm Drain	B	CB-5B-1-001	1.09930	0.04978	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	CB-5B-1-002	0.95749	0.04676	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	CB-6B-1-001	0.81314	0.20845	0.17300	0.45600	0.12700	N/A
Storm Drain	B	CB-6B-1-002	0.32311	0.27327	0.04350	0.52100	0.28100	N/A
Storm Drain	B	MH-8B-001	0.08550	0.05009	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-8B-002	1.16720	0.07805	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-8B-1-001	1.17120	0.16101	0.03460	0.50300	0.15000	N/A
Storm Drain	B	MH-8B-1-002	0.80474	0.12560	0.17700	0.41100	0.10500	N/A
Storm Drain	B	MH-8B-2-001	0.76531	0.20041	-0.15600	0.61400	0.25200	N/A
Storm Drain	B	MH-8B-2-002	1.29010	0.34295	-0.16000	0.26000	0.27100	N/A
Storm Drain	B	MH-8B-3-001	0.57140	0.01321	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-8B-3-002	0.71552	-0.00399	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-8B-4-001	2.12780	0.16713	-0.04810	0.27100	0.12300	N/A
Storm Drain	B	MH-8B-4-002	0.75923	0.10407	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-8B-5-001	1.10380	0.03545	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH-8B-5-002	0.63310	0.06822	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH 4-B-001	0.16687	0.13319	0.01160	0.44000	0.05550	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	B	MH 4-B-002	0.28673	0.08100	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH 5-B-001	1.07130	-0.00076	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH 5-B-002	-0.03403	0.09660	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH 6-B-001	0.90354	0.10621	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH 6-B-002	6.85350	0.11076	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	B	MH 7-B-001	0.16368	0.72914	0.07410	0.62800	0.78400	N/A
Storm Drain	B	MH 7-B-002	1.51550	0.36432	0.01290	0.99100	0.33600	N/A
Storm Drain	B	OFCB-B-001	75.71100	0.33691	-0.08160	56.90000	0.20000	N/A
Storm Drain	B	OFCB-B-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	Z	MH-1Z-001	-0.05423	0.04331	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	Z	MH-1Z-002	-0.13371	0.11629	0.00200	0.23000	0.04100	N/A
Storm Drain	Z	MH-2Z-001	0.16276	0.15420	0.13000	0.42000	0.16800	N/A
Storm Drain	Z	MH-2Z-002	0.21969	0.16528	-0.10000	0.42000	0.16700	N/A
Storm Drain	Z	MH-2Z-1-001	0.35938	0.39335	0.09000	0.42000	0.31100	N/A
Storm Drain	Z	MH-2Z-1-002	0.25849	0.31120	-0.08000	0.50000	0.32000	N/A
Storm Drain	Z	MH-2Z-2-001	0.61204	0.23746	-0.03000	0.29000	0.27200	N/A
Storm Drain	Z	MH-2Z-2-002	0.20476	0.38002	0.08000	0.17000	0.24700	N/A
Storm Drain	Z	MH-3Z-001	0.84873	0.00371	Not analyzed	Not analyzed	Not analyzed	N/A
Storm Drain	Z	MH-3Z-002	0.52007	0.15190	-0.02000	0.31000	0.18000	N/A
Storm Drain	Z	MH-3Z-1-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	Z	MH-3Z-1-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	Z	MH-3Z-2-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	Z	MH-3Z-2-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	Z	MH-3Z-3-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Storm Drain	Z	MH-3Z-3-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	Z	MH-5Z-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	Z	MH-5Z-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Storm Drain	Z	MH-5Z-1-001	1.14610	0.35466	-0.05000	0.32000	0.24000	N/A
Storm Drain	Z	MH-5Z-1-002	0.70803	0.43392	0.26000	0.45000	0.30300	N/A
Storm Drain	Z	MH-5Z-2-001	0.31701	0.15034	0.10000	0.45000	0.07100	N/A
Storm Drain	Z	MH-5Z-2-002	0.47376	0.12765	0.30000	0.46000	0.01800	N/A
Storm Drain	Z	MH-5Z-3-001	0.90926	0.36567	0.30000	0.21000	0.24400	N/A
Storm Drain	Z	MH-5Z-3-002	-0.04543	1.68630	0.19000	0.34000	1.50000	N/A
Industrial Waste	N/A	IW 1-1-001	9.36080	0.00219	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-1-002	5.49180	0.03717	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-2-001	2.65840	0.12166	0.31000	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-2-002	2.78240	0.06717	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-3-001	0.81986	0.01354	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-3-002	0.52640	0.06566	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-4-001	1.47430	0.10777	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-4-002	1.09440	0.04147	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-5-001	2.60160	0.07943	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-5-002	1.24760	0.08094	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-6-001	0.48796	0.04252	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-6-002	1.90600	0.09510	Not analyzed	Not analyzed	Not analyzed	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Industrial Waste	N/A	IW 1-7-001	3.03680	0.14677	-0.01320	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-7-002	0.25831	0.05839	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-8-001	0.75344	0.04847	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-8-002	29.40100	0.12851	0.09880	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-9-001	1.01350	0.04756	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-9-002	0.57654	0.09998	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-13-001	No Sediment	No Sediment	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-13-002	No Sediment	No Sediment	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-14-001	1.75710	0.41521	0.14200	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 1-14-002	0.39087	0.10783	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 4-1-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Industrial Waste	N/A	IW 4-1-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Industrial Waste	N/A	IW 4-2-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Industrial Waste	N/A	IW 4-2-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Industrial Waste	N/A	IW 4-3-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Industrial Waste	N/A	IW 4-3-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Industrial Waste	N/A	IW 4-4-001	0.47861	0.12478	-0.21300	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 4-4-002	1.21940	0.50790	0.06530	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IW 4-5-001	0.00225	-0.00088	Not analyzed	Not analyzed	Not analyzed	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Industrial Waste	N/A	IW 4-5-002	0.87348	0.02006	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IWPS-1-001	19.16900	0.14404	-0.09130	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IWPS-1-002	1.06880	0.08999	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IWPS-2-001	2.42270	0.07295	Not analyzed	Not analyzed	Not analyzed	N/A
Industrial Waste	N/A	IWPS-2-002	1.30880	-0.00084	Not analyzed	Not analyzed	Not analyzed	N/A
Sanitary Sewer	N/A	SS-2-001	0.52000	-0.00600	Not analyzed	Not analyzed	Not analyzed	N/A
Sanitary Sewer	N/A	SS-2-002	0.64000	0.00000	Not analyzed	Not analyzed	Not analyzed	N/A
Sanitary Sewer	N/A	SS-4-001	0.43000	0.00000	Not analyzed	Not analyzed	Not analyzed	N/A
Sanitary Sewer	N/A	SS-4-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-40-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-40-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-41-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-41-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-43-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-43-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-46-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-46-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-52-001	0.19000	0.01200	Not analyzed	Not analyzed	Not analyzed	N/A
Sanitary Sewer	N/A	SS-52-002	0.36700	-0.00080	Not analyzed	Not analyzed	Not analyzed	N/A

TABLE A.4-1

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Sanitary Sewer	N/A	SS-57-001	0.52000	-0.00700	Not analyzed	Not analyzed	Not analyzed	N/A
Sanitary Sewer	N/A	SS-57-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-58-001	0.37000	0.00200	Not analyzed	Not analyzed	Not analyzed	N/A
Sanitary Sewer	N/A	SS-58-002	0.32000	0.02700	Not analyzed	Not analyzed	Not analyzed	N/A
Sanitary Sewer	N/A	SS-62-001	1.23000	-0.02000	Not analyzed	Not analyzed	Not analyzed	N/A
Sanitary Sewer	N/A	SS-62-002	1.06000	-0.02000	Not analyzed	Not analyzed	Not analyzed	N/A
Sanitary Sewer	N/A	SS-63-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-63-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-88-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-88-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-89-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-89-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-90-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-90-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-99-001	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A
Sanitary Sewer	N/A	SS-99-002	No Sediment	No Sediment	No Sediment	No Sediment	No Sediment	N/A

Abbreviations and Acronyms:
^{137}Cs – cesium-137
HPNS – Hunters Point Naval Shipyard
N/A – not applicable
pCi/g – picocuries per gram
^{226}Ra – radium-226
^{90}Sr – strontium-90

TABLE A.4-2

SUMMARY RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN STORM DRAIN LINE CATCH BASINS AND MANHOLES IN STORM DRAIN LINES A, B, G, AND Z

	HPNS Data		TestAmerica Data		
	^{226}Ra	^{137}Cs	^{90}Sr	^{226}Ra	^{137}Cs
Line A Mean (pCi/g)	1.16505	0.19528	0.08032	1.15852	0.32384
Line A Mean > or = to 0 (pCi/g)	1.30889	0.19930	0.15978	1.15852	0.32384
Line A Max Value (pCi/g)	17.73600	0.88400	0.42300	11.80000	0.99100
Line A Number of Samples Analyzed	52	52	25	25	25
Line B Mean (pCi/g)	2.14068	0.16258	0.03644	3.03055	0.28076
Line B Mean > or = to 0 (pCi/g)	2.22469	0.16892	0.11118	3.03055	0.28076
Line B Max Value (pCi/g)	75.71100	0.72914	0.31100	56.90000	0.78400
Line B Number of Samples Analyzed	54	54	22	22	22
Line G Mean (pCi/g)	0.71806	0.12645	0.03603	0.55772	0.19992
Line G Mean > or = to 0 (pCi/g)	0.82762	0.12749	0.11933	0.55772	0.20547
Line G Max Value (pCi/g)	22.34900	1.27900	0.34000	6.47000	1.29000
Line G Number of Samples Analyzed	137	137	46	46	46
Line Z Mean (pCi/g)	0.40667	0.31720	0.08371	0.35643	0.29157
Line Z Mean > or = to 0 (pCi/g)	0.51847	0.31720	0.16133	0.35643	0.29157
Line Z Max Value (pCi/g)	1.14610	1.68630	0.30000	0.50000	1.50000
Line Z Number of Samples Analyzed	16	16	14	14	14
Industrial Waste Line Mean (pCi/g)	3.36365	0.09876	0.04266	N/A	N/A
Industrial Waste Line Mean > or = to 0 (pCi/g)	3.36365	0.10643	0.15403	N/A	N/A
Industrial Waste Line Max Value (pCi/g)	29.40100	0.50790	0.31000	N/A	N/A
Industrial Waste Line Number of Samples Analyzed	28	28	7	0	0
Sanitary Line Mean (pCi/g)	0.56470	-0.00128	N/A	N/A	N/A
Sanitary Line Mean > or = to 0 (pCi/g)	0.56470	0.00820	N/A	N/A	N/A
Sanitary Line Max Value (pCi/g)	1.23000	0.02700	N/A	N/A	N/A
Sanitary Line Number of Samples Analyzed	10	10	0	0	0

Abbreviations and Acronyms:

^{137}Cs – cesium-137
HPNS – Hunters Point Naval Shipyard
N/A – not applicable
pCi/g – picocuries per gram
^{226}Ra – radium-226
^{90}Sr – strontium-90

TABLE A.4-3

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN OAKLAND INNER HARBOR AT THE DISCHARGES OF STORM DRAIN LINES A, B, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth (feet)
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Outfall A	N/A	IR17-PRA01	0.74600	0.03000	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall A	N/A	IR17-PRA01	1.31000	0.02680	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall A	N/A	IR17-PRA01	0.99300	-0.00159	Not analyzed	Not analyzed	Not analyzed	2–3
Outfall A	N/A	IR17-PRA01	1.23000	0.06640	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall A	N/A	IR17-PRA01a	1.33000	-0.00175	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall A	N/A	IR17-PRA01a	1.24000	0.02520	Not analyzed	Not analyzed	Not analyzed	4–5
Outfall A	N/A	IR17-PRA01a	2.08000	0.11600	1.90E-01	Not analyzed	Not analyzed	5–6
Outfall A	N/A	IR17-PRA02	0.97600	0.04250	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall A	N/A	IR17-PRA02	0.76400	0.07030	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall A	N/A	IR17-PRA02	1.39000	0.14400	2.00E-03	Not analyzed	Not analyzed	2–3
Outfall A	N/A	IR17-PRA02	0.33600	0.08390	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall A	N/A	IR17-PRA02	0.02670	0.02440	Not analyzed	Not analyzed	Not analyzed	4–5
Outfall A	N/A	IR17-PRA02a	0.83000	0.00892	Not analyzed	Not analyzed	Not analyzed	5–6
Outfall A	N/A	IR17-PRA03	1.00000	0.02990	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall A	N/A	IR17-PRA03	0.25300	-0.00038	Not analyzed	Not analyzed	Not analyzed	2–3
Outfall A	N/A	IR17-PRA03	0.75800	0.04640	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall A	N/A	IR17-PRA04	0.71400	0.02130	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall A	N/A	IR17-PRA04	0.56800	0.02250	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall A	N/A	IR17-PRA04	1.06000	0.02330	Not analyzed	Not analyzed	Not analyzed	2–3

TABLE A.4-3

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN OAKLAND INNER HARBOR AT THE DISCHARGES OF STORM DRAIN LINES A, B, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth (feet)
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Outfall A	N/A	IR17-PRA04	0.89700	-0.01300	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall A	N/A	IR17-PRA04	1.21000	0.00634	Not analyzed	Not analyzed	Not analyzed	4–5
Outfall A	N/A	IR17-PRA04	0.88000	0.05550	Not analyzed	Not analyzed	Not analyzed	5–6
Outfall B	N/A	IR17-PRB01	1.16000	-0.00371	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall B	N/A	IR17-PRB01	0.84100	-0.00902	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall B	N/A	IR17-PRB01	0.82800	0.04510	Not analyzed	Not analyzed	Not analyzed	2–3
Outfall B	N/A	IR17-PRB01	1.56000	0.01080	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall B	N/A	IR17-PRB01	0.49800	0.04170	Not analyzed	Not analyzed	Not analyzed	4–5
Outfall B	N/A	IR17-PRB01	1.08000	-0.00757	Not analyzed	Not analyzed	Not analyzed	5–6
Outfall B	N/A	IR17-PRB02	2.11000	0.04220	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall B	N/A	IR17-PRB02	1.31000	0.04020	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall B	N/A	IR17-PRB02	1.29000	0.00091	Not analyzed	Not analyzed	Not analyzed	2–3
Outfall B	N/A	IR17-PRB02	1.94000	0.05180	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall B	N/A	IR17-PRB02	1.53000	0.00976	Not analyzed	Not analyzed	Not analyzed	4–5
Outfall B	N/A	IR17-PRB02	0.67400	-0.01370	Not analyzed	Not analyzed	Not analyzed	5–6
Outfall B	N/A	IR17-PRB03	1.28000	0.05780	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall B	N/A	IR17-PRB03	0.21800	0.03850	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall B	N/A	IR17-PRB03	0.81300	0.00787	Not analyzed	Not analyzed	Not analyzed	2–3
Outfall B	N/A	IR17-PRB03	0.75000	0.01380	Not analyzed	Not analyzed	Not analyzed	3–4

TABLE A.4-3

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN OAKLAND INNER HARBOR AT THE DISCHARGES OF STORM DRAIN LINES A, B, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth (feet)
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Outfall B	N/A	IR17-PRB03	1.32000	0.01570	Not analyzed	Not analyzed	Not analyzed	4–5
Outfall B	N/A	IR17-PRB03	0.96800	0.01970	Not analyzed	Not analyzed	Not analyzed	5–6
Outfall B	N/A	IR17-PRB04	0.57100	0.00089	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall B	N/A	IR17-PRB04	0.73500	0.03410	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall B	N/A	IR17-PRB04	0.22000	0.01750	Not analyzed	Not analyzed	Not analyzed	2–3
Outfall B	N/A	IR17-PRB04	0.83400	-0.00525	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall B	N/A	IR17-PRB04	0.40900	0.06740	Not analyzed	Not analyzed	Not analyzed	4–5
Outfall B	N/A	IR17-PRB04	0.01340	-0.01240	Not analyzed	Not analyzed	Not analyzed	5–6
Outfall Z	N/A	IR17-PRZ01	0.84900	0.05020	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall Z	N/A	IR17-PRZ01	0.49800	0.02560	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall Z	N/A	IR17-PRZ01	0.70000	-0.00934	Not analyzed	Not analyzed	Not analyzed	2–3
Outfall Z	N/A	IR17-PRZ01	0.79200	0.01680	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall Z	N/A	IR17-PRZ01	0.40800	-0.01040	Not analyzed	Not analyzed	Not analyzed	4–5
Outfall Z	N/A	IR17-PRZ01	0.41400	0.04780	Not analyzed	Not analyzed	Not analyzed	5–6
Outfall Z	N/A	IR17-PRZ02	0.99000	0.02980	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall Z	N/A	IR17-PRZ02	-0.00998	0.05120	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall Z	N/A	IR17-PRZ02	1.26000	0.04610	Not analyzed	Not analyzed	Not analyzed	2–3
Outfall Z	N/A	IR17-PRZ02	0.45300	0.07530	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall Z	N/A	IR17-PRZ02	0.70400	-0.01220	Not analyzed	Not analyzed	Not analyzed	4–5

TABLE A.4-3

SAMPLE RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN OAKLAND INNER HARBOR AT THE DISCHARGES OF STORM DRAIN LINES A, B, AND Z

System	Line	Sample Location	HPNS Data		TestAmerica Data			Depth (feet)
			^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	^{90}Sr Result (pCi/g)	^{226}Ra Result (pCi/g)	^{137}Cs Result (pCi/g)	
Outfall Z	N/A	IR17-PRZ02	0.98600	0.04280	Not analyzed	Not analyzed	Not analyzed	5–6
Outfall Z	N/A	IR17-PRZ03	0.47700	0.03020	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall Z	N/A	IR17-PRZ03	0.38400	0.08500	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall Z	N/A	IR17-PRZ03	1.12000	0.08570	Not analyzed	Not analyzed	Not analyzed	2–3
Outfall Z	N/A	IR17-PRZ03	0.82300	0.01970	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall Z	N/A	IR17-PRZ03	0.85200	-0.00218	Not analyzed	Not analyzed	Not analyzed	4–5
Outfall Z	N/A	IR17-PRZ04	0.77500	0.01340	Not analyzed	Not analyzed	Not analyzed	0–1
Outfall Z	N/A	IR17-PRZ04	0.47400	0.00487	Not analyzed	Not analyzed	Not analyzed	1–2
Outfall Z	N/A	IR17-PRZ04	0.90000	-0.00107	Not analyzed	Not analyzed	Not analyzed	2–3
Outfall Z	N/A	IR17-PRZ04	-0.05380	0.01420	Not analyzed	Not analyzed	Not analyzed	3–4
Outfall Z	N/A	IR17-PRZ04	1.09000	0.00503	Not analyzed	Not analyzed	Not analyzed	4–5
Outfall Z	N/A	IR17-PRZ04	0.98000	0.00006	Not analyzed	Not analyzed	Not analyzed	5–6

Abbreviations and Acronyms:
^{137}Cs – cesium-137
HPNS – Hunters Point Naval Shipyard
N/A – not applicable
pCi/g – picocuries per gram
^{226}Ra – radium-226
^{90}Sr – strontium-90

TABLE A.4-4

SUMMARY RESULTS FROM THE HUNTERS POINT LABORATORY AND TESTAMERICA LABORATORY FOR SEDIMENT WITHIN OAKLAND INNER HARBOR AT THE DISCHARGES OF STORM DRAIN LINES A, B, AND Z

	HPNS Data		TestAmerica Data		
	^{226}Ra	^{137}Cs	^{90}Sr	^{226}Ra	^{137}Cs
Outfall A Mean (pCi/g)	0.93599	0.03759	0.09600	N/A	N/A
Outfall A Mean of Values > or = to 0 (pCi/g)	0.93599	0.04687	0.09600	N/A	N/A
Outfall A Max Value (pCi/g)	2.08000	0.14400	0.19000	N/A	N/A
Outfall A Number of Samples Analyzed	22	22	2	0	0
Outfall B Mean (pCi/g)	0.95635	0.01934	N/A	N/A	N/A
Outfall B Mean > or = to 0 (pCi/g)	0.95635	0.02865	N/A	N/A	N/A
Outfall B Max Value (pCi/g)	2.11000	0.06740	N/A	N/A	N/A
Outfall B Number of Samples Analyzed	24	24	0	0	0
Outfall Z Mean (pCi/g)	0.68979	0.02646	N/A	N/A	N/A
Outfall Z Mean > or = to 0 (pCi/g)	0.75852	0.03576	N/A	N/A	N/A
Outfall Z Max Value (pCi/g)	1.26000	0.08570	N/A	N/A	N/A
Outfall Z Number of Samples Analyzed	23	23	0	0	0

Abbreviations and Acronyms:
^{137}Cs – cesium-137
HPNS – Hunters Point Naval Shipyard
N/A – not applicable
pCi/g – picocuries per gram
^{226}Ra – radium-226
^{90}Sr – strontium-90

TABLE A.4-5

CESIUM-137 AND STRONTIUM-90 CONCENTRATIONS FROM REFERENCE AREAS, DRAIN LINES ORIGINATING FROM OU-2C, AND OAKLAND INNER HARBOR

Reference Area/Drain Line	Mean ^{137}Cs Concentration (pCi/g)	Worst-Case Maximum ^{137}Cs Concentration (pCi/g)	Mean ^{90}Sr Concentration (pCi/g)	Worst-Case Maximum ^{90}Sr Concentration (pCi/g)
Global Background Values	0.3–3.0	20	0.3	N/A
TCRA screening values previously used	0.113	N/A	0.331	N/A
McClellan Air Force Base Soil	0.135	0.345	0.312	1.080
Santa Susanna Park Soil	0.087	0.213	0.052	0.130
Wildwood Regional Park Soil	N/A	0.315	N/A	N/A
Richardson Bay Sediment	N/A	0.1373	N/A	N/A
San Pablo Bay Sediment	N/A	0.576	N/A	N/A
Storm Drain Line A	0.1993	0.8840	0.1598	0.4230
Storm Drain Line B	0.1689	0.7291	0.1112	0.3110
Storm Drain Line G	0.1275	1.2790	0.1193	0.3400
Storm Drain Line Z	0.3172	1.6863	0.1613	0.3000
Industrial Waste Line	0.1064	0.5079	0.1540	0.3100
Sanitary Sewer Line	0.0082	0.0270	N/A	N/A
Oakland Inner Harbor Outfall A	0.0469	0.1440	0.0960	0.1900
Oakland Inner Harbor Outfall B	0.02865	0.0674	N/A	N/A
Oakland Inner Harbor Outfall Z	0.03576	0.0857	N/A	N/A

Abbreviations and Acronyms:
^{137}Cs – cesium-137
N/A – not applicable
OU – operable unit
pCi/g – picocuries per gram
^{90}Sr – strontium-90
TCRA – time-critical removal action

TABLE A.4-6

RADIUM-226 CONCENTRATIONS FROM DRAIN LINES ORIGINATING FROM OU-2C AND FROM OAKLAND INNER HARBOR

Drain Line/Outfall	Mean ^{226}Ra Concentration (pCi/g)	Worst-Case Maximum ^{226}Ra Concentration (pCi/g)
Storm Drain Line A	1.3089	17.7360
Storm Drain Line B	2.2247	75.7110
Storm Drain Line G	0.8276	22.3490
Storm Drain Line Z	0.5185	1.1461
Industrial Waste Line	3.3637	29.4010
Sanitary Sewer Line	0.5647	1.2300
Oakland Inner Harbor Outfall A	0.9360	2.0800
Oakland Inner Harbor Outfall B	0.9564	2.1100
Oakland Inner Harbor Outfall Z	0.7585	1.2600

Abbreviations and Acronyms:
OU – operable unit
pCi/g – picocuries per gram
^{226}Ra – radium-226

TABLE A.5-1

RESRAD INPUT PARAMETERS FOR POTENTIAL ROCs FOR RISK ASSESSMENT

Radionuclide	Soil[a] (pCi/g)	
	Outdoor Worker	Residential
Cesium-137	0.113	0.113
Radium-226	1.0[b]	1.0[b]
Strontium-90	10.8	0.331

Notes:

[a] Remediation goal for radium-226 based on land-based soil conditions and screening levels for cesium-137 and strontium-90 used during previous OU-2C TCRA.

[b] Remediation goal limit is 1 pCi/g above background per agreement with EPA.

Abbreviations and Acronyms:

EPA – U.S. Environmental Protection Agency
OU – operable unit
pCi/g – picocuries per gram
ROC – radionuclide of concern
TCRA – time-critical removal action

TABLE A.5-2

CRITICAL EXPOSURE SCENARIO EVALUATION RESULTS

	Total Risk (excess cancer)	Pathway Fraction of Total Risk			
		External	Inhalation	Soil Ingestion	Aquatic Foods
Resident (Adult)	5.304×10^{-10}	1	0.0000	0.0000	N/A
Resident (Child)	1.788×10^{-10}	1	0.0000	0.0000	N/A
Recreational (Adult)	1.261×10^{-6}	0.0533	0.0001	0.0010	0.9456
Recreational (Child)	3.148×10^{-7}	0.0547	0.0000	0.0020	0.9432
Outdoor Worker	1.322×10^{-5}	0.9960	0.0018	0.0022	N/A

Abbreviations and Acronyms:
N/A – not applicable

TABLE A.5-3

CRITICAL ISOTOPE EVALUATION RESULTS

	Total Risk (excess cancer)	Radionuclide Fraction of Total Risk		
		Cesium-137	Radium-226	Strontium-90
Resident (Adult)	5.304×10^{-10}	0.0029	0.9971	0.0000
Resident (Child)	1.788×10^{-10}	0.0024	0.9976	0.0000
Recreational (Adult)	1.261×10^{-6}	0.0000	1.0000	0.0000
Recreational (Child)	3.147×10^{-7}	0.0000	1.0000	0.0000
Outdoor Worker	1.322×10^{-5}	0.0456	0.9540	0.0005

TABLE A.5-4

RISK AND DOSE MODELING RESULTS FOR NET MEAN AND WORST-CASE MAXIMUM RADIONUCLIDE-SPECIFIC SAMPLE RESULTS FOR EACH AREA

	Radionuclides	Sample Result (pCi/g)	Risk*	Dose (mrem/y)
Storm Drain Line A	^{137}Cs Mean	0.1993	1.061×10^{-6}	0.07971
	^{137}Cs Worst-Case Maximum	0.8840	4.707×10^{-6}	0.3536
	^{90}Sr Mean	0.1598	2.885×10^{-9}	0.0004926
	^{90}Sr Worst-Case Maximum	0.423	7.636×10^{-9}	0.001304
	^{226}Ra Mean	0.7487	9.441×10^{-6}	0.8893
	^{226}Ra Worst-Case Maximum	17.1758	2.164×10^{-4}	20.38
	All ROCs at Mean	N/A	1.051×10^{-5}	0.9965
	All ROCs at Worst-Case Maximum	N/A	2.211×10^{-4}	20.73
Storm Drain Line B	^{137}Cs Mean	0.1689	8.992×10^{-7}	0.06755
	^{137}Cs Worst-Case Maximum	0.7291	3.882×10^{-6}	0.2916
	^{90}Sr Mean	0.1112	2.007×10^{-9}	0.000342
	^{90}Sr Worst-Case Maximum	0.3110	5.614×10^{-9}	0.0009588
	^{226}Ra Mean	1.6645	2.099×10^{-5}	1.977
	^{226}Ra Worst-Case Maximum	75.1508	9.477×10^{-4}	89.26
	All ROCs at Mean	N/A	2.189×10^{-5}	2.045
	All ROCs at Worst-Case Maximum	N/A	9.516×10^{-4}	89.55
Storm Drain Line G	^{137}Cs Mean	0.1275	6.788×10^{-7}	0.05099
	^{137}Cs Worst-Case Maximum	1.279	6.810×10^{-6}	0.05115
	^{90}Sr Mean	0.1193	2.154×10^{-9}	0.0003678
	^{90}Sr Worst-Case Maximum	0.34	6.138×10^{-9}	0.001048
	^{226}Ra Mean	0.2647	3.372×10^{-6}	0.3716
	^{226}Ra Worst-Case Maximum	21.788	2.748×10^{-4}	25.88
	All ROCs at Mean	N/A	4.053×10^{-6}	0.369
	All ROCs at Worst-Case Maximum	N/A	2.816×10^{-4}	26.39
Storm Drain Line Z	^{137}Cs Mean	0.3172	1.689×10^{-6}	0.1269
	^{137}Cs Worst-Case Maximum	1.6863	8.978×10^{-6}	0.6744
	^{90}Sr Mean	0.1613	2.912×10^{-9}	0.0004973

TABLE A.5-4

RISK AND DOSE MODELING RESULTS FOR NET MEAN AND WORST-CASE MAXIMUM RADIONUCLIDE-SPECIFIC SAMPLE RESULTS FOR EACH AREA

	Radionuclides	Sample Result (pCi/g)	Risk*	Dose (mrem/y)
	^{90}Sr Worst-Case Maximum	0.3	5.416×10^{-9}	0.0009249
	^{226}Ra Mean	0	0	0
	^{226}Ra Worst-Case Maximum	0.5859	7.388×10^{-6}	0.6959
	All ROCs at Mean	N/A	1.692×10^{-6}	0.1274
	All ROCs at Worst-Case Maximum	N/A	1.637×10^{-5}	1.371
Industrial Waste Line	^{137}Cs Mean	0.1064	5.665×10^{-7}	0.04255
	^{137}Cs Worst-Case Maximum	0.5079	2.704×10^{-6}	0.2031
	^{90}Sr Mean	0.154	2.788×10^{-9}	0.0004748
	^{90}Sr Worst-Case Maximum	0.316	5.704×10^{-9}	0.0009742
	^{226}Ra Mean	1.8035	2.2745×10^{-5}	2.142
	^{226}Ra Worst-Case Maximum	28.8408	3.637×10^{-4}	34.25
	All ROCs at Mean	N/A	2.331×10^{-5}	2.185
	All ROCs at Worst-Case Maximum	N/A	3.664×10^{-4}	34.46
Sanitary Sewer Line	^{137}Cs Mean	0.0082	4.366×10^{-8}	0.00328
	^{137}Cs Worst-Case Maximum	0.0270	1.438×10^{-7}	0.0108
	^{90}Sr Mean	N/A	N/A	N/A
	^{90}Sr Worst-Case Maximum	N/A	N/A	N/A
	^{226}Ra Mean	0.0045	5.675×10^{-8}	0.005345
	^{226}Ra Worst-Case Maximum	0.6698	8.446×10^{-6}	0.7955
	All ROCs at Mean	N/A	1.004×10^{-7}	0.008624
	All ROCs at Worst-Case Maximum	N/A	8.5906×10^{-6}	0.8063
Oakland Inner Harbor A	^{137}Cs Mean	0.0469	1.235×10^{-8}	8.889×10^{-4}
	^{137}Cs Worst-Case Maximum	0.144	3.793×10^{-8}	2.729×10^{-3}
	^{90}Sr Mean	0.096	2.181×10^{-10}	1.647×10^{-5}
	^{90}Sr Worst-Case Maximum	0.190	4.317×10^{-10}	3.259×10^{-5}
	^{226}Ra Mean	0.3758	4.738×10^{-7}	0.04122
	^{226}Ra Worst-Case Maximum	1.5198	1.916×10^{-6}	0.1667

TABLE A.5-4

RISK AND DOSE MODELING RESULTS FOR NET MEAN AND WORST-CASE MAXIMUM RADIONUCLIDE-SPECIFIC SAMPLE RESULTS FOR EACH AREA

	Radionuclides	Sample Result (pCi/g)	Risk*	Dose (mrem/y)
	All ROCs at Mean	N/A	4.738×10^{-7}	0.04122
	All ROCs at Worst-Case Maximum	N/A	1.916×10^{-6}	0.1667
Oakland Inner Harbor B	^{137}Cs Mean	0.02865	7.546×10^{-9}	5.43×10^{-4}
	^{137}Cs Worst-Case Maximum	0.0674	1.775×10^{-8}	1.277×10^{-3}
	^{90}Sr Mean	N/A	N/A	N/A
	^{90}Sr Worst-Case Maximum	N/A	N/A	N/A
	^{226}Ra Mean	0.3962	4.995×10^{-7}	0.04346
	^{226}Ra Worst-Case Maximum	1.5998	2.017×10^{-6}	0.1755
	All ROCs at Mean	N/A	4.995×10^{-7}	0.04346
	All ROCs at Worst-Case Maximum	N/A	2.017×10^{-6}	0.1755
Oakland Inner Harbor Z	^{137}Cs Mean	0.03576	9.419×10^{-9}	6.778×10^{-4}
	^{137}Cs Worst-Case Maximum	0.0857	2.257×10^{-8}	1.624×10^{-3}
	^{90}Sr Mean	N/A	N/A	N/A
	^{90}Sr Worst-Case Maximum	N/A	N/A	N/A
	^{226}Ra Mean	0.1983	2.5×10^{-7}	0.02175
	^{226}Ra Worst-Case Maximum	0.6998	8.823×10^{-7}	0.07676
	All ROCs at Mean	N/A	2.5×10^{-7}	0.02175
	All ROCs at Worst-Case Maximum	N/A	8.823×10^{-7}	0.07676

Notes:

* Total excess lifetime carcinogen risk.

Abbreviations and Acronyms:

^{137}Cs – cesium-137
mrem/y – millirems per year
N/A – not applicable
pCi/g – picocuries per gram
^{226}Ra – radium-226
ROC – radionuclide of concern
^{90}Sr – strontium-90

TABLE A.5-5

RESRAD-BIOTA MODELING FOR OAKLAND INNER HARBOR OUTFALLS

Oakland Inner Harbor Outfall	^{137}Cs (pCi/g)	^{210}Pb * (pCi/g)	^{90}Sr (pCi/g)	^{226}Ra (pCi/g)	Sum of Ratios of Maximum Sediment Concentrations to BCGs
BCGs for the Riparian Animal	3,120	1,730	582	101	N/A
A	0.144	0.0012	0.19	2.08	2.21E-2
B	0.0578	0.0012	N/A	2.11	2.21 E-2
Z	0.0857	0.000727	N/A	1.26	1.32 E-2
BCGs for the Aquatic Animal	49,300	91,800	35,200	14,500	N/A
A	0.144	0.0012	0.19	2.08	1.75E-4
B	0.0578	0.0012	N/A	2.11	1.7E-4
Z	0.0857	0.000727	N/A	1.26	1.02E-4

Notes:

* ^{210}Pb is a daughter product of ^{226}Ra modeled in secular equilibrium with ^{226}Ra to accurately reflect the BCG ratio of the entire ^{226}Ra radioactive decay chain**.**

Abbreviations and Acronyms:

BCG – biota concentration guide
^{137}Cs – cesium-137
N/A – not applicable
^{210}Pb – lead-210
pCi/g – picocuries per gram
^{226}Ra – radium-226
^{90}Sr – strontium-90

RESPONSE TO COMMENTS
DRAFT TECHNICAL MEMORANDUM
OPERABLE UNIT 2C DRAIN LINES, JULY 2015
STORM DRAIN LINES A, B, G AND INDUSTRIAL WASTE LINE
ALAMEDA POINT, ALAMEDA, CALIFORNIA

Comments from Xuan-Mai Tran
Remedial Project Manager
Federal Facilities and Site Cleanup Branch
EPA, Region IX

Comments Dated: August 20, 2015

GENERAL COMMENT	RESPONSE
Comment 1. The Draft Technical Memorandum Operable Unit 2C Drain Lines, Storm Drain Lines A, B, G, and Industrial Waste Line, Alameda Point, Alameda, California (the Tech Memo) includes text comparing radium-226 levels to background levels, but the Tech Memo does not describe the background area that was used. The background area should have been located away from Building 5 and the Seaplane Lagoon and should not have been located over any storm drains. Please revise the Tech Memo to describe the background area that was used for radium-226.	**Response 1.** The background area is specific for Operable Unit (OU) 2C drain line projects and was established during the time-critical removal action (TCRA). Its location is documented in the Installation Restoration Sites 5 & 10, Buildings 5 and 400 Storm Drain Line Removal CERCLA Time-Critical Removal Action (TCRA) Completion Report, Appendix G, Figure 3-1, which is included as Attachment 1 to these responses to EPA comments. This background area meets all criteria described in this comment. The following language was added to the third paragraph of Section 2.2, Environmental Assessment and Cleanup: "Also during the TCRA, a background reference area and value were determined for the OU 2C drain lines. See Appendix G of the TCRA Completion Report (TtEC 2011) for a more detailed discussion of the background reference area; Figure 3-1 in Appendix G (TtEC 2011) shows the location, and Attachment 2 of Appendix G (TtEC 2011) provides sampling data. Only areas that were not impacted by historical activities at NAS Alameda were selected for background reference areas."
Comment 2. The Tech Memo presents a large volume of sample analysis data; however, the Tech Memo does not say how the Navy selected the Ra-226 values that were used in its modeling analysis.	**Response 2.** No risk assessment modeling was conducted for the Technical Memorandum. The modeling described in the Technical Memorandum is the modeling analysis conducted for the Final Addendum 1 to the Operable Unit 2C Feasibility Study Report, IR Sites 5 and 10, January 13, 2012

Comments from Xuan-Mai Tran
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	(Feasibility Study [FS] Addendum). Details of the cited modeling analysis are presented in Appendix A of the FS Addendum. That modeling used all of the radium (Ra)-226 sample results from the manhole and catch basin sampling conducted during the TCRA. Sentence 2 of Section 2.3 of the Technical Memorandum cites that the FS Addendum "assessment was based on analytical results associated with the sediment removed from manholes in the lines." For clarity, the Note for the * in the table title on Table 2-1 of the Technical Memorandum was revised to state (revisions in bold): "*The FS Addendum risk analysis and risks presented in this table are based on analytical results for sediment **in manholes/catch basins and an estimated volume of sediment within the lines** that was subsequently removed from the storm drain lines."
Comment 3. The risk discussions provided within the Tech Memo are not consistent with the most recent EPA guidance, the Memorandum on Radiation Risk Assessment at CERCLA Sites: Q&A (the Radiation Risk Memo), OSWER 9285.6-20, dated June 2014. For example, Section 2.3.1 indicates that a dose of 12 millirem per year (mrem/y), which corresponds to a cancer risk of 3x10-4, is acceptable for radiological remediation decisions; however, the Radiation Risk Memo requires a risk comparison, not a dose comparison (i.e., remediation decisions should be based on whether risk is above or below 1x10-4 rather than a dose of 12 mrem/y). The text is incorrect in Section 2.3.1 when it refers to	**Response 3.** The Technical Memorandum was revised throughout in accordance with this comment to be consistent with OSWER 9285.6-20, dated June 2014, specifically to discuss risk criteria. Section 2.3 is titled "Feasibility Study Addendum" and the first sentence in Section 2.3.1 of the Technical Memorandum states that the section presents a summary of risk assessment results, regulatory criteria, and modeling input parameters from the FS Addendum (finalized in January 2012, before OSWER 9285.6-20 was issued in June 2014). Therefore, text in that section related to regulatory criteria was deleted rather than replaced with language in OSWER 9285.6-20. The risk assessment modeling conducted for the FS Addendum provided both risk and dose, so modeling results for dose are relevant and

Comments from Xuan-Mai Tran
Remedial Project Manager
Federal Facilities and Site Cleanup Branch
EPA, Region IX

Comments Dated: August 20, 2015

3x10-4 as the acceptable cancer risk. Risk value discussions should replace dose discussions throughout the Tech Memo. Please revise the Tech Memo to ensure risk discussions are consistent with the Radiation Risk Memo. Please also ensure that dose discussions are replaced with risk discussions throughout the Tech Memo.	were not deleted from the Technical Memorandum.
Comment 4. Although Ra-226 is the only contaminant of concern (COC) discussed in the Tech Memo, Section 3 describes previous investigations that have included Sr-90 and Cs-137, in addition to non-radioactive constituents that included metals, volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), yet there is no discussion of the Navy's selection of Ra-226 as the only COC that was considered in the risk analysis.	**Response 4.** No risk assessment was conducted for the Technical Memorandum. The risk assessment results described in the Technical Memorandum are from the modeling analysis conducted for the Final Addendum 1 to the Operable Unit 2C Feasibility Study Report, IR Sites 5 and 10, January 13, 2012 (Feasibility Study [FS] Addendum). The risk assessment in the FS Addendum modeled risk for strontium (Sr)-90 and cesium (Cs)-137, as well as Ra-226, and identified Ra-226 as the only radionuclide COC. Ra-226 is documented in both the Final FS Addendum and Final Proposed Plan as the only radionuclide COC, so reference to Sr-90 and Cs-137 in earlier investigations has been removed from the Technical Memorandum to avoid confusion. The non-radiological constituents were investigated, and the concentrations detected did not indicate a need for further risk assessment. A risk assessment that included these compounds, as well as others, was previously conducted during the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, and concentrations detected during this investigation were not substantially different.

Comments from Xuan-Mai Tran
Remedial Project Manager
Federal Facilities and Site Cleanup Branch
EPA, Region IX

Comments Dated: August 20, 2015

SPECIFIC COMMENT	RESPONSE
Comment 1. Section 2.1, Site Characteristics and History, Page 2-2 and Section 2.2, Environmental Assessment and Cleanup, Page 2-3: Section 2.2 states that "Samples were collected from a total of 164 manholes and catch basins in Storm Drain Lines A, B, G, and Z;" however, Line Z was not discussed in Section 2.1, so it is unclear how this particular Line relates to the other lines addressed in this Tech Memo. In addition, the text does not indicate where the data from sampling line Z is reported. Please revise Section 2.1 to explain how Line Z relates to the rest of the storm drain lines discussed in the Tech Memo. Please also revise the text to reference where the data from sampling line Z is reported.	**Response 1.** The Draft Technical Memorandum provided a comprehensive summary of the site history and environmental assessment. Because Storm Drain Line Z is not related to the Technical Memorandum, all references to Storm Drain Line Z in the Background section were removed from the Technical Memorandum to avoid confusion.

Comment 2. Section 2.2, Environmental Assessment and Cleanup, Page 2-3: Section 2.2 states "Of the 164 locations sampled, 7 exhibited radium-226 activity greater than 1 picocurie per gram (pCi/g) above background;" however, the text does not identify in which line(s) these exceedances were located. Please revise the text to identify which of the storm drain line(s) contained the seven radium-226 results above background.	**Response 2.** Section 2.2, paragraph 3, sentences 4 and 5 of the Draft Tech Memo were revised to be specific to storm drain lines A, B, and G and state: "Samples were collected from a total of 156 manholes and catch basins in Storm Drain Lines A, B, and G. Of the 156 locations, only a total of 7 locations for all lines (2 locations in Storm Drain Line A, 3 locations in Storm Drain Line B, and 2 locations in Storm Drain Line G) exhibited radium-226 activity greater than 1 picocurie per gram (pCi/g) above background."

	Please note that the reason 164 was changed to 156 is because the Draft Technical Memorandum summarized comprehensive results for the TCRA storm drain line sampling and, thus, included Line Z. The revised text above does not cite "and Line Z", so it should be clear that Line Z locations were removed. Line Z discussion was removed throughout the Technical Memorandum because it is not relevant to the content of the Technical Memorandum. Please also note that, as a result of the sediment removal, currently there are no locations with exceedances, as confirmed through video verification of the removal.
Comment 3. Section 2.3.1, Risk Analysis Summary, Page 2-5 and Table 2-1, Summary of Selected RESRAD Results from the OU-2C FS Addendum: The cancer risk and dose values listed in Section 2.3.1 for Storm Drain Lines A, B, and G are not consistent with the risk and dose values provided in Table 2-1. For example, Section 2.3.1 specifies a risk of 1.051x10-5 and a dose of 0.9965 mrem/y for Line A, while Table 2-1 specifies a risk of 9.441x10-6 and a dose of 0.8893 mrem/y. Please resolve the discrepancies between the risk and dose values provided in the text and those provided in Table 2-1.	**Response 3.** The discrepancies between Table 2-1 and Section 2.3.1 were resolved. Section 2.3.1 was revised to discuss the same values as presented in Table 2-1.
Comment 4. Section 3.1.2, Selecting Storm Drain Lines for Investigation Page 3-2: The third paragraph of Section 3.1.2 describes several samples that were collected from four sections of Storm Drain Lines A, B, and G, including core samples, samples from each side of the pipes, and samples from under the pipes; however, the text does not indicate what analyses were completed for each of these samples. Please revise Section 3.1.2 to identify the analyses that were completed for the samples collected from Storm Drain Lines A, B, and G.	**Response 4.** The 3rd paragraph of Section 3.1.2 was revised as follows (added text in bold): "The four sections of Storm Drain Lines A, B, and G were excavated during December 2013 and January 2014. The first step in the process was to excavate down to within 1 foot of the top of the pipe and collect four core samples from outside the pipe at the elevated and seepage investigation locations. The four sections of Storm Drain Lines A, B, and G, were excavated during December 2013 and January 2014. The first step in the process was to excavate down to within 1 foot of the top of the pipe and

	collect four core samples from outside the pipe at the elevated and seepage investigation locations. Two samples were collected on each side at the ~~midpoint of the pipe~~ **location of the highest gamma reading within the pipe segment or reach (note: Reach 27 included two locations with high gamma readings*)***, and two samples were collected on each side from under the pipe. **Ra-226 was analyzed in the collected samples via method 901.1, which also provides results for cesium-137.** Note that although the storm drain lines were hydro-jetted and sediment removal was confirmed by camera verification during the 2012–2013 investigation, approximately 11 months had elapsed since the selected sections were excavated; therefore, new sediment had built up within the lines."
Comment 5. Section 3.1.2, Selecting Storm Drain Lines for Investigation Page 3-2: Samples described in Section 3.1.2 do not match the number of samples displayed on Figures 3-2 through 3-5. Section 3.1.2 states that four core samples, two samples on each side at the midpoint of the pipe, and two samples on each side from under the pipe were collected at each of the four excavated pipe sections; however, the numbers of samples displayed on Figures 3-2 through 3-5 do not correspond with this description. Please revise Section 3.1.2 to accurately describe the sampling scheme for the four excavated pipe sections of Storm Drain Lines A, B, and G.	**Response 5.** The third paragraph of Section 3.1.2 was revised as follows (revisions in bold): "The four sections of Storm Drain Lines A, B, and G were excavated during December 2013 and January 2014. The first step in the process was to excavate down to within 1 foot of the top of the pipe and collect four core samples from outside the pipe at the elevated and seepage investigation locations. Two samples were collected on each side at the ~~midpoint of the pipe~~ **location of the highest gamma reading within the pipe segment or reach (note: Reach 27 included two locations with high gamma readings*)***, and two samples were collected on each side from under the pipe. **Ra-226 was analyzed in the collected samples via method 901.1, which also provides results for cesium-137.** Note that although the storm drain lines were hydro-jetted and sediment removal was confirmed by camera verification during the 2012–2013 investigation, approximately 11 months had elapsed since the selected sections were excavated; therefore, new sediment had built up within the lines."
Comment 6. Section 3.1.3, Storm Drain Line Investigation Results, Page 3-3:	**Response 6.** The storm drain lines are not constructed of cast iron piping. Section 3.1.3

According to Section 3.1.3, the gamma and beta/gamma activity levels "have been attributed to the types of materials used to manufacture the individual pieces of pipe;" however, it is unclear if this applies to both types of pipe materials (vitrified clay and cast iron). It appears unlikely that cast iron pipe would have elevated gamma and beta/gamma activity levels. Please revise Section 3.1.3 to indicate whether gamma and beta/gamma activity levels can be attributed to the materials for both types of pipes.	was revised as follows to describe the storm drain line pipe construction material (added text in bold): "After extraction of sediment in the storm drain lines by hydrojetting was completed, camera verification and a radiological survey of the inside of the pipe were performed. The removed sediment and the radiological survey results were used to identify locations where limited excavation and additional surveys needed to be conducted. The results of the additional surveys indicated no radiological contamination was present in soil surrounding the pipe in the most elevated gamma reading locations identified during the gamma survey. It was concluded that the elevated gamma readings were likely due to the naturally occurring radioactive materials used in manufacturing the **concrete or vitrified clay storm drain** pipes **that were investigated."**

Comment 7. Section 3.1.4, Storm Drain Line Investigation Waste Management, Page 3-3: The first sentence of Section 3.1.4 states that "Excavated material from each excavation was transported to the Site 17 yard and separated into distinct piles for processing;" however, the text does not indicate how many or what into which categories materials were segregated. Please revise Section 3.1.4 to specify how many categories and into which categories materials were segregated.	**Response 7.** The distinct piles are referring to the fact that excavated material from each reach was separated based on the reach where the excavated material originated (i.e., piles were identified by reach). The first paragraph of Section 3.1.4 was revised as follows to clarify this (added text in bold): "Excavated material from each excavation was transported to the Site 17 yard and separated into distinct piles**, based on the reach from which the excavated material originated,** for processing."
Comment 8. Section 3.1.4, Storm Drain Line Investigation Waste Management, Page 3-4: According to the last paragraph of Section 3.1.4, stored water from the trench was sampled and discharged; however, the text does not indicate which analyses were conducted for these water samples. Please revise Section 3.1.4 to specify the analyses that were conducted for the stored water samples.	**Response 8.** The third paragraph of Section 3.1.4 was revised as follows (added text in bold): "…The water, which was sampled in accordance with the requirement of the RWQCB permit for the treatment system that was in place at the time of the investigation, was discharged following RWQCB review and approval of the sampling results (Subappendix C2)."
Comment 9. Section 3.2.2.1, Industrial Waste Line Inspection and Sampling, Page 3-5: Section 3.2.2.1 provides the radium-226 levels for the three originally planned sample locations (manholes MH1-1, MH1-5, and MH1-8), but does not provide radium-226 level for the substituted location (manhole MH1-4). Please revise Section 3.2.2.1 to provide the radium-226 level for the substituted location.	**Response 9.** Section 3.2.2.1, paragraph 2, was revised to include the radium-226 result for MH1-4. The following sentence was inserted (added text in bold). "**The highest recorded level for Ra-226 in Manhole MH1-4 was 1.5 pCi/g."**
Comment 10. Section 3.2.2.1, Industrial Waste Line Inspection and Sampling, Page 3-6: According to Section 3.2.2.1, the limited intrusive activity	**Response 10.** Although this text was based on BCT meeting input for the work plan, the text referenced in this comment was deleted because it is not relevant to the

helped to "ensure the safety of future excavations by keeping them outside the IC [institutional control] boundary;" however, the meaning of this statement is unclear. Please revise Section 3.2.2.1 to explain the meaning of the statement regarding safety of future excavations.	objective of this Technical Memorandum, which is to present the results of the investigation.
Comment 11. Section 3.2.2.1, Industrial Waste Line Inspection and Sampling, Page 3-7: Section 3.2.2.1 states that after water/suspended sediment was removed from the manholes, "the remaining sediment was removed using a vacuum truck;" however, the text does not indicate where the vacuum truck transported the sediment (Site 17 asphalt processing pad, disposal area, etc.). Please revise Section 3.2.2.1 to specify where the vacuum truck transported the sediment.	**Response 11.** The last paragraph of Section 3.2.2.1 was revised as follows (added text in bold): "…After water was removed, the remaining sediment was removed, using a vacuum truck, **and transferred for drying to an existing dewatering pad located near Outfall F at the northwest side of the Seaplane Lagoon.** Before and after photographs of the sediment removal can be found in Subappendix E2."
Comment 12. Table 3-3, Mean Results for Detected Metals, VOCs, and SVOCs for the Industrial Waste Line: According to the first note for Table 3-3, sediment results from inside the pipes and soil sample results from outside the pipes were averaged together; however, these are two different "populations" and should not be averaged together. Please revise the Tech Memo to provide separate mean values for sediment results (inside the pipes) and soil results (outside the pipes).	**Response 12.** This Technical Memorandum considers the contents within the pipe and adjacent to the pipe as one group because this is the potential future exposure pathway of concern. Text was added to the Technical Memorandum to explain this. The first bullet in Section 3.2.4 was revised as follows (added text in bold): "The first group consists of five sample locations within the industrial waste line pipe either upstream of or downstream from a manhole or vault, and two boring samples located 5 feet from the pipeline near Manholes MH1-8 and MH1-13. **This Technical Memorandum considers the contents within the pipe and adjacent to the pipe as one group because this is the potential future exposure pathway of concern. Results from sediment within the pipe and soil adjacent to the pipe both were used based on the potential future scenario wherein the pipe becomes deteriorated or damaged, such that the contents of the pipe are transported to the adjacent soils. Also, the contents within the pipe and adjacent to the**

	pipe would likely fall within a proposed IC corridor. This group is considered to be the only group representative of the sediment remaining within the industrial waste line, because the sediments were not removed from the piping during the investigation. Mean values of detected analytes for this data set are presented in Table 3-3 and are compared to screening values; results are below the screening values."
Comment 13. Table 3-3, Mean Results for Detected Metals, VOCs, and SVOCs for the Industrial Waste Line: Table 3-3 compares the mean results to the remediation goals (RGs) and the EPA regional screening levels (RSLs); however, it would be useful if the maximum detection for each analyte was also presented to demonstrate that even the maximum detections are less than RGs and RSLs. Please revise Table 3-3 to also include the maximum detection for each analyte.	**Response 13.** Table 3-3 was revised to include the maximum detection for each analyte. The revised table is attached to the end of this RTC table as Attachment 2. Please note that the Technical Memorandum discusses results relative to the mean values because assessment at CERCLA sites is risk-based. Due to the addition of the maximum values to Table 3-3, the following text was added after sentence 1 of paragraph 3 in Section 3.2.4: "**To provide data on the range of values, maximum results also are included in Table 3-3. Consistent with CERCLA requirements for risk-based decisions, the results in Table 3-3 are described below relative to the mean values.**"
Comment 14. Table 3-4, Analytical Results for Detected Ra-226 in the Sediment Removed from the Industrial Waste Manholes and Former Building 29 Pump Station Vaults During the 2014 Investigation: Table 3-4 does not include the uncertainty (+/-) associated with the radium-226 results. Please revise Table 3-4 to include the uncertainty associated with the radium-226 results.	**Response 14.** Uncertainty values are provided in Subappendix D2, Industrial Waste Line Sample Data, Radiological Results. Table 3-4 was revised to add a note at the bottom of the table stating: "Refer to Subappendix D2 for uncertainty values."
Comment 15. Table 3-5, Analytical Results for Detected VOCs in the Sediment Removed from the Industrial Waste Manholes and Former Building 29 Pump Station Vaults During the 2014 Investigation and Figure 3-7, Industrial Waste Line Investigation Sample Locations:	**Response 15.** Table 3-5, as identified in the title, only includes detected results. Therefore, if there were no results above the method detection limit, then there are no results for the manholes. This is the reason that MH1-22 and MH1-24 were not included in the table. Manhole 1-11A only had a

Table 3-5 does not list VOC sample results from manholes MH1-11A, MH1-22, or MH1-24, but Figure 3-7 indicates that these locations were sampled for VOCs. Please revise Table 3-5 to include the VOC sample results from manholes MH1-11A, MH1-22, and MH1-24.	sufficient amount of soil to sample for Ra-226 and was not sampled for metals, VOCs, and SVOCs. Figure 3-7 was corrected to reflect this.
MINOR COMMENTS	**RESPONSE**
Minor Comment 1. Section 4.0, Conclusions and Recommendations, Page 4-2: Section 4.0 states that "Storm Drain Lines A, B, and C do not require further action;" however, this should refer to Storm Drain Lines A, B, and G. Please revise the statement to reference Line G in place of Line C.	**Response 1.** Text was revised in accordance with this comment.
Minor Comment 2. Table 3-5, Analytical Results for Detected VOCs in the Sediment Removed from the Industrial Waste Manholes and Former Building 29 Pump Station Vaults During the 2014 Investigation: Table 3-5 includes the sample identification (ID) "IWL-MH2-3-01," but the manhole location is MH1-3. Please revise the sample ID to "IWL-MH1-3- 01."	**Response 18.** Table was revised in accordance with this comment.
Minor Comment 3. Figure 3-7, Industrial Waste Line Investigation Sample Locations: Sample location SUMPPR should include a pink square around it, which indicates the location was sampled for radium-226, metals, VOCs, and SVOCs. Please revise Figure 3-7 to include a pink square around sample location SUMPPR.	**Response 19.** SUMPPR was sampled for radium-226 only. Figure 3-7 was revised to show the sampling details associated with SUMPPR.

ATTACHMENT 1 TO EPA COMMENTS

TCRA COMPLETION REPORT, APPENDIX G, FIGURE 3-1

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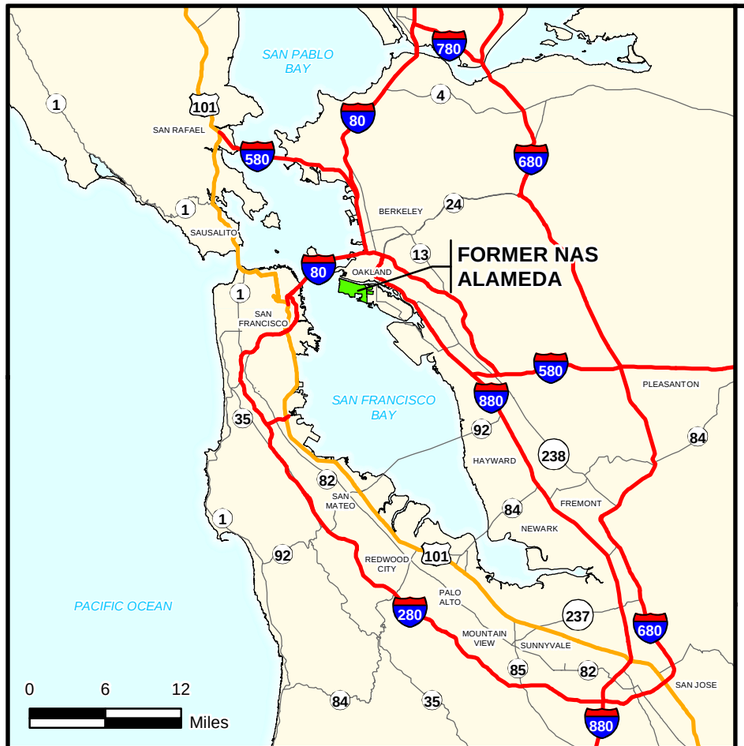

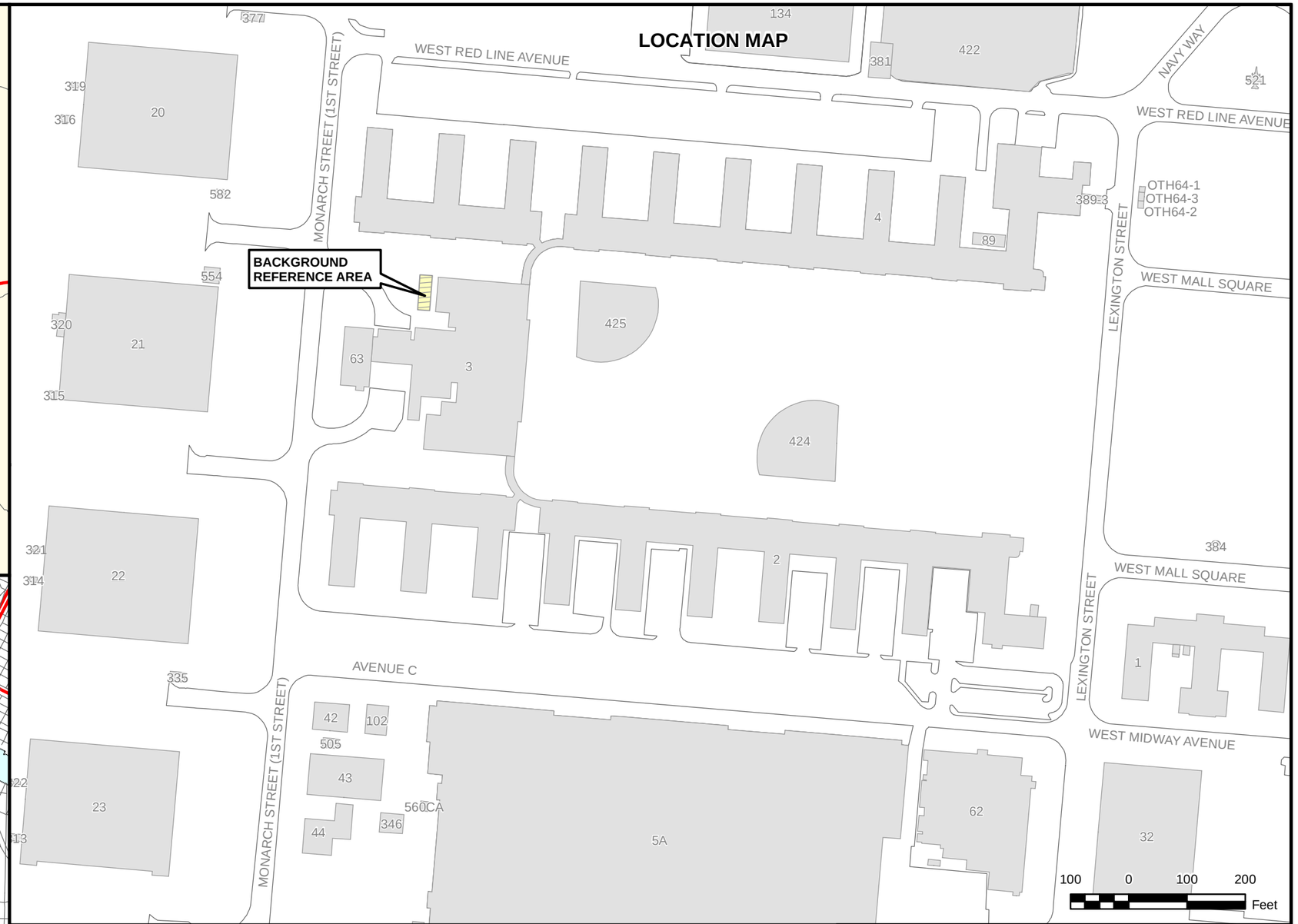

LEGEND

- ROAD/RUNWAY
- STATE HIGHWAY
- US HIGHWAY
- INTERSTATE HIGHWAY
- FORMER NAS ALAMEDA
- 5A BUILDING AND BUILDING NUMBER
- WATER

NOTE:

NAS - NAVAL AIR STATION

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT PROJECT REPORTS ABSTRACT

FIGURE 3-1

BACKGROUND REFERENCE AREA LOCATION

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: GFG
DCN: ECSD-3211-0016-0002
FILE NUMBER: 110738L7160.mxd

TETRA TECH EC, INC.

ATTACHMENT 2 TO EPA COMMENTS

REVISED TABLE 3-3

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TABLE 3-3

MEAN AND MAXIMUM RESULTS FOR DETECTED METALS, VOCS, AND SVOCS FOR THE INDUSTRIAL WASTE LINE*

Method	Analyte [1]	Units	IWL Detected Max[2]	IWL[2] Mean	OU-2C Alameda RGs [3]	EPA Industrial RSL [4]
EPA 6020A	Antimony	mg/kg	11.5	4.9	--	470
	Arsenic[4]	mg/kg	20	10.0	9.14 (background)[5]	n/a
	Barium	mg/kg	834	267.4	--	220,000
	Beryllium	mg/kg	1.83	0.7	--	2,300
	Cadmium	mg/kg	1,370	558.3	--	980
	Chromium (Total)	mg/kg	2,000	780.7	1,400	n/a
	Cobalt	mg/kg	51.4	16.9	--	350
	Copper	mg/kg	4,700	826.4	--	47,000
	Iron	mg/kg	48,700	23,711.1	--	820,000
	Lead	mg/kg	1,290	435.9	800	n/a
	Molybdenum	mg/kg	78	22.7	--	5,800
	Nickel	mg/kg	1,170	263.4	--	22,000
	Selenium	mg/kg	2.7	1.8	--	5,800
	Silver	mg/kg	28.4	8.3	--	5,800
	Thallium	mg/kg	2.8	0.7	66	n/a
	Vanadium	mg/kg	87.4	35.8	--	5,800
	Zinc	mg/kg	3,960	1,132.5	--	350,000
EPA 7471B	Mercury	mg/kg	2	0.6	--	40
EPA 8260C	1,1,1-Trichloroethane[7]	mg/kg	0.0115	0.013	--	36,000
	Chlorobenzene[7]	mg/kg	0.010	0.013	--	1,300
	Chloroethane	mg/kg	0.681	0.113	--	57,000
	cis-1,2-Dichloroethene	mg/kg	0.586	0.068	--	2,300
	Ethylbenzene	mg/kg	0.039	0.007	860	n/a
	Methylene Chloride	mg/kg	0.469	0.063	--	1,000
	Xylenes	mg/kg	0.232	0.038	--	2,800
EPA 8270D	1,4-Dichlorobenzene	mg/kg	0.973	0.348	--	11
	2,4-Dimethylphenol	mg/kg	0.670	0.294	--	16,000
	Acenaphthene	mg/kg	1.250	0.299	--	45,000
	Anthracene	mg/kg	1.490	0.328	--	230,000
	Benz[a] anthracene	mg/kg	3.750	0.673	--	3
	Benzo[a] pyrene	mg/kg	3.060	0.867	1.5[6]	n/a
	Benzo[b] fluoranthene	mg/kg	2.300	0.595	--	3
	Benzo[g,h,i] perylene	mg/kg	2.070	0.658	1.2[6]	n/a
	Benzo[k] fluoranthene	mg/kg	0.884	0.380	--	29
	Bis[2-ethylhexyl] phthalate	mg/kg	174	28.762	--	1,600
	Butyl benzyl phthalate	mg/kg	0.937	0.394	--	1,200
	Chrysene	mg/kg	4.8	0.802	--	290
	Dibenzo[a,h]anthracene[7]	mg/kg	0.231	0.283	--	0.29
	Di-n-butyl phthalate	mg/kg	1.450	0.567	--	82,000
	Fluoranthene	mg/kg	8.9	1.352	--	30,000
	Fluorene	mg/kg	1.740	0.353	--	30,000
	Indeno[1,2,3-cd]pyrene	mg/kg	1.910	0.579	--	3
	Naphthalene	mg/kg	18.8	2.488	--	17
	Phenanthrene	mg/kg	8.610	1.159	4.1[5]	n/a
	Pyrene	mg/kg	8.310	2.050	--	23,000

TABLE 3-3 (CONTINUED)

MEAN RESULTS FOR DETECTED METALS, VOCS, AND SVOCS FOR THE INDUSTRIAL WASTE LINE*

Notes:

***** Mean values were calculated for sediment samples within the industrial waste line piping and adjacent borings.

[1] Only analytes with detected results are included.

[2] Screening Levels were compared to mean values based on CERCLA Risk Assessment Guidance. Mean value for IWL sample locations MH1-4-UP-01, MH1-5-UP-01, MH1-8-UP-01, MH1-8-DN-01, PS1-VAULT-UP-01, SB1-01, SB1-02, SB2-01, SB2-02; calculation of mean used 1/2 of detection limit for samples with non-detectable concentrations.

[3] RGs established for OU-2C at the former Alameda Naval Air Station (DON 2014). Values within this column represent the OU-2C RGs unless otherwise stated in the notes below.

[4] EPA Industrial RSL for Region 9; lower value used when both carcinogenic and non-carcinogenic RSL values are available.

[5] Although the mean value of arsenic is slightly above the background value for OU-2C, it is considered equivalent to background. In addition, there is no evidence that arsenic was ever a COC introduced to the industrial waste line. Also, the mean value of 10 mg/kg is less than the arsenic background level of 16.55 mg/kg of nearby OU-2B location.

[6] No RSL is available for benzo(a)pyrene, benzo[g,h,i] perylene, and phenanthrene. Historically, Alameda Point has based PAH screening levels on site-specific data. Also, the RI Report did not identify these as COCs. The maximum concentration within OU-2C is listed as a site-specific screening value used to evaluate these three PAHs.

[7] The mean values are higher than the maximum value since some of the non-detected values used in the calculation of the mean were elevated due to dilution of the sample.

n/a Not applicable because a site-specific RG has been calculated.

Abbreviations and Acronyms:

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
COC – chain-of-custody
DON – Department of the Navy
EPA – U.S. Environmental Protection Agency
IWL – industrial waste line
mg/kg – milligrams per kilogram
n/a – Not applicable because a site-specific remediation goal (RG) has been calculated.
OU – Operable Unit
PAH – polynuclear aromatic hydrocarbon
RG – remediation goal
RI – remedial investigation
RSL – regional screening level
SVOC – semivolatile organic compound
VOC – volatile organic compound

RESPONSE TO COMMENTS
DRAFT TECHNICAL MEMORANDUM
OPERABLE UNIT 2C DRAIN LINES, JULY 2015
STORM DRAIN LINES A, B, G AND INDUSTRIAL WASTE LINE
ALAMEDA POINT, ALAMEDA, CALIFORNIA

Comments from Yemia Hashimoto, PG, CHG
Engineering Geologist
California Water Boards
San Francisco Bay Regional Water Quality Control Board

Comments Dated: August 27, 2015

COMMENT	RESPONSE
Comment 1. In Section 2.2 Environmental Assessment and Cleanup, page 2-2, the Radium-226 results are compared to background. The determination of this background concentration is not described or referenced in this document. **Action Requested:** Please provide a reference or additional information on how background Radium-226 activity was determined.	**Response 1.** The background area is specific for Operable Unit (OU) 2C drain line projects and was established during the time-critical removal action. That location is documented in the Installation Restoration Sites 5 & 10, Buildings 5 and 400 Storm Drain Line Removal CERCLA Time-Critical Removal Action (TCRA) Completion Report, Appendix G, Figure 3-1, which is included as Attachment 1 to these responses. This area meets all criteria described in this comment. The following text was added to the third paragraph of Section 2.2, Environmental Assessment and Cleanup, following the sentence citing the TCRA drain line sampling: "**Also during the TCRA, a background reference area and value were determined for the OU 2C drain lines. See Appendix G of the TCRA Completion Report (TtEC 2011) for a more detailed discussion of the background reference area; Figure 3-1 in Appendix G (TtEC 2011) shows the location and Attachment 2 of Appendix G (TtEC 2011) provides sampling data. Only areas that were not impacted by historical activities at NAS Alameda were selected for background reference areas.**"

Comments from Yemia Hashimoto, PG, CHG
Engineering Geologist
California Water Boards
San Francisco Bay Regional Water Quality Control Board

Comments Dated: August 27, 2015

Comment 2. In Section 2.2 Environmental Assessment and Cleanup, page 2-2, the text references samples collected from Storm Drain Line Z. Storm Drain Z, while shown on Figure 1-2, is not referenced elsewhere in the text. **Action Requested:** Please clarify the relationship of Line Z to the other Lines and where Line Z data is documented.	**Response 2.** The Draft Technical Memorandum provided a comprehensive summary of the site history and environmental assessment. Because Storm Drain Line Z is not related to the Technical Memorandum, all reference to Storm Drain Line Z in the Background section was removed from the Technical Memorandum to avoid confusion.
Comment 3. In Section 2.2 Environmental Assessment and Cleanup, page 2-2, the text states that numerous samples were collected from the storm drain lines and manholes, with exceedances above background for Ra-226. The text does not state where the exceedances were located, nor is a figure referenced that shows the locations. **Action Requested:** Please include text that identifies where the exceedances were located. Because Line Z was referenced as having had samples collected, it should be clear that these exceedances are not located in Line Z pipes or manholes.	**Response 3.** This text is a summary of a previous report; however, the sediment that was sampled has been removed and disposed. In order to avoid confusion, the text regarding Line Z was removed from the Technical Memorandum. The remaining text in Section 2.2, paragraph 3 was clarified, in accordance with the response to EPA Specific Comment 2, to be specific to storm drain lines A, B, and G and states: "Samples were collected from a total of 156 manholes and catch basins in Storm Drain Lines A, B, and G. Of the 156 locations, only a total of 7 locations for all lines (2 locations in Storm Drain Line A, 3 locations in Storm Drain Line B, and 2 locations in Storm Drain Line G) exhibited radium-226 activity greater than 1 picocurie per gram (pCi/g) above background."
Comment 4. In Section 3.1.3 Storm Drain Line Investigation Results, page 3-3, the text states that a potential cause of the "readings higher than background" may be due to naturally occurring radioactive materials used in manufacturing the storm drain pipe. Although the text states	**Response 4.** Section 3.1.3, paragraph 1 was revised as follows to describe the storm drain line pipe construction material (added text in bold): "After extraction of sediment in the storm drain lines by hydro-jetting

Comments from Yemia Hashimoto, PG, CHG
Engineering Geologist
California Water Boards
San Francisco Bay Regional Water Quality Control Board

Comments Dated: August 27, 2015

in Section 2.2 Environmental Assessment and Cleanup, that the industrial waste lines are constructed of vitrified clay and cast iron, there is no statement regarding the construction of the storm drain pipe. The last sentence in the second paragraph of Section 3.1.3 states, "…appear to be associated with the overall concrete material rather than a layer of fixed activity" infers that the storm drain pipes are constructed of or contain concrete. **Action Requested:** Please state in the text the construction material of the storm drain lines.	was completed, camera verification and a radiological survey of the inside of the pipe were performed. The removed sediment and the radiological survey results were used to identify locations where limited excavation and additional surveys needed to be conducted. The results of the additional surveys indicated no radiological contamination was present in soil surrounding the pipe in the most elevated gamma reading locations identified during the gamma survey. It was concluded that the elevated gamma readings were likely due to the naturally occurring radioactive materials used in manufacturing the **concrete or vitrified clay storm drain** pipe **that were investigated**."

ATTACHMENT 1 TO WATERBOARD COMMENTS

TCRA COMPLETION REPORT, APPENDIX G, FIGURE 3-1

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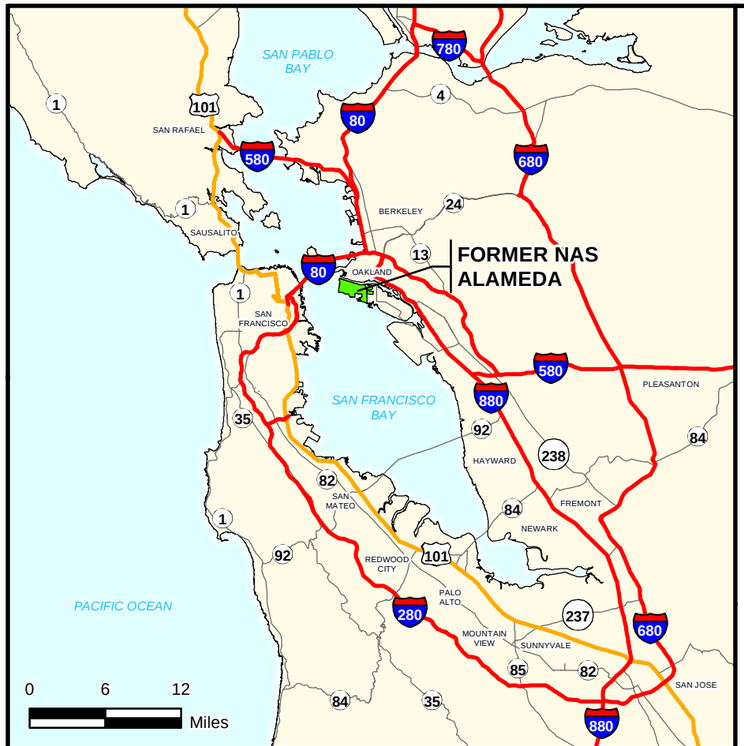

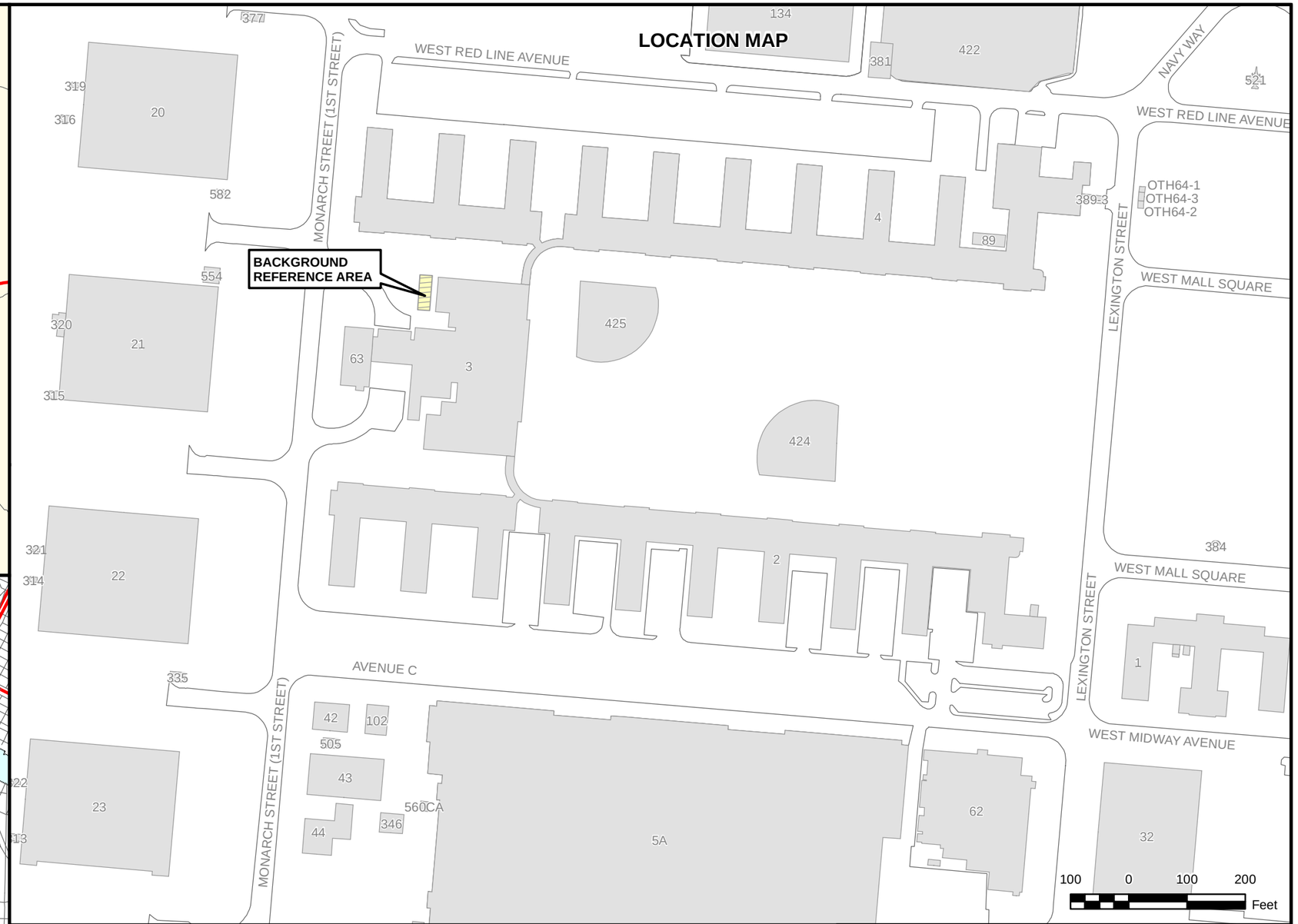

LEGEND

- ROAD/RUNWAY
- STATE HIGHWAY
- US HIGHWAY
- INTERSTATE HIGHWAY
- FORMER NAS ALAMEDA
- 5A BUILDING AND BUILDING NUMBER
- WATER

NOTE:

NAS - NAVAL AIR STATION

N

BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
SAN DIEGO, CALIFORNIA

SURVEY UNIT PROJECT REPORTS ABSTRACT

FIGURE 3-1

BACKGROUND REFERENCE AREA LOCATION

FORMER NAS ALAMEDA
ALAMEDA, CALIFORNIA

REVIEW: 0
AUTHOR: GFG
DCN: ECSD-3211-0016-0002
FILE NUMBER: 110738L7160.mxd

TETRA TECH EC, INC.

RESPONSE TO COMMENTS
DRAFT TECHNICAL MEMORANDUM
OPERABLE UNIT 2C DRAIN LINES, JULY 2015
STORM DRAIN LINES A, B, G AND INDUSTRIAL WASTE LINE
ALAMEDA POINT, ALAMEDA, CALIFORNIA

Comments from Jennifer Ott
Chief Operating Officer – Alameda Point
City of Alameda, California

Comment Dated: December 10, 2015

COMMENT	RESPONSE
Comment 1. Reference: Attachment 1, Letter from Jennifer Ott to Cecily Sebedra with subject, "Re: City of Alameda Comments on Draft Technical Memorandum, Operable Unit 2C Drain Lines, Alameda Point, California"	**Response 1.** As agreed upon at the December 17, 2015 BCT meeting, the Technical Memorandum was revised to remove all recommendations. The City of Alameda comments will be considered in the preparation of the Record of Decision for the drain lines.

ATTACHMENT 1 TO CITY OF ALAMEDA COMMENTS

DECEMBER 10, 2015 LETTER FROM JENNIFER OTT TO CECILY SEBEDRA, SUBJECT "RE: CITY OF ALAEMDA COMMENTS ON DRAFT TECHNICAL MEMORANDUM, OPERABLE UNIT 2C DRAIN LINES, ALAMEDA POINT, CALIFORNIA"

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City of Alameda • California

December 10, 2015

Cecily Sabedra
BRAC Environmental Coordinator
Navy BRAC PMO West
33000 Nixie Way, Bldg. 50
San Diego, CA 92147

Re: City of Alameda Comments on Draft Technical Memorandum, Operable Unit 2C Drain Lines, Alameda Point, Alameda, California

Dear Ms. Sabedra:

Thank you for providing the City of Alameda with a copy of the Navy's July 2015 *Draft Technical Memorandum, Operable Unit (OU) 2C Drain Lines: Storm Drain Lines A, B, G, and Industrial Waste Line* (TM). Please consider the comments presented below.

We agree that appropriate institutional controls (ICs) should be implemented for the industrial waste line (IWL) for protection of health and the environment. The City's first two comments address separate but related issues: (1) how the ICs will be implemented and (2) better definition of the ICs' restrictions and requirements. These comments are intended to clarify our understanding of the ICs referenced in the TM. They are not aimed at lessening the scope of the TM's IC recommendations.

The City is concerned about the burden on anticipated future land uses within Operable Unit 2C that could result from leaving Ra-226 contamination within, and possibly adjacent to, the IWL. The attached figure indicates where future subsurface utilities are expected to be installed and where they intersect with the existing IWL. Accordingly, please consider the third City comment: excavate and remove the very limited segments of the IWL that unavoidably directly conflict with necessary major backbone infrastructure installation and maintenance that enables timely and efficient reuse and redevelopment of Alameda Point.

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1. IC Implementation

Please consider recommending in the TM that the scope of the ICs consist of requiring all intrusive work within the IWL areas requiring institutional controls (ARICs) to be conducted in compliance with an acceptable Site Management Plan (SMP). The ICs would be embodied in covenants to restrict use of property (CRUPs) between DTSC and the City.

The City currently requires intrusive work at Alameda Point to be conducted pursuant to an SMP that is acceptable to environmental regulatory agencies and the Navy. Alameda Point developers and the City's own Public Works Department both already comply with the SMP. The SMP is revised each time the Navy transfers additional land to the City. The revisions update the SMP's figures and tables and add additional procedures, requirements, and restrictions that are not suitably addressed in the prior version of the SMP. Pertinent to the IWL, the provisions added by the SMP revision would focus on: (1) protection of worker health and safety (H&S) and (2) proper management of (a) the IWL, (b) sediment that may be found in segments of the IWL, and (c) soil in close proximity to the IWL. The SMP's provisions will be as stringent as those specified in the OU-2C drain lines' upcoming Record of Decision (ROD) and Land-Use Control Remedial Design (LUC RD). We provide below further guidance as to what the City believes appropriate ICs would be, given the available data and keeping in mind the need to prevent the ICs from creating excessive burden on the City in conducting anticipated future site redevelopment activities.

The TM's recommendation to adopt ICs for the IWL and the CRUPs would ensure that that all intrusive activities within the IWL ARIC be conducted in compliance with an SMP that is acceptable to DTSC and, until property is removed from the National Priorities List (NPL), also to EPA.

2. Scope of ICs

Please consider explicitly recommending in the TM the scope of the procedures, requirements, and restrictions that the CRUPs will require the SMP to contain. These specifications would be somewhat different for the force-main and gravity portions of the IWL.

<u>IWL Force Main</u>

The SMP will require that the force main itself be managed as though it was low-level radiological waste (LLRW) whenever removed, unless radiological scanning demonstrates otherwise. Even though the Navy's investigation and historical information indicate the IWL force main is unlikely to contain sediment, the presence of trace radiological contamination adhering to the pipe's inner wall has not been ruled out. Thus, all removed force main segments will be disposed as LLRW unless waste

profiling, which includes radiological scanning, demonstrates that alternate disposal is acceptable. The SMP would specify the details of such radiological scanning.

Further, the SMP will require that, if sediment is observed inside the force main when it is removed or broken into, all work ceases until radiological support (i.e., a health physicist) is present at the work site. Further work would be subject to the direction of radiological support personnel. The SMP also will require that the work plan and H&S plan for any work that includes any portion of the ARIC for the force main contain contingency plans for radiological support personnel to respond when sediment is encountered.

Gravity IWL

The SMP will require that, within the ARIC for the gravity IWL, all soil, sediment, and the gravity IWL itself be managed as LLRW whenever such materials are encountered. The work plan and H&S plan for any work that may intrude into the ARIC for the gravity IWL will provide for radiological support oversight while the work is conducted. All material excavated from the ARIC for the gravity IWL will be managed as though it were LLRW, unless radiological scanning demonstrates otherwise. All removed gravity IWL pipe segments must be disposed as LLRW unless waste profiling, which includes radiological scanning, demonstrates that alternate disposal is acceptable. The SMP would specify the details of such radiological scanning.

ARIC

The ARICs for the force-main and gravity portions of the IWL would be the same: two feet above the pipe and three feet below and on both sides, measured from the centerline of the pipe. The IWL force main ARIC defines the area within which radiological contingency provisions must be included in work plans and H&S plans. However, unless sediment is observed, only the force main itself, and not the soil within its ARIC, must be presumed to be LLRW. This ARIC size ensures shielding of workers and accommodates potential soil contamination in the unlikely event the pipe has leaked. The Navy's experience with replacing storm-drain lines F and FF suggests that such leakage is unlikely to have occurred.

3. IWL Segments to Be Removed by Navy

Please consider recommending in the TM that the Navy's remedial action include removal of those limited portions of the IWL that unavoidably directly conflict with reasonably anticipated, necessary major backbone infrastructure work required for the reuse and redevelopment of the Alameda Point property. By undertaking this removal work, the Navy also may be able to avoid the cost and time delay associated with further investigation of the IWL, particularly the force main segment, to determine if it contains sediment or an internal radioactive paint coating. Consistent with the figure the

City previously provided to the Navy, the specific portions in unavoidable direct conflict with the existing IWL are identified below:

Gravity IWL

Between MH1-6 and MH1-7

Please remove a twenty-foot portion of this segment of the gravity IWL that is within the West Tower Avenue right of way (R/W). The City will route its future infrastructure through the IWL gap that is created. The removal would include the IWL itself and all soil in its surrounding ARIC. The excavation would be backfilled with clean soil and unaffected overburden.

IWL laterals south of MH1-2, MH1-4, and MH1-5

Please remove the portions of the three gravity IWL laterals draining Building 400 that are within the West Tower Avenue R/W. In the aggregate, these three segments total about 140 linear feet. The City will route its future infrastructure through the IWL gaps that are created. The removal would include the IWL laterals themselves and all of the soil in their surrounding ARICs. The excavations would be backfilled with clean soil and unaffected overburden.

Manholes (11)

Please remove the uppermost three feet of each of the eleven manholes along the gravity IWL (MH1-1 though MH1-9, MH1-13, and MH1-14), unless screening demonstrates that one or more of the manholes' tops do not exhibit radiological contamination. Please slurry-fill the eleven manholes, including accessible portions of the adjacent gravity IWL.

IWL Force Main

Ideally, the Navy's IWL investigation would have included breaking into the force main at one or more locations and screening the pipe's interior for radiological contamination, similar to what was done for Storm Drain Lines A, B, and G. Now, it may be more expedient and efficient to remove the three force-main segments within the Lexington Street R/W that are in greatest conflict with future major backbone infrastructure. In the aggregate, these three segments total about 210 linear feet. Two of the segments are along the north/south trunk force main, within the West Midway Avenue and West Redline Avenue Rs/W. The third segment is the portion of the force-main lateral flowing from the northeast corner of Building 5 that is within the Lexington Street R/W.

Summary

Please revise the TM to recommend that the OU-2C drain lines' ROD and LUC RD specify CRUPs that require compliance with an agency-approved SMP whenever intrusive work is conducted within the IWL ARICs. Please provide additional detail in the TM about the specific procedures, requirements, and restrictions that should apply to

intrusive work within the IWL ARICs. Also, please remove certain segments of the IWL that are in most direct conflict with installation and maintenance of major backbone infrastructure that enables reuse and redevelopment of Alameda Point.

Finally, the City reserves the right to provide additional comments after it is able to review the complete record of comments provided to the Navy on the TM by other agencies, including DTSC and RHB, and the Navy's responses to those comments. The ROD should provide greater specificity than the TM regarding provisions to be included in the SMP, and the LUC RD, yet even more detailed specificity. The City plans to offer further comment on drafts of both of those documents re SMP provisions.

Thank you for considering the City's comments. Please do not hesitate to contact me if you have any questions.

Sincerely,

Jennifer Ott
Chief Operating Officer – Alameda Point

Attachment: Alameda Point – OU-2 IW Lines Proposed Areas of Removal – W Tower Ave & Lexington St

CC:

Farimah Brown, Senior Assistant City Attorney

Peter Russell, Environmental Consultant

Continue

OAKLAND INNER HARBOR

MAIN STREET

BUILDING 30

FORMER BUILDING 29 PUMP HOUSE

WEST REDLINE AVE.

65'±

BLDG 20

BUILDING 4

BUILDING 4

MONARCH STREET

BLDG 21

BUILDING 3

LEXINGTON STREET

SARATOGA STREET

BUILDING 2

BUILDING 2

BLDG 22

BUILDING 1

WEST MIDWAY AVE

65'±

40'±

BLDG 42

BLDG 102

BLDG 43

BLDG 44

BLDG 346

BLDG 23

BUILDING 62

BUILDING 522

BUILDING 5

EXISTING IW PUMP STATION

BLDG 614

BLDG 405

BUILDING 6

EXISTING IW PUMP STATION

MH1-14

MH1-13

BLDG 500

BUILDING 10

BLDG 24

MH1-1

MH1-2

MH1-3

MH1-4

MH1-5

MH1-6

MH1-7

MH1-8

MH1-9

52'±

52'±

20'±

38'±

14'±

WEST TOWER AVE

BUILDING 11

BUILDING 400

BUILDING 12

BUILDING 39

EX 4"FM

EX 8"IW

EX 6"IW

EX 8"IW

LEGEND

- EXISTING INDUSTRIAL WASTE FORCE MAIN (AND PUMP STATION)
- EXISTING INDUSTRIAL WASTE GRAVITY LINES (AND MANHOLE)
- EXISTING INDUSTRIAL WASTE FORCE MAIN (TO BE REMOVED)
- EXISTING INDUSTRIAL WASTE GRAVITY LINES (TO BE REMOVED)
- EXISTING INDUSTRIAL WASTE MANHOLES (REMOVE UPPERMOST 3 FEET & SLURRY FILL)

NOTE:

APPROXIMATE LOCATIONS OF EXISTING INDUSTRIAL WASTE LINES AND EXISTING STORM DRAIN (POTENTIAL RAD IMPACT) ARE PROVIDED BY RUSSELL RESOURCES.

ALAMEDA POINT

OU-2C IW LINES

PROPOSED AREAS OF REMOVAL

WEST TOWER AVE & LEXINGTON STREET

0' 100' 300' 400'

SCALE: 1" = 100' DATE: DECEMBER 10, 2015

cbg

Carlson, Barbee & Gibson, Inc.

CIVIL ENGINEERS • SURVEYORS • PLANNERS

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G:\10087-10\ACAD-10\EXHIBITS\XB_IW (PROPOSED AREAS OF REMOVAL).DWG