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FINAL

TECHNICAL MEMORANDUM

for the

RADIOLOGICAL DATA GAP INVESTIGATION PHASE 2b

at

PARCEL F

HUNTERS POINT NAVAL SHIPYARD

SAN FRANCISCO, CALIFORNIA

Contract No. N62473-11-D-2227
Task Order No. 0002
Document Control No. ITSI-2227-0002-0017

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EXECUTIVE SUMMARY

This Technical Memorandum, prepared for the Naval Facilities Engineering Command Southwest, documents the results of the Phase 2b sampling conducted for the radiological data gap investigation (DGI) of offshore sediments (Parcel F) at Hunters Point Naval Shipyard (HPNS) in San Francisco, California. Various historic operations at HPNS involved materials containing radionuclides, some of which may have released radionuclides into Parcel F. The historical radiological assessment produced by the Naval Sea Systems Command for HPNS (NAVSEA, 2004) further documents the operations and radionuclides used, concluding that there were six primary radionuclides of concern (ROCs) related to operations likely impacting Parcel F: cesium-137 (Cs-137), cobalt-60 (Co-60), plutonium-239/240 (Pu-239/240), radium-226 (Ra-226), strontium-90 (Sr-90), and uranium-235 (U-235).

The primary goal of the overall DGI was to collect and analyze physical and radiological data for the creation of a Radiological Addendum to the *Feasibility Study Report for Parcel F* (Barajas, 2008), which develops and evaluates potential remedial alternatives for offshore sediments at Parcel F. To meet project objectives, a two-phase investigation approach was taken for the DGI. The Phase 1 screening survey was designed to determine the nature and extent of sediment concentrations for the six ROCs on a broad scale within Parcel F. The Phase 2 DGI subsequently was split into two portions. The first portion of the Phase 2 DGI (hereafter referred to as Phase 2a) was designed to focus on the Parcel F Submarine Area, the Parcel B Revetment Wall Areas, and six San Francisco Bay reference sites (Bay Farm, Paradise Cove, Alameda Buoy, Alcatraz, Red Rock, and Oyster Point). The second portion of the Phase 2 DGI (hereafter referred to as Phase 2b) was designed to cover the remaining Parcel F areas that were not covered in Phase 2a, including portions of the Berths North Area, Berths South Area, South Basin Area, and Submarine Area. Phase 2b also included confirmation sampling at additional locations in the South Basin Experimental Ship Shielding Area to delineate any potential Co-60 contamination, as well as in the area of former Piers B and C (which were removed in 2011) to document the absence of radiological contamination. Finally, Phase 2b featured re-analysis of archived Phase 1 samples that were found to contain Ra-226 concentrations exceeding the project action limit (PAL) for the purposes of verifying these exceedances and determining the need for potential step-out sampling to delineate these exceedances. Phase 2b sampling was completed in February 2013.

The Phase 2b investigation was conducted in accordance with the *Final Work Plan for Radiological Data Gap Investigation at Parcel F, Hunters Point Naval Shipyard, San Francisco Bay, California* (Battelle et al., 2011), as modified by the ITSI Gilbane Company (ITSI Gilbane) in November 2012. The specific analytical goals for the Phase 2b investigation were similar to the goals of the Phase 2a investigation. These goals included characterization of the nature and extent of radionuclide activity for the six ROCs in terms of bulk sediment concentrations and clam tissue bioaccumulation, as well as an evaluation of sediment stability in terms of sedflume data, erosion modeling data, and age dating data.

This Technical Memorandum presents only the results from the 2013 Phase 2b DGI. The following types of data were included in the Phase 2b investigation and are discussed in detail in the main text:

1. Sediment data from Phase 2b cores targeting 4 feet of recovery, subsampled at 1-foot intervals (or a fraction thereof in the bottom interval), and analyzed for the six ROCs (Cs-137, Co-60, Pu-239/240, Ra-226, Sr-90, and U-235). A total of 136 analytical sediment cores were collected for ROC analysis during the Phase 2b sampling effort. The 136 analytical cores collected during the Phase 2b investigation generated 468 discrete sediment samples for ROC analysis. This total included 159 samples from the Berths North Area, 117 samples from the Berths South Area, 143 samples from the South Basin Area, and 49 samples from the Submarine Area.
2. Sediment data from re-analysis of 15 individual Phase 1 samples that were originally identified as having statistically significant Ra-226 PAL exceedances.

3. Clam tissue data collected from five stations in Parcel F (BN11A, BS09A, SB02A, SB05A, and SB07A), three stations in the Paradise Cove reference area (RP01A, RP02A, and RP03A), and three stations in the Oyster Point reference area (RY01A, RY02A, and RY03A) using in-situ bioaccumulation testing and subsequent laboratory analysis for the six ROCs. Clam tissue results from three replicate samples for each Parcel F location were combined to generate a single mean result for that individual location (e.g., BN11A). In contrast, clam tissue results from the three single samples from each reference area were combined to generate a single mean result for that reference area as a whole (e.g., Paradise Cove).
4. Sediment stability and erosion data from two sedflume cores collected from two locations in Parcel F (BN312-SF and BS04-SF). Although three sedflume cores were collected during Phase 2b sampling, radiological results from separate co-located handling cores indicated that sedflume core BN316-SF exceeded the revised soil release criterion for Cs-137 at HPNS. As a result, this core could not be released for sediment stability analysis because the sedflume contractor did not possess the applicable radioactive materials handling licenses. Soil release criteria were used as the release limits for the sedflume cores because no sediment-specific release criteria exist for HPNS. The soil release limit for Cs-137 was approximately one order of magnitude more conservative (i.e., lower) than the lowest sediment PAL developed for Parcel F.
5. Sediment age dating data from two geochronology cores collected from two locations in Parcel F (BN312-GC and BS04-GC). Each of these cores was segmented into 15, 2-centimeter increments for subsampling. As a result, 30 total age dating sediment samples were sent to Test America, Inc., for radiological and bulk density analysis. The radiological analysis performed on the age dating samples consisted only of lead-210 (Pb-210) and Cs-137 because these isotopes are relatively common in San Francisco Bay sediments and have half-lives such that they can be used to determine sediment age over years or decades.

Radionuclide data measured in the Phase 2b sediment core samples were used to evaluate potential unacceptable exposure risks to human health and the environment. Risks to human receptors were assessed based on the conceptual site models (CSMs) for two exposure scenarios at Parcel F (intertidal and subtidal) and applicable human health standards. Environmental risks were assessed using the Environmental Risk from Ionising Contaminants: Assessment and Management computer code (Brown et al., 2008) to determine the potential for impacts to biota. All radionuclide activity data were compared to site-specific PALs for each CSM and receptor group that were developed during the Phase 2a investigation.

The Phase 2b sediment radiological results did not produce any PAL exceedances for any of the ROCs under either the intertidal or subtidal exposure scenarios. Statistical testing performed on the Phase 2b sediment data in accordance with Multi-Agency Radiation Survey and Site Investigation Manual guidance (U.S. Nuclear Regulatory Commission [NRC], 2000) indicated a very highly statistically significant rejection of the null hypothesis that the median ROC concentration in Parcel F exceeds the median ROC concentration in the San Francisco Bay reference areas by more than the PAL. Instead, the alternative hypothesis should be accepted: the median radionuclide concentration in Parcel F exceeds the median background concentration by *less* than the PAL or does not exceed the median background concentration.

Results of the Phase 2b clam tissue analysis indicated no evidence of bioaccumulation at Parcel F for any of the six ROCs. Analytical results from the Phase 2b clam tissue samples showed that tissue concentrations were non-detect for all ROCs at all clam sampling locations.

Sedflume data from two cores were used to characterize erosion rates and sediment stability with depth (i.e., to determine the critical shear stresses needed to cause sediment resuspension). Particle size

distribution and bulk density also were determined. This information was used to estimate the potential for resuspension of sediment under typical and extreme hydrodynamic conditions.

Sedflume results indicated that sediments from the two Phase 2b sedflume cores (BN312-SF and BS04-SF) had similar erosion energy properties that are typical of consolidated cohesive sediment. Erosion rates decreased with depth within each core, likely the result of sediment compaction due to self-weight. The critical shear stress of the top interval of both BN312-SF and BS04-SF was near 0.3 Pascal (Pa), where only the mobilization of small flocculants was observed. With the exception of the first interval, erosion was only initiated by applying shear stresses above 0.8 and 3.2 Pa for the BS04-SF and BN312-SF cores, respectively. In contrast, the predicted worst-case wave shear stress over a 25-year period was 0.64 Pa. Therefore, significant sediment resuspension from storm events is considered highly unlikely.

Age dating analysis showed that concentrations of Pb-210 in core BN312-GC were essentially constant over the entire 120-centimeter depth (i.e., there was no indication of a decreasing trend with depth), thus sediment mixing or removal likely has occurred, and no quantitative chronology interpretation could be made for this location. The presence of two Pb-210 peaks in core BS04-GC also suggests similar mixing or removal of sediments, but because these peaks decrease with depth, a quantitative chronology interpretation could be made for each peak in core BS04-GC. Although quantitative age dating for the whole column was not possible using standard regression, quantitative interpretation was possible using the associated Cs-137 data. Because all samples in core BS04-GC contain Cs-137, all the sediments in the 120-centimeter core appear to have been deposited after 1952, which gives a lower-bound accumulation rate of 2 centimeter per year (cm/y) between 1952 and 2013.

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ACRONYMS AND ABBREVIATIONS

ADCP	acoustic Doppler current profile
BCT	Base Closure Team
cm/y	centimeter per year
Co	cobalt
Core Scientific	Core Scientific International
Cs	cesium
CSM	conceptual site model
CTE	central tendency exposure
DGI	data gap investigation
DON	U.S. Department of the Navy
ERICA	Environmental Risk from Ionising Contaminants: Assessment and Management
EPA	U.S. Environmental Protection Agency
FS	feasibility study
HEAST	Health Effects Assessment Summary Tables
HPNS	Hunters Point Naval Shipyard
HRA	Historical Radiological Assessment
ICRP	International Commission on Radiological Protection
ITSI Gilbane	ITSI Gilbane Company
µGy/hour	micro-Grays per hour
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDL	method detection limit
MLLW	mean lower low water
MS/MSD	matrix spike/matrix spike duplicate
NAVSEA	Naval Sea Systems Command
NRC	U.S. Nuclear Regulatory Commission
NWT	New World Technologies
Pa	Pascal
PAL	project action limit
Pb	lead
PCB	polychlorinated biphenyl
pCi/g	picocuries per gram
Pu	plutonium
QC	quality control
QCSR	Quality Control Summary Report
Ra	radium
rad	radiation absorbed dose
rad/day	rad per day
rem/yr	Roentgen equivalent man per year
RME	reasonable maximum exposure
ROC	radionuclide of concern
SAP	sampling and analysis plan
SEI	Sea Engineering, Inc.
SFEI	San Francisco Estuary Institute
Sr	strontium
TtEMI	Tetra Tech EM Inc.
U	uranium
USGS	U.S. Geological Survey
WRS	Wilcoxon Rank Sum

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1.0. INTRODUCTION

This Technical Memorandum, prepared for the Naval Facilities Engineering Command Southwest, documents the results of the Phase 2b sampling conducted for the radiological data gap investigation (DGI) of offshore sediments (Parcel F) at Hunters Point Naval Shipyard (HPNS) in San Francisco, California. The site location is shown on Figure 1-1. Various historic operations at HPNS involved materials containing radionuclides, some of which may have released radionuclides into Parcel F. The Historical Radiological Assessment (HRA) (Naval Sea Systems Command [NAVSEA], 2004) further documents the operations and radionuclides used, concluding that there were six primary radionuclides of concern (ROCs) related to operations likely impacting Parcel F: cesium-137 (Cs-137), cobalt-60 (Co-60), plutonium-239/240 (Pu-239/240), radium-226 (Ra-226), strontium-90 (Sr-90), and uranium-235 (U-235).

The primary goal of the overall DGI was to collect and analyze physical and radiological data for the creation of a Radiological Addendum to the *Feasibility Study Report for Parcel F* (Barajas, 2008), which develops and evaluates potential remedial alternatives for offshore sediments at Parcel F. To meet project objectives, a two-phase investigation approach was taken for the DGI. The Phase 1 screening survey was designed to determine the nature and extent of sediment concentrations for the six ROCs on a broad scale within Parcel F. For the Phase 1 study, radiological data were collected from five areas within Parcel F (Submarine Base Area, Northern Berths Area, Southern Berths Area, South Basin Area, and Drydock Suction Structures), as well as from one reference area specific to Parcel F (Oyster Point). Phase 1 sampling was conducted in February 2009. Results indicated low levels of radionuclide activity (primarily Cs-137 and Ra-226) at all depths throughout the five study areas. These Phase 1 results were presented to the Base Closure Team (BCT) on May 5, 2009, and ultimately were used to develop the Phase 2 DGI sampling approach.

The Phase 2 DGI subsequently was split into two portions. The first portion of the Phase 2 DGI (hereafter referred to as Phase 2a) was designed to focus on the Parcel F Submarine Area, the Parcel B Revetment Wall Areas (Figure 1-1), and six San Francisco Bay reference sites (Bay Farm, Paradise Cove, Alameda Buoy, Alcatraz, Red Rock, and Oyster Point). The reference area locations are shown on Figure 1-2. Phase 2a sampling was completed in October 2011, and the results are presented in the *Final Technical Memorandum for Radiological Data Gap Investigation Phase 2a, at Parcel F Submarine Areas, Parcel B Revetment Wall Areas, and San Francisco Bay Reference Sites, Hunters Point Naval Shipyard, San Francisco Bay, California* (Battelle and Sea Engineering, Inc., 2013).

The second portion of the Phase 2 DGI (hereafter referred to as Phase 2b) was designed to cover the remaining Parcel F areas that were not covered in Phase 2a, including portions of the Berths North Area, Berths South Area, South Basin Area, and Submarine Area. Phase 2b also included confirmation sampling at additional locations in the South Basin Experimental Ship Shielding Area to delineate any potential Co-60 contamination as well as in the area of former Piers B and C (which were removed in 2011) to document the absence of radiological contamination. Finally, Phase 2b featured re-analysis of archived Phase 1 samples that were found to contain Ra-226 concentrations exceeding the project action limit (PAL) for the purposes of verifying these exceedances and determining the need for potential step-out sampling to delineate these exceedances. Phase 2b sampling was completed in February 2013.

The Phase 2b investigation was conducted in accordance with the *Final Work Plan for Radiological Data Gap Investigation at Parcel F, Hunters Point Naval Shipyard, San Francisco Bay, California* (Battelle et al., 2011), as modified by the ITSI Gilbane Company (ITSI Gilbane) in November 2012.

The specific analytical goals for the Phase 2b investigation were similar to the goals of the Phase 2a investigation and included the following:

1. Characterize the nature and extent of radionuclide activity for the six ROCs.
    a. Use two primary lines of evidence (measurements and modeling) to identify areas of surface sediments that pose an unacceptable risk to human health and/or the environment.
        i. Measure radionuclide activity in sediments.
        ii. Measure radionuclide activity in clams (*Macoma nasuta*).
    b. Model results using the Environmental Risk from Ionising Contaminants: Assessment and Management (ERICA) computer code (Brown et al., 2008) to determine the potential for impacts to biota. Also perform modeling to evaluate risks to human receptors based on a conceptual site model (CSM) for Parcel F.
    c. Collect data at locations that span the range of radionuclide activity levels and, if possible, develop exposure-response relationships and protective sediment radionuclide activity levels that can be compared with subsurface radionuclide activity levels to identify potential areas of concern for subsurface sediments.
2. Evaluate sediment stability.
    a. Collect data regarding sediment characteristics and sediment dynamics to support the assessment of risk presented by subsurface sediments and the evaluation of remedial alternatives for sediments with levels of radiological activity that pose unacceptable risk to human health and/or the environment.

No additional reference samples to determine background radionuclide activity levels in San Francisco Bay were collected as part of the Phase 2b investigation. The Phase 2a reference data set was used for background comparisons of the Phase 2b Parcel F data.

This Technical Memorandum presents the results from the 2013 Phase 2b DGI. Additional discussion of the Phase 1 and Phase 2a data is not included in this document. This memorandum presents site background and a summary of previous investigations (Section 1.0), describes the Parcel F CSM radionuclide risk evaluation approach (Section 2.0), presents the Phase 2b sampling results (Section 3.0), and provides conclusions and discussion based on the Phase 2b data (Section 4.0). As part of the reporting process, a draft version of this Technical Memorandum will be reviewed by the BCT.

1.1. Site Background

HPNS is a former Navy installation situated on a peninsula in the southeastern corner of San Francisco, California. The peninsula is bounded on the north, east, and south by San Francisco Bay and on the west by the Bayview Hunters Point district. HPNS initially comprised approximately 934 acres, with approximately 488 acres on land and approximately 446 acres of offshore sediments. From 1945 to 1974, the Navy used HPNS predominantly for ship repair and maintenance. HPNS was deactivated in 1974 and remained relatively unused until 1976, when it was leased to Triple A Machine Shop, a private ship repair company. In 1986, the Navy resumed occupancy of HPNS. The Base was closed in 1991 and divided into seven parcels (A through F and E-2). Parcel A (approximately 75 acres) was transferred to the San Francisco Redevelopment Agency in 2004, leaving HPNS with a current acreage of 859 acres (413 acres of land and 446 acres offshore).

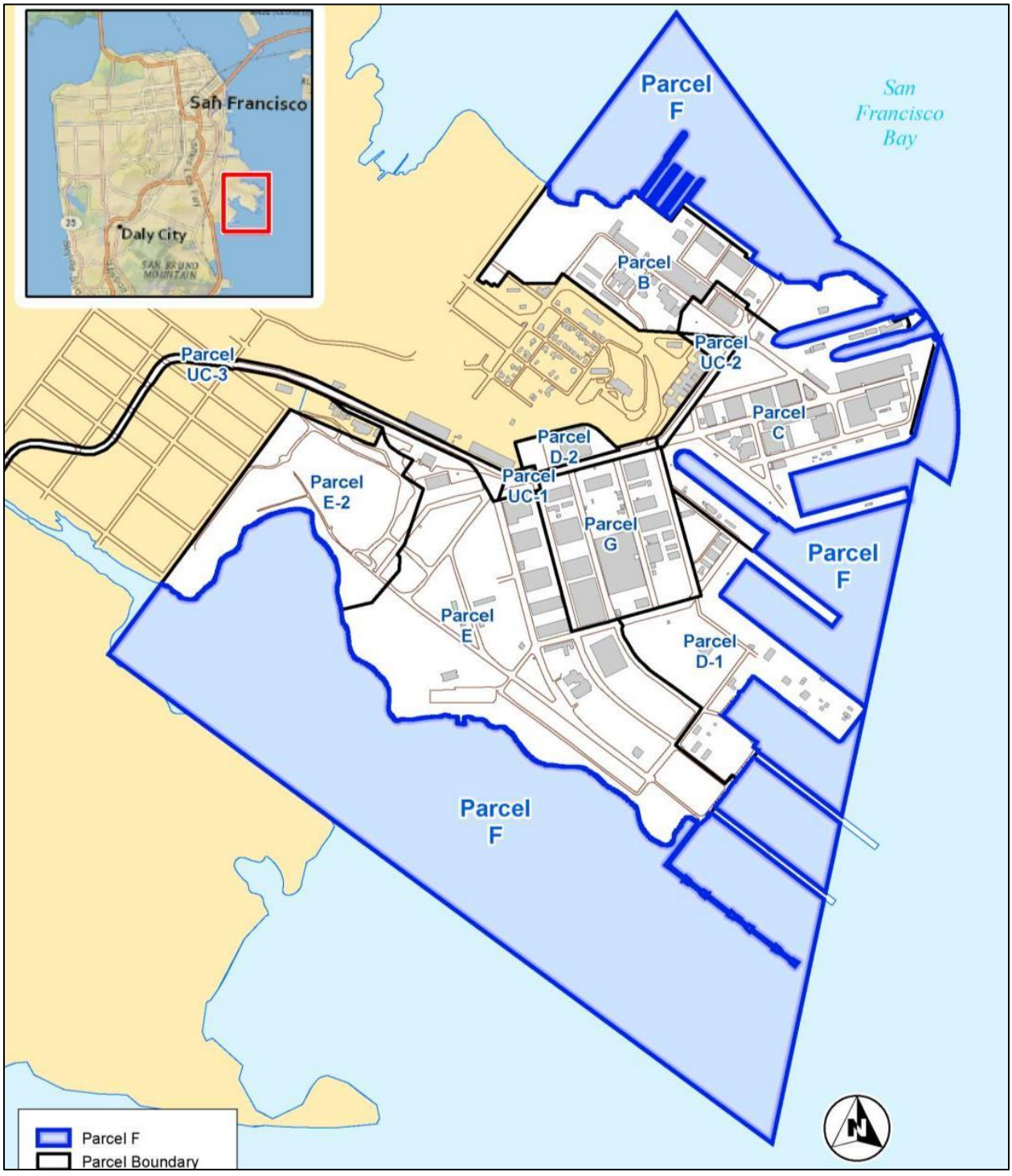

Figure 1-1. Hunters Point Naval Shipyard Site Location Map

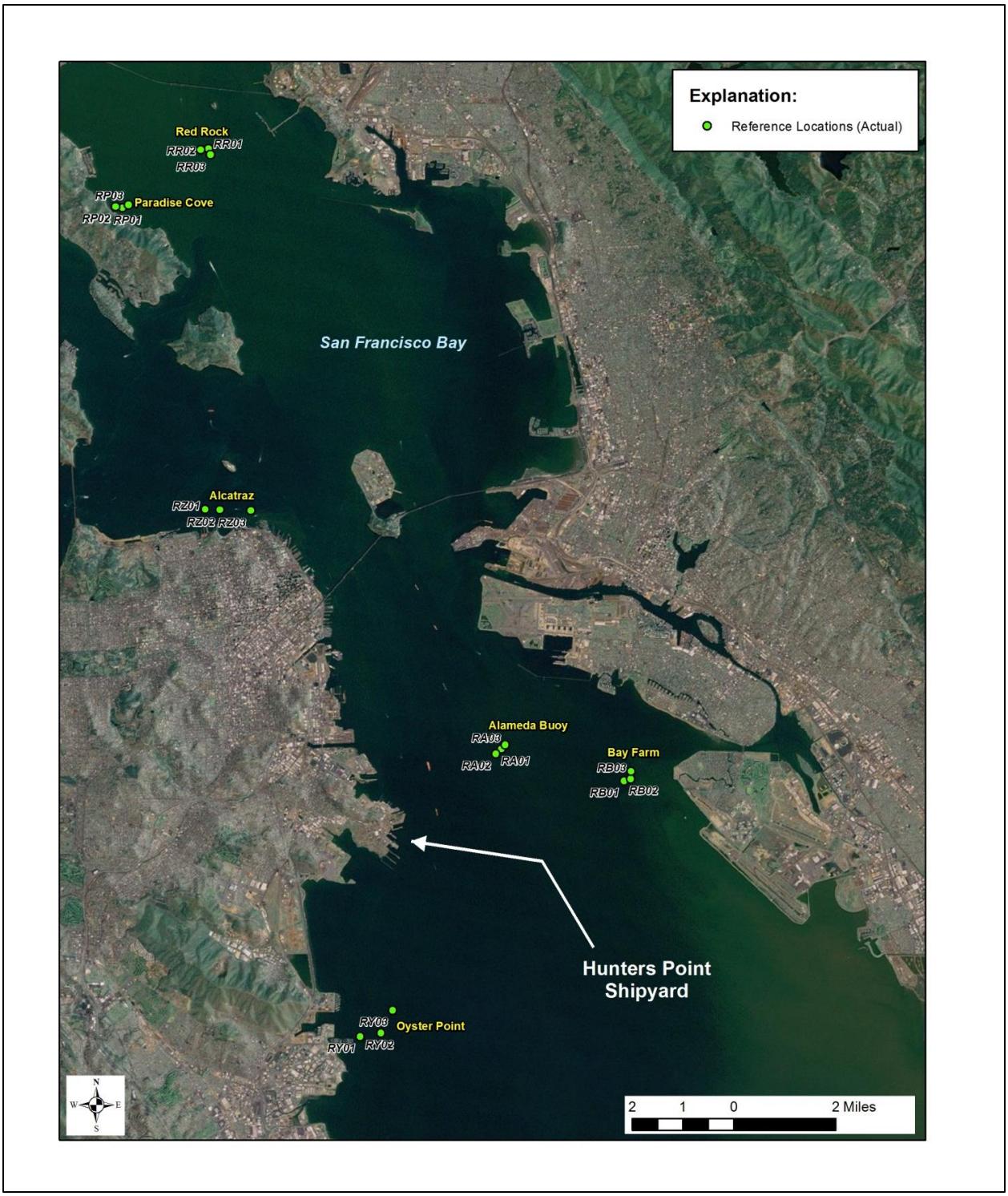

Figure 1-2. San Francisco Bay Reference Area Location Map

Navy operations at HPNS have included the use of chemicals and radionuclides for over 60 years. There is concern that some amount of radionuclides may have entered the aquatic environment at Parcel F through stormwater runoff over land and through storm drains, discharge from dry docks, or other unplanned discharges. The HRA for Hunters Point, a comprehensive study that describes all documented operations at HPNS involving radionuclides, covers 64 years of radiological activities at HPNS (from 1939 through June 2003). The principal areas of historical radiological operations at HPNS were:

- The repair, use, and disposal of radioluminescent commodity items (e.g., dials, gauges, and deck markers).
- Gamma radiography for testing of materials and calibration laboratory operations for ensure the accuracy of radiation survey equipment.
- Decontamination of and scientific research on ships contaminated during atomic weapons testing.
- Use of various radionuclides for scientific research by the Naval Radiological Defense Laboratory and its predecessors.

The HRA includes radionuclide activity data from onshore buildings and areas but, prior to the Phase 2 DGI, almost no data had been collected in the aquatic areas of Parcel F. The Phase 2 investigation was performed to address the data gaps that exist for quantifying the nature and extent of radionuclide activity within the offshore sediments of Parcel F. Figure 1-3 presents the radiologically impacted buildings and sites at HPNS as reported in the HRA.

1.2. Previous Investigations

Various environmental studies have been conducted since 1991 to evaluate shoreline and offshore contamination at Parcel F (ATT, 1991; PRC Environmental Management, Inc., 1994; PRC Environmental Management, Inc., 1996; Tetra Tech EM, Inc. [TtEMI], 1997; TtEMI and Levine-Fricke-Recon, Inc., 1998; TtEMI, 2003a; TtEMI, 2003b). The Parcel F validation study (Battelle et al., 2005) was conducted to more clearly define the areas of offshore sediment requiring evaluation in the Parcel F feasibility study (FS). The validation study concluded that offshore sediments in the South Basin (Areas IX through X) and Point Avisadero (Area III) pose potentially unacceptable ecological risks to upper trophic-level receptors from ingestion of contaminated prey. The primary chemicals of concern for ecological receptors are polychlorinated biphenyls (PCBs) in the South Basin and metals (copper and mercury) at Point Avisadero. The human health risk assessment results indicated that potentially unacceptable risks from the consumption of shellfish exist in the South Basin due to PCBs. Additionally, debris, metal slag, and/or riprap along the shoreline in Area I (India Basin), Area III (Point Avisadero), Area VIII (Eastern Wetland Area), and Area X (South Basin) are of concern because they may act as future sources of contamination to offshore sediments. These shoreline areas are being remediated in conjunction with activities in the adjacent upland parcels (i.e., Parcels B and E). However, the studies cited above did not quantify the nature and extent of contamination of radionuclides identified in the HRA as potentially being present in Parcel F sediments, thus necessitating this study, as described in Section 1.0.

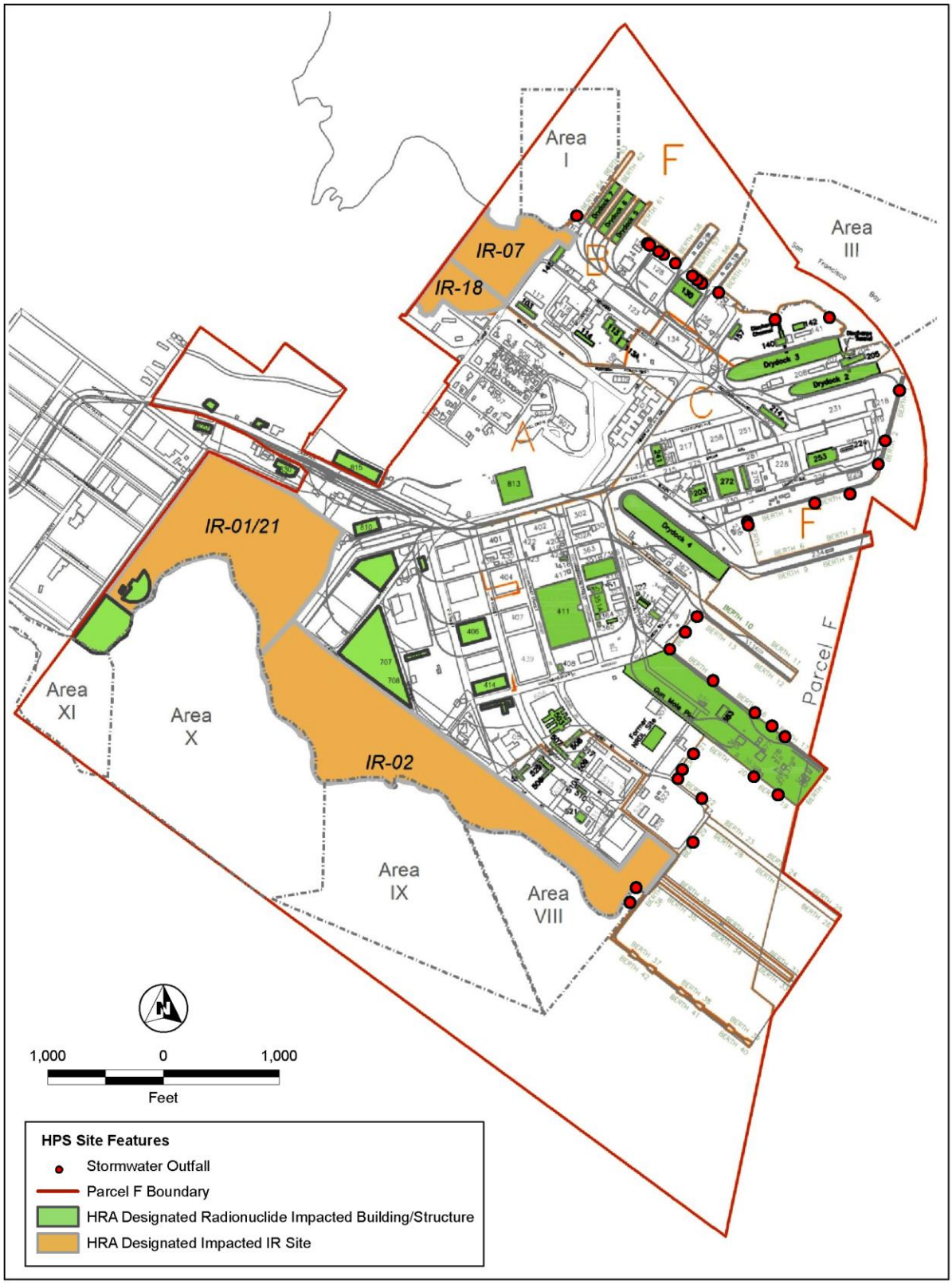

Figure 1-3. Radiologically Impacted Areas Reported in the HRA

2.0. CONCEPTUAL SITE MODELS AND RADIONUCLIDE RISK EVALUATION

This section presents the CSMs for ROC exposure at Parcel F relevant to the sediment environments that were covered by the Phase 2b investigation. This section also presents the approach used to evaluate radiological risk to both human health and ecological receptors for these environments, including the methods and data used to derive appropriate radiological PALs.

2.1. Conceptual Site Models

The CSMs for ROC exposure at Parcel F were originally developed as part of the Phase 2a investigation and were presented in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013). The CSMs presented in this Technical Memorandum address the two exposure scenarios covered by the Phase 2b sampling: an intertidal environment and a subtidal component. The intertidal environment is defined as areas within the Parcel F boundary from the high tide line (mean higher high water) down in elevation to a water depth of ≤-3.0 feet mean lower low water (MLLW). The subtidal environment is defined as areas within the Parcel F boundary with water depths >-3.0 feet MLLW.

The intertidal and subtidal CSMs differ in the way that receptors could be exposed to radionuclides in sediment. For the intertidal CSM, humans could be exposed through ingestion of contaminated shellfish and sediment and external exposure to contaminated sediment. For the subtidal CSM, humans would be shielded by water from direct exposure to contaminated sediments but still could be exposed through ingestion of contaminated shellfish and sediment. Biota could be directly exposed to contaminated sediments under both the intertidal and subtidal CSMs. The exposure pathways for the intertidal CSM and subtidal CSM are presented on Figure 2-1 and Figure 2-2, respectively.

2.2. Radionuclide Risk Evaluation

A radionuclide risk evaluation for both human health and biota was conducted during the Phase 2b investigation following the approach established in the Final DGI Work Plan (Battelle et al., 2011), as modified by ITSI Gilbane in November 2012. This Final DGI Work Plan was approved by the overseeing regulatory agencies, and the same risk evaluation approach was previously used in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013). The same human health and ecological PALs that were developed during the Phase 2a risk evaluation were used for the Phase 2b investigation.

In general, radiological PALs are defined as the radionuclide concentrations in sediment that would yield specified lifetime risk levels (e.g., lifetime cancer risk level of 10^{-6}). For Parcel F, individual PALs were estimated for the six ROCs (Co-60, Cs-137, Sr-90, U-235, Ra-226, and Pu-239/240) for two types of receptors (humans and biota) and two exposure environments (intertidal and subtidal) based on the exposure pathways defined in the CSMs.

In contrast, the ecological PALs listed in this Technical Memorandum are not intended to represent increments above background because the target ecological receptors selected for the risk evaluation are not expected to travel outside of the Parcel F boundaries.

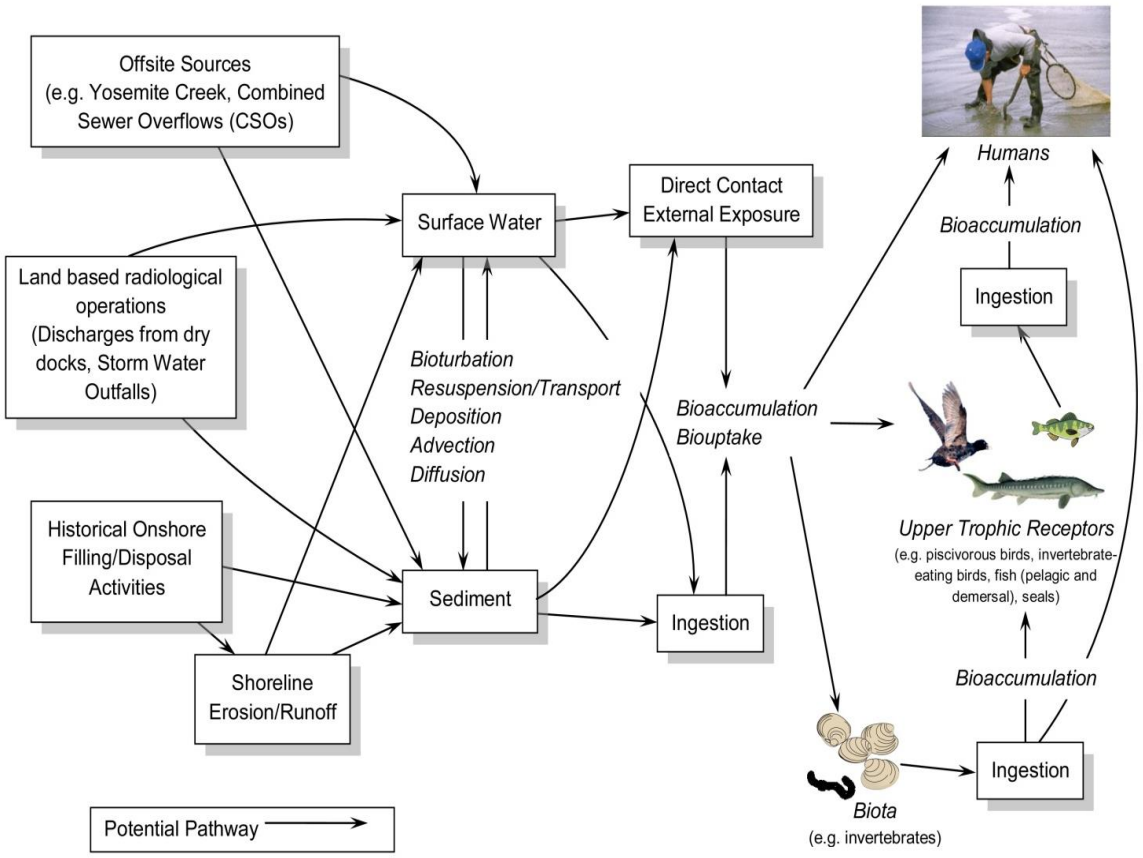

Figure 2-1. Intertidal CSM for Parcel F (high tide line to less than or equal to -3.0 feet MLLW)

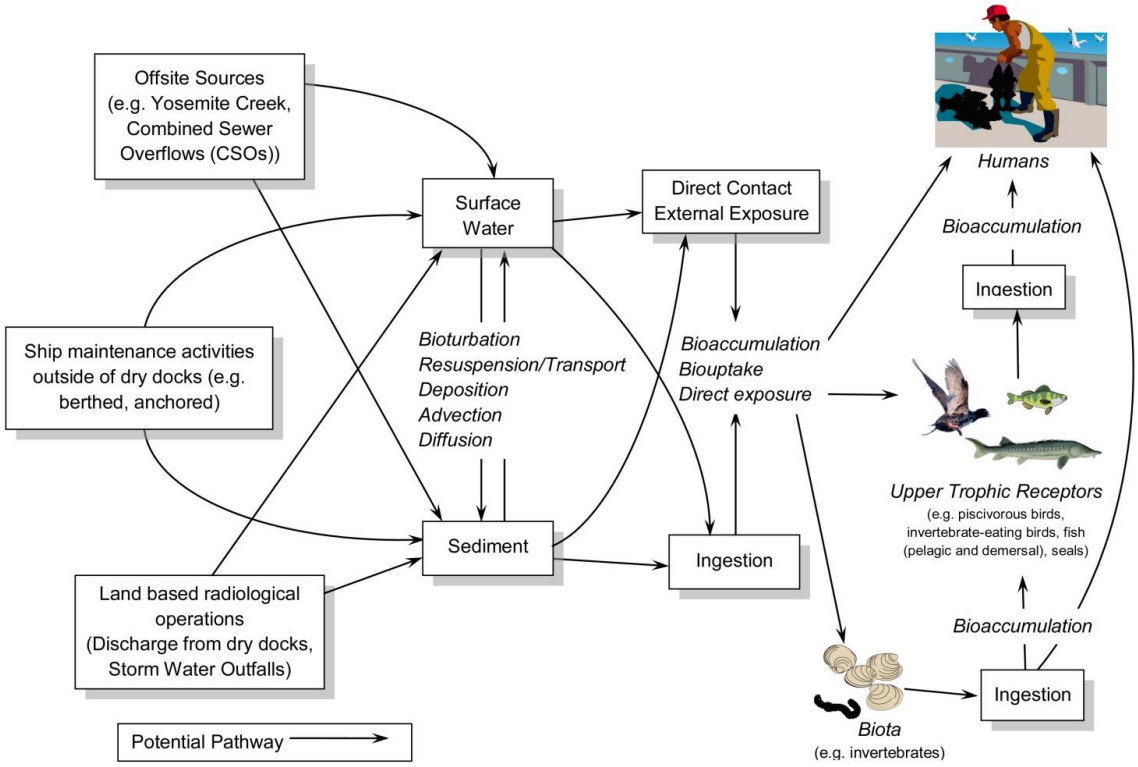

Figure 2-2. Subtidal CSM for Parcel F (greater than -3.0 feet MLLW)

2.2.1. Human Health Risk Evaluation

The intertidal and subtidal human health PALs developed during the Phase 2a investigation were based on several model parameters that already had been established for human exposure to non-radiological chemicals in the Hunters Point Parcel F FS (Barajas, 2008) and the *Final Hunters Point Shipyard Parcel F Validation Study Report, San Francisco Bay, California* (Battelle et al., 2005). The previously established factors included consumption rates, exposure times, and other miscellaneous exposure parameters. PALs were developed for adults, children, and construction workers for ingestion of contaminated shellfish and sediment and external exposure to contaminated sediment. PALs were not developed for ingestion of contaminated fish through sportfishing because of the uncertainties associated with the fish consumption pathway, such as the difficulty in linking tissue concentrations in larger sport fish to site-specific sediment concentrations. The transfer of radioactive material from sediment to organisms to a human was modeled using a concentration factor approach similar to that used in the ERICA tool for biota risks (Brown et al., 2008).

Exposure Parameters. Tables 2-1, 2-2, 2-3, and 2-4 list all the exposure parameters used to estimate the human health risks from the exposure scenarios described herein. As illustrated in Table 2-4, short-lived progeny radionuclides were assumed to be in equilibrium with their parent radionuclide. These parameters remain the same as those used for the Phase 2a investigation.

For adults and children, PALs were estimated for lifetime cancer risk levels of 10^{-4}, 10^{-5}, and 10^{-6}. Consistent with the *Final Basewide Radiological Removal Action, Action Memorandum-Revision 2006, Hunters Point Shipyard, San Francisco, California* (U.S. Department of the Navy [DON], 2006), final PALs were based on lifetime cancer risks of 10^{-6}. These cancer risks were estimated using the morbidity-based cancer risk coefficients from Federal Guidance Report No. 13, "Cancer Risk Coefficients for Environmental Exposure to Radionuclides: CD Supplement" (EPA, 2002). These radionuclide cancer risk coefficients are similar to the radionuclide slope factors published in the November 1995 Health Effects Assessment Summary Tables (HEAST) but have been updated to consider age- and gender-dependent inhalation and ingestion rates. The slope factors presented in Table 2-4 represent the current values incorporating the updated cancer risk coefficients from the Federal Guidance Report (EPA, 2002), rather than the preceding HEAST values, because the HEAST values do not provide separate slope factors for adults and children. Construction workers were assumed to be exposed to radiation and radioactive material as part of their jobs; however, they were not assumed to be occupationally exposed radiation workers. In 10 Code of Federal Regulations 20.1301, the regulatory limit for this type of non-occupational radiation exposure is 0.1 Roentgen equivalent man per year (rem/yr) (U.S. Nuclear Regulatory Commission [NRC], 2008).

For the intertidal CSM at Parcel F, radionuclide risks were evaluated for an adult who was assumed to harvest shellfish recreationally. This person was assumed to be externally exposed to contaminated sediments while harvesting shellfish, to ingest contaminated sediment incidentally while harvesting shellfish, and to eat the shellfish harvested. A similar scenario was evaluated for children. As presented in the Parcel F FS (Barajas, 2008), risks to children associated with consumption of shellfish will not be calculated because, as observed by the San Francisco Estuary Institute (SFEI,(2000), children under the age of 6 years are unlikely to consume shellfish. However, children were assumed to be externally exposed to contaminated sediments and to ingest contaminated sediments incidentally, as they would be while playing on contaminated tidal flats or while accompanying their parents who were recreationally harvesting shellfish.

For the intertidal CSM at Parcel F, construction workers were assumed to be externally exposed to contaminated sediments and to ingest contaminated sediments incidentally while working. For each intertidal CSM scenario, the exposed individual was assumed to stand directly on the sediments. In the intertidal CSM, water was assumed to not provide significant radiation shielding between the exposed individual and the sediments.

For the subtidal CSM at Parcel F, the exposed individual was assumed to be present in a boat over the contaminated sediments. The exposed individual was assumed to be shielded by at least 3 feet of water over the contaminated sediments, and no shielding was assumed to be provided by the boat. In this evaluation, the exposed individual was assumed to harvest contaminated shellfish from the boat and to ingest contaminated sediments associated with harvesting the shellfish incidentally. The construction worker was assumed to be present in a boat, to be externally exposed to contaminated sediments shielded by 3 feet of water, and to ingest contaminated sediments incidentally while working.

Table 2-1. Exposure Parameters Used in the Intertidal and Subtidal CSM Human Health Risk Assessments

Parameter	Value	Source
Adult Recreational Shellfish Scenario		
Shellfish ingestion rate (kg/day)	0.00213	FS, p. 2-9
Fraction ingested from source (unitless)	0.1	FS, p. 2-9
Sediment ingestion rate (mg/day)	100	VS, T. 9-2
Exposure duration (years)	30	FS, p. 2-9
Exposure frequency (days/year)	26	VS, T. 9-2
Exposure time (hours/day)	8	EFH, T. 15-86
Child Recreational Shellfish Scenario		
Shellfish ingestion rate (kg/day)	0.000264	EPA/600/R-09/052F
Fraction ingested from source (unitless)	0.1	FS, p. 2-9
Sediment ingestion rate (mg/day)	100	VS, T. 9-2
Exposure frequency (days/year)	26	VS, T. 9-2
Exposure time (hours/day)	8	EFH, T. 15-86
Exposure duration (years)	6	VS, T. 9-2
Construction Worker Scenario		
Exposure frequency (days/year)	120	VS, p. Q-10
Exposure time (hours/day)	8	Length of working day
Sediment ingestion rate (mg/day)	100	VS, p. Q-10

CSM = conceptual site model
EFH = *Exposure Factors Handbook* (EPA, 1997)
EPA = U.S. Environmental Protection Agency
FS = *Feasibility Study Report for Parcel F* (Barajas, 2008)
kg = kilogram
mg = milligram
VS = *Final Hunters Point Shipyard Parcel F Validation Study Report, San Francisco Bay, California* (Battelle et al., 2005)

Table 2-2. External Shielding Factors Used in the Intertidal and Subtidal CSM Human Health Risk Assessments

Radionuclide	Intertidal CSM Shielding Factor	Subtidal CSM Shielding Factor
Cesium-137	1.0	4.59E-4
Strontium-90	1.0	8.05E-32
Uranium-235	1.0	3.31E-5
Radium-226	1.0	3.29E-3
Plutonium-239	1.0	5.84E-5
Cobalt-60	1.0	2.99E-3

Shielding factors were based on the shielding provided by 3 feet of water and were estimated using the MicroShield computer code. The output from the MicroShield runs is provided in Appendix E of the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013).
CSM = conceptual site model

Table 2-3. Distribution Coefficients and Mollusk Concentration Factors Used in the Intertidal and Subtidal CSM Human Health Risk Assessments

Radionuclide	Distribution Coefficient (L/kg)	Mollusk Concentration Factor (Bq/kg per Bq/L)
Cesium-137	4,000	60
Strontium-90	8	10
Uranium-235	1,000	30
Radium-226	2,000	100
Plutonium-239	100,000	3,000
Cobalt-60	300,000	20,000

Source: International Atomic Energy Agency (IAEA), 2004; recommended values from Table II and Table V. Note: To convert Bq to pCi, multiply by 27.03.
Bq = Becquerel
CSM = conceptual site model
kg = kilogram
L = liter

Table 2-4. Slope Factors and Dose Factors Used in the Human Health Risk Assessment

Radionuclide	Half-Life (years)	Branching Ratio	Adult Ingestion Slope Factor[(a)] (risk/Ci)	Child Ingestion Slope Factor[(b)] (risk/Ci)	Adult External Slope Factor[(a)] (risk-kg/µCi-year)	Child External Slope Factor[(b)] (risk-kg/µCi-year)	Ingestion Dose Conversion Factor[(c)] (rem/Ci)	External Dose Conversion Factor[(c)] (rem-kg/Ci-year)
Cesium-137	30.07	--	2.45E+01	8.44E+01	3.20E-07	1.20E-06	5.02E+04	8.35E+02
Barium-137m[(d)]		0.946	0	0	1.60E-03	6.07E-03	0	3.38E+06
Cesium-137+Progeny			2.45E+01	8.44E+01	1.51E-03	5.74E-03	5.02E+04	3.20E+06
Strontium-90	28.78	--	4.26E+01	2.69E+02	2.87E-07	1.09E-06	1.02E+05	6.46E+02
Yttrium-90[(d)]		1.0	4.66E+00	2.36E+02	1.16E-05	4.29E-05	9.94E+03	4.02E+04
Strontium-90+Progeny			4.73E+01	5.05E+02	1.19E-05	4.40E-05	1.12E+05	4.08E+04
Uranium-235	7.04E+8	--	3.74E+01	6.07E+02	3.10E-04	1.17E-03	1.73E+05	6.59E+05
Thorium-231[(d)]		1.0	5.70E-01	2.86E+01	1.46E-05	5.55E-05	1.24E+03	3.21E+04
U-235+Progeny			3.80E+01	6.36E+02	3.25E-04	1.23E-03	1.74E+05	6.91E+05
Radium-226	1,599	--	1.70E+02	2.22E+03	1.37E-05	5.15E-05	1.03E+06	2.91E+04
Radon-222[(d)]		1.0	0	0	1.03E-06	3.92E-06	0	2.19E+03
Polonium-218[(d)]		1.0	0	0	2.53E-08	9.61E-08	0	5.32E+01
Lead-214[(d)]		0.9998	1.43E-01	3.45E+00	5.85E-04	2.22E-03	5.15E+02	1.24E+06
Astatine-218[(d)]		0.0002	0	0	2.13E-06	8.11E-06	0	4.88E+03
Bismuth-214[(d)]		1.0	9.40E-02	1.62E+00	4.46E-03	1.69E-02	4.13E+02	9.32E+06
Polonium-214[(d)]		1.0	0	0	2.30E-07	8.72E-07	0	4.84E+02
Radium-226+Progeny			1.70E+02	2.23E+03	5.06E-03	1.92E-02	1.03E+06	1.06E+07
Plutonium-239	24,100	--	9.92E+01	9.07E+02	1.18E-07	4.52E-07	9.28E+05	2.63E+02
Cobalt-60	5.271	--	5.33E+00	1.67E+02	7.39E-03	2.79E-02	1.26E+04	1.54E+07

(a) 25 to 70 years, morbidity.
(b) 0 to 5 years, morbidity.
(c) Adult.
(d) Progeny radionuclide assumed to be in equilibrium with parent radionuclide.
Source: EPA, 2002.
Ci = curie
kg = kilogram
µCi = microcurie
rem = Roentgen equivalent man

PAL Calculations. The general equations used to estimate the PALs for adults and children were similar to the equations used to estimate the human health risks in the Hunters Point Parcel F Validation Study (Battelle et al., 2005) but were modified to account for radioactive decay, to account for the units for the slope factors, and to add an external exposure pathway. These equations are presented below.

Equation 1:

$$\text{External Unit Risk}\left(\frac{\text{risk-g}}{\text{pCi}}\right) = \text{External Slope Factor}\left(\frac{\text{risk-kg}}{\mu\text{Ci-yr}}\right) \times \text{Shielding Factor} \times \text{Exposure Frequency}\left(\frac{\text{days}}{\text{year}}\right) \times \text{Exposure Time}\left(\frac{\text{hours}}{\text{day}}\right) \times \frac{1 - \exp\left[-\text{Decay Constant } (\text{yr}^{-1}) \times \text{Exposure Duration (yr)}\right]}{\text{Decay Constant } (\text{yr}^{-1})} \times \frac{1000\text{ g}}{\text{kg}} \times \frac{1\mu\text{Ci}}{10^{6}\text{ pCi}} \times \frac{1\text{ year}}{8{,}760\text{ hours}}$$

where

exp = exponent,
g = gram,
kg = kilogram,
µCi = microcurie,
pCi = picocurie,
yr = year.

Equation 2:

$$\text{Soil Ingestion Unit Risk}\left(\frac{\text{risk-g}}{\text{pCi}}\right) = \text{Ingestion Slope Factor}\left(\frac{\text{risk}}{\text{Ci}}\right) \times \text{Exposure Frequency}\left(\frac{\text{days}}{\text{year}}\right) \times \text{Sediment Ingestion Rate}\left(\frac{\text{mg}}{\text{day}}\right) \times \frac{1 - \exp\left[-\text{Decay Constant } (\text{yr}^{-1}) \times \text{Exposure Duration (yr)}\right]}{\text{Decay Constant } (\text{yr}^{-1})} \times \frac{1\text{ g}}{1000\text{ mg}} \times \frac{1\text{ Ci}}{10^{12}\text{ pCi}}$$

where

Ci = curie,
exp = exponent,
g = gram,
mg = milligram,
pCi = picocurie,
yr = year.

Equation 3:

$$\text{Shellfish Ingestion Unit Risk}\left(\frac{\text{risk-g}}{\text{pCi}}\right) = \text{Ingestion Slope Factor}\left(\frac{\text{risk}}{\text{Ci}}\right) \times \frac{\text{Mollusk Concentration Factor}\left(\frac{\text{Bq/kg}}{\text{Bq/L}}\right)}{\text{Distribution Coefficient}\left(\frac{\text{L}}{\text{kg}}\right)} \times \text{Shellfish Ingestion Rate}\left(\frac{\text{kg}}{\text{day}}\right) \times \text{Fraction Ingested from Source} \times \frac{1 - \exp\left[-\text{Decay Constant (yr}^{-1}) \times \text{Exposure Duration (yr)}\right]}{\text{Decay Constant (yr}^{-1})} \times \frac{1000\ \text{g}}{\text{kg}} \times \frac{1\ \text{Ci}}{10^{12}\ \text{pCi}} \times \frac{365\ \text{days}}{\text{year}}$$

where

Bq = Becquerel,
Ci = curie,
exp = exponent,
g = gram,
kg = kilogram,
L = liter,
pCi = picocurie,
yr = year.

Equation 4:

$$\text{PAL}\left(\frac{\text{pCi}}{\text{g}}\right) = \frac{10^{-6}\ \text{risk}}{\text{External Unit Risk + Soil Ingestion Unit Risk + Shellfish Ingestion Unit Risk}\left(\frac{\text{risk-g}}{\text{pCi}}\right)}$$

where

g = gram,
pCi = picocurie.

The general equations used to estimate the PALs for construction workers follow:

Equation 5:

$$\text{External Unit Risk}\left(\frac{\text{rem-g}}{\text{pCi-yr}}\right) = \text{External Dose Factor}\left(\frac{\text{rem-kg}}{\text{Ci-yr}}\right) \times \text{Shielding Factor} \times \text{Exposure Frequency}\left(\frac{\text{days}}{\text{year}}\right) \times \text{Exposure Time}\left(\frac{\text{hours}}{\text{day}}\right) \times \frac{1000\text{ g}}{\text{kg}} \times \frac{1\text{ Ci}}{10^{12}\text{ pCi}} \times \frac{1\text{ year}}{8{,}760\text{ hours}}$$

where

Ci = curie,
g = gram,
kg = kilogram,
pCi = picocurie,
rem = Roentgen equivalent man,
yr = year.

Equation 6:

$$\text{Soil Ingestion Unit Risk}\left(\frac{\text{rem-g}}{\text{pCi-yr}}\right) = \text{Ingestion Slope Factor}\left(\frac{\text{rem}}{\text{Ci}}\right) \times \text{Exposure Frequency}\left(\frac{\text{days}}{\text{year}}\right) \times \text{Sediment Ingestion Rate}\left(\frac{\text{mg}}{\text{day}}\right) \times \frac{1\text{ g}}{1000\text{ mg}} \times \frac{1\text{ Ci}}{10^{12}\text{ pCi}}$$

where

Ci = curie,
g = gram,
mg = milligram,
pCi = picocurie,
rem = Roentgen equivalent man,
yr = year.

Equation 7:

$$\text{PAL}\left(\frac{\text{pCi}}{\text{g}}\right) = \frac{0.1\text{ rem/yr}}{\text{External Unit Risk + Soil Ingestion Unit Risk}\left(\frac{\text{rem-g}}{\text{pCi-yr}}\right)}$$

where

g = gram,
PAL = project action limit,
pCi = picocurie,
rem = Roentgen equivalent man,
yr = year.

Tables 2-5 and 2-6 list the PALs for the recreational shellfish scenario for adults and children, respectively, and Table 2-7 lists the PALs for construction workers. In addition, Table 2-8 lists the PALs for the recreational shellfish scenario based solely on the consumption of contaminated shellfish. For perspective, the PALs for radionuclides in terrestrial soil are listed. In general, the PALs listed in these tables were higher (less restrictive) than the terrestrial soil PALs. This is largely because of the limited pathways by which humans can contact contaminated sediments as opposed to the more numerous pathways by which humans can contact contaminated terrestrial soil in a residential scenario. In addition, exposure times or frequencies would not be as high for contaminated sediments as for contaminated terrestrial soils. The exception to this trend was Ra-226, where the intertidal CSM sediment PAL for a 10^{-6} lifetime risk was estimated to be 0.277 picocuries per gram (pCi/g) above the background concentration (Table 2-5) determined in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013), while the Ra-226 PAL for terrestrial soil was 1 pCi/g above the background concentration (Table 2-5) determined in the *Final Execution Plan, Revision 1, Basewide Radiological Support, Hunters Point Naval Shipyard, San Francisco, California* (Tetra Tech EC, Inc., 2011).

In all cases, the PALs for the intertidal CSM were lower (more restrictive) than the PALs estimated for the subtidal CSM. This was because external exposure to contaminated sediments was reduced in the subtidal CSM due to shielding by 3 feet of water. For gamma-emitting radionuclides (i.e., Cs-137, U-235, Ra-226, and Co-60), external exposure to contaminated sediments tended to be the limiting pathway in the intertidal CSM. For the subtidal CSM, sediment ingestion tended to be the limiting pathway.

In comparing the PALs estimated for adults and children, the PALs estimated for adults (Table 2-5) were slightly lower (slightly more restrictive) than the PALs estimated for children (Table 2-6), with the exception of the PAL for Co-60 for the intertidal CSM and the PALs for U-235 and Co-60 for the subtidal CSM. This is in spite of the fact that the slope factors for children were higher (see Table 2-4) and was due to the decreased exposure duration for children (i.e., 6 years for children versus 30 years for adults) and the lack of a shellfish ingestion pathway for children.

The PALs estimated for construction workers (Table 2-7) were significantly higher (less restrictive) than the PALs estimated through the adult recreational shellfish scenario (Table 2-5). This was because the endpoint used to determine the PALs was based on a non-occupational radiation dose standard of 0.1 rem/yr, not a lifetime cancer risk of 10^{-6} to 10^{-4}. For perspective, a radiation dose of 0.1 rem/yr is equivalent to a lifetime fatal cancer risk of about 0.002 over 30 years.

The PALs based solely on the consumption of contaminated shellfish (Table 2-8) were slightly higher than the PALs for the adult recreational shellfish scenario (Table 2-5). This was because external exposure to contaminated sediments and ingestion of contaminated sediments were not included in this scenario.

When the PALs estimated for biotic receptors (see Section 2.2.2) were compared to the PALs estimated for human receptors, it was observed that the PALs for human receptors were lower (more restrictive) than the PALs for biotic receptors. The endpoints used in the biotic risk evaluation were based on population mortality, reproduction, or detrimental effects. In contrast, the endpoints used in the human health risk evaluation were based on cancer morbidity.

Table 2-9 summarizes the selected (i.e., most restrictive) pathway-specific Parcel F sediment PALs based on a lifetime risk of 10^{-6} for Cs-137, Ra-226, Sr-90, U-235, Pu-239, and Co-60 from the various exposure scenarios presented in Table 2-5 through Table 2-8. In situations where more than one radionuclide was present, a sum-of-fractions approach was used to evaluate sediment radionuclide concentrations. As

mentioned previously, the purpose of estimating the PALs was to identify areas of surface sediments that pose an unacceptable risk to human health or the environment.

For Ra-226, the calculated intertidal CSM PAL was 0.277 pCi/g above background (Table 2-5) for a risk level of 10^{-6}. However, based on the data collected at the reference sites, the background concentration for Ra-226, which is a naturally occurring radionuclide, ranged from 0.21 to 0.99 pCi/g and averaged 0.60 ± 0.16 pCi/g. Therefore, a PAL of 0.277 pCi/g above background would not be a reliable indicator of background exceedance because 0.27 pCi/g added to the average background is still less than the maximum background sample measurement. In addition, the method detection limit (MDL) for Ra-226 ranged from 0.7 pCi/g (off-site laboratory) to 1.4 pCi/g (on-site laboratory) (see Worksheet 15-1 in the Parcel F Radiological DGI Sampling and Analysis Plan [SAP]; Battelle et al., 2011). For these reasons, the terrestrial soil PAL of 1 pCi/g above background, which was based on agreements with the U.S. Environmental Protection Agency (EPA) Region 9 and the U.S. Department of the Navy, was used as the PAL for intertidal sediments. Based on the intertidal CSM, the concentration of 1 pCi/g corresponds to a risk level of about 4×10^{-6}, which is within the National Oil and Hazardous Substances Pollution Contingency Plan lifetime risk range of 10^{-4} to 10^{-6}.

Table 2-5. PALs for Sediment Based on the Adult Recreational Shellfish Scenario

Radionuclide	Lifetime Risk	Intertidal CSM PAL (pCi/g)	Limiting Pathway	Subtidal CSM PAL (pCi/g)	Limiting Pathway	Terrestrial Soil PAL (pCi/g)
Cesium-137	10^{-6}	1.28E+00	External Exposure	4.25E+02	Sediment Ingestion	0.113
	10^{-5}	1.28E+01		4.25E+03		
	10^{-4}	1.28E+02		4.25E+04		
Strontium-90	10^{-6}	9.37E+00	Shellfish Ingestion	9.93E+00	Shellfish Ingestion	0.331
	10^{-5}	9.37E+01		9.93E+01		
	10^{-4}	9.37E+02		9.93E+02		
Uranium-235	10^{-6}	4.22E+00	External Exposure	1.78E+02	Sediment Ingestion	0.195
	10^{-5}	4.22E+01		1.78E+03		
	10^{-4}	4.22E+02		1.78E+04		
Radium-226	10^{-6}	2.77E-01	External Exposure	2.24E+01	Shellfish Ingestion	1.0[(a)]
	10^{-5}	2.77E+00		2.24E+02		
	10^{-4}	2.77E+01		2.24E+03		
Plutonium-239	10^{-6}	6.78E+01	Sediment Ingestion	6.82E+01	Sediment Ingestion	2.59
	10^{-5}	6.78E+02		6.82E+02		
	10^{-4}	6.78E+03		6.82E+03		
Cobalt-60	10^{-6}	7.64E-01	External Exposure	2.37E+02	External Exposure	0.0361
	10^{-5}	7.64E+00		2.37E+03		
	10^{-4}	7.64E+01		2.37E+04		

(a) The terrestrial soil Ra-226 limit is 1 pCi/g above background.

PALs represent the radionuclide concentrations in sediment that would yield lifetime risks of 10^{-6}, 10^{-5}, and 10^{-4}. PALs do not include background levels of radionuclides and are increments above background.

Terrestrial soil PALs are from Tetra Tech EC, Inc. 2011.

CSM = conceptual site model

PAL = project action limit

pCi/g = picocuries per gram

Table 2-6. PALs for Sediment Based on the Child Recreational Shellfish Scenario

Radionuclide	Lifetime Risk	Intertidal CSM PAL (pCi/g)	Limiting Pathway	Subtidal CSM PAL (pCi/g)	Limiting Pathway	Terrestrial Soil PAL (pCi/g)
Cesium-137	10^{-6}	1.31E+00	External Exposure	6.33E+02	Sediment Ingestion	0.113
	10^{-5}	1.31E+01		6.33E+03		
	10^{-4}	1.31E+02		6.33E+04		
Strontium-90	10^{-6}	7.59E+01	Sediment Ingestion	1.36E+02	Sediment Ingestion	0.331
	10^{-5}	7.59E+02		1.36E+03		
	10^{-4}	7.59E+03		1.36E+04		
Uranium-235	10^{-6}	5.42E+00	External Exposure	1.01E+02	Sediment Ingestion	0.195
	10^{-5}	5.42E+01		1.01E+03		
	10^{-4}	5.42E+02		1.01E+04		
Radium-226	10^{-6}	3.62E-01	External Exposure	2.29E+01	Sediment Ingestion	1.0[(a)]
	10^{-5}	3.62E+00		2.29E+02		
	10^{-4}	3.62E+01		2.29E+03		
Plutonium-239	10^{-6}	7.04E+01	Sediment Ingestion	7.07E+01	Sediment Ingestion	2.59
	10^{-5}	7.04E+02		7.07E+02		
	10^{-4}	7.04E+03		7.07E+03		
Cobalt-60	10^{-6}	3.64E-01	External Exposure	9.99E+01	External Exposure	0.0361
	10^{-5}	3.64E+00		9.99E+02		
	10^{-4}	3.64E+01		9.99E+03		

(a) The terrestrial soil Ra-226 limit is 1 pCi/g above background.

PALs represent the radionuclide concentrations in sediment that would yield lifetime risks of 10^{-6}, 10^{-5}, and 10^{-4}. PALs do not include background levels of radionuclides and are increments above background.

Terrestrial soil PALs from Tetra Tech EC, Inc. 2011.

CSM = conceptual site model

PAL = project action limit

pCi/g = picocuries per gram

Table 2-7. PALs for Sediment Based on the Construction Worker Scenario

Radionuclide	Intertidal CSM PAL (pCi/g)	Limiting Pathway	Subtidal CSM PAL (pCi/g)	Limiting Pathway	Terrestrial Soil PAL (pCi/g)
Cesium-137	2.85E+02	External Exposure	1.31E+05	Sediment Ingestion	0.113
Strontium-90	1.72E+04	External Exposure	7.44E+04	Sediment Ingestion	0.331
Uranium-235	1.28E+03	External Exposure	4.78E+04	Sediment Ingestion	0.195
Radium-226	8.52E+01	External Exposure	6.18E+03	Sediment Ingestion	1.0[(a)]
Plutonium-239	8.96E+03	Sediment Ingestion	8.98E+03	Sediment Ingestion	2.59
Cobalt-60	5.92E+01	External Exposure	1.93E+04	External Exposure	0.0361

(a) The terrestrial soil Ra-226 limit is 1 pCi/g above background.
PALs represent the concentration in sediment that would yield a radiation dose of 0.1 rem/yr. PALs do not include background levels of radionuclides and are increments above background.
Terrestrial soil PALs from Tetra Tech EC, Inc. 2011.
CSM = conceptual site model
PAL = project action limit
pCi/g = picocuries per gram

Table 2-8. PALs for Ingestion of Contaminated Shellfish

Radionuclide	Ingestion of Shellfish PAL (pCi/g)	Terrestrial Soil PAL (pCi/g)
Cesium-137	2.42E+01	0.113
Strontium-90	1.27E+01	0.331
Uranium-235	1.13E+01	0.195
Radium-226	2.53E+00	1.0[(a)]
Plutonium-239	4.32E+00	2.59
Cobalt-60	3.24E+02	0.0361

(a) The terrestrial soil Ra-226 limit is 1 pCi/g above background.
PALs represent the radionuclide concentrations in shellfish tissue that would yield a lifetime human health risk of 10^{-6}.
PALs do not include background levels of radionuclides and are increments above background.
In situations where more than one radionuclide was present, a sum-of-fractions approach was used to evaluate sediment radionuclide concentrations.
Terrestrial soil PALs from Tetra Tech EC, Inc. (2011).
PAL = project action limit
pCi/g = picocuries per gram

Table 2-9. PALs for Sediment

Radionuclide	Intertidal CSM PAL (pCi/g)	Subtidal CSM PAL (pCi/g)	Terrestrial Soil PAL (pCi/g)
Cesium-137	1.28	4.25E+2	0.113
Strontium-90	9.37	9.93	0.331
Uranium-235	4.22	1.01E+2	0.195
Radium-226	1.0[(a)]	2.24E+1	1.0[(b)]
Plutonium-239	6.78E+1	6.82E+1	2.59
Cobalt-60	3.64E-1	9.99E+1	0.0361

(a) Consistent with the terrestrial soil PAL, the Ra-226 intertidal sediment limit is 1 pCi/g above background.
(b) The terrestrial soil Ra-226 limit is 1 pCi/g above background.
PALs represent the radionuclide concentrations in sediment that would yield a lifetime human health risk of 10^{-6}. The PALs based on the risks to biota were less restrictive than the PALs based on human health risks.
PALs do not include background levels of radionuclides and are increments above background.
In situations where more than one radionuclide was present, a sum-of-fractions approach was used to evaluate sediment radionuclide concentrations.
Terrestrial soil PALs from Tetra Tech EC, Inc. 2011.
CSM = conceptual site model
PAL = project action limit
pCi/g = picocuries per gram

2.2.2. Biota Risk Evaluation

The risk to biota was evaluated using the ERICA tool (Brown et al., 2008). ERICA was developed by the European Atomic Energy Community (part of the European Community) to provide an integrated approach to the assessment and management of environmental risks from ionizing radiation, with emphasis on biota and ecosystems; this tool is not used to estimate human health risks. The ERICA tool models the transfer of radioactive material from sediment and water to organisms using a concentration factor approach. This concentration factor approach is described in "The ERICA Tool" (Brown et al., 2008). The derivation of the concentration factors used in ERICA is described in "Derivation of Transfer Parameters for Use within the ERICA Tool and the Default Concentration Ratios for Terrestrial Biota" (Beresford et al., 2008) and "Transfer of Radionuclides in Aquatic Ecosystems — Default Concentration Ratios for Aquatic Biota in the ERICA Tool" (Hosseini et al., 2008). ERICA was used to estimate PALs for biota presented below. The approach used to estimate the preliminary PALs was similar to that used in Tier 1 (screening risk assessment) of the three-tiered Navy ecological risk assessment approach (U.S. Navy, 1999). It was also similar to Tier I in the three-tiered process described in "Principles and Issues in Radiological Ecological Risk Assessment" (Jones et al., 2003).

In ERICA, both internal and external radiation doses to biota are estimated. The dose conversion coefficients used in ERICA are described in "Tables of Dose Conversion Coefficients for Estimating Internal and External Radiation Exposures to Terrestrial and Aquatic Biota" (Ulanovsky and Prohl, 2008). The radiation doses estimated by ERICA account for the size and shape of the organism and its surroundings. ERICA estimates radiation doses for organisms in freshwater, marine, and terrestrial ecosystems. The organisms evaluated in ERICA are based on the reference animals and plants adopted by the International Commission on Radiological Protection (ICRP) in ICRP Publication 103 (ICRP, 2007). Based on the intertidal and subtidal CSMs for Parcel F, radiation doses were estimated for the following four marine organisms:

- marine birds – representative of the surf scoter,
- mollusks,
- benthic fish – representative of the green sturgeon, and

- polychaete worms.

PALs were not developed for larger sport fish (e.g., pelagic species, such as the jacksmelt, shiner surfperch, white croaker, striped bass, and leopard shark, and benthic species, such as the California halibut and white sturgeon) because of the uncertainties associated with the fish consumption pathway, such as the difficulty in linking tissue concentrations in larger sport fish to site-specific sediment concentrations.

To estimate PALs for these organisms, an endpoint based on potential radiation effects, such as population-level mortality or reproductive effects on biota, must be established. These radiation effects have been evaluated by the ICRP, the National Council on Radiation Protection and Measurements, the International Atomic Energy Agency, the United Nations Scientific Committee on the Effects of Atomic Radiation, and the U.S. Department of Energy. The consensus of these organizations is that, for terrestrial species such as terrestrial plants, insects, other invertebrates, amphibians, reptiles, birds, and mammals, there is little indication that a dose rate of 400 micro-Grays per hour (µGy/hour) equivalent to 1.0 radiation absorbed dose (rad) per day (rad/day) would seriously affect mortality in a population or that a dose rate of 40 µGy/hour (0.1 rad/day) would seriously affect reproduction in a population. For aquatic organisms, a dose rate of 400 µGy/hr (1.0 rad/day) would not have any detrimental effects at the population level. The PALs listed in Table 2-10 represent the radionuclide concentrations in sediment that would yield radiation dose rates of 0.1 and 1.0 rad/day for marine birds, mollusks, benthic fish, and polychaete worms.

For perspective, the PALs for radionuclides in terrestrial soil are also listed in Table 2-10 (Tetra Tech EC, Inc., 2011). The sediment PALs estimated for biota are higher (less restrictive) than the terrestrial soil PALs. In situations where more than one radionuclide was present, a sum-of-fractions approach was used to evaluate sediment radionuclide concentrations.

Table 2-10. PALs for Sediment Based on Biotic Risks for Four Organisms

Radionuclide	Sediment PAL for Marine Bird (pCi/g)	Sediment PAL for Mollusk (pCi/g)	Sediment PAL for Benthic Fish (pCi/g)	Sediment PAL for Polychaete Worm (pCi/g)	Terrestrial Soil PAL (pCi/g)
0.1 rad/day Radiation Dose					
Cesium-137	3.6E+03	3.4E+03	7.0E+03	3.2E+03	0.113
Strontium-90	8.1E+03	1.2E+02	6.2E+02	7.6E+03	0.331
Uranium-235	5.9E+03	1.2E+03	2.7E+03	1.2E+03	0.195
Radium-226	5.2E+01	2.0E+02	5.6E+01	9.6E+01	1.0[(a)]
Plutonium-239	2.4E+04	3.3E+03	1.0E+03	2.4E+03	2.59
Cobalt-60	8.3E+2	7.7E+2	1.7E+3	7.7E+2	0.0361
1.0 rad/day Radiation Dose					
Cesium-137	3.6E+04	3.4E+04	7.0E+04	3.2E+04	0.113
Strontium-90	8.1E+04	1.2E+03	6.2E+03	7.6E+04	0.331
Uranium-235	5.9E+04	1.2E+04	2.7E+04	1.2E+04	0.195
Radium-226	5.2E+02	2.0E+03	5.6E+02	9.6E+02	1.0[(a)]
Plutonium-239	2.4E+05	3.3E+04	1.0E+04	2.4E+04	2.59
Cobalt-60	8.3E+3	7.7E+3	1.7E+4	7.7E+3	0.0361

(a) The terrestrial soil Ra-226 limit is 1 pCi/g above background.

PALs represent the radionuclide concentrations in sediment that would yield radiation dose rates of 0.1 and 1.0 rad/day for wading birds, mollusks, benthic fish, and polychaete worms. In situations where more than one radionuclide was present, a sum-of-fractions approach was used to evaluate sediment radionuclide concentrations.

Terrestrial soil PALs from Tetra Tech EC, Inc. 2011.

PAL = project action limit

pCi/g = picocuries per gram

rad/day = rad per day

3.0. DATA GAP INVESTIGATION PHASE 2B SAMPLING AND RESULTS

The primary objective of the overall Parcel F DGI was to provide data to support the Radiological Addendum to the Parcel F FS. The specific objectives for the Phase 2b investigation, as described in the Final DGI Work Plan (Battelle et al., 2011) modified by ITSI Gilbane in 2012, included the following:

1. Use two primary lines of evidence (measurements and modeling) to identify areas of surface sediments that pose an unacceptable risk to human health and/or the environment.
2. Collect data regarding sediment characteristics and sediment dynamics to support the assessment of risk presented by subsurface sediments and the evaluation of remedial alternatives for sediments with levels of radiological activity that pose unacceptable risk to human health and/or the environment.
3. Address the following three identified data gaps from the Phase 2a investigation:
    a) Delineation of Ra-226 results that exceeded the preliminary PALs at 10 of the 2009 Phase 1 sampling locations identified in Table 3-9 of the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013).
    b) Collection and analysis of confirmation samples at additional locations to document the absence of radiological contamination in the area of former Piers B and C, which were removed in 2011.
    c) Collection and analysis of confirmation samples at additional locations in the vicinity of the South Basin Experimental Ship Shielding Area to delineate any potential Co-60 contamination in sediment more fully.

All other specific objectives presented in the Final DGI Work Plan (Battelle et al., 2011) were completed during the Phase 2a investigation, with results presented in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013). The results of the Phase 2a investigation were applied to the Phase 2b investigation where applicable (e.g., determining PALs).

3.1. Sampling Summary

This section describes all field sampling that was performed during the Phase 2b investigation and the associated analyses. In general, the Phase 2b sampling was conducted to characterize ROC distribution in the Parcel F areas that were not covered in Phase 2a, including but not limited to portions of the Berths North Area, Berths South Area, South Basin Area, and Submarine Area. More specifically, the Phase 2b sampling approach was designed to focus on three main issues: (1) ROC activity in sediments, (2) clam ROC exposure and bioaccumulation, and (3) sediment stability. As a result, the Phase 2b samples included sediment cores used for ROC, sedflume, and age dating (radioisotope) analysis, as well as clam deployments and associated sediment grabs used for bioaccumulation analysis. Samples were collected only from intertidal and subtidal environments. Risk levels for the different exposure scenarios relevant to the Phase 2b samples are defined by the CSM assessments presented in Section 2.0 of this Technical Memorandum.

Table 3-1 summarizes all Phase 2b sample collection information, including sample types, sample quantities, sample locations, sample dates, and applicable CSM designation. Table 3-1 also presents the 2009 historic Tetra Tech EC sample collection information for the Phase 1 samples that were re-analyzed during the Phase 2b analysis. All Phase 2b field survey documentation is provided in Appendix A. Appendix A1 summarizes field sampling information, Appendix A2 provides core logs, Appendix A3 provides field operation logs, Appendix A4 provides field logs for clam recovery operations, and Appendix A5 provides photographs of sediment core samples.

Table 3-1. Phase 2b and 2009 Historic Tetra Tech EC Station Location Information and Sample Summary

ID	Sample Type	No. of Samples	Easting	Northing	Sample Date	CSM/Area
Phase 2b						
BN101	ROC Core	4	1463270.92	452426.19	1/16/2013	Subtidal
BN102	ROC Core	4	1463297.91	452182.25	1/15/2013	Subtidal
BN103	ROC Core	2	1463215.05	451748.07	1/15/2013	Subtidal
BN104	ROC Core	4	1462936.23	451715.97	1/10/2013	Subtidal
BN105	ROC Core	4	1462620.36	451493.40	1/10/2013	Subtidal
BN106	ROC Core	3	1462122.76	451224.07	1/10/2013	Subtidal
BN107	ROC Core	4	1462608.74	450956.45	1/15/2013	Subtidal
BN108	ROC Core	1	1463011.70	451194.28	1/14/2013	Subtidal
BN109	ROC Core	4	1461749.40	450680.95	1/15/2013	Subtidal
BN110	ROC Core	3	1462329.71	450526.17	1/15/2013	Subtidal
BN111	ROC Core	4	1462142.75	450677.38	1/15/2013	Subtidal
BN201	ROC Core	4	1461843.61	452703.39	2/4/2013	Subtidal
BN202	ROC Core	4	1461947.49	452714.68	2/4/2013	Subtidal
BN203	ROC Core	3	1461981.62	452782.59	1/9/2013	Subtidal
BN204	ROC Core	4	1462138.58	452772.19	1/9/2013	Subtidal
BN205	ROC Core	4	1462181.45	452818.68	1/9/2013	Subtidal
BN206	ROC Core	4	1462298.33	452805.44	1/9/2013	Subtidal
BN207	ROC Core	3	1462398.57	452876.28	1/9/2013	Subtidal
BN208	ROC Core	3	1462504.21	452903.32	1/9/2013	Subtidal
BN209	ROC Core	3	1462609.31	452976.50	1/9/2013	Subtidal
BN210	ROC Core	3	1462727.68	452989.33	1/9/2013	Subtidal
BN211	ROC Core	2	1462321.61	452569.46	1/7/2013	Subtidal
BN212	ROC Core	4	1462462.86	452617.64	1/7/2013	Subtidal
BN213	ROC Core	4	1462568.72	452607.65	1/7/2013	Subtidal
BN214	ROC Core	4	1462599.20	452661.67	1/8/2013	Subtidal
BN215	ROC Core	2	1462680.71	452663.09	1/8/2013	Subtidal
BN216	ROC Core	4	1462665.24	452685.25	1/8/2013	Subtidal
BN217	ROC Core	2	1462877.51	452741.13	1/8/2013	Subtidal
BN218	ROC Core	3	1462951.94	452726.30	1/8/2013	Subtidal
BN219	ROC Core	3	1463002.74	452784.17	1/8/2013	Subtidal

Table 3-1. Phase 2b and 2009 Historic Tetra Tech EC Station Location Information and Sample Summary (Continued)

ID	Sample Type	No. of Samples	Easting	Northing	Sample Date	CSM/Area
BN220	ROC Core	2	1463104.34	452753.63	1/8/2013	Subtidal
BN221	ROC Core	1	1461704.72	451052.71	1/4/2013	Subtidal
BN222	ROC Core	1	1461583.51	451067.26	1/4/2013	Subtidal
BN223	ROC Core	1	1461513.98	451110.52	1/4/2013	Subtidal
BN224	ROC Core	1	1461452.14	451225.26	1/7/2013	Subtidal
BN225	ROC Core	1	1461339.61	451239.64	1/7/2013	Subtidal
BN226	ROC Core	1	1461255.80	451340.85	1/7/2013	Subtidal
BN227	ROC Core	1	1461169.41	451481.57	1/7/2013	Subtidal
BN228	ROC Core	1	1461107.77	451460.95	1/7/2013	Subtidal
BN229	ROC Core	1	1461011.67	451598.22	1/7/2013	Subtidal
BN230	ROC Core	1	1460929.00	451562.84	1/7/2013	Subtidal
BN307	ROC Core	4	1462785.91	452935.36	1/24/2013	Subtidal
BN308	ROC Core	4	1462836.86	452951.96	1/24/2013	Subtidal
BN309	ROC Core	4	1462907.77	452954.19	1/15/2013	Subtidal
BN310	ROC Core	4	1462878.76	453047.03	1/16/2013	Subtidal
BN311	ROC Core	4	1462844.02	453045.90	1/16/2013	Subtidal
BN312	ROC Core	4	1462805.72	452986.57	1/24/2013	Subtidal
BN313	ROC Core	4	1461711.05	450910.54	1/10/2013	Subtidal
BN314	ROC Core	3	1461770.25	450905.12	1/10/2013	Subtidal
BN315	ROC Core	4	1461817.49	450904.79	1/10/2013	Subtidal
BN316	ROC Core	4	1461790.77	450870.11	1/15/2013	Subtidal
BN317	ROC Core	4	1461769.40	450814.09	1/10/2013	Subtidal
BN318	ROC Core	4	1461714.56	450868.58	1/14/2013	Subtidal
BS101	ROC Core	4	1461496.55	450452.28	1/23/2013	Subtidal
BS102	ROC Core	4	1461744.73	450058.26	1/23/2013	Subtidal
BS103	ROC Core	4	1462052.22	449906.48	1/31/2013	Subtidal
BS104	ROC Core	4	1462432.93	449605.74	1/16/2013	Subtidal
BS105	ROC Core	1	1462615.10	449115.32	1/16/2013	Subtidal
BS106	ROC Core	4	1462306.80	448887.14	1/16/2013	Subtidal
BS107	ROC Core	4	1461979.85	449079.37	1/16/2013	Subtidal
BS108	ROC Core	4	1461612.97	449372.56	1/16/2013	Subtidal
BS109	ROC Core	4	1462349.08	448539.71	1/17/2013	Subtidal
BS110	ROC Core	4	1462699.75	448230.45	1/17/2013	Subtidal
BS111	ROC Core	4	1462565.35	447921.13	1/17/2013	Subtidal

Table 3-1. Phase 2b and 2009 Historic Tetra Tech EC Station Location Information and Sample Summary (Continued)

ID	Sample Type	No. of Samples	Easting	Northing	Sample Date	CSM/Area
BS112	ROC Core	4	1462236.81	454367.84	1/17/2013	Subtidal
BS113	ROC Core	4	1462037.49	448461.52	1/17/2013	Subtidal
BS114	ROC Core	4	1461587.07	448797.64	1/17/2013	Subtidal
BS115	ROC Core	4	1461386.62	448319.68	1/22/2013	Subtidal
BS116	ROC Core	4	1461901.29	448110.96	1/22/2013	Subtidal
BS117	ROC Core	4	1462036.91	447898.85	1/22/2013	Subtidal
BS118	ROC Core	4	1462307.00	447634.90	1/17/2013	Subtidal
BS119	ROC Core	4	1462135.04	447547.26	1/17/2013	Subtidal
BS120	ROC Core	4	1461738.01	447731.80	1/22/2013	Subtidal
BS121	ROC Core	4	1461423.84	447985.09	1/22/2013	Subtidal
BS122	ROC Core	4	1461236.82	448255.28	1/22/2013	Subtidal
BS123	ROC Core	4	1461064.22	448014.10	1/22/2013	Subtidal
BS124	ROC Core	4	1460786.56	447799.90	1/23/2013	Subtidal
BS125	ROC Core	4	1461120.63	447480.65	1/23/2013	Subtidal
BS126	ROC Core	4	1461480.05	447611.28	1/22/2013	Subtidal
BS127	ROC Core	4	1461510.72	447359.38	1/23/2013	Subtidal
BS128	ROC Core	4	1461512.76	447074.05	1/23/2013	Subtidal
BS129	ROC Core	4	1461841.20	447004.40	1/24/2013	Subtidal
BS130	ROC Core	4	1461856.45	447237.78	1/23/2013	Subtidal
SA410	ROC Core	4	1461704.13	453640.93	1/29/2013	Subtidal
SA411	ROC Core	4	1461871.98	453790.56	1/29/2013	Subtidal
SA412	ROC Core	4	1461866.52	453685.66	1/29/2013	Subtidal
SA413	ROC Core	4	1461634.96	453774.63	1/30/2013	Subtidal
SA414	ROC Core	4	1461549.65	453775.72	1/30/2013	Subtidal
SA415	ROC Core	1	1461441.88	453714.13	1/30/2013	Subtidal
SA416	ROC Core	3	1461655.79	453925.36	1/30/2013	Subtidal
SA417	ROC Core	2	1461701.34	453549.33	1/30/2013	Subtidal
SA418	ROC Core	4	1461563.19	453875.00	1/30/2013	Subtidal
SA419	ROC Core	3	1461569.32	453964.71	1/30/2013	Subtidal
SA420	ROC Core	4	1460664.62	454190.92	1/30/2013	Subtidal
SA421	ROC Core	4	1460680.52	454142.04	1/30/2013	Subtidal
SA422	ROC Core	4	1460648.44	454153.00	1/31/2013	Subtidal
SA426	ROC Core	4	1460666.42	454160.53	1/30/2013	Subtidal
SB101	ROC Core	4	1458573.43	449132.70	1/31/2013	Intertidal

Table 3-1. Phase 2b and 2009 Historic Tetra Tech EC Station Location Information and Sample Summary (Continued)

ID	Sample Type	No. of Samples	Easting	Northing	Sample Date	CSM/Area
SB102	ROC Core	4	1458790.06	449042.78	2/5/2013	Intertidal
SB103	ROC Core	3	1459945.05	448665.85	2/4/2013	Intertidal
SB104	ROC Core	1	1460731.67	447949.08	1/31/2013	Subtidal
SB105	ROC Core	2	1460138.41	448327.54	1/31/2013	Subtidal
SB106	ROC Core	4	1458654.58	448778.42	1/28/2013	Subtidal
SB107	ROC Core	4	1459414.02	448730.47	1/31/2013	Subtidal
SB108	ROC Core	4	1456764.27	449682.45	1/28/2013	Intertidal
SB201	ROC Core	4	1456513.13	450261.71	1/14/2013	Intertidal
SB202	ROC Core	4	1456737.31	450621.41	1/14/2013	Intertidal
SB203	ROC Core	4	1456988.34	450877.38	1/14/2013	Intertidal
SB204	ROC Core	4	1457078.86	451063.73	1/14/2013	Intertidal
SB205	ROC Core	4	1457191.73	450777.40	1/14/2013	Intertidal
SB206	ROC Core	4	1457375.67	450861.72	1/24/2013	Intertidal
SB207	ROC Core	4	1457611.72	450755.63	1/25/2013	Intertidal
SB208	ROC Core	4	1457400.61	450566.83	1/25/2013	Intertidal
SB209	ROC Core	4	1457292.12	450374.16	1/25/2013	Intertidal
SB210	ROC Core	4	1457076.28	450309.90	1/25/2013	Intertidal
SB211	ROC Core	4	1456941.89	450100.14	1/25/2013	Intertidal
SB212	ROC Core	4	1457084.91	449971.02	1/25/2013	Intertidal
SB213	ROC Core	3	1457596.77	450178.07	1/28/2013	Intertidal
SB214	ROC Core	2	1457668.83	450357.51	1/28/2013	Intertidal
SB215	ROC Core	3	1457761.39	449899.80	1/28/2013	Intertidal
SB216	ROC Core	4	1457642.20	449726.16	1/28/2013	Intertidal
SB217	ROC Core	4	1457480.20	449726.37	1/28/2013	Intertidal
SB218	ROC Core	4	1457903.80	449619.55	1/28/2013	Intertidal
SB219	ROC Core	1	1458146.29	449376.76	1/31/2013	Intertidal
SB232	ROC Core	4	1456884.15	450875.22	2/4/2013	Intertidal
SB233	ROC Core	4	1456891.84	450849.57	2/5/2013	Intertidal
SB234	ROC Core	4	1456855.95	450815.09	2/4/2013	Intertidal
SB238	ROC Core	4	1457020.26	450954.43	1/25/2013	Intertidal
SB239	ROC Core	4	1456826.21	450678.50	1/24/2013	Intertidal
SB240	ROC Core	4	1456716.58	450525.31	1/24/2013	Intertidal
SB241	ROC Core	4	1456640.83	450474.63	1/24/2013	Intertidal
SB242	ROC Core	4	1456684.99	450584.82	1/24/2013	Intertidal

Table 3-1. Phase 2b and 2009 Historic Tetra Tech EC Station Location Information and Sample Summary (Continued)

ID	Sample Type	No. of Samples	Easting	Northing	Sample Date	CSM/Area
SB243	ROC Core	4	1456748.50	450698.27	1/24/2013	Intertidal
SB244	ROC Core	4	1456846.34	450744.87	1/24/2013	Intertidal
SB245	ROC Core	4	1456924.93	450936.92	1/25/2013	Intertidal
SB246	ROC Core	4	1456867.61	450867.66	2/5/2013	Intertidal
SB02A-TS	Clams	3[(b)]	1459099.48	448674.23	2/5/2013[(a)]	NA – Parcel F
SB05A-TS	Clams	3[(b)]	1458056.73	449575.22	2/6/2013[(a)]	NA – Parcel F
SB07A-TS	Clams	3[(b)]	1457257.57	450598.83	2/6/2013[(a)]	NA – Parcel F
BS09A-TS	Clams	3[(b)]	1461382.69	448582.58	2/5/2013[(a)]	NA – Parcel F
BN11A-TS	Clams	3[(b)]	1463118.63	451991.57	2/5/2013[(a)]	NA – Parcel F
RP01A-TS	Clams	1[(c)]	1433475.13	515253.38	2/4/2013[(a)]	NA – Ref (Paradise Cove)
RP02A-TS	Clams	1[(c)]	1432826.73	515528.01	2/4/2013[(a)]	NA – Ref (Paradise Cove)
RP03A-TS	Clams	0[(e)]	1434154.25	515755.11	2/4/2013[(a)]	NA – Ref (Paradise Cove)
RY01A-TS	Clams	1[(d)]	1458180.17	429469.22	2/4/2013[(a)]	NA – Ref (Oyster Point)
RY02A-TS	Clams	1[(d)]	1460310.00	429809.12	2/4/2013[(a)]	NA – Ref (Oyster Point)
RY03A-TS	Clams	1[(d)]	1461558.01	432151.55	2/4/2013[(a)]	NA – Ref (Oyster Point)
SB02A-VV	Grab	1	1459099.48	448674.23	12/19/2012	NA – Parcel F
SB05A-VV	Grab	1	1458056.73	449575.22	12/19/2012	NA – Parcel F
SB07A-VV	Grab	1	1457257.57	450598.83	1/3/2013	NA – Parcel F
BS09A-VV	Grab	1	1461382.69	448582.58	1/3/2013	NA – Parcel F
BN11A-VV	Grab	1	1463118.63	451991.57	1/3/2013	NA – Parcel F
RP01A-VV	Grab	1	1433475.13	515253.38	12/18/2012	NA – Ref (Paradise Cove)
RP02A-VV	Grab	1	1432826.73	515528.01	12/18/2012	NA – Ref (Paradise Cove)
RP03A-VV	Grab	1	1434154.25	515755.11	12/18/2012	NA – Ref (Paradise Cove)
RY01A-VV	Grab	1	1458180.17	429469.22	12/18/2012	NA – Ref (Oyster Point)
RY02A-VV	Grab	1	1460310.00	429809.12	12/18/2012	NA – Ref (Oyster Point)
RY03A-VV	Grab	1	1461558.01	432151.55	12/18/2012	NA – Ref (Oyster Point)
BN312-SF	Sedflume	1	1462805.72	452986.57	2/11/2013	NA – Parcel F
BN316-SF	Sedflume	1	1461790.77	450870.11	2/11/2013	NA – Parcel F
BS04-SF	Sedflume	1	1462498.90	449140.08	2/11/2013	NA – Parcel F
BN312-SF	Handling Core	2	1462805.72	452986.57	2/11/2013	NA – Parcel F
BN316-SF	Handling Core	2	1461790.77	450870.11	2/11/2013	NA – Parcel F
BS04-SF	Handling Core	2	1462498.90	449140.08	2/11/2013	NA – Parcel F
BN312-GC	Age Dating Core	15	1462805.72	452986.57	2/4/2013	NA – Parcel F
BS04-GC	Age Dating Core	15	1462498.90	449140.08	2/4/2013	NA – Parcel F

Table 3-1. Phase 2b and 2009 Historic Tetra Tech EC Station Location Information and Sample Summary (Continued)

ID	Sample Type	No. of Samples	Easting	Northing	Sample Date	CSM/Area
2009 Historic TTEC Phase 1 Samples for Phase 2b Re-Analysis						
BN01	Core	1	1462003.60	453314.70	2/20/2009	Intertidal
BS12	Core	2	1460908.50	448154.30	2/21/2009	Intertidal
SA01	Core	1	1459808.70	454133.10	2/20/2009	Intertidal
SB04	Core	2	1458410.20	449170.60	2/21/2009	Intertidal
SB05	Core	2	1458055.20	449572.50	2/21/2009	Intertidal
SB06	Core	1	1457702.40	450105.20	2/21/2009	Intertidal
SB07	Core	1	1457256.50	450601.60	2/21/2009	Intertidal
SB10	Core	1	1456491.80	450347.10	2/21/2009	Intertidal

(a) Clam recovery date.
(b) Three clam replicates averaged to create one composite sample for station ID.
(c) Single clam samples from these stations averaged to create one composite sample for the Paradise Cove reference area.
(d) Single clam samples from these stations averaged to create one composite sample for the Oyster Point reference area.
(e) Clam sample not successfully recovered.
BN = Berths North
BS = Berths South
CSM = conceptual site model
GC = geochronology
NA = not applicable
ROC = radionuclide of concern
RP = Paradise Cove reference area
RY = Oyster Point reference area
SA = Submarine Area
SB = South Basin
SF = sedflume
TTEC = Tetra Tech

3.1.1. Sediment Radionuclide Sampling

Sediment Cores. The ROC activity in Parcel F sediments was evaluated during the Phase 2b investigation by performing sediment sampling and subsequent radiological analysis intended to characterize the horizontal and vertical distributions of the six ROCs in offshore sediments. A total of 136 analytical sediment cores were collected for ROC analysis during the Phase 2b sampling effort (Table 3-1). This total included 53 cores from the Berths North Area, 30 cores from the Berths South Area, 39 cores from the South Basin Area, and 14 cores from the Submarine Area. An additional 33 sediment cores were also collected for quality control (QC) matrix spike/matrix spike duplicate (MS/MSD) and geotechnical analyses. These totals do not include five additional cores collected for sedflume and age dating analysis (see Section 3.1.3).

The Phase 2b core locations were distributed horizontally within the study areas based on historical use information from the HRA (NAVSEA, 2004) and statistical assessments performed on Phase 1 sample results. In general, cores were distributed in a denser pattern within areas of concern (i.e., locations with potentially elevated ROC activities based on Phase 1 results) and a less-dense pattern for "confirmation sampling" in areas where low ROC activity was measured during Phase 1. The locations of the Phase 2b sediment cores for the Berths North Area, Berths South Area, South Basin Area, and Submarine Area are shown on Figures 3-1, 3-2, 3-3, and 3-4, respectively.

All sediment cores were targeted for a length of 4 feet, although some were shorter due to refusal. Following recovery, each core was segmented into approximately 1-foot increments for subsampling as illustrated on Figure 3-5. Depending on the overall length of the core, each analytical core produced up to four discrete sediment samples. In total, the 136 analytical cores collected during the Phase 2b investigation generated 468 discrete sediment samples for ROC analysis (Table 3-1). This total included 159 samples from the Berths North Area, 117 samples from the Berths South Area, 143 samples from the South Basin Area, and 49 samples from the Submarine Area. The additional 33 QC cores generated 166 discrete sediment samples for MS/MSD and geotechnical analysis. These totals do not include 36 additional samples collected for sedflume and age dating analysis (see Section 3.1.3).

All sediment samples were sent to Test America, Inc., for radiological and/or geotechnical analysis. The radiological analysis included the six primary ROCs identified for Parcel F, as well as 13 of 14 secondary ROCs listed in Table 3-1 of the Final DGI Work Plan (Battelle et al., 2011). Thorium-230 was the one secondary ROC identified in the Final DGI Work Plan that was not included in the analytical suite for sediment during the Phase 2b analysis because this radionuclide was not supported by the analytical methods for sediment listed in Worksheet 19 of the approved SAP. As Thorium-230 was not a primary ROC for Parcel F, and thus would not be included in the statistical analysis, this omission was considered negligible to the overall Phase 2b risk evaluation.

Sediment Re-analysis. In addition to the sediment sampling described above, the Phase 2b sediment ROC evaluation also included re-analysis of archived 2009 Phase 1 samples that were found to contain Ra-226 concentrations exceeding the PAL. The 15 individual Phase 1 samples identified in Table 3-9 of the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013) as having Ra-226 exceedances were analyzed at the New World Technology (NWT) on-site radiological laboratory at HPNS. As part of the Phase 1 Work Plan, 10 percent of all Phase 1 samples were also analyzed by Test America, Inc., for quality assurance confirmation. Comparative results showed that mean Ra-226 values from the NWT laboratory were approximately three times greater than mean values reported by Test America, Inc. It was suspected that peak overlap from U-235 was measured as part of the Ra-226 peak results at NWT, in turn causing the higher levels of Ra-226 recorded for the site samples. As a result of

this uncertainty, archived Phase 1 samples were re-analyzed for the purposes of confirming or rejecting these exceedances and determining the need for potential step-out sampling.

Of the 15 individual Phase 1 samples identified in Table 3-9 of the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013), only 11 had sufficient archived volume to perform the re-analysis. These 11 archived samples were sent to Test America, Inc. along with the Phase 2b core samples for the same radiological analysis described above. No Phase 2b sampling was performed at the specific Phase 1 locations that were lacking sufficient archived sample volume (i.e., the Phase 1 locations were not re-occupied). Instead, re-analysis for these four samples was addressed by using the mean data from planned Phase 2b samples immediately surrounding the original Phase 1 locations.

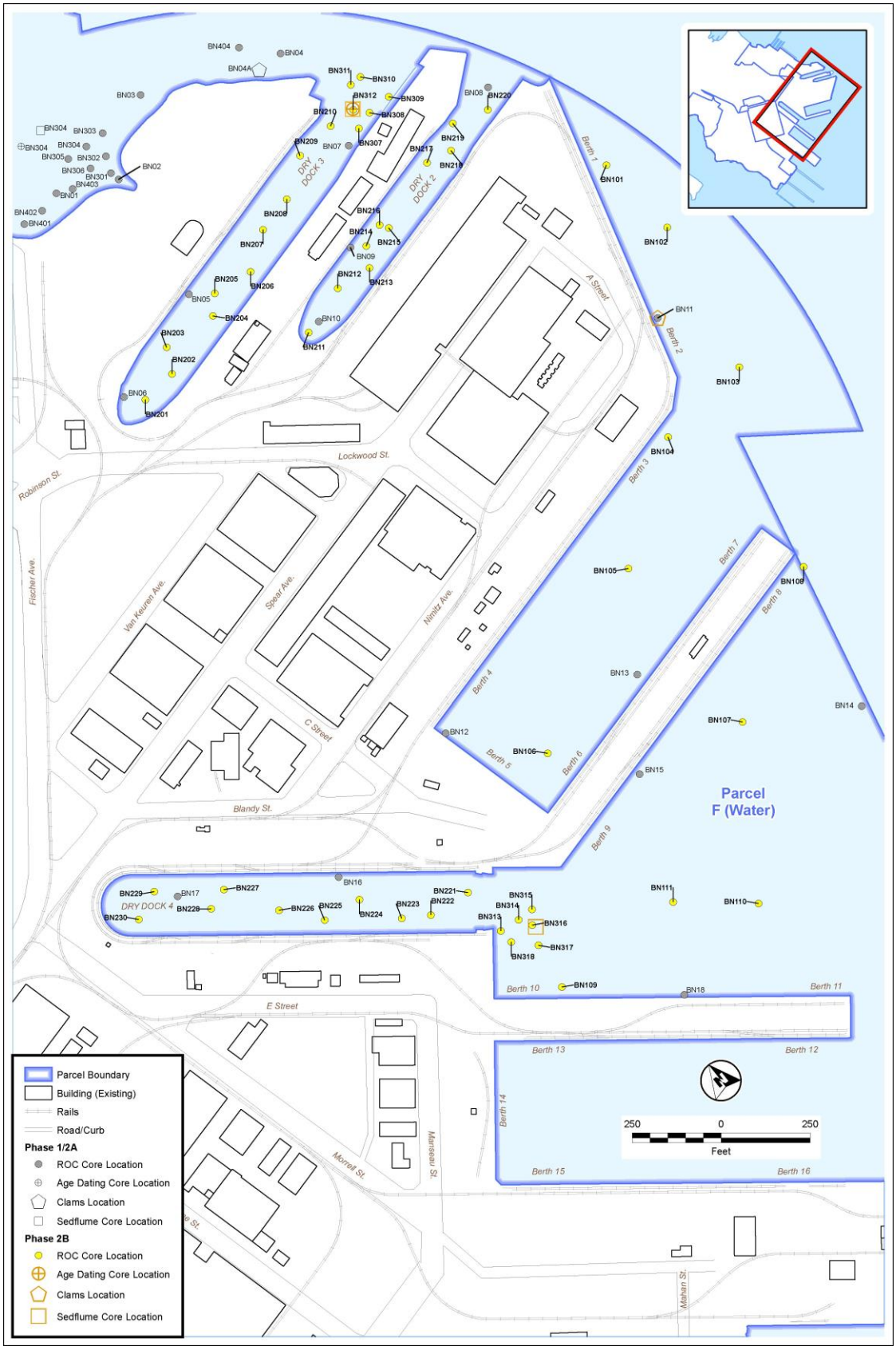

Figure 3-1. HPNS Parcel F DGI Phase 2b Sampling Location Map for the Berths North Area

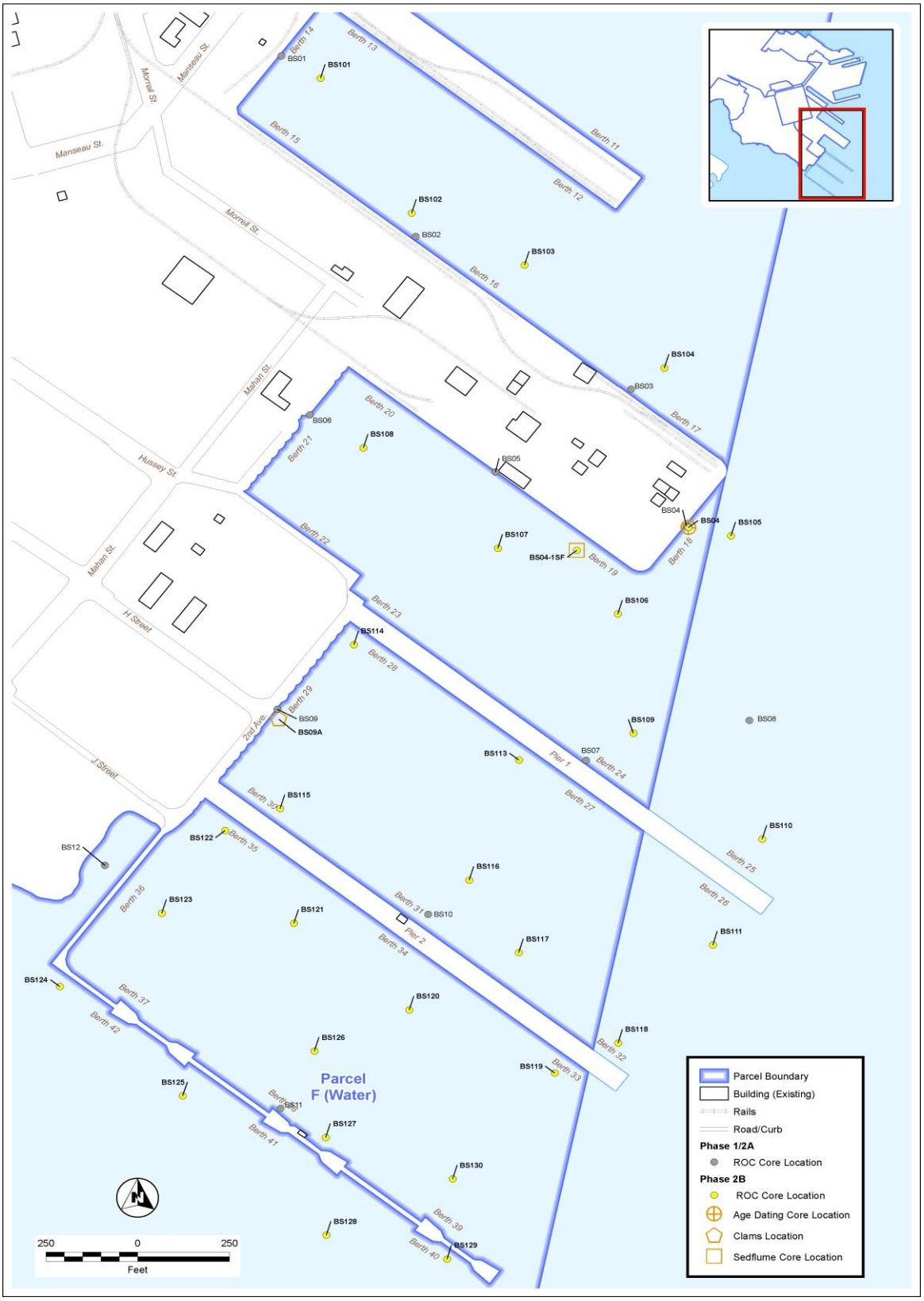

Figure 3-2. HPNS Parcel F DGI Phase 2b Sampling Location Map for the Berths South Area

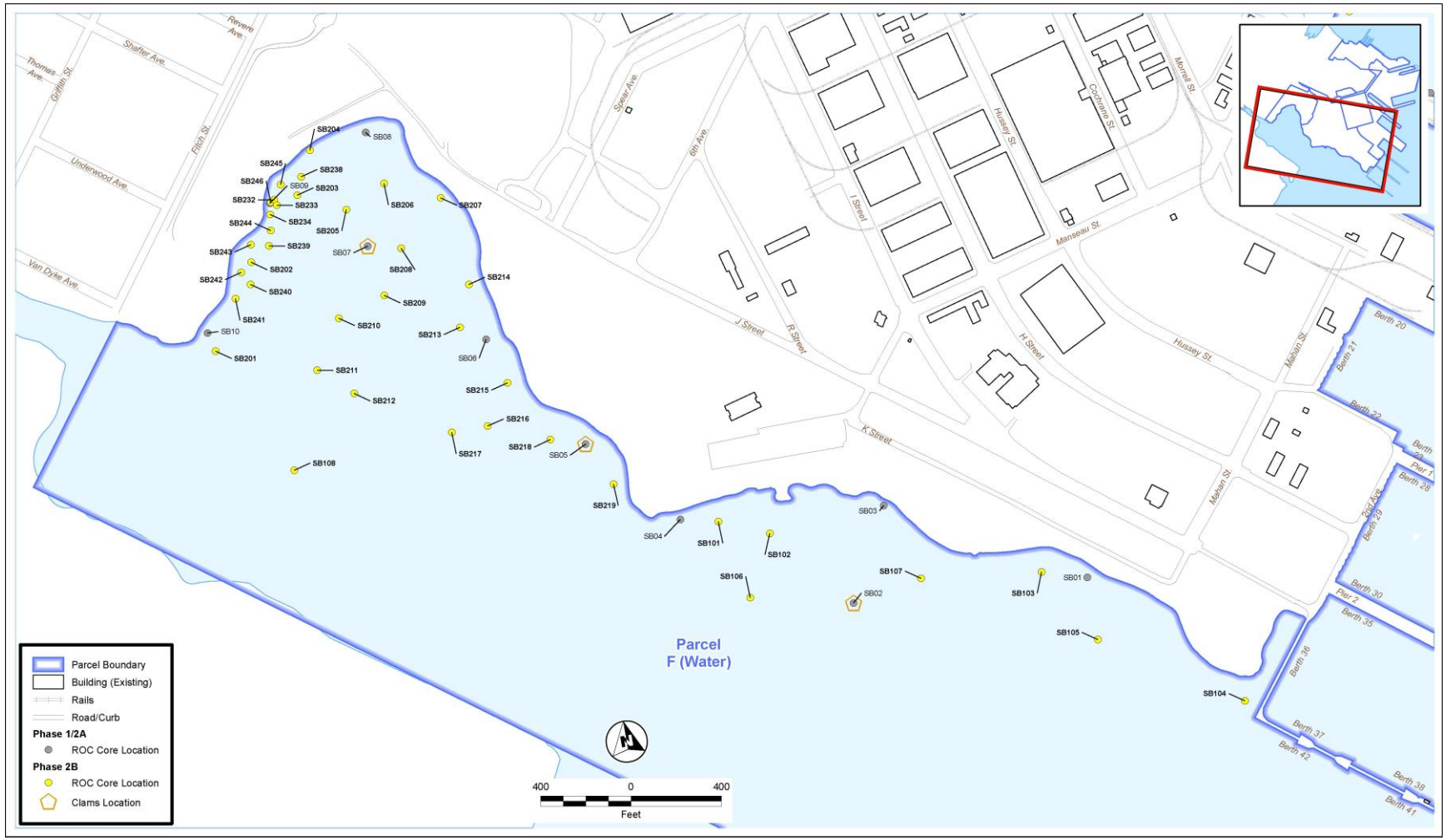

Figure 3-3. HPNS Parcel F DGI Phase 2b Sampling Location Map for the South Basin Area

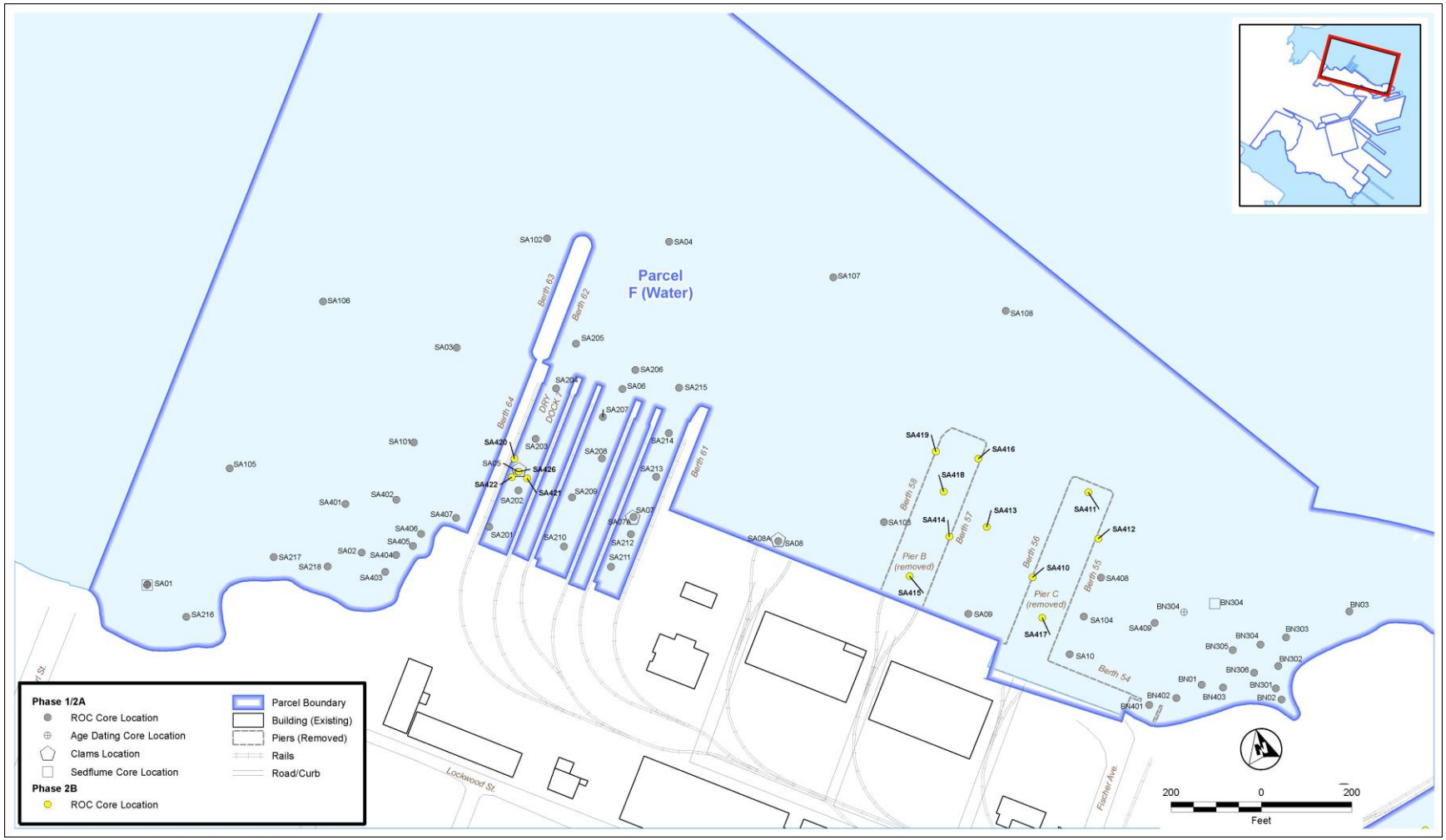

Figure 3-4. HPNS Parcel F DGI Phase 2b Sampling Location Map for the Submarine Area

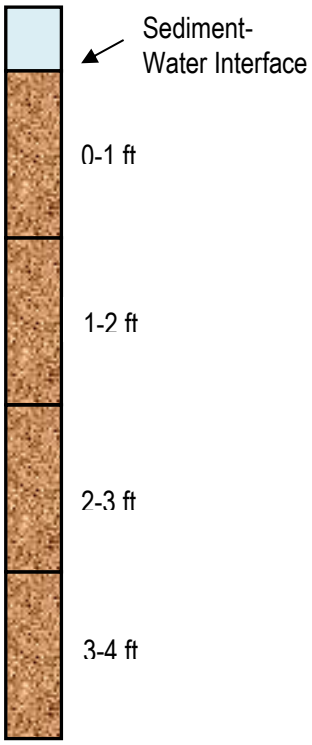

Figure 3-5. Core Segment Schematic

3.1.2. Clam Tissue Radionuclide Sampling

Clam ROC exposure and bioaccumulation in Parcel F were evaluated during the Phase 2b investigation by deploying test clams in both Parcel F and two reference areas and analyzing resulting tissue ROC concentrations in response to exposure to potential ROCs in site sediments. The bivalve mollusk *Macoma nasuta* was used for this investigation because it is native to San Francisco Bay and commonly serves as a test organism in marine sediment bioaccumulation studies. Clams were deployed at a total of 11 locations during the Phase 2b sampling effort including five stations in Parcel F (BN11A, BS09A, SB02A, SB05A, and SB07A), three stations in the Paradise Cove reference area (RP01A, RP02A, and RP03A), and three stations in the Oyster Point reference area (RY01A, RY02A, and RY03A). The Phase 2b clam deployment sites in Parcel F were selected to cover the Berths North, Berths South, and South Basin areas that were not covered by the Phase 2a clam deployments. The Phase 2b clam deployment reference sites were selected to cover a broader range of particle size and geographical locations than were covered by Phase 2a. The locations of all Phase 2b clam deployments in Parcel F are shown on Figures 3-1 through 3-4, and the locations of the Phase 2b clam deployment reference sites are shown on Figure 1-2.

The Phase 2b clam sampling effort was completed following project-specific Standard Operating Procedure HPS 001-01, which is described in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013). All test clams were acquired from a commercial supplier and were

suspended in mesh bags in the water column for approximately 24 hours prior to deployment to allow culling of organisms injured during shipping. Three replicate cages of approximately 40 test clams each then were deployed at each of the 5 clam sampling locations in Parcel F, and single cages of approximately 40 test clams each were deployed at each of the 6 clam sampling reference locations (for a total of 21 cages). Upon reaching each clam sampling location, sediment from the location was collected using a modified Van Veen grab sampler. The individual cages were then lined with nylon mesh on the bottom, filled with the site sediment, covered with a Vexar® mesh, and deployed by gently lowering the cages until they contacted the seafloor. A weighted tag line was attached to the cage for use in retrieval via dragging a grapnel hook.

All cages were allowed to soak for 55 to 57 days prior to recovery. After recovery, sediment was rinsed off the clams with site water and the combined organisms from each cage were placed into labeled food-grade, polyethylene zip-lock bags and stored on ice for shipment to the analytical laboratory as a single sample for that cage. The single clam cage deployed at reference location RP03A in Paradise Cove could not be recovered. A total of 20 individual clam tissue field samples were sent to Test America, Inc., for radiological analysis.

At the laboratory, all tissue from the clams was homogenized (i.e., no gut material was separated from the tissue samples) for ROC analysis. The recovered clams were not allowed to purge their gut prior to laboratory processing to allow for a conservative risk assessment by including sediment contained in the gut as part of the overall tissue exposure. Clam samples from the three replicate cages for each Parcel F location were intended to be combined at the laboratory to form a single composite sample for that individual location (e.g., BN11A) prior to analysis. In addition, the three single cages from each reference area were intended to be combined at the laboratory to form a single composite sample for that reference area as a whole (e.g., Paradise Cove) prior to analysis. However, all replicate clam samples were analyzed individually. One zero time clam sample (i.e., not exposed source tissue) was also sent to Test America, Inc., for QC radiological analysis.

The radiological analysis performed on the clam tissue samples consisted of the 6 primary ROCs identified for Parcel F, as well as 12 of 14 secondary ROCs listed in Table 3-1 of the Final DGI Work Plan (Battelle et al., 2011). Thorium-230 and Lead-210 (Pb-210) were the two secondary ROCs identified in the Final DGI Work Plan that were not included in the analytical suite for tissue during the Phase 2b analysis. Thorium-230 was not included because this radionuclide was not supported by the analytical methods for tissue listed in Worksheet 19 of the approved SAP. Lead-210 was not included because the standard calibration used by Test America, Inc., for the approved tissue analytical method (EPA 901.1 Modified for Tissue) does not include Pb-210. As neither Thorium-230 nor Pb-210 were primary ROCs for Parcel F, and thus would not be included in the statistical analysis, these omissions were considered negligible to the overall Phase 2b bioaccumulation results.

A single surface sediment sample from the Van Veen sediment grab at each clam deployment location also was sent to Test America, Inc., for radiological analysis for the purposes of quantifying local sediment ROC concentrations as a parameter in the bioaccumulation calculations. These 11 total sediment samples were analyzed for the same radionuclides as the clam tissue samples.

3.1.3. Sediment Stability Sampling

Sediment stability in Parcel F was evaluated during the Phase 2b investigation by collecting sedflume cores to characterize sediment erosion rates and collecting geochronology cores for sediment age dating. No water column velocity data were collected as part of the Phase 2b investigation.

Sedflume Sampling. Sedflume cores were collected from three locations in Parcel F (BN312-SF, BN316-SF, and BS04-SF) approximately two-and-a-half weeks after the radiological cores. The planned core location for BS04 was moved inshore to Berth 19 because water depth and currents were prohibitive to sample collection at the originally intended location. Concurrent with sedflume core collection, a separate additional sediment handling core also was collected immediately upstream (i.e., toward the shore) of each sedflume location for radiological analysis to determine if the sedflume cores were safe to release to the sedflume contractor, Sea Engineering, Inc. (SEI). These handling cores were targeted for a length of 2 feet and were segmented into approximately 1-foot increments for subsampling (i.e., two samples total per core). As a result, six sedflume handling samples were sent to Test America, Inc., for radiological analysis. Both the sedflume cores and the handling cores were different from the analytical radiological cores collected at locations BN312-SF, BN316-SF, and BS04-SF.

Analytical results indicated that samples from handling core BN316-SF exceeded the revised soil release criterion for Cs-137 (0.113 pCi/g) at HPNS. This release limit was taken from the Final Basewide Radiological Removal Action Memorandum (DON, 2006). Soil release criteria were used as the release limits for the sedflume cores because no sediment-specific release criteria exist for HPNS. The soil release limit for Cs-137 was approximately one order of magnitude more conservative (i.e., lower) than the lowest sediment PAL developed for Parcel F (1.28 pCi/g). Thus, it was possible for sediments from location BN316-SF to exceed the release criteria for sedflume analysis while simultaneously failing to exceed the PALs for human health and biota risk at the site.

Given that the Cs-137 activity in the BN316-SF handling core exceeded the applicable release criterion, the associated sedflume core from this location could not be released to SEI because this contractor did not possess the applicable radioactive materials handling license required to remove radioactive material from HPNS. Only the remaining sedflume cores (BN312-SF and BS04-SF) were sent to SEI for sedflume analysis. The resulting data were used to characterize erosion rates and sediment stability with depth (i.e., to determine the critical shear stresses needed to cause sediment resuspension). Particle size distribution and bulk density also were measured. The combined data were used to estimate the potential for resuspension of sediment under typical and extreme hydrodynamic conditions.

Geochronology Sampling. Geochronology cores for sediment age dating were collected from two locations in Parcel F (BN312-GC and BS04-GC) approximately one-and-a-half weeks after the radiological cores. Each of these cores was segmented into 15, 2-centimeter increments for subsampling. As a result, 30 total age dating sediment samples were sent to Test America, Inc., for radiological and bulk density analysis. The radiological analysis performed on the age dating samples was limited to Pb-210 and Cs-137 because these isotopes are relatively common in San Francisco Bay sediments and have half-lives such that they can be used to determine sediment age over years or decades. The radiological results were then sent to Core Scientific International (Core Scientific) for age dating analysis.

3.2. Sediment Radionuclide Results

This section presents the results of the Phase 2b sediment radionuclide sampling described in Section 3.1.1. Although all Phase 2b sediment samples were also analyzed for other radionuclides, only data for the six primary ROCs identified for Parcel F are presented and evaluated in this Technical Memorandum. These ROCs were the only radionuclides for which site-specific PALs were developed such that screening was applicable.

Raw analytical data for all sediment samples and corresponding laboratory reports are provided in Appendix B. Summary statistics for Phase 2b sediment ROC data are provided in Table 3-2 (all Phase 2b

and 2009 re-analysis data combined), Table 3-3 (all Phase 2b and 2009 re-analysis data separated by depth interval), and Table 3-4 (all Phase 2b and 2009 re-analysis data separated by CSM). All 2009 re-analysis data were grouped under the intertidal CSM for these tables.

Although no new reference area sediment ROC data were collected during the Phase 2b field effort, the existing reference data are still relevant to the overall Phase 2b investigation as a point of comparison for the Phase 2b results. As a result, the Phase 2a reference data presented in Appendix B1 of the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013) are included in this report. Summary statistics for the Phase 2a reference sediment ROC data are provided in Table 3-5 (all Phase 2a reference data combined) and Table 3-6 (all Phase 2a reference data separated by depth interval).

All ROC data were subjected to verification and validation by ITSI Gilbane. The resulting Quality Control Summary Report (QCSR) is provided in Appendix E. The data generated in support of the Phase 2b investigation met the project data quality indicators. Overall, as shown in the attached QCSR validation reports, there were minor quality control deficiencies affecting the data. The data that were qualified as estimated or not detected are of acceptable quality and should be considered usable for their intended purposes. The rejected data, while not useable, are a very small percentage of the total data and thus are of minimal impact to the project.

All validated data qualifiers are presented in Appendix B. These qualifiers were considered for all summary statistics presented in the tables listed above. Following the precedent established in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013), any Phase 2b analytical result that was qualified as non-detect (i.e., assigned a "U" or "UJ" qualifier) was replaced by the laboratory MDL in the statistical data set. This conservative approach was recommended by the Navy, has been used previously in other HPNS studies, and is also a commonly accepted practice for the statistical analysis of analytical chemistry data. However, it is acknowledged that this approach will slightly raise the average (mean) of ROC concentrations for a data set that includes several non-detect results.

All rejected data (i.e., assigned an "R" qualifier) were considered unusable and were removed from the statistical data set. All other qualified data were used as reported in the statistical data set. Validated data qualifiers for the Phase 2b and Phase 2a re-analysis analytical results were defined as follows:

- U = not detected,
- J = estimated value,
- UJ = not detected at the estimated reporting limit, and
- R = rejected data.

Table 3-2. Sediment Radionuclide Data Summary Statistics – All Parcel F Phase 2b and Phase 1 Re-Analysis Data Combined

Radionuclide	No. of Samples	No. Detected	Percent Detected	Min (pCi/g)	Mean (pCi/g)	SD (pCi/g)	Max (pCi/g)	Area of Max	Station of Max
Cesium-137	479	407	85	0.0111	0.0957	0.0441	0.2410	South Basin	SB201
Cobalt-60	479	23	5	0.0070	0.0222	0.0066	0.0576	Berths North	BN111
Plutonium-239	479	101	21	0.0085	0.0209	0.0123	0.1030[(a)]	South Basin	SB10
Radium-226	479	479	100	0.2440	0.5411	0.0714	0.7850	Berths North	BN203
Strontium-90	457	73	16	0.0655	0.1718	0.0829	0.8170[(a)]	Berths North	BN210
Uranium-235	479	266	56	0.0548	0.1346	0.0462	0.3520	South Basin	SB218

(a) Maximum concentration equals the method detection limit substituted for a non-detect result.
pCi/g = picocuries per gram
SD = standard deviation

Table 3-3. Sediment Radionuclide Data Summary Statistics – All Parcel F Phase 2b and Phase 1 Re-Analysis Stations by Depth Interval

Radionuclide	Depth (feet)	No. of Samples	No. Detected	Percent Detected	Min (pCi/g)	Mean (pCi/g)	SD (pCi/g)	Max (pCi/g)	Area of Max	Station of Max
Cesium-137	0 - 1	116	114	98	0.0124	0.1038	0.0347	0.1950	Berths North	BN230
	1 - 2	117	105	90	0.0128	0.0970	0.0426	0.2410[(a)]	Berths North	BN230
	2 - 3	122	98	80	0.0140	0.0929	0.0465	0.1830	Berths South	BS123
	3 - 4	124	90	73	0.0111	0.0896	0.0498	0.1960	Submarine Area	SA417
Cobalt-60	0 - 1	116	7	6	0.0102	0.0226	0.0075	0.0576	Berths North	BN111
	1 - 2	117	9	8	0.0131	0.0221	0.0056	0.0350	Submarine Area	SA414
	2 - 3	122	2	2	0.0070	0.0212	0.0057	0.0349[(a)]	Berths North	BN211
	3 - 4	124	5	4	0.0085	0.0231	0.0073	0.0494	South Basin	SB218
Plutonium-239	0 - 1	116	29	25	0.0085	0.0229	0.0152	0.0861	Berths North	BN223
	1 - 2	117	22	19	0.0093	0.0204	0.0103	0.0721[(a)]	South Basin	SB05
	2 - 3	122	26	21	0.0092	0.0202	0.0101	0.0772[(a)]	Submarine Area	SA01
	3 - 4	124	24	19	0.0096	0.0202	0.0130	0.0103[(a)]	South Basin	SB10
Radium-226	0 - 1	116	116	100	0.2880	0.5292	0.0669	0.7160	South Basin	SB04
	1 - 2	117	117	100	0.2440	0.5369	0.0759	0.7850	Berths North	BN203
	2 - 3	122	122	100	0.3560	0.5492	0.0710	0.7650	South Basin	SB04
	3 - 4	124	124	100	0.3110	0.5480	0.0706	0.7830	South Basin	SB05
Strontium-90	0 - 1	110	20	18	0.110	0.1656	0.0625	0.3920	Berths North	BN102
	1 - 2	113	19	17	0.0961	0.1681	0.0777	0.7540	South Basin	SB204
	2 - 3	116	21	18	0.0655	0.1843	0.1115	0.8170[(a)]	Berths North	BN210
	3 - 4	118	13	11	0.0768	0.1687	0.0702	0.5020[(a)]	South Basin	SB217
Uranium-235	0 - 1	116	64	55	0.0655	0.1356	0.0483	0.3270	Berths South	BS108
	1 - 2	117	64	55	0.0548	0.1329	0.0452	0.3310	South Basin	SB238
	2 - 3	122	68	56	0.0634	0.1313	0.0462	0.2890	Berths North	BN218
	3 - 4	124	70	56	0.0691	0.1385	0.0455	0.3520	South Basin	SB218

(a) Maximum concentration equals the method detection limit substituted for a non-detect result.
pCi/g = picocuries per gram
SD = standard deviation

Table 3-4. Sediment Radionuclide Data Summary Statistics – All Parcel F Phase 2b and Phase 1 Re-Analysis Stations by CSM Location

Radionuclide	CSM	No. of Samples	No. Detected	Percent Detected	Min (pCi/g)	Mean (pCi/g)	SD (pCi/g)	Max (pCi/g)	Area of Max	Station of Max
Cesium-137	Intertidal	143	77	54	0.0111	0.0558	0.0451	0.2410	South Basin	SB201
	Subtidal	336	330	98	0.0128	0.1127	0.0307	0.1960	Submarine Area	SA417
Cobalt-60	Intertidal	143	5	3	0.0093	0.0224	0.0066	0.0494[(a)]	South Basin	SB218
	Subtidal	336	18	5	0.0070	0.0222	0.0066	0.0576	Berths North	BN111
Plutonium-239/240	Intertidal	143	12	8	0.0086	0.0203	0.0160	0.1030[(a)]	South Basin	SB10
	Subtidal	336	89	26	0.0085	0.0212	0.0104	0.0861[(a)]	Berths North	BN223
Radium-226	Intertidal	143	143	100	0.3300	0.5564	0.0754	0.7830	South Basin	SB05
	Subtidal	336	336	100	0.2440	0.5345	0.0688	0.7850	Berths North	BN203
Strontium-90	Intertidal	136	24	18	0.0655	0.1800	0.0967	0.7540	South Basin	SB204
	Subtidal	321	49	15	0.0981	0.1683	0.0762	0.8170[(a)]	Berths North	BN210
Uranium-235	Intertidal	143	87	61	0.0548	0.1384	0.0494	0.3520	South Basin	SB218
	Subtidal	336	179	53	0.0676	0.1330	0.0448	0.3270	Berths South	BS108

(a) Maximum concentration equals the method detection limit substituted for a non-detect result.
CSM = conceptual site model
pCi/g = picocuries per gram
SD = standard deviation

Table 3-5. Sediment Radionuclide Data Summary Statistics – Phase 2a Reference Areas – All Locations and Depths Combined

Radionuclide	No. of Samples	No. Detected	Percent Detected	Min (pCi/g)	Mean[(a)] (pCi/g)	SD (pCi/g)	Max (pCi/g)	Area of Max	Station of Max
Cesium-137	69	31	45	0.0214	0.0747	0.0572	0.2130	Bay Farm	RB02
Cobalt-60	69	4	6	0.0081	0.0426	0.0155	0.1030	Paradise Cove	RP03
Plutonium-239/240	69	15	22	0.0089	0.0187	0.0080	0.0527	Bay Farm	RB03
Radium-226	69	69	100	0.2120	0.6039	0.1601	0.9940	Alameda Buoy	RA02
Strontium-90	69	12	17	0.1080	0.1747	0.0391	0.2990	Bay Farm	RB03
Uranium-235	69	22	32	0.1050	0.2342	0.1102	0.6220	Paradise Cove	RP01

(a) Defined as the background level of the radionuclides of concern in San Francisco Bay sediments.
pCi/g = picocuries per gram
SD = standard deviation
Shaded values denote different results from Phase 2a reference area statistical analysis.

Table 3-6. Sediment Radionuclide Data Summary Statistics – Phase 2a Reference Areas – By Depth with Locations Combined

Radionuclide	Interval (feet)	No. of Samples	No. Detected	Percent Detected	Min (pCi/g)	Mean (pCi/g)	SD (pCi/g)	Max (pCi/g)	Area of Max	Station of Max
Cesium-137	0 - 1	18	13	72	0.0214	0.0873	0.0553	0.1780	Paradise Cove	RP03
	1 - 2	18	8	44	0.0237	0.0769	0.0637	0.2130	Bay Farm	RB02
	2 - 3	17	6	35	0.0246	0.0764	0.0630	0.1960	Paradise Cove	RP01
	3 - 4	16	4	25	0.0250	0.0563	0.0447	0.2100	Bay Farm	RB02
Cobalt-60	0 - 1	18	1	6	0.0081	0.0391	0.0126	0.0666	Oyster Point	RY02
	1 - 2	18	2	11	0.0231	0.0443	0.0146	0.0782	Oyster Point	RY01
	2 - 3	17	1	6	0.0223	0.0478	0.0213	0.1030	Paradise Cove	RP03
	3 - 4	16	0	0	0.0203	0.0389	0.0107	0.0612	Paradise Cove	RP01
Plutonium-239/240	0 - 1	18	4	22	0.0093	0.0180	0.0075	0.0336[(a)]	Alameda Buoy	RA02
	1 - 2	18	6	33	0.0097	0.0207	0.0082	0.0420	Bay Farm	RB02
	2 - 3	17	4	24	0.0089	0.0191	0.0103	0.0527	Bay Farm	RB03
	3 - 4	16	1	6	0.0094	0.0167	0.0056	0.0284[(a)]	Oyster Point	RY02
Radium-226	0 - 1	18	18	100	0.2120	0.5443	0.1543	0.7550	Alameda Buoy	RA03
	1 - 2	18	18	100	0.3460	0.5900	0.1461	0.8260	Paradise Cove	RP01
	2 - 3	17	17	100	0.3550	0.6008	0.1638	0.8790	Alameda Buoy	RA02
	3 - 4	16	16	100	0.3720	0.6901	0.1549	0.9940	Alameda Buoy	RA02
Strontium-90	0 - 1	18	2	11	0.1080	0.1770	0.0438	0.2780	Paradise Cove	RP03
	1 - 2	18	2	11	0.1210	0.1787	0.0383	0.2990	Bay Farm	RB03
	2 - 3	17	3	18	0.1210	0.1802	0.0419	0.2820	Bay Farm	RB03
	3 - 4	16	5	31	0.1090	0.1616	0.0309	0.2220	Red Rock	RR02
Uranium-235	0 - 1	18	8	44	0.1050	0.2134	0.0637	0.3650	Oyster Point	RY01
	1 - 2	18	6	33	0.1070	0.2402	0.1431	0.6220	Paradise Cove	RP01
	2 - 3	17	2	12	0.1200	0.2233	0.1102	0.6130	Oyster Point	RY01
	3 - 4	16	6	38	0.1430	0.2623	0.1130	0.5530	Oyster Point	RY01

(a) Maximum concentration equals the method detection limit substituted for a non-detect result.
pCi/g = picocuries per gram
SD = standard deviation
Shaded values denote different results from Phase 2a reference area statistical analysis.

3.2.1. Statistical Analysis of Radionuclide Distribution

This section summarizes the statistical comparison of the Phase 2b sediment ROC data to applicable reference data and site-specific PALs. The comprehensive statistical report for this analysis is provided in Appendix C.

The statistical analysis approach for the Phase 2b data originally was developed as part of the Phase 2a investigation and was presented in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013). This approach was designed to compare the radionuclide activity levels within the sediments in Parcel F to background activity levels in non-impacted San Francisco Bay sediments. Background activity levels are defined as the combination of natural and anthropogenic radiological inputs from areas not considered directly associated with current or historical point sources and, thus, not influenced by HPNS. Specifically, Phase 2b Parcel F sediment data were compared to Phase 2a sediment data from the six San Francisco Bay reference areas to determine if the radionuclide activity levels in Parcel F sediments are greater than the background radionuclide activity levels in San Francisco Bay sediments by concentrations greater than the PALs. If radionuclide activity levels in Parcel F sediments exceed the background levels by more than the PALs, then these sediments would be considered toxic to applicable receptors, and the associated risks would be attributable to site-specific conditions at Parcel F.

To determine if the radionuclide activity levels of the sediments in Parcel F are greater than the radionuclide activity levels of the sediments in the background by more than the PAL, the Wilcoxon Rank Sum (WRS) Test was conducted following Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance (NRC, 2000), specifically Chapter 8, "8.4 Contaminant Present in Background." The WRS Test (also known as the Mann-Whitney Test) is a two-sample, non-parametric statistical hypothesis test that assesses whether one data set (e.g., Phase 2b) tends to have larger values than another data set (e.g., reference area). The WRS test can also be used to assess whether the values of one data set are greater than the values of another data set by more than a given constant (e.g., PAL). To complete these assessments, the WRS test takes both the original data set and the comparative data set and combines the values into a single list. This list then is sorted least to greatest and each value is assigned a rank. The sum of the rankings for the original data set is then calculated and compared to a test statistic. Finally, a p-value is calculated from this test statistic, and that value is used to complete hypothesis testing for the median of the two data sets. The WRS test has greater efficiency than a standard, two-sample t-test on non-parametric distributions.

Separate WRS tests were performed for each ROC for the intertidal and subtidal exposure scenarios. Phase 2b Parcel F data (including the re-analysis of the 2009 Phase 1 samples) were pooled across location, station, and depth but separated by intertidal versus subtidal CSM classification. Phase 2a reference data were pooled across location, station, and depth. Depending on the exposure scenario being evaluated, the intertidal or subtidal PAL for a given ROC was added to the ROC concentration for each of the reference samples. As described in Section 3.2, the MDL was substituted for all reported non-detect results in both the Phase 2b and Phase 2a reference data sets before any WRS calculations were performed.

The two Phase 2b Parcel F data sets for each ROC (intertidal and subtidal) were compared to the applicable reference data set (background plus intertidal PAL or background plus subtidal PAL, respectively) using the WRS test as described above. The hypotheses evaluated by these tests were as follows:

Null Hypothesis:
H_0: The median radionuclide concentration in Parcel F exceeds the background by more than the PAL.

Alternative Hypothesis:
H_1: The median radionuclide concentration in Parcel F exceeds the background by less than the PAL or does not exceed the background.

All WRS tests on the Phase 2b data were performed at a predetermined significance level of 0.05 for both Type 1 and Type 2 errors.

Statistical summaries for each ROC data set (intertidal and subtidal) and associated WRS test results are presented in Table 3-7. All WRS tests had a p-value <0.0001, thus indicating with a high level of statistical significance that the measured Phase 2b results would be highly unlikely if the null hypothesis was true. As a result, the alternative hypothesis (i.e., that the median radionuclide concentration in Parcel F exceeds the median background concentration by *less* than the PAL) should be accepted. This result also includes the possibility that the median Parcel F concentration is equal to or less than the reference area median concentration. Every WRS test for both the intertidal and subtidal data sets had the smallest possible p-values because all of the Phase 2b Parcel F data had the lowest possible ranks and all of the reference + PAL data had the highest possible ranks.

Box plots comparing the Phase 2b intertidal and subtidal data sets to the Phase 2a reference data set for each ROC are provided on Figures 3-6 through 3-11. For these plots, the PALs were *not* added to the reference data set concentrations as described above for the WRS testing. Instead, the PALs are listed above the boxes in each figure. Comparison of the intertidal and subtidal data sets to the PAL can be accomplished visually by comparing the upper limits of the box on the y-axis to the listed PAL. The box plots indicate that the median values of both the Phase 2b intertidal and subtidal data sets (represented by the horizontal line in the middle of the blue and red boxes, respectively) were less than the median value for the reference data set for Co-60, Ra-226, Sr-90, and U-235. Only the median value from the Phase 2b intertidal data set was less than the median value from the reference data set for Cs-137 and Pu-239/240. The median values for both the Phase 2b intertidal and subtidal data sets were substantially lower than the listed PALs. These combined results indicate that Parcel F radionuclide levels are not attributable to site-specific conditions and are not expected to be toxic under the defined exposure scenarios.

Although the results of the WRS testing and the box plots are highly statistically significant in support of the alternative hypothesis that Parcel F ROC levels do not exceed background levels by more than the PALs, all individual data points from the Phase 2b intertidal and subtidal data sets were compared directly to the corresponding PAL. The results of this comparison, provided in Table 3-8, show that no individual Phase 2b samples had ROC concentrations exceeding any of the corresponding PALs. Thus, no individual Phase 2b samples had ROC concentrations exceeding the PAL + reference.

Table 3-7. Phase 2b Sediment Radionuclide Data WRS Test Statistics

Radionuclide	Area/CSM	No. of Samples	No. of Samples Detected	Percent Detected	Min (pCi/g)	Mean (pCi/g)	SD (pCi/g)	Max (pCi/g)	PAL (pCi/g)	Wilcoxon Test P-value
Cesium-137	Reference	69	31	45	0.0214	0.0747	0.0572	0.2130	NA	NA
	Intertidal	143	77	54	0.0111	0.0558	0.0451	0.2410	1.28	<0.0001
	Subtidal	336	18	5	0.0128	0.1127	0.0307	0.1960	425	<0.0001
Cobalt-60	Reference	69	4	6	0.0081	0.0426	0.0155	0.1030	NA	NA
	Intertidal	143	5	3	0.0093	0.0224	0.0066	0.0494	0.364	<0.0001
	Subtidal	336	330	98	0.0070	0.0222	0.0066	0.0576	99.9	<0.0001
Plutonium-239/240	Reference	69	15	22	0.0089	0.0187	0.0080	0.0527	NA	NA
	Intertidal	143	12	8	0.0086	0.0203	0.0160	0.1030	67.8	<0.0001
	Subtidal	336	89	26	0.0085	0.0212	0.0104	0.0861	68.2	<0.0001
Radium-226	Reference	69	69	100	0.2120	0.6039	0.1601	0.9940	NA	NA
	Intertidal	143	143	100	0.3300	0.5564	0.0754	0.7830	1	<0.0001
	Subtidal	336	336	100	0.2440	0.5345	0.0688	0.7850	22.4	<0.0001
Strontium-90	Reference	69	12	17	0.1080	0.1747	0.0391	0.2990	NA	NA
	Intertidal	136	24	18	0.0655	0.1800	0.0967	0.7540	9.37	<0.0001
	Subtidal	321	49	15	0.0981	0.1683	0.0762	0.8170	9.93	<0.0001
Uranium-235	Reference	69	22	32	0.1050	0.2342	0.1102	0.6220	NA	NA
	Intertidal	143	87	61	0.0548	0.1384	0.0494	0.3520	4.22	<0.0001
	Subtidal	336	179	53	0.0676	0.1330	0.0448	0.3270	101	<0.0001

CSM = conceptual site model
NA = not applicable
PAL = project action limit
pCi/g = picocuries per gram
SD = standard deviation
WRS = Wilcoxon Rank Sum

Table 3-8. Summary of Individual Sediment Samples Compared to Their PALs

Radionuclide	CSM	PAL (pCi/g)	Median Reference Concentration (pCi/g))	PAL + Reference (pCi/g)	No. of Exceedances	Station(s) Exceeding PAL
Cesium-137	Intertidal	1.28	0.0747	1.355	0	NA
	Subtidal	425		425.1	0	NA
Cobalt-60	Intertidal	0.364	0.0426	0.4066	0	NA
	Subtidal	99.9		99.94	0	NA
Plutonium-239/240	Intertidal	67.8	0.0173	67.82	0	NA
	Subtidal	68.2		68.22	0	NA
Radium-226	Intertidal	1	0.6039	1.604	0	NA
	Subtidal	22.4		23.00	0	NA
Strontium-90	Intertidal	9.37	0.1747	9.545	0	NA
	Subtidal	9.93		10.10	0	NA
Uranium-235	Intertidal	4.22	0.2342	4.454	0	NA
	Subtidal	101		101.2	0	NA

CSM = conceptual site model
NA = not applicable
PAL = project action limit
pCi/g = picocuries per gram

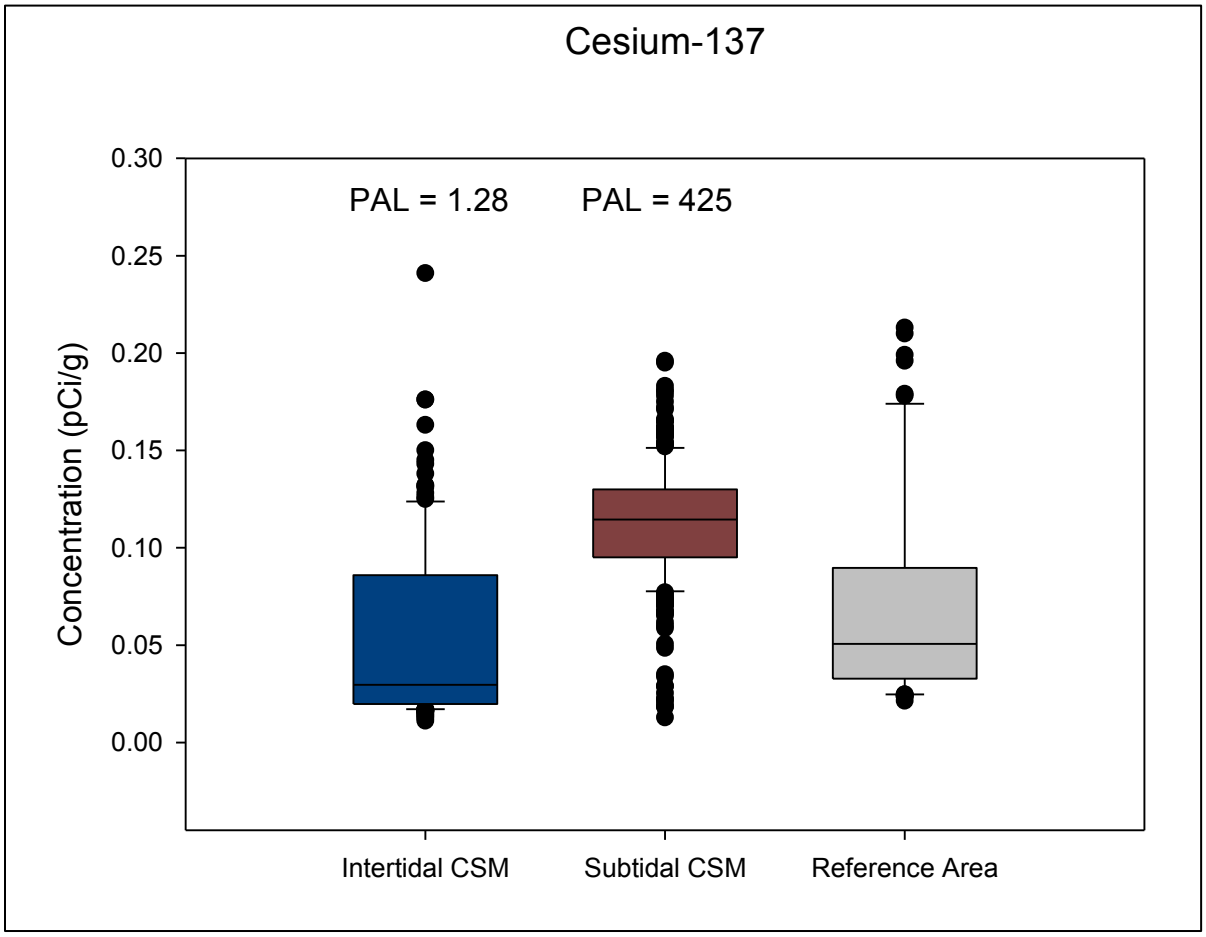

Figure 3-6. Phase 2b Box Plots by CSM and Reference Area for Cs-137

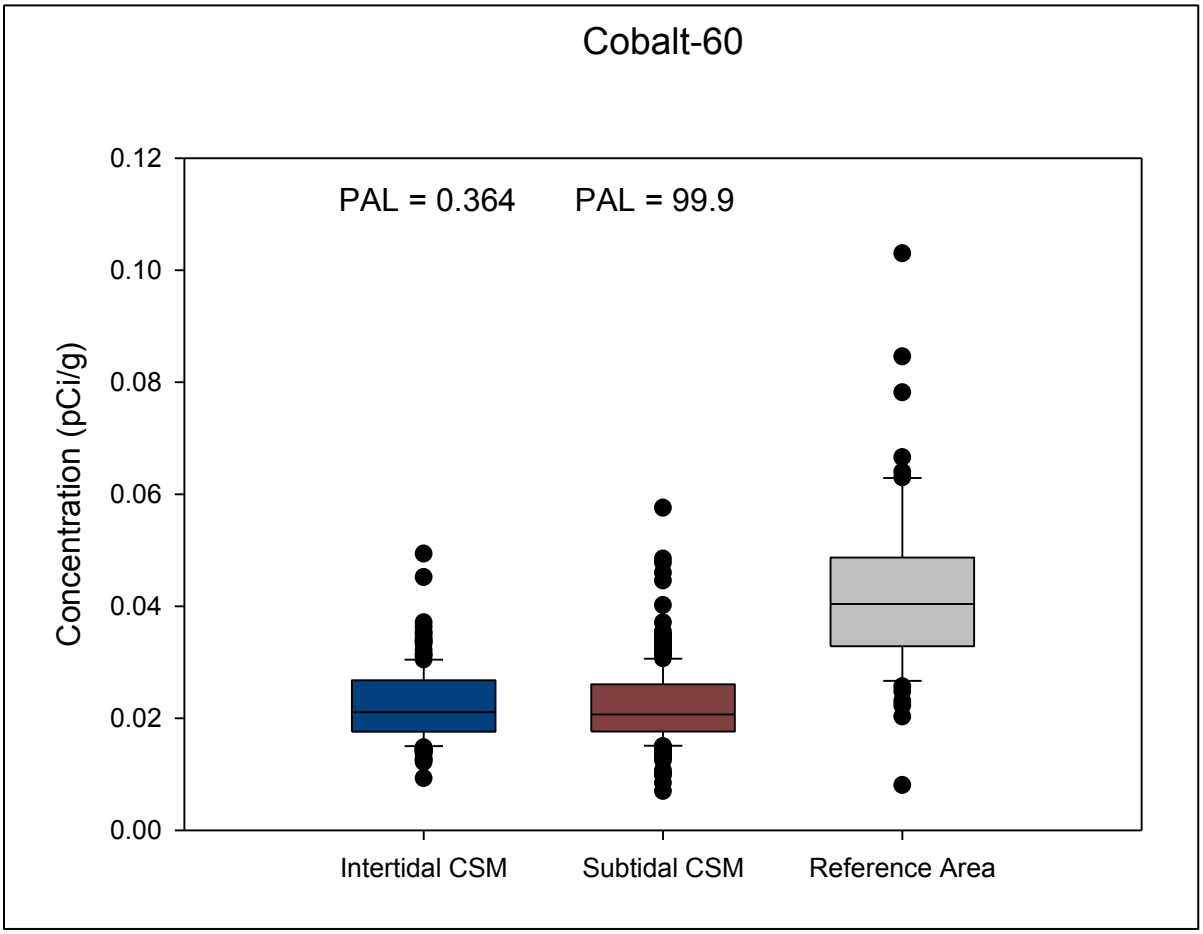

Figure 3-7. Phase 2b Box Plots by CSM and Reference Area for Co-60

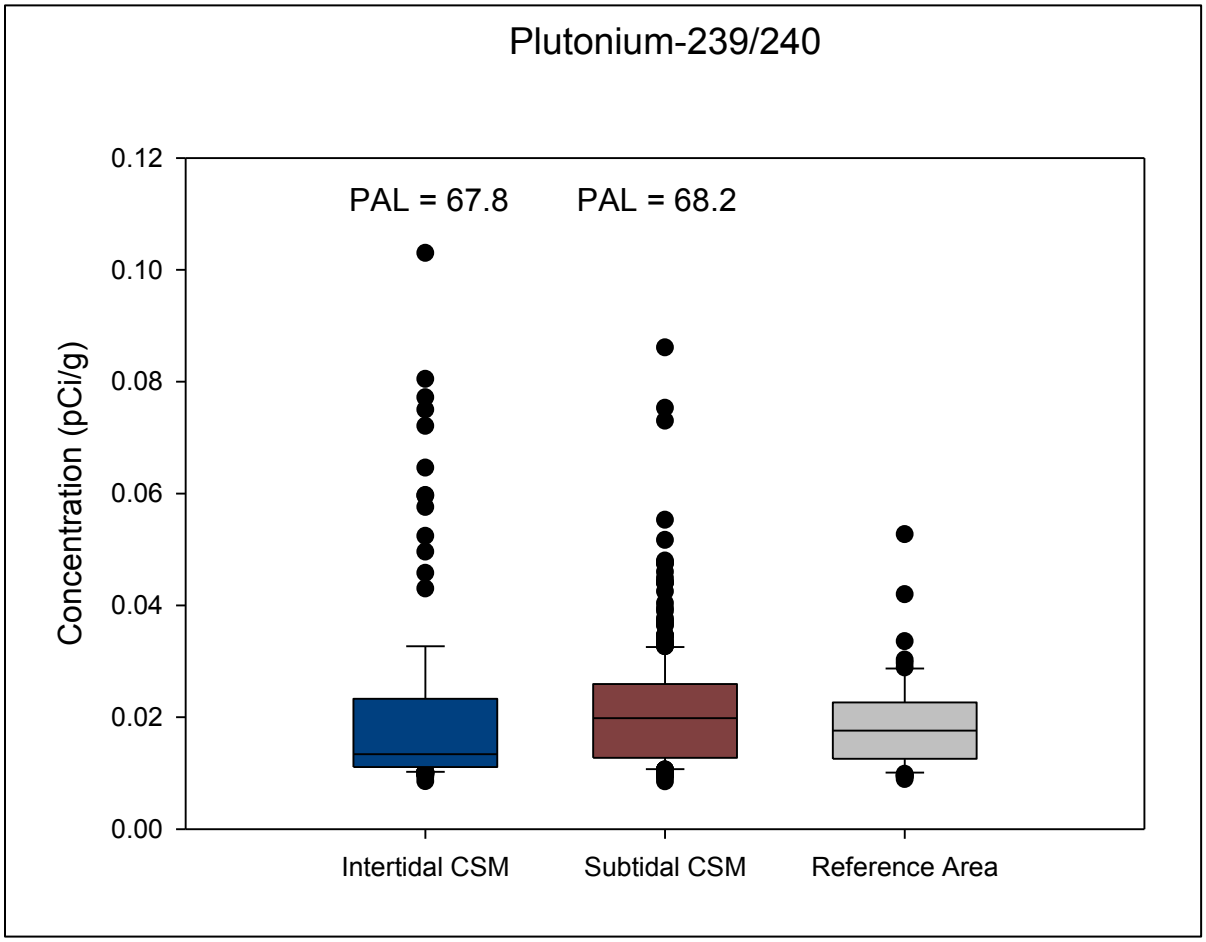

Figure 3-8. Phase 2b Box Plots by CSM and Reference Area for Pu-239/240

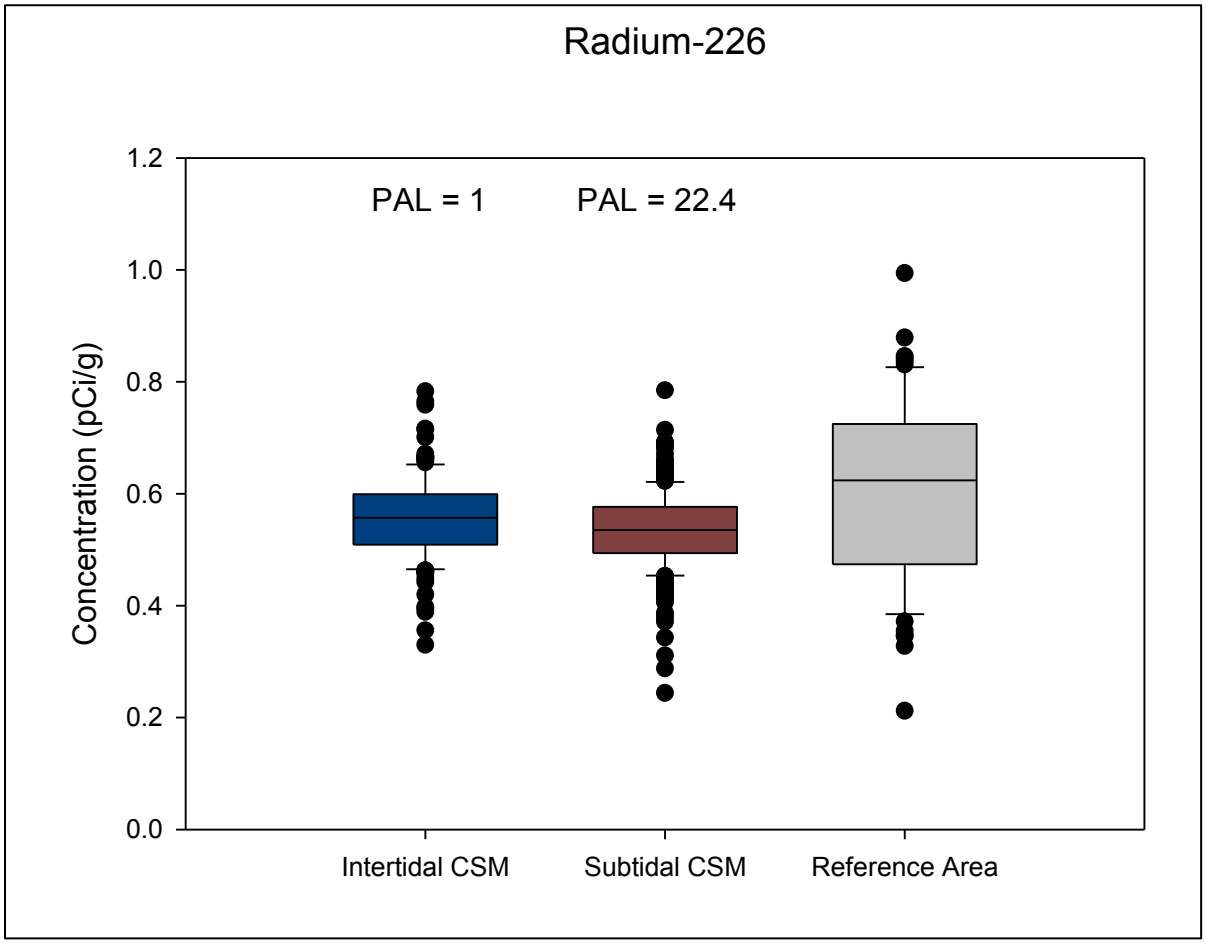

Figure 3-9. Phase 2b Box Plots by CSM and Reference Area for Ra-226

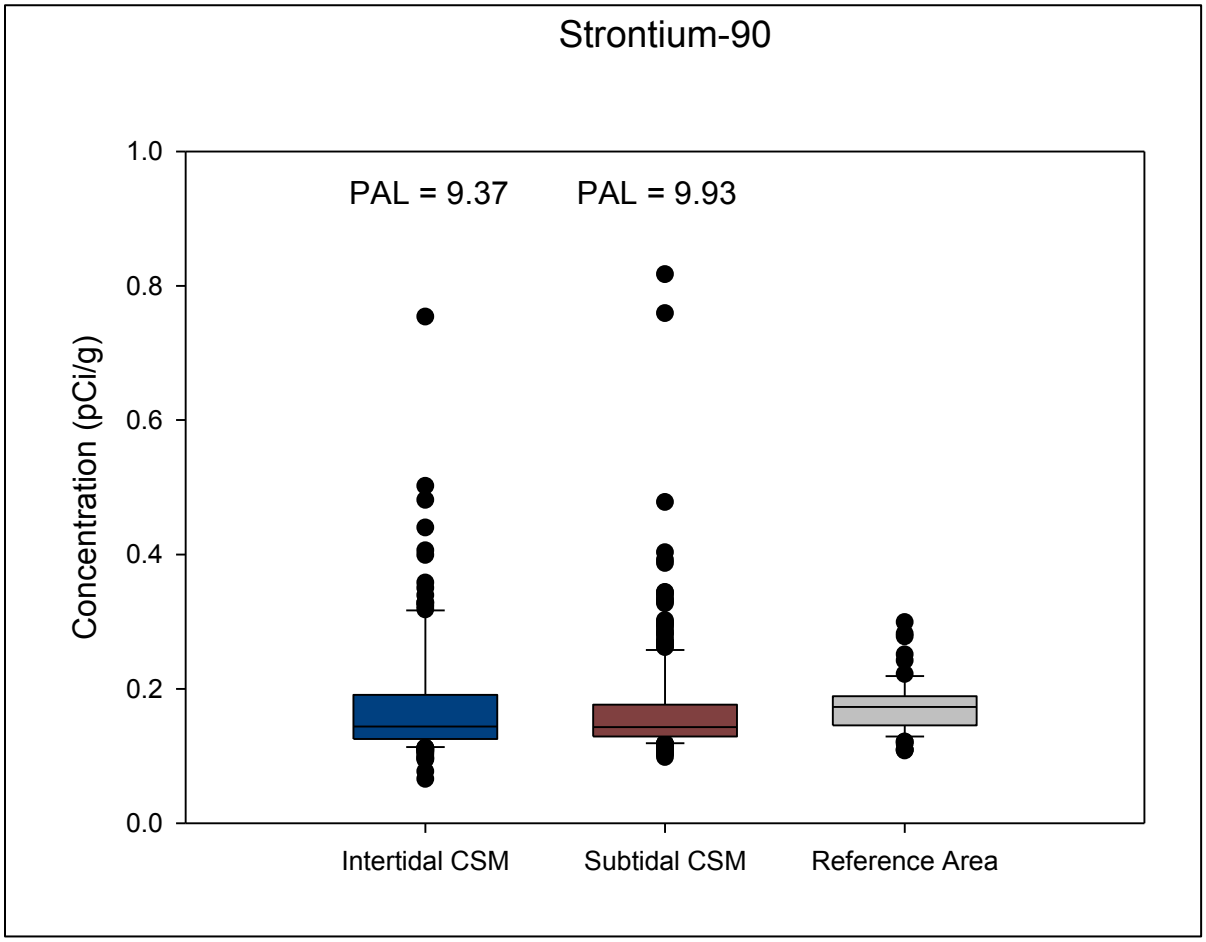

Figure 3-10. Phase 2b Box Plots by CSM and Reference Area for Sr-90

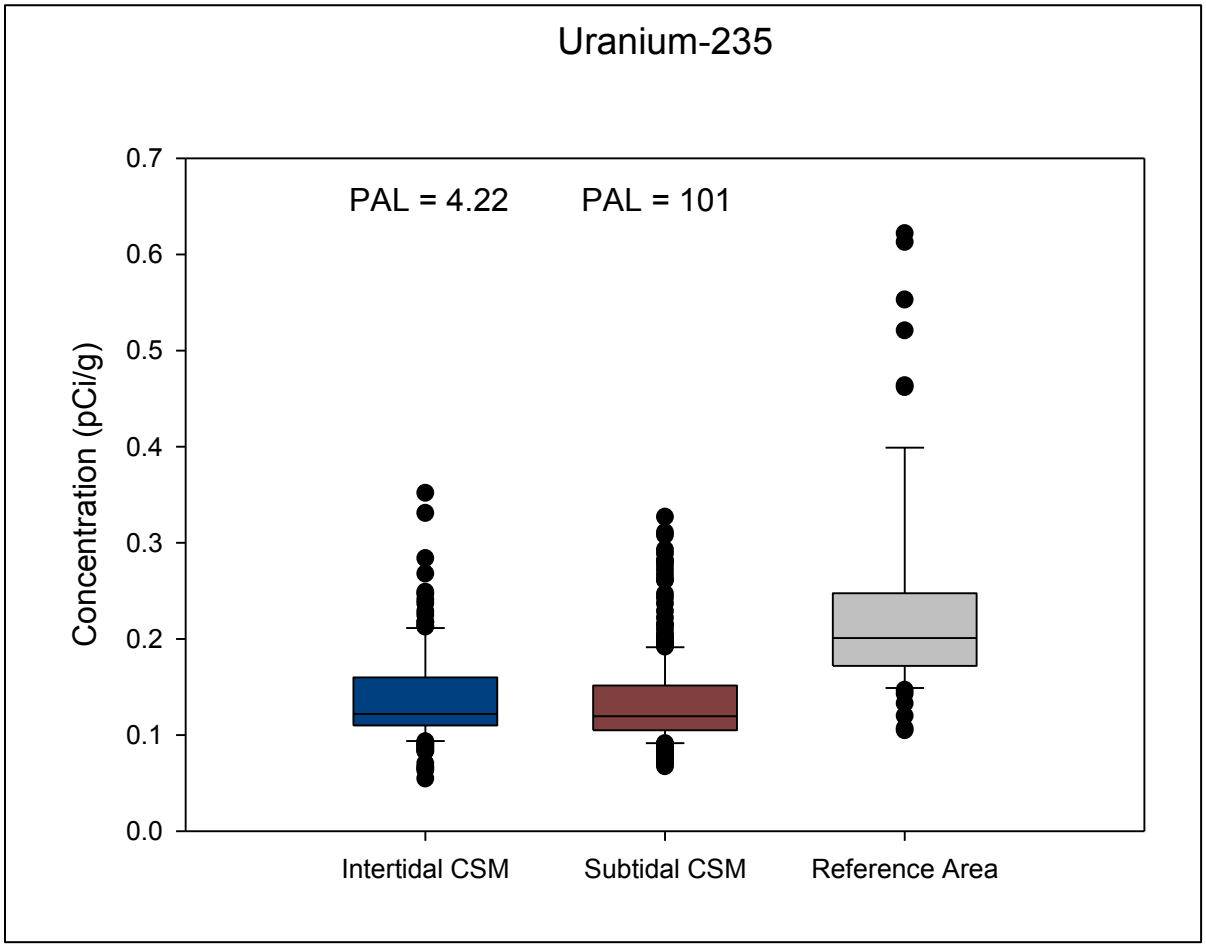

Figure 3-11. Phase 2b Box Plots by CSM and Reference Area for U-235

3.2.2. Re-Analysis of Individual Samples with PAL Exceedances

This section summarizes the results of the re-analysis of the Phase 1 samples found to have Ra-226 exceedances. As described in Section 3.1.1, 11 of the 15 Phase 1 samples identified in Table 3-9 of the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013) as having Ra-226 exceedances had sufficient archived volume for re-analysis and were submitted to the analytical laboratory for the same radionuclide analysis as the Phase 2b data. The four samples that did not have sufficient archived volume (one sample from location SA05 and three samples from location SB09) could not be re-analyzed. No Phase 2b sampling was performed at these specific locations (i.e., the Phase 1 locations were not re-occupied). Instead, mean data from planned Phase 2b samples immediately surrounding the original Phase 1 locations were used as the re-analysis data. The Phase 1 sample from location SA05 was replaced with mean data from the corresponding depth interval from Phase 2b cores SA420, SA421, SA422, and SA426. The Phase 1 samples from location SB09 were replaced with mean data from the corresponding depth intervals from Phase 2b cores SB232, SB233, and SB234.

All re-analysis results are shown in conjunction with the original Phase 1 data in Table 3-9. These results indicate that, upon re-analysis, none of the Phase 1 samples were found to exceed the PAL for Ra-226, with the maximum Ra-226 concentration measured in the re-analysis samples representing only 49 percent of the PAL (compared to 162 percent in the original results). Thus, the original Phase 1 Ra-226 exceedances measured by the HPNS on-site radiological laboratory in 2009 were not confirmed, and no Ra-226 exceedances were detected during the Phase 2b investigation.

Table 3-9. Re-Analysis of Phase 1 Sediment Samples Exceeding the Intertidal CSM PAL for Ra-226

Area	Phase 1 Location	Core Segment (feet)	Ra-226 Intertidal CSM PAL (pCi/g)	Phase 1 Result (pCi/g)	Percent of PAL (pCi/g) (Max Value)	Re-Analysis Result (pCi/g)	Percent of PAL (pCi/g) (Max Value)
Submarine	SA01	2 - 3	1.604	1.8229	114	0.558	35
	SA0	0 - 1		2.2391	140	0.494[(a)]	31
Berths North	BN01	1 - 2		2.4894	155	0.664	41
Berths South	BS12	0 - 1		2.0067	125	0.398	25
		1 - 2		1.6891	105	0.463	29
South Basin	SB04	0 - 1		1.7069	106	0.716	45
		2 - 3		1.9570	122	0.765	48
	SB05	1 - 2		1.7422	109	0.631	39
		3 - 4		1.6375	102	0.783	49
	SB06	0 - 1		1.9904	124	0.551	34
	SB07	3 - 4		1.7032	106	0.627	39
	SB09	0 - 1		2.5757	161	0.532[(b)]	33
		2 - 3		1.7478	109	0.528[(b)]	33
		3 - 4		2.6064	162	0.590[(b)]	37
	SB10	3 - 4		2.4314	152	0.627	39

(a) Insufficient Phase 1 sample volume left for re-analysis; mean results for co-located Phase 2b samples SA420, SA421, SA422, and SA426 were substituted.
(b) Insufficient Phase 2 sample volume left for re-analysis; mean results for co-located Phase 2b samples SB232, SB233, and SB234 were substituted.
CSM = conceptual site model
PAL = project action limit
pCi/g = picocuries per gram
Ra = radium

3.2.3. Sum of Fractions Results for Human Health Risk

The sum-of-fractions approach estimates the cumulative risk of all relevant ROCs by dividing the sample concentrations by the appropriate PAL and then summing these fractions. If the sum of fractions for all ROCs is less than 1.0, then the cumulative human health risk from these ROCs is considered acceptable.

Results of the Phase 2b sum-of-fractions analysis for human health risks at Parcel F are provided in Table 3-10. Because the human health PALs at Parcel F were intended to represent increments above background that are protective of human health, the fraction for each of the six ROCs was determined from the difference between the mean concentrations of the Phase 2b Parcel F data set and the Phase 2a reference data set. A negative fraction of PAL calculated in this manner indicates that the Phase 2b mean concentration for that particular ROC is less than the Phase 2a reference area mean concentration (i.e., the site-specific ROC level at Parcel F is less than the background ROC level in San Francisco Bay). The two human health risk CSM exposure scenarios relevant to Phase 2b (intertidal and subtidal) were evaluated separately by performing the sum of fractions calculations on each of the corresponding PALs (Table 2-9). Results were also combined across CSM exposure scenarios to evaluate human health risk at Parcel F as a whole.

The sums of fractions for human health risk from the Phase 2b data for the intertidal environment and subtidal component were -0.1399 and -0.0048, respectively. The sum of fractions for human health risk from the Phase 2 data for Parcel F as a whole was -0.1447. Because these total values are all less than 1.0, the cumulative human health risk from the six ROCs at Parcel F is considered acceptable for all exposure scenarios. Because these total values are also negative, each of the corresponding data sets is biased towards ROC activity at the Phase 2b locations in Parcel F being less than ROC activity at the reference areas in San Francisco Bay.

Table 3-10. Phase 2b Sum-of-Fractions Results for Human Health Risk

Radionuclide	Area/CSM	Phase 2b Mean (pCi/g)	Reference Area Mean (pCi/g)	PAL (pCi/g)	Fraction of PAL
Cesium-137	Intertidal Subtidal	0.0558 0.1127	0.0747	1.28 425	-0.0148 0.0001
Cobalt-60	Intertidal Subtidal	0.0224 0.0222	0.0426	0.364 99.9	-0.0555 -0.0002
Plutonium-239/240	Intertidal Subtidal	0.0203 0.0212	0.0187	67.8 68.2	0.00002 0.00004
Radium-226	Intertidal Subtidal	0.5564 0.5345	0.6039	1 22.4	-0.0475 -0.0031
Strontium-90	Intertidal Subtidal	0.1800 0.1683	0.1747	9.37 9.93	0.0006 -0.0006
Uranium-235	Intertidal Subtidal	0.1384 0.1330	0.2342	4.22 101	-0.0227 -0.0010
Total	**Intertidal Subtidal Combined**	--	--	--	**-0.1399 -0.0048 -0.1447**

CSM = conceptual site model
PAL = project action limit
pCi/g = picocuries per gram

3.2.4. Sum-of-Fractions Results for Environmental Risk

Results of the sum-of-fractions analysis for risks to biota at Parcel F are provided in Table 3-11. Because the biota exposed to sediments at Parcel F are not expected to travel outside of the site boundaries, the biota PALs used for this analysis were not intended to represent increments above background. Thus, the fraction for each of the six ROCs was determined by comparing the maximum Phase 2b concentration for each ROC to the most conservative (i.e., lowest) ecological PAL developed for Parcel F (Table 2-10). Selecting the most conservative PAL for this calculation, regardless of target receptor (e.g., marine bird, mollusk, benthic fish, or polychaete worm) or radiation dose (e.g., 0.1 rad/day or 1.0 rad/day), yields the greatest possible sum of fractions. If this conservative value does not exceed the cumulative risk threshold of 1.0, then the conclusion can be drawn that a sum of fractions calculated from all other PAL combinations would not exceed the cumulative risk threshold as well. Only one ecological PAL was evaluated for each ROC because the biota risk evaluation for Parcel F was not separated into multiple CSM exposure scenarios (e.g., intertidal versus subtidal).

The sum of fractions for environmental risk from the Phase 2b data was 0.0225. Because this value is less than 1.0, the risk to biota from the six ROCs at Parcel F is considered acceptable.

Table 3-11. Phase 2b Sum-of-Fractions Results for Risk to Biota

Radionuclide	Phase 2b Max (pCi/g)	Area of Max	Station of Max	Lowest Biota PAL (pCi/g)	Fraction of PAL
Cesium-137	0.2410	South Basin	SB201	3200	0.0001
Cobalt-60	0.0576	Berths North	BN111	770	0.0001
Plutonium-239/240	0.1030[(a)]	South Basin	SB10	1000	0.0001
Radium-226	0.7850	Berths North	BN203	52	0.0151
Strontium-90	0.8170[(a)]	Berths North	BN210	120	0.0068
Uranium-235	0.3520	South Basin	SB218	1200	0.0003
Total					**0.0225**

(a) Maximum concentration equals the method detection limit substituted for a non-detect result.
PAL = project action limit
pCi/g = picocuries per gram

3.3. Clam Tissue Bioaccumulation Results

This section presents the results of the Phase 2b clam tissue radionuclide sampling described in Section 3.1.2. Although all Phase 2b clam tissue samples were analyzed for a full suite of radionuclides, only data for the six ROCs identified for Parcel F are presented and evaluated in this Technical Memorandum. These ROCs were the only radionuclides for which site-specific tissue PALs were developed and, thus, screening would be applicable.

Raw analytical data and corresponding laboratory reports for all Phase 2b clam tissue and associated Van Veen surface sediment samples are provided in Appendix B. Individual results for all Phase 2b clam tissue and Van Veen surface sediment samples compared to site-specific tissue PALs are shown in Table 3-12. Although the analytical laboratory was supposed to combine all clams from the three replicate cages for each Parcel F location to form a single composite sample for that location prior to radiological analysis, the three replicate samples were instead analyzed individually. The results of these replicates ultimately were averaged to generate a single clam tissue value for each Parcel F location

(e.g., BN11A). The three single cages from each reference area also were analyzed individually. The results from the individual reference samples were also ultimately averaged to generate a single clam tissue value for each Phase 2b reference area (Paradise Cove and Oyster Point). Similar to the sediment data management process described in Section 3.2, any Phase 2b tissue analytical result that was qualified as non-detect (i.e., assigned a "U" or "UJ" qualifier) was replaced by the laboratory MDL (see Table 3-12).

Analytical results from the Phase 2b clam tissue study showed that tissue concentrations were non-detect for all ROCs at all clam sampling locations. These data suggest that ROC uptake by clams in site sediments was essentially negligible. As a result, it was not possible to develop a dose-response relationship between site sediment concentrations and clam tissue bioaccumulation, nor was it possible to calculate a sediment/mollusk radionuclide concentration factor to support the evaluation of risk from ROC activity in Parcel F sediments. When compared to the tissue ingestion PALs developed in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013), the Phase 2b tissue results for each location revealed no PAL exceedances for any of the ROCs.

Table 3-12. Tissue Bioaccumulation Results for *Macoma nasuta* - All Parcel F Phase 2b Data

Radionuclide	Location	Sediment Result[a,b,c] (pCi/g)	Sediment Qualifier[d]	Tissue Result[b,e] (pCi/g)	Tissue Qualifier[d]	Tissue PAL[f]	Exceeds PAL?
Cesium-137	SB02A	0.1060		0.0132	U	24.2	No
	SB05A	0.0520		0.0127	U		No
	SB07A	0.1350		0.0151	U		No
	BS09A	0.0765		0.0165	U		No
	BN11A	0.1020		0.0153	U		No
	Paradise Cove (Ref.)	0.1020		0.0173	U		No
	Oyster Point (Ref.)	0.1188		0.0127	U		No
Cobalt-60	SB02A	0.0256	U	0.0156	U	324	No
	SB05A	0.0183		0.0156	U		No
	SB07A	0.0626		0.0181	U		No
	BS09A	0.0272	U	0.0180	U		No
	BN11A	0.0166	U	0.0172	U		No
	Paradise Cove (Ref.)	0.0222	U	0.0183	U		No
	Oyster Point (Ref.)	0.0181	U	0.0158	U		No
Plutonium-239/240	SB02A	0.0269	U	0.0284	U	4.32	No
	SB05A	0.0425		0.0290	U		No
	SB07A	0.0693		0.0316	U		No
	BS09A	0.0548	U	0.0417	U		No
	BN11A	0.0687		0.0258	U		No
	Paradise Cove (Ref.)	0.0185	U	0.0310	U		No
	Oyster Point (Ref.)	0.0246	U	0.0398	U		No
Radium-226	SB02A	0.5300		0.0889	U	2.53	No
	SB05A	0.4760		0.0789	UJ		No
	SB07A	0.6520		0.0894	UJ		No
	BS09A	0.6000		0.1263	U		No
	BN11A	0.5110		0.1052	U		No
	Paradise Cove (Ref.)	0.5217		0.0993	U		No
	Oyster Point (Ref.)	0.5470		0.1001	U		No
Strontium-90	SB02A	0.1380	U	0.0518	U	12.7	No
	SB05A	0.3450		0.0599	U		No
	SB07A	0.1270	U	0.0680	U		No
	BS09A	0.1140	U	0.0636	U		No
	BN11A	0.1380	U	0.0569	U		No
	Paradise Cove (Ref.)	0.1447	U	0.0597	U		No
	Oyster Point (Ref.)	0.1750	U	0.0549	U		No

Radionuclide	Location	Sediment Result[a,b,c] (pCi/g)	Sediment Qualifier[d]	Tissue Result[b,e] (pCi/g)	Tissue Qualifier[d]	Tissue PAL[f]	Exceeds PAL?
Uranium-235	SB02A	0.1110		0.0020	U	11.3	No
	SB05A	0.0690	U	0.0012	U		No
	SB07A	0.1130	U	0.0016	U		No
	BS09A	0.1110	U	0.0016	U		No
	BN11A	0.0954	U	0.0013	U		No
	Paradise Cove (Ref.)	0.1133	UJ	0.0013	U		No
	Oyster Point (Ref.)	0.1657		0.0016	U		No

(a) Sediment results generated from Van Veen sediment grab samples co-located with clam deployment locations.
(b) Non-detect results replaced with the method detection limit.
(c) Three discrete Van Veen sample results from each reference area were averaged to generate one composite sediment result for that area.
(d) For results representing an average of multiple samples/replicates, at least one result qualified as indicated.
(e) Three co-located clam replicates were averaged to generate one composite tissue result for each Parcel F station; three discrete clam sample results from each reference area were averaged to generate one composite tissue result for that area.
(f) Tissue PALs taken from the *Final Technical Memorandum for Radiological Data Gap Investigation Phase 2a, at Parcel F Submarine Areas, Parcel B Revetment Wall Areas, and San Francisco Bay Reference Sites, Hunters Point Naval Shipyard, San Francisco Bay, California* (Battelle and Sea Engineering, Inc. 2013).
PAL = project action limit
pCi/g = picocuries per gram
U = not detected
UJ = not detected at the estimated reporting limit

3.4. Sediment Stability

This section presents the results of the Phase 2b sediment stability sampling described in Section 3.1.3. A comprehensive analysis of all Phase 2b sediment stability data (i.e., sedflume data, erosion modeling data, and age dating data) was used in conjunction to characterize the overall stability of the sediment bed in the Parcel F regions of interest.

3.4.1. Sedflume Results

Sedflume data, including vertical erosion rates (i.e., critical shear stress values), bulk density profiles, and particle size profiles, are used to determine the likelihood of sediment resuspension under typical and extreme hydrodynamic conditions. If the bottom shear stresses associated with typical and extreme hydrodynamic conditions are insufficient to erode sediments below a given depth, then sediments below this depth can be considered stable.

As described in Section 3.1.3, two sedflume cores (BN312-SF and BS04-SF) were collected and analyzed during the Phase 2b investigation. These cores were analyzed by SEI using the standard procedures presented in Hunters Point Sedflume Analysis, San Francisco, California (SEI, 2011). The primary goal of this work was to characterize the erosion properties and physical characteristics of the site sediments. The cores were eroded under controlled laboratory conditions to determine erosion rates as a function of shear stress and depth into the core. Critical shear stresses were determined for five or six depth intervals in each core. The complete Phase 2b sedflume report is provided in Appendix D1 and is summarized below.

In general, the two cores exhibited characteristics expected of consolidated cohesive sediment. The mean shear stress average over the entire core was slightly higher for BN312 (0.79 Pascal [Pa]) than for BS04 (0.49 Pa). The critical shear stress of the top interval of both BN312-SF and BS04-SF was approximately 0.3 Pa, where only mobilizations of small flocculants were observed. With the exception of this first interval, additional minor erosion (1 to 2 millimeter depth) was only initiated by applying higher shear stresses (above 0.8 and 3.2 Pa for the BS04-SF and BN312-SF cores, respectively). The shear stress required to cause erosion increased with depth, likely the result of sediment compaction due to self-weight and to increases in bulk density and median particle size, which would require more energy to cause resuspension. In the following subsection, the sedflume results are analyzed in conjunction with modeled hydrodynamic conditions to assess overall site stability and sediment transport trends.

3.4.2. Erosion Calculations

Bottom shear stress due to tidal currents and waves provides the energy necessary to mobilize sediment. As a result, any current in a region may result in the net removal (i.e., erosion) of sediment from that location. The potential for erosion at Parcel F originally was estimated from the analysis of sedflume data and hydrodynamic measurements that were obtained during the Parcel F Validation Study (Battelle et al., 2005) and subsequent modeling performed in the *Technical Memorandum, Hunters Point Shipyard Parcel F, Feasibility Study Data Gaps Investigation* (FS DGI TM; Battelle et al., 2007). Hydrodynamic measurements of waves and currents for this model were collected in the South Basin and at Point Avisadero during both a winter month and a summer month to characterize the seasonal hydrodynamic conditions.

The SEDZLJ model (Jones and Lick, 2001) was ultimately used in the FS DGI TM (Battelle et al., 2007) in a simple one-dimensional mode to determine the maximum possible erosion for extreme events in the South Basin. Appendix F of the FS DGI TM (Battelle et al., 2007) provides a description of the SEDZLJ

model and outlines its application for the Parcel F analysis. In this model, the shear stress predicted from site hydrodynamic measurements is applied to site sediments using actual erosion rate and critical shear stress data obtained from previously collected sedflume cores. When the hydrodynamic shear stress acting on surface sediment exceeds the critical shear stress for the given grain size, sediment particles may be eroded. This concept is used by the model to predict the maximum depth of erosion at the site under the observed conditions. Modeling results indicated that during a typical year, up to 4.2 centimeters of erosion may be expected during a winter storm event at Parcel F.

The maximum bottom current shear stresses predicted from the SEDZLJ model (0.49 Pa) were higher than the surface critical shear stresses from the Phase 2b sedflume cores (0.34 Pa for core BN312-SF and 0.31 Pa for core BS04-SF), thus indicating the potential for erosion. However, the actual erosion observed in the sedflume cores only involved movement of small flocculants less than 1 millimeter in diameter. Further erosion required greater than 0.8 Pa, and only mobilized an additional 1 to 2 millimeter of sediment. Thus, substantial erosion from bottom currents under the modeled conditions is unlikely at these two core locations.

The wave shear stresses from the SEDZLJ model (0.49 Pa) also showed periodic elevations above the Phase 2b sedflume surface critical shear stresses but, again, only for surface sediments. Thus, erosion from normal wave energy is unlikely at these locations for any substrate other than small flocculants. In addition, extreme wave events at Parcel F are infrequent, and the predicted worst-case wave shear stress over a 25-year period was 0.64 Pa. Because subsurface erosion in the Phase 2b sedflume cores required greater than 0.8 Pa, as described above, significant sediment resuspension resulting from extreme wave action is considered highly unlikely; and if such resuspension were to occur, the suspended sediments would not be expected to be carried away in the otherwise low-current environment. Overall, sustained sediment erosion from wave action is not considered a risk at the Phase 2b sedflume locations.

Due to the lack of any new acoustic Doppler current profile (ADCP) measurements, the hydrodynamic parameters of the SEDZLJ model could not be updated for the Phase 2b investigation.

3.4.3. Sediment Geochronology Sampling and Results

Sediment age dating using Pb-210 and augmented by Cs-137 is used to estimate sedimentation rates at a test site. This process requires a constant Pb-210 flux into the sediments. To meet this requirement, the test samples should have two characteristics: (1) the sediments have a relatively uniform grain size distribution with depth, and (2) the sediments have a relatively constant historical deposition rate. If these specific conditions are met and sediments also have no compaction or bioturbation, the Pb-210 concentrations at different depths and accumulation obey the following equation:

$$A = A_o e^{-\lambda x/S}$$

where

A is the activity of excess Pb-210 at depth x,
Ao is the activity at the sediment-water interface,
λ is the decay constant for Pb-210 (0.0311 y^{-1}), and
S is the sediment accumulation rate in centimeters per year (cm/y).

As described in Section 3.1.3, geochronology cores for age dating were collected from two locations in Parcel F (BN312-GC and BS04-GC). Each of these cores was segmented into 15, separate, 2-centimeter

subsamples each analyzed for Pb-210, Cs-137, and bulk density. The laboratory results were then sent to Core Scientific for sediment age dating analysis and interpretation.

The complete Phase 2b sediment age dating report is provided in Appendix D2 and summarized herein. This report includes the original laboratory data for the age dating analyses and the resulting distribution plots for Pb-210 and Cs-137. The plot of Pb-210 concentrations with depth for core BN312-GC (Figure 2 in Appendix D2) indicates that concentrations of Pb-210 were found to be essentially constant over the entire 120-centimeter depth (i.e., there is no exponential drop in Pb-210 activity as a function of depth). Trend analysis for this core did not exhibit an R^2 value approaching 1.0, which would have indicated a strong relationship between the sampling results and sampling depth. This relatively constant profile could have been caused by mixing of the surface sediment or removal of a previous surface layer by a process such as dredging or scour. As a result, core BN312-GC was considered unsuitable for age dating analysis using regression, and no quantitative chronology interpretation could be made.

The plot for core BS04-GC (Figure 2 in Appendix D2) shows two apparent Pb-210 peaks, each with an approximately exponential drop in Pb-210 activity as a function of depth. When three exponential curves are plotted to represent hypothetical sediment accumulation rates of 5, 2, and 1.1 cm/y, respectively, the short 1.1-cm/y curve fits one peak in the BS04 profile identified from an 18- to 40-centimeter depth. For Cs-137, there are three peaks for the BS04 core and two for the BN312 core, thus suggesting different sediment sources.

The presence of two Pb-210 peaks in core BS04-GC also suggest mixing or removal of sediments, but because these peaks decrease with depth, a quantitative chronology interpretation can be made for each peak in core BS04-GC. The double Pb-210 peaks in core BS04-GC prevented quantitative age dating for the whole column using standard regression. However, quantitative interpretation was possible using the associated Cs-137 data (Figure 3 in Appendix D2). Cesium-137 is present in fallout from historic atmospheric nuclear tests and first appeared in sediment cores around 1952. In an undisturbed sediment core, Cs-137 concentration levels will reflect Cs-137 production during the period of atmospheric nuclear testing, with an initial appearance (i.e., horizon) in approximately 1952, peaks in the early 1960s, and a decrease in the early 1970s after atmospheric testing was halted (U.S. Geological Survey [USGS], 1998). Because all samples in core BS04-GC contain Cs-137, all the sediments in the 120-centimeter core appear to have been deposited after 1952, which gives a lower-bound accumulation rate of 2 cm/y between 1952 and 2013.

Extensive mixing and dredging that may have occurred at Parcel F, are both capable of producing the results observed in the Phase 2b radiation profiles for the age dating cores.

3.5. Uncertainties

This section describes various uncertainties associated with the Phase 2b analytical approach and resulting data.

3.5.1. CSM Uncertainties

The CSM uncertainties associated with the Phase 2b investigation were developed for the Phase 2a investigation and presented in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013). These uncertainties are re-stated below.

Intertidal CSM. The intertidal CSM used in this analysis is similar to the model used in the Hunters Point Parcel F Validation Study (Battelle et al., 2005) to estimate human health risks. Major sources of uncertainties identified in the Hunters Point Parcel F Validation Study are as follows:

- Activities that differ from the assumptions made for a particular exposure pathway could lead to exposures different than those quantified. In addition, the probability of occurrence was not included in the quantification of risk.
- One major area of uncertainty in the exposure assessment is the prediction of human activities that may lead to shellfish consumption. The degree to which a future resident is assumed to be harvesting and consuming shellfish captured off the shoreline of HPNS is conservative. Because of the habitat along the shoreline, only limited mussel burrows actually exist at a few of the areas. Therefore, the mussel population at the site may not be large enough to support the assumed consumption rate.
- In the Hunters Point Parcel F Validation Study (Battelle et al., 2005), both a reasonable maximum exposure (RME) and a central tendency exposure (CTE) were evaluated. The RME relies on conservative exposure factors to estimate the RMEs anticipated for the site, while the CTE describes a more typical or average exposure to an individual. In this analysis, exposure parameter values representative of the RME were used to estimate human health risks. These parameters were selected to estimate the RME; however, the use of multiple conservative parameters in this scenario can result in an estimate of intake above the upper 95 percent confidence interval.

The uncertainties in the radiation slope factors are discussed in *Uncertainties in Cancer Risk Coefficients for Environmental Exposure to Radionuclides, An Uncertainty Analysis for Risk Coefficients Reported in Federal Guidance Report No. 13* (Pawel et al., 2007) and have five main components.

- Uncertainties in biokinetic models (i.e., models describing the biological behavior of ingested or inhaled radionuclides).
- Uncertainties in the specific energy values describing the relation of sites of decay of internally deposited radionuclides to sites of deposition of emitted energy.
- Uncertainties in risk model coefficients (i.e., numerical values representing the risk of cancer per unit absorbed dose to sensitive tissues from low-linear energy transfer radiation at high dose and high dose rate).
- Uncertainties in the tissue-specific dose and dose rate effectiveness factor.
- Uncertainties in tissue-specific high-dose relative biological effectiveness.

For external radiation slope factors, additional sources of uncertainty are due to uncertainties in the transport of radiation from an environmental source to humans and the effects of age and gender. In *Uncertainties in Cancer Risk Coefficients for Environmental Exposure to Radionuclides, An Uncertainty Analysis for Risk Coefficients Reported in Federal Guidance Report No. 13* (Pawel et al., 2007), radionuclides were assigned to one of five uncertainty categories specified by the ratio of 95th and 5th quantiles of the slope factors (Q_{95}/Q_5) derived through Monte Carlo simulation:

- A: $Q_{95}/Q_5 < 15$,
- B: $15 \leq Q_{95}/Q_5 < 35$,
- C: $35 \leq Q_{95}/Q_5 < 50$,

- D: $50 \leq Q_{95}/Q_5 < 150$, and
- E: $Q_{95}/Q_5 \geq 150$.

Category A represents the most narrowly determined risk coefficients; Category E represents the least well characterized coefficients; and Categories B, C, and D represent intermediate, increasing levels of uncertainty. Assignment of a slope factor to an uncertainty category was based on propagation of uncertainties in components of a simplified version of the complex computational model used in "Cancer Risk Coefficients for Environmental Exposure to Radionuclides: CD Supplement" (EPA, 2002) to calculate the slope factors.

For Category A, the slope factor is considered to be determined within a factor of about 4. For Category B, the slope factor is considered to be determined within a factor of about 5; for Category C, the slope factor is considered to be determined within a factor of about 7. A slope factor in Category D is considered to be determined within a factor of about 10. A slope factor in Category E is considered to have an uncertainty of greater than a factor of 10. The radionuclides Cs-137 and Sr-90 were assigned to Category A, Co-60 was assigned to Category B, Ra-226 and U-235 were assigned to Category C, and Pu-239 was assigned to Category D.

Overall, the majority of assumptions and data used in the intertidal CSM are conservative and tend to overestimate exposure and risk. Therefore, the incremental risks to the receptors evaluated in this analysis and the resulting PALs are likely to be overestimated.

Subtidal CSM. The uncertainties in the subtidal CSM are similar to the uncertainties identified for the intertidal CSM. However, because the receptor is shielded by 3 feet of water, the importance of the external exposure pathway is greatly reduced. Exposure parameter values representative of the RME were used to estimate human health risks, and the uncertainties in the radiation slope factors would be similar to those identified for the intertidal CSM. As with the intertidal CSM, the majority of assumptions and data used in the subtidal CSM are conservative and tend to overestimate exposure and risk. Therefore, the incremental risks to the receptors evaluated in this analysis and the resulting PALs are likely to be overestimated.

3.5.2. Sediment Radionuclide Characterization Uncertainties

There are no obvious uncertainties associated with the sediment ROC analytical data. Because all Phase 2b sediment samples were analyzed by Test America, Inc., and were subject to rigorous QC and data validation procedures, uncertainties associated with potential peak overlap interference for Ra-226 and U-235 that were experienced in Phase 1 were considered highly unlikely for Phase 2b. Furthermore, the PAL calculations performed for Phase 2b allowed for higher levels of Ra-226 in the subtidal CSM due to the reduced risk of direct contact with sediment and an increased level of shielding. As a result, no erroneous PAL exceedances would be expected in the Phase 2b data analysis. Results indicated that no PAL exceedances were present.

3.5.3. Clam Tissue Bioaccumulation Uncertainties

There are no obvious uncertainties associated with the clam tissue ROC analytical data. Recovered clams were not allowed to purge their gut prior to tissue analysis, which resulted in a conservative assessment of risk to both human and ecological receptors. Including sediment contained in the gut as part of the tissue ROC analysis mimicked the worst-case consumption scenario.

There are many uncertainties in using one surrogate organism to represent all organisms in the Parcel F food web, including the wide variability of biota responses to contaminant exposure, variable prey preference, seasonal uptake variation, and habitat variability. However, using an in-situ exposure reduces laboratory confounding factors, and the clam species that was used is a well-documented surrogate for sediment bioaccumulation throughout San Francisco Bay.

3.5.4. Sediment Stability Uncertainties

There are no uncertainties associated with the Phase 2b sedflume results as these analyses were performed under controlled laboratory conditions. There is an appreciable level of uncertainty in the Phase 2b sediment age dating results, however, due to the absence of a strong and consistent relationship between Pb-210 activity and sample depth in each core. As a result, the sedimentation rate of approximately 2 cm/y calculated for geochronology core BS04-GC was based almost entirely on the presence of Cs-137 in site sediments. Regardless, this sedimentation rate is within the range expected at Parcel F and comparable to the sedimentation rate of 2.3 cm/y for location SA01 in the Submarine Area adjacent to India Basin that was reported in the Phase 2a investigation (Battelle and Sea Engineering, Inc. 2013).

3.6. Deviations from the Approved Work Plan

This section summarizes all field deviations from the approved Final DGI Work Plan (Battelle et al., 2011), as modified by ITSI Gilbane in November 2012, that occurred during the Phase 2b field effort. The sampling-related deviations are also presented in detail in the QCSR provided in Appendix E.

***Sediment Step-Out Sampling*.** The ITSI Gilbane modifications to the Final DGI Work Plan detailed 3 step-out samples to be collected around each of the 10 Phase 1 sampling locations at which the on-site laboratory results indicated Ra-226 PAL exceedances. These step-out samples would be necessary from a technical standpoint to bound potential areas of localized Ra-226 contamination. However, at the request of the BCT, the 15 total samples generated from these 10 locations were first retrieved from archive and re-analyzed by Test America, Inc., to confirm the exceedances before step-out samples were collected.

The re-analysis results indicated that the Phase 1 Ra-226 results from the on-site laboratory for all 10 sample locations in question were erroneous and confirmed that these locations actually had Ra-226 concentrations below the applicable intertidal CSM PAL. As a result, the step-out samples were deemed unnecessary. The step-out sampling task was cancelled, and all proposed step-out samples were designated as "NS*," thus indicating not sampled, in Table 2-1 of the QCSR (Appendix E). The results of the Phase 1 re-analysis are also discussed in Section 3.2.2 of this Technical Memorandum.

***Sediment Core Refusal*.** The ITSI Gilbane modifications to the Final DGI Work Plan called for analytical sediment cores to be collected in the Berths North area at locations BN221, BN222, BN223, BN224, BN225, BN226, BN227, BN228, BN229, and BN230. These locations were not sampled due to the presence of concrete at the bottom of Dry Dock 4, which would have resulted in immediate core refusal. All proposed samples from these locations were designated as "NS[1]," thus indicating not sampled due to a concrete bottom at Dry Dock 4, in Table 2-1 of the QCSR (Appendix E).

***Clam Tissue Analysis*.** The ITSI Gilbane modifications to the Final DGI Work Plan and associated SAP specified that the analytical laboratory combine all clams from the three replicate cages for each Parcel F location into one single composite sample for that location prior to radiological analysis. The analytical laboratory (Test America, Inc.) failed to create these composite samples and, instead, analyzed each replicate cage individually. The results of the three replicates were ultimately averaged by project data

analysts to generate a single clam tissue value for each Parcel F location for statistical analysis, as specified in the SAP. This action is also discussed in Section 3.3 of this Technical Memorandum.

***Sedflume Sampling*.** The ITSI Gilbane modifications to the Final DGI Work Plan and associated SAP specified that three sedflume cores would be collected for sediment stability analysis. However, radiological data from co-located handling cores indicated that one of the sedflume cores exceeded the revised release criterion for Cs-137, and thus could not be released to the sedflume contractor SEI. As a result, only two sedflume cores were submitted for sediment stability analysis. All sedflume results presented in Section 3.4.1 and Appendix D1 are based on these two sedflume cores only. Sedflume sampling is discussed in detail in Section 3.1.3 of this Technical Memorandum.

***Geochronology Laboratory*.** The ITSI Gilbane modifications to the Final DGI Work Plan and associated SAP identified Core Scientific as the analytical laboratory for radiological analysis of the geochronology core samples. However, Core Scientific did not possess the appropriate radioactive materials handling license from the NRC and a radio-bioassay accreditation from the Department of Energy Laboratory Approval Program, which are required to handle restricted materials from HPNS. Core Scientific was also unable to perform the dry weight bulk density analysis on the geochronology samples that was required by the SAP in addition to Pb-210 and Cs-137 radionuclide analysis. As a result, the geochronology cores were instead analyzed by Test America, Inc., for Pb-210 and Cs-137, as well as bulk density by American Society for Testing and Materials Method D2937M. The results were then directed to Core Scientific for sediment age dating interpretation with modeling and plotting. This change to the approved SAP was documented in Field Change Request 07225.0002.0002 (ITSI Gilbane, 2013), presented in Attachment C of the QCSR (Appendix E).

***ADCP Measurements*.** Although the ADCP data collection (time-series measurements of waves and currents) specified in the Final Parcel F Radiological DGI Work Plan was not included as a part of the Phase 2b field effort scope, the absence of new ADCP data was not critical to overall understanding of sediment stability at Parcel F.

ADCP data was originally intended to support the Phase 2b sediment stability analysis for Parcel F by updating the site hydrodynamic model (SEDZL; Battelle, 2007) with additional data to estimate the maximum possible erosion for extreme events. Because current velocity is reduced directly at the seafloor due to friction, direct measurements of the bottom layer velocity are most important for evaluating sediment transport. The "bottom-mounted" ADCP technology would have profiled the speed and direction of currents over discrete water column intervals between the sensor and the water surface but would not have been able to measure the speed and direction of currents directly at the seafloor at the point which it is mounted. Instead, bottom layer velocity would be predicted from the rate of change in measured layers above the bottom. These predictions would result in an appreciable level of uncertainty regarding sediment erosion, especially because bottom grain size and topography are expected to vary greatly across Parcel F. As a result, ADCP deployment was not considered critical to the overall understanding of sediment stability at Parcel F and was removed from the Phase 2b scope.

In the absence of new ADCP measurements, the same model predictions used in the Phase 2a sediment erosion calculations were applied to the Phase 2b sediment erosion calculations. This application is discussed in detail in Section 3.4.2 of this Technical Memorandum.

4.0. CONCLUSIONS AND DISCUSSION

This section summarizes the conclusions of the three types of analyses performed for the Phase 2b investigation (sediment radionuclides, clam tissue radionuclides, and sediment stability), as well as the uncertainties associated with all aspects of the Phase 2b analyses.

4.1. Sediment Radionuclides

Results of the WRS test that was completed on the Phase 2b sediment ROC data in accordance with MARSSIM guidance (NRC, 2000) indicated a very highly statistically significant rejection of the null hypothesis that the median ROC concentration in Parcel F exceeds the median ROC concentration in the San Francisco Bay reference areas for both the intertidal and subtidal exposure scenarios. Instead, the alternative hypothesis should be accepted that the median radionuclide concentration in Parcel F exceeds the median background concentration by *less* than the PAL or does not exceed the median background concentration. Further examination of the box plots (Figures 3-6 through 3-11) indicated that the median values of both the Phase 2b intertidal and subtidal data sets were actually less than the median value for the reference data set for four of the six ROCs. These results demonstrate the relative low concentrations of radionuclides in sediments within the study area at Parcel F. When analyzed on an individual basis, no Phase 2b samples had ROC concentrations exceeding any of the corresponding PALs. Finally, re-analysis, conducted in a fixed laboratory, of the Phase 1 samples with Ra-226 PAL exceedances did not confirm the elevated results reported by the on-site laboratory during the initial sampling event. In conclusion, no sediment ROC activity levels from the Phase 2b data were found to be toxic above background under either the intertidal or subtidal exposure scenarios.

4.2. Clam Tissue Radionuclides

Results of the Phase 2b clam tissue analysis indicated no evidence of bioaccumulation at Parcel F for any of the six ROCs. This conclusion is based on the low levels of ROCs in sediment grab samples and non-detect ROC results for all associated clam tissue samples at all clam sampling locations.

4.3. Sediment Stability

Sedflume results indicate that sediments from the two Phase 2b sedflume cores (BN312-SF and BS04-SF) have similar erosion energy properties, which are typical of consolidated cohesive sediment. Erosion rates decreased with depth within each core, likely the result of sediment compaction due to self-weight.

Sediment age dating results showed no exponential drop in Pb-210 activity as a function of depth in geochronology core BN312-GC, thus indicating this core was unsuitable for age dating analysis using regression. In contrast, geochronology core BS04-GC showed two apparent Pb-210 peaks, each with an approximately exponential drop in Pb-210 activity as a function of depth. Although the double Pb-210 peaks prevented quantitative age dating for the whole column using standard regression, a quantitative interpretation was possible for core BS04-GC using the associated Cs-137 data. Because all samples in core BS04-GC contain Cs-137, all sediments appear to have been deposited after 1952 and have exhibited a lower-bound sediment accumulation rate of 2 cm/y.

While the geochronology data are uncertain, the overall sediment stability data for Phase 2b indicate that the level of stability of site sediments is high enough that they are not likely to be eroded based on energies previously measured at the site.

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APPENDICES

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APPENDIX A

Field Documentation

Appendix A-1 Sample Log
Appendix A-2 Photographic Log
Appendix A-3 Boring Logs
Appendix A-4-1 Daily Field Logs
Appendix A-4-2 Tailgate Safety Meetings
Appendix A-4-3 Daily Production Reports
Appendix A-4-4 Daily Quality Control Reports
Appendix A-4-5 Preparatory Phase Checklists
Appendix A-4-6 Initial Phase Checklists
Appendix A-5 Clam Deployment Collection Logs
Appendix A-6 Sediment Core Disposal
Appendix A-7 Radiological Field Documents

APPENDIX A-1

Sample Log

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
SA410	SA410-1	ROC Core (Former Piers Area)	1	1	1	1			1/29/2013	1140	007305	7225.0002-0085	160-1358-1	3/21/13
SA410	SA410-2	ROC Core (Former Piers Area)			1	1			1/29/2013	1141	007305	7225.0002-0085	160-1358-1	3/21/13
SA410	SA410-3	ROC Core (Former Piers Area)			1	1			1/29/2013	1142	007306	7225.0002-0085	160-1358-1	3/21/13
SA410	SA410-4	ROC Core (Former Piers Area)			1	1			1/29/2013	1143	007306	7225.0002-0085	160-1358-1	3/21/13
SA411	SA411-1	ROC Core (Former Piers Area)	1	1	1	1			1/29/2013	0853	007305	7225.0002-0085	160-1358-1	3/21/13
SA411	SA411-2	ROC Core (Former Piers Area)			1	1			1/29/2013	0854	007305	7225.0002-0085	160-1358-1	3/21/13
SA411	SA411-3	ROC Core (Former Piers Area)			1	1			1/29/2013	0855	007305	7225.0002-0085	160-1358-1	3/21/13
SA411	SA411-4	ROC Core (Former Piers Area)			1	1			1/29/2013	0856	007305	7225.0002-0085	160-1358-1	3/21/13
SA412	SA412-1	ROC Core (Former Piers Area)	1	1	1	1			1/29/2013	0930	007305	7225.0002-0085	160-1358-1	3/21/13
SA412	SA412-2	ROC Core (Former Piers Area)			1	1			1/29/2013	0931	007305	7225.0002-0085	160-1358-1	3/21/13
SA412	SA412-3	ROC Core (Former Piers Area)			1	1			1/29/2013	0932	007305	7225.0002-0085	160-1358-1	3/21/13
SA412	SA412-4	ROC Core (Former Piers Area)			1	1			1/29/2013	0933	007305	7225.0002-0085	160-1358-1	3/21/13
SA413	SA413-1	ROC Core (Former Piers Area)	1	1	1	1			1/30/2013	1100	007265	7225.0002-0090	160-1378-1	3/21/13
SA413	SA413-2	ROC Core (Former Piers Area)			1	1			1/30/2013	1101	007265	7225.0002-0090	160-1378-1	3/21/13
SA413	SA413-3	ROC Core (Former Piers Area)			1	1			1/30/2013	1102	007266	7225.0002-0090	160-1378-1	3/21/13
SA413	SA413-4	ROC Core (Former Piers Area)			1	1			1/30/2013	1103	007266	7225.0002-0090	160-1378-1	3/21/13
SA414	SA414-1	ROC Core (Former Piers Area)-MS/MSD - RAD & GEOPHYSICAL	1	1	4	4			1/30/2013	0945	007265	7225.0002-0090	160-1378-1	3/21/13
SA414	SA414-2	ROC Core (Former Piers Area) - RAD & GEOPHYSICAL			2	2			1/30/2013	0946	007265	7225.0002-0090	160-1378-1	3/21/13
SA414	SA414-3	ROC Core (Former Piers Area) - RAD & GEOPHYSICAL			2	2			1/30/2013	0947	007265	7225.0002-0090	160-1378-1	3/21/13
SA414	SA414-4	ROC Core (Former Piers Area) - RAD & GEOPHYSICAL			2	2			1/30/2013	0948	007265	7225.0002-0090	160-1378-1	3/21/13
SA415	~~SA415-1~~	~~ROC Core (Former Piers Area)~~	1											
SA415	~~SA415-2~~	~~ROC Core (Former Piers Area)~~												
SA415	~~SA415-3~~	~~ROC Core (Former Piers Area)~~												
SA415	SA415-4	ROC Core (Former Piers Area)		1	1	1			1/30/2013	0920	007265	7225.0002-0090	160-1378-1	3/21/13
SA416	~~SA416-1~~	~~ROC Core (Former Piers Area)~~	1											
SA416	SA416-2	ROC Core (Former Piers Area)		1	1	1			1/30/2013	1155	007266	7225.0002-0090	160-1378-1	3/21/13
SA416	SA416-3	ROC Core (Former Piers Area)			1	1			1/30/2013	1156	007266	7225.0002-0090	160-1378-1	3/21/13
SA416	SA416-4	ROC Core (Former Piers Area)			1	1			1/30/2013	1157	007266	7225.0002-0090	160-1378-1	3/21/13
SA417	~~SA417-1~~	~~ROC Core (Former Piers Area)~~	1											
SA417	~~SA417-2~~	~~ROC Core (Former Piers Area)~~												
SA417	SA417-3	ROC Core (Former Piers Area)		1	1	1			1/30/2013	0842	007265	7225.0002-0090	160-1378-1	3/21/13
SA417	SA417-4	ROC Core (Former Piers Area)			1	1			1/30/2013	0843	007265	7225.0002-0090	160-1378-1	3/21/13
SA418	SA418-1	ROC Core (Former Piers Area)	1	1	1	1			1/30/2013	1140	007266	7225.0002-0090	160-1378-1	3/21/13
SA418	SA418-2	ROC Core (Former Piers Area)			1	1			1/30/2013	1141	007266	7225.0002-0090	160-1378-1	3/21/13
SA418	SA418-3	ROC Core (Former Piers Area)			1	1			1/30/2013	1142	007266	7225.0002-0090	160-1378-1	3/21/13
SA418	SA418-4	ROC Core (Former Piers Area)			1	1			1/30/2013	1143	007266	7225.0002-0090	160-1378-1	3/21/13
SA419	~~SA419-1~~	~~ROC Core (Former Piers Area)~~	1											
SA419	SA419-2	ROC Core (Former Piers Area)		1	1	1			1/30/2013	1300	007266	7225.0002-0090	160-1378-1	3/21/13
SA419	SA419-3	ROC Core (Former Piers Area)			1	1			1/30/2013	1301	007267	7225.0002-0090	160-1378-1	3/21/13
SA419	SA419-4	ROC Core (Former Piers Area)			1	1			1/30/2013	1302	007267	7225.0002-0090	160-1378-1	3/21/13
SA420	SA420-1	ROC Core (Step-out centered on SA05)	1	1	1	1			1/30/2013	1345	007267	7225.0002-0090	160-1378-1	3/21/13
SA420	SA420-2	ROC Core (Step-out centered on SA05)			1	1			1/30/2013	1346	007267	7225.0002-0090	160-1378-1	3/21/13
SA420	SA420-3	ROC Core (Step-out centered on SA05)			1	1			1/30/2013	1347	007267	7225.0002-0090	160-1378-1	3/21/13
SA420	SA420-4	ROC Core (Step-out centered on SA05)			1	1			1/30/2013	1348	007267	7225.0002-0090	160-1378-1	3/21/13
SA421	SA421-1	ROC Core (Step-out centered on SA05)	1	1	1	1			1/30/2013	1450	007268	7225.0002-0090	160-1378-1	3/21/13
SA421	SA421-2	ROC Core (Step-out centered on SA05)			1	1			1/30/2013	1451	007268	7225.0002-0090	160-1378-1	3/21/13
SA421	SA421-3	ROC Core (Step-out centered on SA05)			1	1			1/30/2013	1452	007268	7225.0002-0090	160-1378-1	3/21/13
SA421	SA421-4	ROC Core (Step-out centered on SA05)			1	1			1/30/2013	1453	007268	7225.0002-0090	160-1378-1	3/21/13
SA422	SA422-1	ROC Core (Step-out centered on SA05) - RAD & GEOPHYSICAL	1	1	2	2			1/31/2013	0850	007270	7225.0002-0096	160-1423-1	3/14/13
SA422	SA422-2	ROC Core (Step-out centered on SA05) - RAD & GEOPHYSICAL			2	2			1/31/2013	0851	007270	7225.0002-0096	160-1423-1	3/14/13
SA422	SA422-3	ROC Core (Step-out centered on SA05) - RAD & GEOPHYSICAL			2	2			1/31/2013	0852	007270	7225.0002-0096	160-1423-1	3/14/13
SA422	SA422-4	ROC Core (Step-out centered on SA05) - RAD & GEOPHYSICAL			2	2			1/31/2013	0853	007270	7225.0002-0096	160-1423-1	3/14/13
~~SA423~~	~~SA423-1~~	~~ROC Core (Step-out centered on SA01)~~												
~~SA423~~	~~SA423-2~~	~~ROC Core (Step-out centered on SA01)~~												
~~SA423~~	~~SA423-3~~	~~ROC Core (Step-out centered on SA01)~~												
~~SA423~~	~~SA423-4~~	~~ROC Core (Step-out centered on SA01)~~												
~~SA424~~	~~SA424-1~~	~~ROC Core (Step-out centered on SA01)~~												
~~SA424~~	~~SA424-2~~	~~ROC Core (Step-out centered on SA01)~~												
~~SA424~~	~~SA424-3~~	~~ROC Core (Step-out centered on SA01)~~												

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
~~SA424~~	~~SA424-4~~	~~ROC Core (Step-out centered on SA01)~~												
~~SA425~~	~~SA425-1~~	~~ROC Core (Step-out centered on SA01)~~												
~~SA425~~	~~SA425-2~~	~~ROC Core (Step-out centered on SA01)~~												
~~SA425~~	~~SA425-3~~	~~ROC Core (Step-out centered on SA01)~~												
~~SA425~~	~~SA425-4~~	~~ROC Core (Step-out centered on SA01)~~												
SA426	SA426-1	ROC Core (Step-out centered on SA05)	1	1	1	1			1/30/2013	1423	007267	7225.0002-0090	160-1378-1	3/21/13
SA426	SA426-2	ROC Core (Step-out centered on SA05)			1	1			1/30/2013	1424	007267	7225.0002-0090	160-1378-1	3/21/13
SA426	SA426-3	ROC Core (Step-out centered on SA05)			1	1			1/30/2013	1425	007267	7225.0002-0090	160-1378-1	3/21/13
SA426	SA426-4	ROC Core (Step-out centered on SA05)			1	1			1/30/2013	1426	007267	7225.0002-0090	160-1378-1	3/21/13
BN11A	BN11A-1TS	*Macoma nasuta* - DEPLOYED 1/3/13						1	2/5/2013	1505	007307	7225.0002-0105	160-1496-1	2/28/13
BN11A	BN11A-2TS	*Macoma nasuta* - DEPLOYED 1/3/13							2/5/2013	1520	007307	7225.0002-0105	160-1496-1	2/28/13
BN11A	BN11A-3TS	*Macoma nasuta* - DEPLOYED 1/3/13							2/5/2013	1540	007307	7225.0002-0105	160-1496-1	2/28/13
BN11A	BN11A-VV	*Macoma nasuta - sediment (van veen)*			1	1	1		1/3/2013	1425	007208	7225.0002-0007	160-1231-1	2/12/13
BN101	BN101-1	ROC Core (Confirmatory)	1	1	1	1			1/16/2013	1012	007228	7225.0002-0046	160-1293-1	2/27/13
BN101	BN101-2	ROC Core (Confirmatory)			1	1			1/16/2013	1013	007228	7225.0002-0046	160-1293-1	2/27/13
BN101	BN101-3	ROC Core (Confirmatory)			1	1			1/16/2013	1014	007229	7225.0002-0046	160-1293-1	2/27/13
BN101	BN101-4	ROC Core (Confirmatory)			1	1			1/16/2013	1015	007229	7225.0002-0046	160-1293-1	2/27/13
BN102	BN102-1	ROC Core (Confirmatory)	1	1	1	1			1/15/2013	1432	007227	7225.0002-0042	160-1284-1	2/28/13
BN102	BN102-2	ROC Core (Confirmatory)			1	1			1/15/2013	1433	007227	7225.0002-0042	160-1284-1	2/28/13
BN102	BN102-3	ROC Core (Confirmatory)			1	1			1/15/2013	1434	007227	7225.0002-0042	160-1284-1	2/28/13
BN102	BN102-4	ROC Core (Confirmatory)			1	1			1/15/2013	1435	007227	7225.0002-0042	160-1284-1	2/28/13
BN103	~~BN103-1~~	~~ROC Core (Confirmatory)~~	1											
BN103	~~BN103-2~~	~~ROC Core (Confirmatory)~~												
BN103	BN103-3	ROC Core (Confirmatory)		1	1	1			1/15/2013	1340	007226	7225.0002-0042	160-1284-1	2/28/13
BN103	BN103-4	ROC Core (Confirmatory)			1	1			1/15/2013	1341	007227	7225.0002-0042	160-1284-1	2/28/13
BN104	BN104-1	ROC Core (Confirmatory)	1	1	1	1			1/10/2013	900	007219	7225.0002-0033	160-1267-1	2/25/13
BN104	BN104-2	ROC Core (Confirmatory)			1	1			1/10/2013	901	007219	7225.0002-0033	160-1267-1	2/25/13
BN104	BN104-3	ROC Core (Confirmatory)			1	1			1/10/2013	902	007219	7225.0002-0033	160-1267-1	2/25/13
BN104	BN104-4	ROC Core (Confirmatory)			1	1			1/10/2013	903	007219	7225.0002-0033	160-1267-1	2/25/13
BN105	BN105-1	ROC Core (Confirmatory) - MS/MSD	1	1	7	7			1/10/2013	953	007219	7225.0002-0033	160-1267-1	2/25/13
BN105	BN105-2	ROC Core (Confirmatory)			1	1			1/10/2013	954	007219	7225.0002-0033	160-1267-1	2/25/13
BN105	BN105-3	ROC Core (Confirmatory)			1	1			1/10/2013	955	007219	7225.0002-0033	160-1267-1	2/25/13
BN105	BN105-4	ROC Core (Confirmatory)			1	1			1/10/2013	956	007219	7225.0002-0033	160-1267-1	2/25/13
BN106	~~BN106-1~~	~~ROC Core (Confirmatory)~~	1											
BN106	BN106-2	ROC Core (Confirmatory) - RAD & GEOPHYSICAL		1	2	2			1/10/2013	1030	007219	7225.0002-0033	160-1267-1	2/25/13
BN106	BN106-3	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/10/2013	1031	007219	7225.0002-0033	160-1267-1	2/25/13
BN106	BN106-4	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/10/2013	1032	007220	7225.0002-0033	160-1267-1	2/25/13
BN107	BN107-1	ROC Core (Confirmatory)	1	1	1	1			1/15/2013	903	007225	7225.0002-0042	160-1284-1	2/28/13
BN107	BN107-2	ROC Core (Confirmatory)			1	1			1/15/2013	904	007225	7225.0002-0042	160-1284-1	2/28/13
BN107	BN107-3	ROC Core (Confirmatory)			1	1			1/15/2013	905	007225	7225.0002-0042	160-1284-1	2/28/13
BN107	BN107-4	ROC Core (Confirmatory)			1	1			1/15/2013	906	007225	7225.0002-0042	160-1284-1	2/28/13
BN108	BN108-1	ROC Core (Confirmatory)	1	1	3	3			1/14/2013	1500	007224	7225.0002-0037	160-1277-1	2/25/13
BN108	~~BN108-2~~	~~ROC Core (Confirmatory)~~												
BN108	~~BN108-3~~	~~ROC Core (Confirmatory)~~												
BN108	~~BN108-4~~	~~ROC Core (Confirmatory)~~												
BN109	BN109-1	ROC Core (Confirmatory)	1	1	1	1			1/15/2013	940	007225	7225.0002-0042	160-1284-1	2/28/13
BN109	BN109-2	ROC Core (Confirmatory)			1	1			1/15/2013	941	007225	7225.0002-0042	160-1284-1	2/28/13
BN109	BN109-3	ROC Core (Confirmatory)			1	1			1/15/2013	942	007225	7225.0002-0042	160-1284-1	2/28/13
BN109	BN109-4	ROC Core (Confirmatory)			1	1			1/15/2013	943	007225	7225.0002-0042	160-1284-1	2/28/13
BN110	~~BN110-1~~	~~ROC Core (Confirmatory)~~												
BN110	BN110-2	ROC Core (Confirmatory) - MS/MSD	1	1	7	7			1/15/2013	1110	007226	7225.0002-0042	160-1284-1	2/28/13
BN110	BN110-3	ROC Core (Confirmatory)			1	1			1/15/2013	1111	007226	7225.0002-0042	160-1284-1	2/28/13
BN110	BN110-4	ROC Core (Confirmatory)			1	1			1/15/2013	1112	007226	7225.0002-0042	160-1284-1	2/28/13
BN111	BN111-1	**ADCP**, ROC Core (Confirmatory)	1	1	1	1			1/15/2013	1020	007225	7225.0002-0042	160-1284-1	2/28/13
BN111	BN111-2	**ADCP**, ROC Core (Confirmatory)			1	1			1/15/2013	1021	007225	7225.0002-0042	160-1284-1	2/28/13
BN111	BN111-3	**ADCP**, ROC Core (Confirmatory)			1	1			1/15/2013	1022	007226	7225.0002-0042	160-1284-1	2/28/13
BN111	BN111-4	**ADCP**, ROC Core (Confirmatory)			1	1			1/15/2013	1023	007226	7225.0002-0042	160-1284-1	2/28/13
BN201	BN201-1	ROC Core (AOC) - RAD & GEOPHYSICAL	1	1	2	2			2/4/2013	1330	007275	7225.0002-0101	160-1466-1	3/22/13
BN201	BN201-2	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			2/4/2013	1331	007275	7225.0002-0101	160-1466-1	3/22/13

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
BN201	BN201-3	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			2/4/2013	1332	007275	7225.0002-0101	160-1466-1	3/22/13
BN201	BN201-4	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			2/4/2013	1333	007275	7225.0002-0101	160-1466-1	3/22/13
BN202	BN202-1	ROC Core (AOC)	1	1	1	1			2/4/2013	1440	007275	7225.0002-0101	160-1466-1	3/22/13
BN202	BN202-2	ROC Core (AOC)			1	1			2/4/2013	1441	007275	7225.0002-0101	160-1466-1	3/22/13
BN202	BN202-3	ROC Core (AOC)			1	1			2/4/2013	1442	007275	7225.0002-0101	160-1466-1	3/22/13
BN202	BN202-4	ROC Core (AOC)			1	1			2/4/2013	1443	007275	7225.0002-0101	160-1466-1	3/22/13
BN203	~~BN203-1~~	~~ROC Core (AOC)~~	1											
BN203	BN203-2	ROC Core (AOC) - MS/MSD		1	7	7			1/9/2013	1432	007213	7225.0002-0026	160-1250-1	2/11/13
BN203	BN203-3	ROC Core (AOC)			1	1			1/9/2013	1434	007213	7225.0002-0026	160-1250-1	2/11/13
BN203	BN203-4	ROC Core (AOC)			1	1			1/9/2013	1436	007214	7225.0002-0026	160-1250-1	2/11/13
BN204	BN204-1	ROC Core (AOC)	1	1	1	1			1/9/2013	1411	007214	7225.0002-0026	160-1250-1	2/11/13
BN204	BN204-2	ROC Core (AOC)			1	1			1/9/2013	1413	007214	7225.0002-0026	160-1250-1	2/11/13
BN204	BN204-3	ROC Core (AOC)			1	1			1/9/2013	1415	007214	7225.0002-0026	160-1250-1	2/11/13
BN204	BN204-4	ROC Core (AOC)			1	1			1/9/2013	1417	007214	7225.0002-0026	160-1250-1	2/11/13
BN205	BN205-1	ROC Core (AOC)	1	1	1	1			1/9/2013	1325	007213	7225.0002-0026	160-1250-1	2/11/13
BN205	BN205-2	ROC Core (AOC)			1	1			1/9/2013	1327	007213	7225.0002-0026	160-1250-1	2/11/13
BN205	BN205-3	ROC Core (AOC)			1	1			1/9/2013	1329	007213	7225.0002-0026	160-1250-1	2/11/13
BN205	BN205-4	ROC Core (AOC)			1	1			1/9/2013	1331	007213	7225.0002-0026	160-1250-1	2/11/13
BN206	BN206-1	ROC Core (AOC)	1	1	1	1			1/9/2013	1243	007213	7225.0002-0026	160-1250-1	2/11/13
BN206	BN206-2	ROC Core (AOC)			1	1			1/9/2013	1245	007213	7225.0002-0026	160-1250-1	2/11/13
BN206	BN206-3	ROC Core (AOC)			1	1			1/9/2013	1247	007213	7225.0002-0026	160-1250-1	2/11/13
BN206	BN206-4	ROC Core (AOC)			1	1			1/9/2013	1249	007213	7225.0002-0026	160-1250-1	2/11/13
BN207	~~BN207-1~~	~~ROC Core (AOC)~~	1											
BN207	BN207-2	ROC Core (AOC)		1	1	1			1/9/2013	1113	007212	7225.0002-0026	160-1250-1	2/11/13
BN207	BN207-3	ROC Core (AOC)			1	1			1/9/2013	1115	007212	7225.0002-0026	160-1250-1	2/11/13
BN207	BN207-4	ROC Core (AOC)			1	1			1/9/2013	1117	007212	7225.0002-0026	160-1250-1	2/11/13
BN208	~~BN208-1~~	~~ROC Core (AOC)~~	1											
BN208	BN208-2	ROC Core (AOC) - MS/MSD		1	7	7			1/9/2013	1015	007214	7225.0002-0026	160-1250-1	2/11/13
BN208	BN208-3	ROC Core (AOC)			1	1			1/9/2013	1017	007214	7225.0002-0026	160-1250-1	2/11/13
BN208	BN208-4	ROC Core (AOC)			1	1			1/9/2013	1019	007214	7225.0002-0026	160-1250-1	2/11/13
BN209	~~BN209-1~~	~~ROC Core (AOC)~~	1											
BN209	BN209-2	ROC Core (AOC)		1	1	1			1/9/2013	930	007212	7225.0002-0026	160-1250-1	2/11/13
BN209	BN209-3	ROC Core (AOC)			1	1			1/9/2013	932	007212	7225.0002-0026	160-1250-1	2/11/13
BN209	BN209-4	ROC Core (AOC)			1	1			1/9/2013	934	007212	7225.0002-0026	160-1250-1	2/11/13
BN210	~~BN210-1~~	~~ROC Core (AOC)~~	1											
BN210	BN210-2	ROC Core (AOC)		1	1	1			1/9/2013	850	007212	7225.0002-0026	160-1250-1	2/11/13
BN210	BN210-3	ROC Core (AOC)			1	1			1/9/2013	850	007212	7225.0002-0026	160-1250-1	2/11/13
BN210	BN210-4	ROC Core (AOC)			1	1			1/9/2013	850	007212	7225.0002-0026	160-1250-1	2/11/13
BN211	~~BN211-1~~	~~ROC Core (AOC)~~	1											
BN211	~~BN211-2~~	~~ROC Core (AOC)~~												
BN211	BN211-3	ROC Core (AOC)		1	1	1			1/7/2013	1232	007209	7225.0002-0017	160-1241-1	2/18/13
BN211	BN211-4	ROC Core (AOC)			1	1			1/7/2013	1230	007209	7225.0002-0017	160-1241-1	2/18/13
BN212	BN212-1	ROC Core (AOC)	1	1	1	1			1/7/2013	1255	007209	7225.0002-0017	160-1241-1	2/18/13
BN212	BN212-2	ROC Core (AOC)			1	1			1/7/2013	1300	007209	7225.0002-0017	160-1241-1	2/18/13
BN212	BN212-3	ROC Core (AOC)			1	1			1/7/2013	1303	007209	7225.0002-0017	160-1241-1	2/18/13
BN212	BN212-4	ROC Core (AOC)			1	1			1/7/2013	1305	007209	7225.0002-0017	160-1241-1	2/18/13
BN213	BN213-1	ROC Core (AOC)	1	1	1	1			1/7/2013	1350	007209	7225.0002-0017	160-1241-1	2/18/13
BN213	BN213-2	ROC Core (AOC)			1	1			1/7/2013	1352	007209	7225.0002-0017	160-1241-1	2/18/13
BN213	BN213-3	ROC Core (AOC)			1	1			1/7/2013	1354	007209	7225.0002-0017	160-1241-1	2/18/13
BN213	BN213-4	ROC Core (AOC)			1	1			1/7/2013	1355	007209	7225.0002-0017	160-1241-1	2/18/13
BN214	BN214-1	ROC Core (AOC) - MS/MSD	1	1	7	7			1/8/2013	835	007251	7225.0002-0021	160-1245-1	2/26/13
BN214	BN214-2	ROC Core (AOC)			1	1			1/8/2013	836	007251	7225.0002-0021	160-1245-1	2/26/13
BN214	BN214-3	ROC Core (AOC)			1	1			1/8/2013	837	007251	7225.0002-0021	160-1245-1	2/26/13
BN214	BN214-4	ROC Core (AOC)			1	1			1/8/2013	838	007251	7225.0002-0021	160-1245-1	2/26/13
BN215	~~BN215-1~~	~~ROC Core (AOC)~~	1											
BN215	~~BN215-2~~	~~ROC Core (AOC)~~												
BN215	BN215-3	ROC Core (AOC)		1	1	1			1/8/2013	930	007251	7225.0002-0021	160-1245-1	2/26/13
BN215	BN215-4	ROC Core (AOC)			1	1			1/8/2013	931	007251	7225.0002-0021	160-1245-1	2/26/13
BN216	BN216-1	ROC Core (AOC) - RAD	1	1	1	1			1/8/2013	1010	007251	7225.0002-0021	160-1245-1	2/26/13

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
BN216	BN216-2	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			1/8/2013	1012	007251	7225.0002-0021	160-1245-1	2/26/13
BN216	BN216-3	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			1/8/2013	1013	007251	7225.0002-0021	160-1245-1	2/26/13
BN216	BN216-4	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			1/8/2013	1014	007251	7225.0002-0021	160-1245-1	2/26/13
BN217	~~BN217-1~~	~~ROC Core (AOC)~~	1											
BN217	~~BN217-2~~	~~ROC Core (AOC)~~												
BN217	BN217-3	ROC Core (AOC)		1	1	1			1/8/2013	1116	007253	7225.0002-0021	160-1245-1	2/26/13
BN217	BN217-4	ROC Core (AOC)			1	1			1/8/2013	1117	007253	7225.0002-0021	160-1245-1	2/26/13
BN218	~~BN218-1~~	~~ROC Core (AOC)~~	1											
BN218	BN218-2	ROC Core (AOC)		1	1	1			1/8/2013	1220	007253	7225.0002-0021	160-1245-1	2/26/13
BN218	BN218-3	ROC Core (AOC)			1	1			1/8/2013	1222	007253	7225.0002-0021	160-1245-1	2/26/13
BN218	BN218-4	ROC Core (AOC)			1	1			1/8/2013	1223	007253	7225.0002-0021	160-1245-1	2/26/13
BN219	~~BN219-1~~	~~ROC Core (AOC)~~	1											
BN219	BN219-2	ROC Core (AOC)		1	1	1			1/8/2013	1410	007253	7225.0002-0021	160-1245-1	2/26/13
BN219	BN219-3	ROC Core (AOC)			1	1			1/8/2013	1411	007253	7225.0002-0021	160-1245-1	2/26/13
BN219	BN219-4	ROC Core (AOC)			1	1			1/8/2013	1412	007253	7225.0002-0021	160-1245-1	2/26/13
BN220	~~BN220-1~~	~~ROC Core (AOC)~~	1											
BN220	~~BN220-2~~	~~ROC Core (AOC)~~												
BN220	BN220-3	ROC Core (AOC)		1	7	7			1/8/2013	1440	007253	7225.0002-0021	160-1245-1	2/26/13
BN220	BN220-4	ROC Core (AOC)			1	1			1/8/2013	1442	007253	7225.0002-0021	160-1245-1	2/26/13
BN221	BN221-1	ROC Core (AOC)	1	1	3	3			1/4/2013	1343	007208	7225.0002-0012	160-1231-1	2/12/13
BN221	~~BN221-2~~	~~ROC Core (AOC)~~												
BN221	~~BN221-3~~	~~ROC Core (AOC)~~												
BN221	~~BN221-4~~	~~ROC Core (AOC)~~												
BN222	BN222-1	ROC Core (AOC) - MS/MSD	1	1	7	7			1/4/2013	1415	007208	7225.0002-0012	160-1231-1	2/12/13
BN222	~~BN222-2~~	~~ROC Core (AOC)~~												
BN222	~~BN222-3~~	~~ROC Core (AOC)~~												
BN222	~~BN222-4~~	~~ROC Core (AOC)~~												
BN223	BN223-1	ROC Core (AOC)	1	1	3	3			1/4/2013	1435	007208	7225.0002-0012	160-1231-1	2/12/13
BN223	~~BN223-2~~	~~ROC Core (AOC)~~												
BN223	~~BN223-3~~	~~ROC Core (AOC)~~												
BN223	~~BN223-4~~	~~ROC Core (AOC)~~												
BN224	BN224-1	ROC Core (AOC)	1	1	3	3			1/7/2013	903	007208	7225.0002-0017	160-1241-1	2/18/13
BN224	~~BN224-2~~	~~ROC Core (AOC)~~												
BN224	~~BN224-3~~	~~ROC Core (AOC)~~												
BN224	~~BN224-4~~	~~ROC Core (AOC)~~												
BN225	BN225-1	ROC Core (AOC)	1	1	3	3			1/7/2013	919	007208	7225.0002-0017	160-1241-1	2/18/13
BN225	~~BN225-2~~	~~ROC Core (AOC)~~												
BN225	~~BN225-3~~	~~ROC Core (AOC)~~												
BN225	~~BN225-4~~	~~ROC Core (AOC)~~												
BN226	BN226-1	ROC Core (AOC)	1	1	3	3			1/7/2013	936	007208	7225.0002-0017	160-1241-1	2/18/13
BN226	~~BN226-2~~	~~ROC Core (AOC)~~												
BN226	~~BN226-3~~	~~ROC Core (AOC)~~												
BN226	~~BN226-4~~	~~ROC Core (AOC)~~												
BN227	BN227-1	ROC Core (AOC) - MS/MSD	1	1	7	7			1/7/2013	954	007252	7225.0002-0017	160-1241-1	2/18/13
BN227	~~BN227-2~~	~~ROC Core (AOC)~~												
BN227	~~BN227-3~~	~~ROC Core (AOC)~~												
BN227	~~BN227-4~~	~~ROC Core (AOC)~~												
BN228	BN228-1	ROC Core (AOC)	1	1	3	3			1/7/2013	1010	007252	7225.0002-0017	160-1241-1	2/18/13
BN228	~~BN228-2~~	~~ROC Core (AOC)~~												
BN228	~~BN228-3~~	~~ROC Core (AOC)~~												
BN228	~~BN228-4~~	~~ROC Core (AOC)~~												
BN229	BN229-1	ROC Core (AOC)	1	1	1	1			1/7/2013	1041	007252	7225.0002-0017	160-1241-1	2/18/13
BN229	~~BN229-2~~	~~ROC Core (AOC)~~												
BN229	~~BN229-3~~	~~ROC Core (AOC)~~												
BN229	~~BN229-4~~	~~ROC Core (AOC)~~												
BN230	BN230-1	ROC Core (AOC)	1	1	3	3			1/7/2013	1024	007252	7225.0002-0017	160-1241-1	2/18/13
BN230	~~BN230-2~~	~~ROC Core (AOC)~~												
BN230	~~BN230-3~~	~~ROC Core (AOC)~~												
BN230	~~BN230-4~~	~~ROC Core (AOC)~~												

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
BN307	BN307-1	ROC Core (Drydock Discharge) - RAD & GEOPHYSICAL	1	1	2	2			1/24/2013	1510	007249	7225.0002-0069	160-1345-1	3/5/13
BN307	BN307-2	ROC Core (Drydock Discharge) - RAD & GEOPHYSICAL			2	2			1/24/2013	1511	007249	7225.0002-0069	160-1345-1	3/5/13
BN307	BN307-3	ROC Core (Drydock Discharge) - RAD & GEOPHYSICAL			2	2			1/24/2013	1512	007249	7225.0002-0069	160-1345-1	3/5/13
BN307	BN307-4	ROC Core (Drydock Discharge) - RAD & GEOPHYSICAL			2	2			1/24/2013	1513	007249	7225.0002-0069	160-1345-1	3/5/13
BN308	BN308-1	ROC Core (Drydock Discharge)	1	1	1	1			1/24/2013	1440	007248	7225.0002-0069	160-1345-1	3/5/13
BN308	BN308-2	ROC Core (Drydock Discharge)			1	1			1/24/2013	1441	007248	7225.0002-0069	160-1345-1	3/5/13
BN308	BN308-3	ROC Core (Drydock Discharge)			1	1			1/24/2013	1442	007248	7225.0002-0069	160-1345-1	3/5/13
BN308	BN308-4	ROC Core (Drydock Discharge)			1	1			1/24/2013	1443	007248	7225.0002-0069	160-1345-1	3/5/13
BN309	BN309-1	ROC Core (Drydock Discharge)	1	1	1	1			1/15/2013	1520	007227	7225.0002-0042	160-1284-1	2/28/13
BN309	BN309-2	ROC Core (Drydock Discharge)			1	1			1/15/2013	1521	007227	7225.0002-0042	160-1284-1	2/28/13
BN309	BN309-3	ROC Core (Drydock Discharge)			1	1			1/15/2013	1522	007227	7225.0002-0042	160-1284-1	2/28/13
BN309	BN309-4	ROC Core (Drydock Discharge)			1	1			1/15/2013	1523	007227	7225.0002-0042	160-1284-1	2/28/13
BN310	BN310-1	ROC Core (Drydock Discharge)	1	1	1	1			1/16/2013	910	007228	7225.0002-0046	160-1293-1	2/27/13
BN310	BN310-2	ROC Core (Drydock Discharge)			1	1			1/16/2013	911	007228	7225.0002-0046	160-1293-1	2/27/13
BN310	BN310-3	ROC Core (Drydock Discharge)			1	1			1/16/2013	912	007228	7225.0002-0046	160-1293-1	2/27/13
BN310	BN310-4	ROC Core (Drydock Discharge)			1	1			1/16/2013	913	007228	7225.0002-0046	160-1293-1	2/27/13
BN311	BN311-1	ROC Core (Drydock Discharge)	1	1	1	1			1/16/2013	930	007228	7225.0002-0046	160-1293-1	2/27/13
BN311	BN311-2	ROC Core (Drydock Discharge)			1	1			1/16/2013	931	007228	7225.0002-0046	160-1293-1	2/27/13
BN311	BN311-3	ROC Core (Drydock Discharge)			1	1			1/16/2013	932	007228	7225.0002-0046	160-1293-1	2/27/13
BN311	BN311-4	ROC Core (Drydock Discharge)			1	1			1/16/2013	933	007228	7225.0002-0046	160-1293-1	2/27/13
BN312	BN312-1	ROC Core (Drydock Discharge);	1	1	1	1			1/24/2013	1413	007248	7225.0002-0069	160-1345-1	3/5/13
BN312	BN312-2	ROC Core (Drydock Discharge);			1	1			1/24/2013	1414	007248	7225.0002-0069	160-1345-1	3/5/13
BN312	BN312-3	ROC Core (Drydock Discharge);			1	1			1/24/2013	1415	007248	7225.0002-0069	160-1345-1	3/5/13
BN312	BN312-4	ROC Core (Drydock Discharge);			1	1			1/24/2013	1416	007248	7225.0002-0069	160-1345-1	3/5/13
BN312	BN312-SF	(Drydock Discharge); Sedflume	1	1	1	1			2/11/2013			7225.0002-0119		
BN312	BN312-1SF	(Drydock Discharge); Sedflume - RAD CONFIRMATION			1	1			2/11/2013	1056	007280	7225.0002-0119	160-1509-1	3/18/13
BN312	BN312-2SF	(Drydock Discharge); Sedflume - RAD CONFIRMATION			1	1			2/11/2013	1057	007280	7225.0002-0119	160-1509-1	3/18/13
BN312	BN312-GC1	(Drydock Discharge); Geochronology;	1	1	1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC2	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC3	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC4	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC5	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC6	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC7	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC8	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC9	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC10	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC11	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC12	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC13	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC14	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN312	BN312-GC15	(Drydock Discharge); Geochronology;			1	1			2/4/2013	1145		7225.0002-0132	160-1553-1	3/12/13
BN313	BN313-1	ROC Core (Drydock Discharge)	1	1	1	1			1/10/2013	1300	007220	7225.0002-0033	160-1267-1	2/25/13
BN313	BN313-2	ROC Core (Drydock Discharge)			1	1			1/10/2013	1304	007220	7225.0002-0033	160-1267-1	2/25/13
BN313	BN313-3	ROC Core (Drydock Discharge)			1	1			1/10/2013	1306	007220	7225.0002-0033	160-1267-1	2/25/13
BN313	BN313-4	ROC Core (Drydock Discharge)			1	1			1/10/2013	1308	007220	7225.0002-0033	160-1267-1	2/25/13
BN314	~~BN314-1~~	~~ROC Core (Drydock Discharge)~~	1											
BN314	BN314-2	ROC Core (Drydock Discharge)		1	1	1			1/10/2013	1340	007220	7225.0002-0033	160-1267-1	2/25/13
BN314	BN314-3	ROC Core (Drydock Discharge)			1	1			1/10/2013	1342	007220	7225.0002-0033	160-1267-1	2/25/13
BN314	BN314-4	ROC Core (Drydock Discharge)			1	1			1/10/2013	1344	007220	7225.0002-0033	160-1267-1	2/25/13
BN315	BN315-1	ROC Core (Drydock Discharge)	1	1	1	1			1/10/2013	1420	007220	7225.0002-0033	160-1267-1	2/25/13
BN315	BN315-2	ROC Core (Drydock Discharge)			1	1			1/10/2013	1421	007220	7225.0002-0033	160-1267-1	2/25/13
BN315	BN315-3	ROC Core (Drydock Discharge)			1	1			1/10/2013	1422	007221	7225.0002-0033	160-1267-1	2/25/13
BN315	BN315-4	ROC Core (Drydock Discharge)			1	1			1/10/2013	1424	007221	7225.0002-0033	160-1267-1	2/25/13
BN316	BN316-1	ROC Core (Drydock Discharge)	1	1	1	1			1/15/2013	1250	007226	7225.0002-0042	160-1284-1	2/28/13
BN316	BN316-2	ROC Core (Drydock Discharge)			1	1			1/15/2013	1251	007226	7225.0002-0042	160-1284-1	2/28/13
BN316	BN316-3	ROC Core (Drydock Discharge)			1	1			1/15/2013	1252	007226	7225.0002-0042	160-1284-1	2/28/13
BN316	BN316-4	ROC Core (Drydock Discharge)			1	1			1/15/2013	1253	007226	7225.0002-0042	160-1284-1	2/28/13
BN316	BN316-SF	(Drydock Discharge); Sedflume	1	1	1	1			2/11/2013			7225.0002-0119		

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
BN316	BN316-1SF	(Drydock Discharge); Sedflume - RAD CONFIRMATION			1	1			2/11/2013	1145	007280	7225.0002-0119	160-1509-1	3/18/13
BN316	BN316-2SF	(Drydock Discharge); Sedflume - RAD CONFIRMATION			1	1			2/11/2013	1146	007280	7225.0002-0119	160-1509-1	3/18/13
BN317	BN317-1	ROC Core (Drydock Discharge)	1	1	1	1			1/10/2013	1455	007221	7225.0002-0033	160-1267-1	2/25/13
BN317	BN317-2	ROC Core (Drydock Discharge)			1	1			1/10/2013	1457	007221	7225.0002-0033	160-1267-1	2/25/13
BN317	BN317-3	ROC Core (Drydock Discharge)			1	1			1/10/2013	1459	007221	7225.0002-0033	160-1267-1	2/25/13
BN317	BN317-4	ROC Core (Drydock Discharge)			1	1			1/10/2013	1501	007221	7225.0002-0033	160-1267-1	2/25/13
BN318	BN318-1	ROC Core (Drydock Discharge)	1	1	1	1			1/14/2013	1533	007224	7225.0002-0037	160-1277-1	2/25/13
BN318	BN318-2	ROC Core (Drydock Discharge)			1	1			1/14/2013	1534	007224	7225.0002-0037	160-1277-1	2/25/13
BN318	BN318-3	ROC Core (Drydock Discharge)			1	1			1/14/2013	1535	007224	7225.0002-0037	160-1277-1	2/25/13
BN318	BN318-4	ROC Core (Drydock Discharge)			1	1			1/14/2013	1536	007224	7225.0002-0037	160-1277-1	2/25/13
~~BN319~~	~~BN319-1~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN319~~	~~BN319-2~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN319~~	~~BN319-3~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN319~~	~~BN319-4~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN320~~	~~BN320-1~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN320~~	~~BN320-2~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN320~~	~~BN320-3~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN320~~	~~BN320-4~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN321~~	~~BN321-1~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN321~~	~~BN321-2~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN321~~	~~BN321-3~~	~~ROC Core (Step-out centered on BN01)~~												
~~BN321~~	~~BN321-4~~	~~ROC Core (Step-out centered on BN01)~~												
BS04	BS04-SF	Sedflume	1	1	1	1			2/11/2013			7225.0002-0119		
BS04	BS04-1SF	Sedflume - RAD CONFIRMATION			1	1			2/11/2013	0945	007280	7225.0002-0119	160-1509-1	3/18/13
BS04	BS04-2SF	Sedflume - RAD CONFIRMATION			1	1			2/11/2013	0946	007280	7225.0002-0119	160-1509-1	3/18/13
BS04	BS04-GC1	Geochronology	1	1	1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC2	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC3	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC4	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC5	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC6	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC7	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC8	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC9	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC10	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC11	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC12	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC13	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC14	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS04	BS04-GC15	Geochronology			1	1			2/4/2013	1100		7225.0002-0131	160-1541-1	3/14/13
BS09A	BS09A-1TS	*Macoma nasuta* - DEPLOYED 1/3/13						1	2/5/2013	1400	007307	7225.0002-0105	160-1496-1	2/28/13
BS09A	BS09A-2TS	*Macoma nasuta* - DEPLOYED 1/3/13							2/5/2013	1412	007307	7225.0002-0105	160-1496-1	2/28/13
BS09A	BS09A-3TS	*Macoma nasuta* - DEPLOYED 1/3/13							2/5/2013	1350	007307	7225.0002-0105	160-1496-1	2/28/13
BS09A	BS09A-VV	*Macoma nasuta - sediment (van veen)*			1	1	1		1/3/2013	1200	007208	7225.0002-0007	160-1231-1	2/12/13
BS101	BS101-1	ROC Core (Confirmatory)	1	1	1	1			1/23/2013	1339	007241	7225.0002-0064	160-1333-1	3/8/13
BS101	BS101-2	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/23/2013	1340	007241	7225.0002-0064	160-1333-1	3/8/13
BS101	BS101-3	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/23/2013	1341	007241	7225.0002-0064	160-1333-1	3/8/13
BS101	BS101-4	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/23/2013	1342	007241	7225.0002-0064	160-1333-1	3/8/13
BS102	BS102-1	ROC Core (Confirmatory)	1	1	1	1			1/23/2013	1445	007241	7225.0002-0064	160-1333-1	3/8/13
BS102	BS102-2	ROC Core (Confirmatory)			1	1			1/23/2013	1446	007241	7225.0002-0064	160-1333-1	3/8/13
BS102	BS102-3	ROC Core (Confirmatory)			1	1			1/23/2013	1447	007241	7225.0002-0064	160-1333-1	3/8/13
BS102	BS102-4	ROC Core (Confirmatory)			1	1			1/23/2013	1448	007241	7225.0002-0064	160-1333-1	3/8/13
BS103	BS103-1	ROC Core (Confirmatory)	1	1	1	1			1/31/2013	1000	007270	7225.0002-0096	160-1423-1	3/14/13
BS103	BS103-2	ROC Core (Confirmatory)			1	1			1/31/2013	1001	007270	7225.0002-0096	160-1423-1	3/14/13
BS103	BS103-3	ROC Core (Confirmatory)			1	1			1/31/2013	1002	007270	7225.0002-0096	160-1423-1	3/14/13
BS103	BS103-4	ROC Core (Confirmatory)			1	1			1/31/2013	1003	007270	7225.0002-0096	160-1423-1	3/14/13
BS104	BS104-1	ROC Core (Confirmatory)	1	1	1	1			1/16/2013	1110	007229	7225.0002-0046	160-1293-1	2/27/13
BS104	BS104-2	ROC Core (Confirmatory)			1	1			1/16/2013	1111	007229	7225.0002-0046	160-1293-1	2/27/13
BS104	BS104-3	ROC Core (Confirmatory)			1	1			1/16/2013	1112	007229	7225.0002-0046	160-1293-1	2/27/13

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
BS104	BS104-4	ROC Core (Confirmatory)			1	1			1/16/2013	1113	007229	7225.0002-0046	160-1293-1	2/27/13
BS105	~~BS105-1~~	~~ROC Core (Confirmatory)~~	1											
BS105	~~BS105-2~~	~~ROC Core (Confirmatory)~~												
BS105	~~BS105-3~~	~~ROC Core (Confirmatory)~~												
BS105	BS105-4	ROC Core (Confirmatory)-MS/MSD		1	2	2			1/16/2013	1240	007229	7225.0002-0046	160-1293-1	2/27/13
BS106	BS106-1	ROC Core (Confirmatory)	1	1	1	1			1/16/2013	1456	007230	7225.0002-0046	160-1293-1	2/27/13
BS106	BS106-2	ROC Core (Confirmatory)			1	1			1/16/2013	1457	007230	7225.0002-0046	160-1293-1	2/27/13
BS106	BS106-3	ROC Core (Confirmatory)			1	1			1/16/2013	1458	007230	7225.0002-0046	160-1293-1	2/27/13
BS106	BS106-4	ROC Core (Confirmatory)			1	1			1/16/2013	1459	007230	7225.0002-0046	160-1293-1	2/27/13
BS107	BS107-1	ROC Core (Confirmatory)	1	1	1	1			1/16/2013	1420	007230	7225.0002-0046	160-1293-1	2/27/13
BS107	BS107-2	ROC Core (Confirmatory)			1	1			1/16/2013	1421	007230	7225.0002-0046	160-1293-1	2/27/13
BS107	BS107-3	ROC Core (Confirmatory)			1	1			1/16/2013	1422	007230	7225.0002-0046	160-1293-1	2/27/13
BS107	BS107-4	ROC Core (Confirmatory)			1	1			1/16/2013	1423	007230	7225.0002-0046	160-1293-1	2/27/13
BS108	BS108-1	ROC Core (Confirmatory)	1	1	1	1			1/16/2013	1350	007229	7225.0002-0046	160-1293-1	2/27/13
BS108	BS108-2	ROC Core (Confirmatory)			1	1			1/16/2013	1351	007229	7225.0002-0046	160-1293-1	2/27/13
BS108	BS108-3	ROC Core (Confirmatory)			1	1			1/16/2013	1352	007229	7225.0002-0046	160-1293-1	2/27/13
BS108	BS108-4	ROC Core (Confirmatory)			1	1			1/16/2013	1353	007230	7225.0002-0046	160-1293-1	2/27/13
BS109	BS109-1	ROC Core (Confirmatory)	1	1	1	1			1/17/2013	0900	007231	7225.0002-0053	160-1319-1	2/28/13
BS109	BS109-2	ROC Core (Confirmatory)			1	1			1/17/2013	0901	007231	7225.0002-0053	160-1319-1	2/28/13
BS109	BS109-3	ROC Core (Confirmatory)			1	1			1/17/2013	0902	007231	7225.0002-0053	160-1319-1	2/28/13
BS109	BS109-4	ROC Core (Confirmatory)			1	1			1/17/2013	0903	007231	7225.0002-0053	160-1319-1	2/28/13
BS110	BS110-1	ROC Core (Confirmatory)	1	1	1	1			1/17/2013	0943	007231	7225.0002-0053	160-1319-1	2/28/13
BS110	BS110-2	ROC Core (Confirmatory)			1	1			1/17/2013	0944	007231	7225.0002-0053	160-1319-1	2/28/13
BS110	BS110-3	ROC Core (Confirmatory)			1	1			1/17/2013	0945	007231	7225.0002-0053	160-1319-1	2/28/13
BS110	BS110-4	ROC Core (Confirmatory)			1	1			1/17/2013	0946	007231	7225.0002-0053	160-1319-1	2/28/13
BS111	BS111-1	ROC Core (Confirmatory) - MS/MSD	1	1	7	7			1/17/2013	1025	007231	7225.0002-0053	160-1319-1	2/28/13
BS111	BS111-2	ROC Core (Confirmatory)			1	1			1/17/2013	1026	007231	7225.0002-0053	160-1319-1	2/28/13
BS111	BS111-3	ROC Core (Confirmatory)			1	1			1/17/2013	1027	007232	7225.0002-0053	160-1319-1	2/28/13
BS111	BS111-4	ROC Core (Confirmatory)			1	1			1/17/2013	1028	007232	7225.0002-0053	160-1319-1	2/28/13
BS112	BS112-1	ROC Core (Confirmatory)	1	1	1	1			1/17/2013	1345	007233	7225.0002-0053	160-1319-1	2/28/13
BS112	BS112-2	ROC Core (Confirmatory)			1	1			1/17/2013	1346	007233	7225.0002-0053	160-1319-1	2/28/13
BS112	BS112-3	ROC Core (Confirmatory)			1	1			1/17/2013	1347	007233	7225.0002-0053	160-1319-1	2/28/13
BS112	BS112-4	ROC Core (Confirmatory)			1	1			1/17/2013	1348	007233	7225.0002-0053	160-1319-1	2/28/13
BS113	BS113-1	ROC Core (Confirmatory)	1	1	1	1			1/17/2013	1420	007233	7225.0002-0053	160-1319-1	2/28/13
BS113	BS113-2	ROC Core (Confirmatory)			1	1			1/17/2013	1421	007233	7225.0002-0053	160-1319-1	2/28/13
BS113	BS113-3	ROC Core (Confirmatory)			1	1			1/17/2013	1422	007233	7225.0002-0053	160-1319-1	2/28/13
BS113	BS113-4	ROC Core (Confirmatory)			1	1			1/17/2013	1423	007233	7225.0002-0053	160-1319-1	2/28/13
BS114	BS114-1	ROC Core (Confirmatory)	1	1	1	1			1/17/2013	1500	007233	7225.0002-0053	160-1319-1	2/28/13
BS114	BS114-2	ROC Core (Confirmatory)			1	1			1/17/2013	1501	007233	7225.0002-0053	160-1319-1	2/28/13
BS114	BS114-3	ROC Core (Confirmatory)			1	1			1/17/2013	1502	007234	7225.0002-0053	160-1319-1	2/28/13
BS114	BS114-4	ROC Core (Confirmatory)			1	1			1/17/2013	1503	007234	7225.0002-0053	160-1319-1	2/28/13
BS115	BS115-1	ROC Core (Confirmatory)	1	1	1	1			1/22/2013	855	007235	7225.0002-0058	160-1325-1	2/28/13
BS115	BS115-2	ROC Core (Confirmatory)			1	1			1/22/2013	856	007235	7225.0002-0058	160-1325-1	2/28/13
BS115	BS115-3	ROC Core (Confirmatory)			1	1			1/22/2013	857	007235	7225.0002-0058	160-1325-1	2/28/13
BS115	BS115-4	ROC Core (Confirmatory)			1	1			1/22/2013	858	007235	7225.0002-0058	160-1325-1	2/28/13
BS116	BS116-1	ROC Core (Confirmatory) - MS/MSD	1	1	2	2			1/22/2013	955	007235	7225.0002-0058	160-1325-1	2/28/13
BS116	BS116-2	ROC Core (Confirmatory)			1	1			1/22/2013	956	007235	7225.0002-0058	160-1325-1	2/28/13
BS116	BS116-3	ROC Core (Confirmatory)			1	1			1/22/2013	957	007235	7225.0002-0058	160-1325-1	2/28/13
BS116	BS116-4	ROC Core (Confirmatory)			1	1			1/22/2013	958	007235	7225.0002-0058	160-1325-1	2/28/13
BS117	BS117-1	ROC Core (Confirmatory) - RAD & GEOPHYSICAL	1	1	2	2			1/22/2013	1043	007235	7225.0002-0058	160-1325-1	2/28/13
BS117	BS117-2	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/22/2013	1044	007235	7225.0002-0058	160-1325-1	2/28/13
BS117	BS117-3	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/22/2013	1045	007236	7225.0002-0058	160-1325-1	2/28/13
BS117	BS117-4	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/22/2013	1046	007236	7225.0002-0058	160-1325-1	2/28/13
BS118	BS118-1	ROC Core (Confirmatory)	1	1	1	1			1/17/2013	1120	007232	7225.0002-0053	160-1319-1	2/28/13
BS118	BS118-2	ROC Core (Confirmatory)			1	1			1/17/2013	1121	007232	7225.0002-0053	160-1319-1	2/28/13
BS118	BS118-3	ROC Core (Confirmatory)			1	1			1/17/2013	1122	007232	7225.0002-0053	160-1319-1	2/28/13
BS118	BS118-4	ROC Core (Confirmatory)			1	1			1/17/2013	1123	007232	7225.0002-0053	160-1319-1	2/28/13
BS119	BS119-1	ROC Core (Confirmatory)	1	1	1	1			1/17/2013	1200	007232	7225.0002-0053	160-1319-1	2/28/13
BS119	BS119-2	ROC Core (Confirmatory)			1	1			1/17/2013	1201	007232	7225.0002-0053	160-1319-1	2/28/13

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
BS119	BS119-3	ROC Core (Confirmatory)			1	1			1/17/2013	1202	007232	7225.0002-0053	160-1319-1	2/28/13
BS119	BS119-4	ROC Core (Confirmatory)			1	1			1/17/2013	1203	007232	7225.0002-0053	160-1319-1	2/28/13
BS120	BS120-1	ROC Core (Confirmatory)	1	1	1	1			1/22/2013	1430	007237	7225.0002-0058	160-1325-1	2/28/13
BS120	BS120-2	ROC Core (Confirmatory)			1	1			1/22/2013	1431	007237	7225.0002-0058	160-1325-1	2/28/13
BS120	BS120-3	ROC Core (Confirmatory)			1	1			1/22/2013	1432	007237	7225.0002-0058	160-1325-1	2/28/13
BS120	BS120-4	ROC Core (Confirmatory)			1	1			1/22/2013	1433	007237	7225.0002-0058	160-1325-1	2/28/13
BS121	BS121-1	ROC Core (Confirmatory) - MS/MSD	1	1	2	2			1/22/2013	1350	007237	7225.0002-0058	160-1325-1	2/28/13
BS121	BS121-2	ROC Core (Confirmatory)			1	1			1/22/2013	1351	007237	7225.0002-0058	160-1325-1	2/28/13
BS121	BS121-3	ROC Core (Confirmatory)			1	1			1/22/2013	1352	007237	7225.0002-0058	160-1325-1	2/28/13
BS121	BS121-4	ROC Core (Confirmatory)			1	1			1/22/2013	1353	007237	7225.0002-0058	160-1325-1	2/28/13
BS122	BS122-1	ROC Core (Confirmatory)	1	1	1	1			1/22/2013	1149	007236	7225.0002-0058	160-1325-1	2/28/13
BS122	BS122-2	ROC Core (Confirmatory)			1	1			1/22/2013	1150	007236	7225.0002-0058	160-1325-1	2/28/13
BS122	BS122-3	ROC Core (Confirmatory)			1	1			1/22/2013	1151	007236	7225.0002-0058	160-1325-1	2/28/13
BS122	BS122-4	ROC Core (Confirmatory)			1	1			1/22/2013	1152	007236	7225.0002-0058	160-1325-1	2/28/13
BS123	BS123-1	ROC Core (Confirmatory)	1	1	1	1			1/22/2013	1300	007236	7225.0002-0058	160-1325-1	2/28/13
BS123	BS123-2	ROC Core (Confirmatory)			1	1			1/22/2013	1301	007236	7225.0002-0058	160-1325-1	2/28/13
BS123	BS123-3	ROC Core (Confirmatory)			1	1			1/22/2013	1302	007236	7225.0002-0058	160-1325-1	2/28/13
BS123	BS123-4	ROC Core (Confirmatory)			1	1			1/22/2013	1303	007236	7225.0002-0058	160-1325-1	2/28/13
BS124	BS124-1	ROC Core (Confirmatory)	1	1	1	1			1/23/2013	1014	007239	7225.0002-0064	160-1333-1	3/8/13
BS124	BS124-2	ROC Core (Confirmatory)			1	1			1/23/2013	1015	007239	7225.0002-0064	160-1333-1	3/8/13
BS124	BS124-3	ROC Core (Confirmatory)			1	1			1/23/2013	1016	007240	7225.0002-0064	160-1333-1	3/8/13
BS124	BS124-4	ROC Core (Confirmatory)			1	1			1/23/2013	1017	007240	7225.0002-0064	160-1333-1	3/8/13
BS125	BS125-1	ROC Core (Confirmatory)	1	1	1	1			1/23/2013	1100	007240	7225.0002-0064	160-1333-1	3/8/13
BS125	BS125-2	ROC Core (Confirmatory)			1	1			1/23/2013	1101	007240	7225.0002-0064	160-1333-1	3/8/13
BS125	BS125-3	ROC Core (Confirmatory)			1	1			1/23/2013	1102	007240	7225.0002-0064	160-1333-1	3/8/13
BS125	BS125-4	ROC Core (Confirmatory)			1	1			1/23/2013	1103	007240	7225.0002-0064	160-1333-1	3/8/13
BS126	BS126-1	ROC Core (Confirmatory)	1	1	1	1			1/22/2013	1515	007236	7225.0002-0058	160-1325-1	2/28/13
BS126	BS126-2	ROC Core (Confirmatory)			1	1			1/22/2013	1516	007236	7225.0002-0058	160-1325-1	2/28/13
BS126	BS126-3	ROC Core (Confirmatory)			1	1			1/22/2013	1517	007237	7225.0002-0058	160-1325-1	2/28/13
BS126	BS126-4	ROC Core (Confirmatory)			1	1			1/22/2013	1518	007237	7225.0002-0058	160-1325-1	2/28/13
BS127	BS127-1	ROC Core (Confirmatory)	1	1	1	1			1/23/2013	0845	007239	7225.0002-0064	160-1333-1	3/8/13
BS127	BS127-2	ROC Core (Confirmatory)			1	1			1/23/2013	0846	007239	7225.0002-0064	160-1333-1	3/8/13
BS127	BS127-3	ROC Core (Confirmatory)			1	1			1/23/2013	0847	007239	7225.0002-0064	160-1333-1	3/8/13
BS127	BS127-4	ROC Core (Confirmatory)			1	1			1/23/2013	0848	007239	7225.0002-0064	160-1333-1	3/8/13
BS128	BS128-1	ROC Core (Confirmatory)	1	1	1	1			1/23/2013	1145	007240	7225.0002-0064	160-1333-1	3/8/13
BS128	BS128-2	ROC Core (Confirmatory)			1	1			1/23/2013	1146	007240	7225.0002-0064	160-1333-1	3/8/13
BS128	BS128-3	ROC Core (Confirmatory)			1	1			1/23/2013	1147	007240	7225.0002-0064	160-1333-1	3/8/13
BS128	BS128-4	ROC Core (Confirmatory)			1	1			1/23/2013	1148	007240	7225.0002-0064	160-1333-1	3/8/13
BS129	BS129-1	ROC Core (Confirmatory)	1	1	1	1			1/24/2013	0820	007245	7225.0002-0069	160-1345-1	3/5/13
BS129	BS129-2	ROC Core (Confirmatory)			1	1			1/24/2013	0821	007245	7225.0002-0069	160-1345-1	3/5/13
BS129	BS129-3	ROC Core (Confirmatory)			1	1			1/24/2013	0822	007245	7225.0002-0069	160-1345-1	3/5/13
BS129	BS129-4	ROC Core (Confirmatory)			1	1			1/24/2013	0823	007245	7225.0002-0069	160-1345-1	3/5/13
BS130	BS130-1	ROC Core (Confirmatory)	1	1	1	1			1/23/2013	0936	007239	7225.0002-0064	160-1333-1	3/8/13
BS130	BS130-2	ROC Core (Confirmatory)			1	1			1/23/2013	0937	007239	7225.0002-0064	160-1333-1	3/8/13
BS130	BS130-3	ROC Core (Confirmatory)			1	1			1/23/2013	0938	007239	7225.0002-0064	160-1333-1	3/8/13
BS130	BS130-4	ROC Core (Confirmatory)			1	1			1/23/2013	0939	007239	7225.0002-0064	160-1333-1	3/8/13
~~BS131~~	~~BS131-1~~	~~ROC Core (Step-out centered on BS12)~~												
~~BS131~~	~~BS131-2~~	~~ROC Core (Step-out centered on BS12)~~												
~~BS131~~	~~BS131-3~~	~~ROC Core (Step-out centered on BS12)~~												
~~BS131~~	~~BS131-4~~	~~ROC Core (Step-out centered on BS12)~~												
~~BS132~~	~~BS132-1~~	~~ROC Core (Step-out centered on BS12~~												
~~BS132~~	~~BS132-2~~	~~ROC Core (Step-out centered on BS12~~												
~~BS132~~	~~BS132-3~~	~~ROC Core (Step-out centered on BS12~~												
~~BS132~~	~~BS132-4~~	~~ROC Core (Step-out centered on BS12~~												
~~BS133~~	~~BS133-1~~	~~ROC Core (Step-out centered on BS12~~												
~~BS133~~	~~BS133-2~~	~~ROC Core (Step-out centered on BS12~~												
~~BS133~~	~~BS133-3~~	~~ROC Core (Step-out centered on BS12~~												
~~BS133~~	~~BS133-4~~	~~ROC Core (Step-out centered on BS12~~												

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
SB02A	SB02A-1TS	*Macoma nasuta* - DEPLOYED 12/19/12						1	2/5/2013	1300	007307	7225.0002-0105	160-1496-1	2/28/13
SB02A	SB02A-2TS	*Macoma nasuta* - DEPLOYED 12/19/12							2/5/2013	1241	007307	7225.0002-0105	160-1496-1	2/28/13
SB02A	SB02A-3TS	*Macoma nasuta* - DEPLOYED 12/19/12							2/5/2013	1240	007307	7225.0002-0105	160-1496-1	2/28/13
SB02A	SB02A-VV	*Macoma nasuta* - sediment (van veen)			1	1	1		12/19/2012	1240	007304	7225.0002-0006	160-1358-1	3/21/13
SB05A	SB05A-1TS	*Macoma nasuta* - DEPLOYED 12/19/12						1	2/6/2013	0955	007279	7225.0002-0113	160-1497-1	2/28/13
SB05A	SB05A-2TS	*Macoma nasuta* - DEPLOYED 12/19/12							2/6/2013	1005	007279	7225.0002-0113	160-1497-1	2/28/13
SB05A	SB05A-3TS	*Macoma nasuta* - DEPLOYED 12/19/12							2/6/2013	0945	007279	7225.0002-0113	160-1497-1	2/28/13
SB05A	SB05A-VV	*Macoma nasuta* - sediment (van veen)			1	1	1		12/19/2012	1500	007304	7225.0002-0006	160-1358-1	3/21/13
SB07A	SB07A-1TS	*Macoma nasuta* - DEPLOYED 1/3/13						1	2/6/2013	0910	007279	7225.0002-0113	160-1497-1	2/28/13
SB07A	SB07A-2TS	*Macoma nasuta* - DEPLOYED 1/3/13							2/6/2013	0925	007279	7225.0002-0113	160-1497-1	2/28/13
SB07A	SB07A-3TS	*Macoma nasuta* - DEPLOYED 1/3/13							2/6/2013	0845	007279	7225.0002-0113	160-1497-1	2/28/13
SB07A	SB07A-VV	*Macoma nasuta* - sediment (van veen)			1	1	1		1/3/2013	930	007208	7225.0002-0007	160-1231-1	2/12/13
SB101	SB101-1	ROC Core (Confirmatory)	1	1	1	1			1/31/2013	1410	007271	7225.0002-0096	160-1423-1	3/14/13
SB101	SB101-2	ROC Core (Confirmatory)			1	1			1/31/2013	1411	007271	7225.0002-0096	160-1423-1	3/14/13
SB101	SB101-3	ROC Core (Confirmatory)			1	1			1/31/2013	1412	007271	7225.0002-0096	160-1423-1	3/14/13
SB101	SB101-4	ROC Core (Confirmatory)			1	1			1/31/2013	1413	007271	7225.0002-0096	160-1423-1	3/14/13
SB102	SB102-1	ROC Core (Confirmatory) - 57m stepout due to refusal	1	1	1	1			2/5/2013	1105	007276	7225.0002-0105	160-1465-1	3/22/13
SB102	SB102-2	ROC Core (Confirmatory) - 57m stepout due to refusal			1	1			2/5/2013	1106	007276	7225.0002-0105	160-1465-1	3/22/13
SB102	SB102-3	ROC Core (Confirmatory) - 57m stepout due to refusal			1	1			2/5/2013	1107	007277	7225.0002-0105	160-1465-1	3/22/13
SB102	SB102-4	ROC Core (Confirmatory) - 57m stepout due to refusal			1	1			2/5/2013	1108	007277	7225.0002-0105	160-1465-1	3/22/13
SB103	SB103-1	ROC Core (Confirmatory)	1	1	1	1			2/4/2013	1005	007274	7225.0002-0101	160-1466-1	3/22/13
SB103	SB103-2	ROC Core (Confirmatory)			1	1			2/4/2013	1006	007274	7225.0002-0101	160-1466-1	3/22/13
SB103	SB103-3	ROC Core (Confirmatory)			1	1			2/4/2013	1007	007275	7225.0002-0101	160-1466-1	3/22/13
SB103	~~SB103-4~~	~~ROC Core (Confirmatory)~~												
SB104	SB104-1	ROC Core (Confirmatory)	1	1	1	1			1/31/2013	1050	007270	7225.0002-0096	160-1423-1	3/14/13
SB104	~~SB104-2~~	~~ROC Core (Confirmatory)~~												
SB104	~~SB104-3~~	~~ROC Core (Confirmatory)~~												
SB104	~~SB104-4~~	~~ROC Core (Confirmatory)~~												
SB105	SB105-1	ROC Core (Confirmatory)	1	1	1	1			1/31/2013	1115	007270	7225.0002-0096	160-1423-1	3/14/13
SB105	SB105-2	ROC Core (Confirmatory)			1	1			1/31/2013	1116	007271	7225.0002-0096	160-1423-1	3/14/13
SB105	~~SB105-3~~	~~ROC Core (Confirmatory)~~												
SB105	~~SB105-4~~	~~ROC Core (Confirmatory)~~												
SB106	SB106-1	ROC Core (Confirmatory)	1	1	2	2			1/28/2013	1445	007263	7225.0002-0080	160-1358-1	3/21/13
SB106	SB106-2	ROC Core (Confirmatory)			1	1			1/28/2013	1446	007263	7225.0002-0080	160-1358-1	3/21/13
SB106	SB106-3	ROC Core (Confirmatory)			1	1			1/28/2013	1447	007263	7225.0002-0080	160-1358-1	3/21/13
SB106	SB106-4	ROC Core (Confirmatory)			1	1			1/28/2013	1448	007263	7225.0002-0080	160-1358-1	3/21/13
SB107	SB107-1	ROC Core (Confirmatory) - RAD & GEOPHYSICAL	1	1	2	2			1/31/2013	1150	007271	7225.0002-0096	160-1423-1	3/14/13
SB107	SB107-2	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/31/2013	1151	007271	7225.0002-0096	160-1423-1	3/14/13
SB107	SB107-3	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/31/2013	1152	007271	7225.0002-0096	160-1423-1	3/14/13
SB107	SB107-4	ROC Core (Confirmatory) - RAD & GEOPHYSICAL			2	2			1/31/2013	1153	007271	7225.0002-0096	160-1423-1	3/14/13
SB108	SB108-1	ROC Core (Confirmatory)	1	1	1	1			1/28/2013	1340	007263	7225.0002-0080	160-1358-1	3/21/13
SB108	SB108-2	ROC Core (Confirmatory)			1	1			1/28/2013	1341	007263	7225.0002-0080	160-1358-1	3/21/13
SB108	SB108-3	ROC Core (Confirmatory)			1	1			1/28/2013	1342	007263	7225.0002-0080	160-1358-1	3/21/13
SB108	SB108-4	ROC Core (Confirmatory)			1	1			1/28/2013	1343	007263	7225.0002-0080	160-1358-1	3/21/13
SB201	SB201-1	ROC Core (AOC)	1	1	1	1			1/14/2013	959	007222	7225.0002-0037	160-1277-1	2/25/13
SB201	SB201-2	ROC Core (AOC)			1	1			1/14/2013	1000	007222	7225.0002-0037	160-1277-1	2/25/13
SB201	SB201-3	ROC Core (AOC)			1	1			1/14/2013	1001	007222	7225.0002-0037	160-1277-1	2/25/13
SB201	SB201-4	ROC Core (AOC)			1	1			1/14/2013	1002	007222	7225.0002-0037	160-1277-1	2/25/13
SB202	SB202-1	ROC Core (AOC)	1	1	1	1			1/14/2013	1040	007222	7225.0002-0037	160-1277-1	2/25/13
SB202	SB202-2	ROC Core (AOC)			1	1			1/14/2013	1041	007222	7225.0002-0037	160-1277-1	2/25/13
SB202	SB202-3	ROC Core (AOC)			1	1			1/14/2013	1042	007222	7225.0002-0037	160-1277-1	2/25/13
SB202	SB202-4	ROC Core (AOC)			1	1			1/14/2013	1043	007222	7225.0002-0037	160-1277-1	2/25/13
SB203	SB203-1	ROC Core (AOC) - MS/MSD	1	1	7	7			1/14/2013	1117	007222	7225.0002-0037	160-1277-1	2/25/13
SB203	SB203-2	ROC Core (AOC)			1	1			1/14/2013	1118	007222	7225.0002-0037	160-1277-1	2/25/13
SB203	SB203-3	ROC Core (AOC)			1	1			1/14/2013	1119	007222	7225.0002-0037	160-1277-1	2/25/13
SB203	SB203-4	ROC Core (AOC)			1	1			1/14/2013	1120	007222	7225.0002-0037	160-1277-1	2/25/13
SB204	SB204-1	ROC Core (AOC) - RAD & GEOPHYSICAL	1	1	2	2			1/14/2013	1153	007222	7225.0002-0037	160-1277-1	2/25/13
SB204	SB204-2	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			1/14/2013	1154	007222	7225.0002-0037	160-1277-1	2/25/13
SB204	SB204-3	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			1/14/2013	1155	007222	7225.0002-0037	160-1277-1	2/25/13

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
SB204	SB204-4	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			1/14/2013	1156	007222	7225.0002-0037	160-1277-1	2/25/13
SB205	SB205-1	ROC Core (AOC)	1	1	1	1			1/14/2013	1340	007222	7225.0002-0037	160-1277-1	2/25/13
SB205	SB205-2	ROC Core (AOC)			1	1			1/14/2013	1341	007222	7225.0002-0037	160-1277-1	2/25/13
SB205	SB205-3	ROC Core (AOC)			1	1			1/14/2013	1342	007222	7225.0002-0037	160-1277-1	2/25/13
SB205	SB205-4	ROC Core (AOC)			1	1			1/14/2013	1343	007222	7225.0002-0037	160-1277-1	2/25/13
SB206	SB206-1	ROC Core (AOC)	1	1	1	1			1/24/2013	0920	007245	7225.0002-0069	160-1345-1	3/5/13
SB206	SB206-2	ROC Core (AOC)			1	1			1/24/2013	0921	007245	7225.0002-0069	160-1345-1	3/5/13
SB206	SB206-3	ROC Core (AOC)			1	1			1/24/2013	0922	007245	7225.0002-0069	160-1345-1	3/5/13
SB206	SB206-4	ROC Core (AOC)			1	1			1/24/2013	0923	007245	7225.0002-0069	160-1345-1	3/5/13
SB207	SB207-1	ROC Core (AOC)	1	1	1	1			1/25/2013	1005	007257	7225.0002-0075	160-1355-1	3/15/13
SB207	SB207-2	ROC Core (AOC)			1	1			1/25/2013	1006	007257	7225.0002-0075	160-1355-1	3/15/13
SB207	SB207-3	ROC Core (AOC)			1	1			1/25/2013	1007	007258	7225.0002-0075	160-1355-1	3/15/13
SB207	SB207-4	ROC Core (AOC)			1	1			1/25/2013	1008	007258	7225.0002-0075	160-1355-1	3/15/13
SB208	SB208-1	ROC Core (AOC)	1	1	1	1			1/25/2013	1045	007258	7225.0002-0075	160-1355-1	3/15/13
SB208	SB208-2	ROC Core (AOC)			1	1			1/25/2013	1046	007258	7225.0002-0075	160-1355-1	3/15/13
SB208	SB208-3	ROC Core (AOC)			1	1			1/25/2013	1047	007258	7225.0002-0075	160-1355-1	3/15/13
SB208	SB208-4	ROC Core (AOC)			1	1			1/25/2013	1048	007258	7225.0002-0075	160-1355-1	3/15/13
SB209	SB209-1	ROC Core (AOC) - MS/MSD	1	1	2	2			1/25/2013	1124	007258	7225.0002-0075	160-1355-1	3/15/13
SB209	SB209-2	ROC Core (AOC)			1	1			1/25/2013	1125	007258	7225.0002-0075	160-1355-1	3/15/13
SB209	SB209-3	ROC Core (AOC)			1	1			1/25/2013	1126	007258	7225.0002-0075	160-1355-1	3/15/13
SB209	SB209-4	ROC Core (AOC)			1	1			1/25/2013	1127	007258	7225.0002-0075	160-1355-1	3/15/13
SB210	SB210-1	ROC Core (AOC) - RAD & GEOPHYSICAL	1	1	2	2			1/25/2013	1250	007301	7225.0002-0075	160-1355-1	3/15/13
SB210	SB210-2	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			1/25/2013	1251	007301	7225.0002-0075	160-1355-1	3/15/13
SB210	SB210-3	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			1/25/2013	1252	007301	7225.0002-0075	160-1355-1	3/15/13
SB210	SB210-4	ROC Core (AOC) - RAD & GEOPHYSICAL			2	2			1/25/2013	1253	007301	7225.0002-0075	160-1355-1	3/15/13
SB211	SB211-1	ROC Core (AOC)	1	1	1	1			1/25/2013	1341	007260	7225.0002-0075	160-1355-1	3/15/13
SB211	SB211-2	ROC Core (AOC)			1	1			1/25/2013	1342	007260	7225.0002-0075	160-1355-1	3/15/13
SB211	SB211-3	ROC Core (AOC)			1	1			1/25/2013	1343	007260	7225.0002-0075	160-1355-1	3/15/13
SB211	SB211-4	ROC Core (AOC)			1	1			1/25/2013	1344	007260	7225.0002-0075	160-1355-1	3/15/13
SB212	SB212-1	ROC Core (AOC)	1	1	1	1			1/25/2013	1415	007260	7225.0002-0075	160-1355-1	3/15/13
SB212	SB212-2	ROC Core (AOC)			1	1			1/25/2013	1416	007260	7225.0002-0075	160-1355-1	3/15/13
SB212	SB212-3	ROC Core (AOC)			1	1			1/25/2013	1417	007260	7225.0002-0075	160-1355-1	3/15/13
SB212	SB212-4	ROC Core (AOC)			1	1			1/25/2013	1418	007260	7225.0002-0075	160-1355-1	3/15/13
SB213	~~SB213-1~~	~~ROC Core (AOC)~~	1											
SB213	SB213-2	ROC Core (AOC)		1	1	1			1/28/2013	0900	007261	7225.0002-0080	160-1358-1	3/21/13
SB213	SB213-3	ROC Core (AOC)			1	1			1/28/2013	0901	007261	7225.0002-0080	160-1358-1	3/21/13
SB213	SB213-4	ROC Core (AOC)			1	1			1/28/2013	0902	007261	7225.0002-0080	160-1358-1	3/21/13
SB214	~~SB214-1~~	~~ROC Core (AOC)~~	1											
SB214	~~SB214-2~~	~~ROC Core (AOC)~~												
SB214	SB214-3	ROC Core (AOC)		1	1	1			1/28/2013	1208	007262	7225.0002-0080	160-1358-1	3/21/13
SB214	SB214-4	ROC Core (AOC)			1	1			1/28/2013	1209	007262	7225.0002-0080	160-1358-1	3/21/13
SB215	~~SB215-1~~	~~ROC Core (AOC)~~	1											
SB215	SB215-2	ROC Core (AOC)		1	1	1			1/28/2013	1135	007262	7225.0002-0080	160-1358-1	3/21/13
SB215	SB215-3	ROC Core (AOC)			1	1			1/28/2013	1136	007262	7225.0002-0080	160-1358-1	3/21/13
SB215	SB215-4	ROC Core (AOC)			1	1			1/28/2013	1137	007262	7225.0002-0080	160-1358-1	3/21/13
SB216	SB216-1	ROC Core (AOC) - MS/MSD	1	1	2	2			1/28/2013	0940	007261	7225.0002-0080	160-1358-1	3/21/13
SB216	SB216-2	ROC Core (AOC)			1	1			1/28/2013	0941	007261	7225.0002-0080	160-1358-1	3/21/13
SB216	SB216-3	ROC Core (AOC)			1	1			1/28/2013	0942	007261	7225.0002-0080	160-1358-1	3/21/13
SB216	SB216-4	ROC Core (AOC)			1	1			1/28/2013	0943	007261	7225.0002-0080	160-1358-1	3/21/13
SB217	SB217-1	ROC Core (AOC)	1	1	1	1			1/28/2013	1030	007261	7225.0002-0080	160-1358-1	3/21/13
SB217	SB217-2	ROC Core (AOC)			1	1			1/28/2013	1031	007261	7225.0002-0080	160-1358-1	3/21/13
SB217	SB217-3	ROC Core (AOC)			1	1			1/28/2013	1032	007261	7225.0002-0080	160-1358-1	3/21/13
SB217	SB217-4	ROC Core (AOC)			1	1			1/28/2013	1033	007262	7225.0002-0080	160-1358-1	3/21/13
SB218	SB218-1	ROC Core (AOC)	1	1	1	1			1/28/2013	1100	007262	7225.0002-0080	160-1358-1	3/21/13
SB218	SB218-2	ROC Core (AOC)			1	1			1/28/2013	1101	007262	7225.0002-0080	160-1358-1	3/21/13
SB218	SB218-3	ROC Core (AOC)			1	1			1/28/2013	1102	007262	7225.0002-0080	160-1358-1	3/21/13
SB218	SB218-4	ROC Core (AOC)			1	1			1/28/2013	1103	007262	7225.0002-0080	160-1358-1	3/21/13
SB219	SB219-1	ROC Core (AOC)	1	1	1	1			1/31/2013	1330	007271	7225.0002-0096	160-1423-1	3/14/13
SB219	~~SB219-2~~	~~ROC Core (AOC)~~												

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
SB219	SB219-3	ROC Core (AOC)												
SB219	SB219-4	ROC Core (AOC)												
SB220	SB220-1	ROC Core (Step-out centered on SB04)												
SB220	SB220-2	ROC Core (Step-out centered on SB04)												
SB220	SB220-3	ROC Core (Step-out centered on SB04)												
SB220	SB220-4	ROC Core (Step-out centered on SB04)												
SB221	SB221-1	ROC Core (Step-out centered on SB04)												
SB221	SB221-2	ROC Core (Step-out centered on SB04)												
SB221	SB221-3	ROC Core (Step-out centered on SB04)												
SB221	SB221-4	ROC Core (Step-out centered on SB04)												
SB222	SB222-1	ROC Core (Step-out centered on SB04)												
SB222	SB222-2	ROC Core (Step-out centered on SB04)												
SB222	SB222-3	ROC Core (Step-out centered on SB04)												
SB222	SB222-4	ROC Core (Step-out centered on SB04)												
SB223	SB223-1	ROC Core (Step-out centered on SB05)												
SB223	SB223-2	ROC Core (Step-out centered on SB05)												
SB223	SB223-3	ROC Core (Step-out centered on SB05)												
SB223	SB223-4	ROC Core (Step-out centered on SB05)												
SB224	SB224-1	ROC Core (Step-out centered on SB05)												
SB224	SB224-2	ROC Core (Step-out centered on SB05)												
SB224	SB224-3	ROC Core (Step-out centered on SB05)												
SB224	SB224-4	ROC Core (Step-out centered on SB05)												
SB225	SB225-1	ROC Core (Step-out centered on SB05)												
SB225	SB225-2	ROC Core (Step-out centered on SB05)												
SB225	SB225-3	ROC Core (Step-out centered on SB05)												
SB225	SB225-4	ROC Core (Step-out centered on SB05)												
SB226	SB226-1	ROC Core (Step-out centered on SB06)												
SB226	SB226-2	ROC Core (Step-out centered on SB06)												
SB226	SB226-3	ROC Core (Step-out centered on SB06)												
SB226	SB226-4	ROC Core (Step-out centered on SB06)												
SB227	SB227-1	ROC Core (Step-out centered on SB06)												
SB227	SB227-2	ROC Core (Step-out centered on SB06)												
SB227	SB227-3	ROC Core (Step-out centered on SB06)												
SB227	SB227-4	ROC Core (Step-out centered on SB06)												
SB228	SB228-1	ROC Core (Step-out centered on SB06)												
SB228	SB228-2	ROC Core (Step-out centered on SB06)												
SB228	SB228-3	ROC Core (Step-out centered on SB06)												
SB228	SB228-4	ROC Core (Step-out centered on SB06)												
SB229	SB229-1	ROC Core (Step-out centered on SB07)												
SB229	SB229-2	ROC Core (Step-out centered on SB07)												
SB229	SB229-3	ROC Core (Step-out centered on SB07)												
SB229	SB229-4	ROC Core (Step-out centered on SB07)												
SB230	SB230-1	ROC Core (Step-out centered on SB07)												
SB230	SB230-2	ROC Core (Step-out centered on SB07)												
SB230	SB230-3	ROC Core (Step-out centered on SB07)												
SB230	SB230-4	ROC Core (Step-out centered on SB07)												
SB231	SB231-1	ROC Core (Step-out centered on SB07)												
SB231	SB231-2	ROC Core (Step-out centered on SB07)												
SB231	SB231-3	ROC Core (Step-out centered on SB07)												
SB231	SB231-4	ROC Core (Step-out centered on SB07)												
SB232	SB232-1	ROC Core (Step-out centered on SB09) - MS/MSD	1	1	2	2			2/4/2013	0900	007274	7225.0002-0101	160-1466-1	3/22/13
SB232	SB232-2	ROC Core (Step-out centered on SB09)			1	1			2/4/2013	0901	007274	7225.0002-0101	160-1466-1	3/22/13
SB232	SB232-3	ROC Core (Step-out centered on SB09)			1	1			2/4/2013	0902	007274	7225.0002-0101	160-1466-1	3/22/13
SB232	SB232-4	ROC Core (Step-out centered on SB09)			1	1			2/4/2013	0903	007274	7225.0002-0101	160-1466-1	3/22/13
SB233	SB233-1	ROC Core (Step-out centered on SB09)	1	1	1	1			2/5/2013	0855	007276	7225.0002-0105	160-1465-1	3/22/13
SB233	SB233-2	ROC Core (Step-out centered on SB09)			1	1			2/5/2013	0856	007276	7225.0002-0105	160-1465-1	3/22/13
SB233	SB233-3	ROC Core (Step-out centered on SB09)			1	1			2/5/2013	0857	007276	7225.0002-0105	160-1465-1	3/22/13
SB233	SB233-4	ROC Core (Step-out centered on SB09)			1	1			2/5/2013	0858	007276	7225.0002-0105	160-1465-1	3/22/13
SB234	SB234-1	ROC Core (Step-out centered on SB09)	1	1	1	1			2/4/2013	0930	007274	7225.0002-0101	160-1466-1	3/22/13

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
SB234	SB234-2	ROC Core (Step-out centered on SB09)			1	1			2/4/2013	0931	007274	7225.0002-0101	160-1466-1	3/22/13
SB234	SB234-3	ROC Core (Step-out centered on SB09)			1	1			2/4/2013	0932	007274	7225.0002-0101	160-1466-1	3/22/13
SB234	SB234-4	ROC Core (Step-out centered on SB09)			1	1			2/4/2013	0933	007274	7225.0002-0101	160-1466-1	3/22/13
~~SB235~~	~~SB235-1~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB235~~	~~SB235-2~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB235~~	~~SB235-3~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB235~~	~~SB235-4~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB236~~	~~SB236-1~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB236~~	~~SB236-2~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB236~~	~~SB236-3~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB236~~	~~SB236-4~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB237~~	~~SB237-1~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB237~~	~~SB237-2~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB237~~	~~SB237-3~~	~~ROC Core (Step-out centered on SB10)~~												
~~SB237~~	~~SB237-4~~	~~ROC Core (Step-out centered on SB10)~~												
SB238	SB238-1	ROC Core (Ship Shield Area)	1	1	1	1			1/25/2013	0925	007257	7225.0002-0075	160-1355-1	3/15/13
SB238	SB238-2	ROC Core (Ship Shield Area)			1	1			1/25/2013	0926	007257	7225.0002-0075	160-1355-1	3/15/13
SB238	SB238-3	ROC Core (Ship Shield Area)			1	1			1/25/2013	0927	007257	7225.0002-0075	160-1355-1	3/15/13
SB238	SB238-4	ROC Core (Ship Shield Area)			1	1			1/25/2013	0928	007257	7225.0002-0075	160-1355-1	3/15/13
SB239	SB239-1	ROC Core (Ship Shield Area) - RAD & GEOPHYSICAL	1	1	2	2			1/24/2013	1220	007247	7225.0002-0069	160-1345-1	3/5/13
SB239	SB239-2	ROC Core (Ship Shield Area) - RAD & GEOPHYSICAL			2	2			1/24/2013	1221	007247	7225.0002-0069	160-1345-1	3/5/13
SB239	SB239-3	ROC Core (Ship Shield Area) - RAD & GEOPHYSICAL			2	2			1/24/2013	1222	007248	7225.0002-0069	160-1345-1	3/5/13
SB239	SB239-4	ROC Core (Ship Shield Area) - RAD & GEOPHYSICAL			2	2			1/24/2013	1223	007248	7225.0002-0069	160-1345-1	3/5/13
SB240	SB240-1	ROC Core (Ship Shield Area) - MS/MSD	1	1	2	2			1/24/2013	1025	007246	7225.0002-0069	160-1345-1	3/5/13
SB240	SB240-2	ROC Core (Ship Shield Area)			1	1			1/24/2013	1026	007246	7225.0002-0069	160-1345-1	3/5/13
SB240	SB240-3	ROC Core (Ship Shield Area)			1	1			1/24/2013	1027	007246	7225.0002-0069	160-1345-1	3/5/13
SB240	SB240-4	ROC Core (Ship Shield Area)			1	1			1/24/2013	1028	007246	7225.0002-0069	160-1345-1	3/5/13
SB241	SB241-1	ROC Core (Ship Shield Area)	1	1	1	1			1/24/2013	1000	007245	7225.0002-0069	160-1345-1	3/5/13
SB241	SB241-2	ROC Core (Ship Shield Area)			1	1			1/24/2013	1001	007245	7225.0002-0069	160-1345-1	3/5/13
SB241	SB241-3	ROC Core (Ship Shield Area)			1	1			1/24/2013	1002	007246	7225.0002-0069	160-1345-1	3/5/13
SB241	SB241-4	ROC Core (Ship Shield Area)			1	1			1/24/2013	1003	007246	7225.0002-0069	160-1345-1	3/5/13
SB242	SB242-1	ROC Core (Ship Shield Area)	1	1	1	1			1/24/2013	1055	007246	7225.0002-0069	160-1345-1	3/5/13
SB242	SB242-2	ROC Core (Ship Shield Area)			1	1			1/24/2013	1056	007246	7225.0002-0069	160-1345-1	3/5/13
SB242	SB242-3	ROC Core (Ship Shield Area)			1	1			1/24/2013	1057	007246	7225.0002-0069	160-1345-1	3/5/13
SB242	SB242-4	ROC Core (Ship Shield Area)			1	1			1/24/2013	1058	007246	7225.0002-0069	160-1345-1	3/5/13
SB243	SB243-1	ROC Core (Ship Shield Area)	1	1	1	1			1/24/2013	1130	007247	7225.0002-0069	160-1345-1	3/5/13
SB243	SB243-2	ROC Core (Ship Shield Area)			1	1			1/24/2013	1131	007247	7225.0002-0069	160-1345-1	3/5/13
SB243	SB243-3	ROC Core (Ship Shield Area)			1	1			1/24/2013	1132	007247	7225.0002-0069	160-1345-1	3/5/13
SB243	SB243-4	ROC Core (Ship Shield Area)			1	1			1/24/2013	1133	007247	7225.0002-0069	160-1345-1	3/5/13
SB244	SB244-1	ROC Core (Ship Shield Area)	1	1	1	1			1/24/2013	1153	007247	7225.0002-0069	160-1345-1	3/5/13
SB244	SB244-2	ROC Core (Ship Shield Area)			1	1			1/24/2013	1154	007247	7225.0002-0069	160-1345-1	3/5/13
SB244	SB244-3	ROC Core (Ship Shield Area)			1	1			1/24/2013	1155	007247	7225.0002-0069	160-1345-1	3/5/13
SB244	SB244-4	ROC Core (Ship Shield Area)			1	1			1/24/2013	1156	007247	7225.0002-0069	160-1345-1	3/5/13
SB245	SB245-1	ROC Core (Ship Shield Area)	1	1	1	1			1/25/2013	0910	007257	7225.0002-0075	160-1355-1	3/15/13
SB245	SB245-2	ROC Core (Ship Shield Area)			1	1			1/25/2013	0911	007257	7225.0002-0075	160-1355-1	3/15/13
SB245	SB245-3	ROC Core (Ship Shield Area)			1	1			1/25/2013	0912	007257	7225.0002-0075	160-1355-1	3/15/13
SB245	SB245-4	ROC Core (Ship Shield Area)			1	1			1/25/2013	0914	007257	7225.0002-0075	160-1355-1	3/15/13
SB246	SB246-1	ROC Core (Ship Shield Area) - MS/MSD	1	1	2	2			2/5/2013	0925	007276	7225.0002-0105	160-1465-1	3/22/13
SB246	SB246-2	ROC Core (Ship Shield Area)			1	1			2/5/2013	0926	007276	7225.0002-0105	160-1465-1	3/22/13
SB246	SB246-3	ROC Core (Ship Shield Area)			1	1			2/5/2013	0927	007276	7225.0002-0105	160-1465-1	3/22/13
SB246	SB246-4	ROC Core (Ship Shield Area)			1	1			2/5/2013	0928	007276	7225.0002-0105	160-1465-1	3/22/13
RP01A	RP01A-TS	*Macoma nasuta* – Reference (Paradise Cove) - DEPLOYED 12/18/12						1	2/4/2013	0840	007273		160-1467-1	2/28/13
RP02A	RP02A-TS	*Macoma nasuta* – Reference (Paradise Cove) - DEPLOYED 12/18/12							2/4/2013	0925	007273		160-1467-1	2/28/13
RP03A	RP03A-TS	*Macoma nasuta* – Reference (Paradise Cove) - DEPLOYED 12/18/12 - Could not find upon recovery												
RP01A	RP01A-VV	*Macoma nasuta* – Reference (Paradise Cove) - sediment (van veen)			1	1	1		12/18/2012	1127	007304		160-1358-1	3/21/13

Location ID	Sample ID	Description	Location Count	Completed Sample Location	Sample Count	Collected Samples	Completed Clam Deployment Location	Completed Clam Recovery Location	Date Sampled	Time Sampled	COC Number	Release Survey #	Lab Report #	Date Results Received
RP02A	RP02A-VV	*Macoma nasuta* – Reference (Paradise Cove) - sediment (van veen)			1	1			12/18/2012	1215	007304		160-1358-1	3/21/13
RP03A	RP03A-VV	*Macoma nasuta* – Reference (Paradise Cove) - sediment (van veen)			1	1			12/18/2012	1245	007304		160-1358-1	3/21/13
RY01A	RY01A-TS	*Macoma nasuta* – Reference (Oyster Point) - DEPLOYED 12/18/12						1	2/4/2013	1145	007273		160-1467-1	2/28/13
RY02A	RY02A-TS	*Macoma nasuta* – Reference (Oyster Point) - DEPLOYED 12/18/12							2/4/2013	1216	007273		160-1467-1	2/28/13
RY03A	RY03A-TS	*Macoma nasuta* – Reference (Oyster Point) - DEPLOYED 12/18/12							2/4/2013	1243	007273		160-1467-1	2/28/13
RY01A	RY01A-VV	*Macoma nasuta* – Reference (Oyster Point)			1	1	1		12/18/2012	1436	007304		160-1358-1	3/21/13
RY02A	RY02A-VV	*Macoma nasuta* – Reference (Oyster Point)			1	1			12/18/2012	1521	007304		160-1358-1	3/21/13
RY03A	RY03A-VV	*Macoma nasuta* – Reference (Oyster Point)			1	1			12/18/2012	1600	007304		160-1358-1	3/21/13
RZ01	RZ01-TS	*Macoma nasuta - Zero Time*			1	1			12/18/2012	930	007206		160-1181-1	1/17/13
FIELDQC	SB-	Source blank												
FIELDQC	EB-010413	Equipment blank			1	1			1/4/2013	1500	007208		160-1231-1	2/12/13
FIELDQC	EB-010713	Equipment blank			1	1			1/7/2013	1450	007252		160-1241-1	2/18/13
FIELDQC	EB-010813	Equipment blank			1	1			1/8/2013	1135	007254		160-1245-1	2/26/13
FIELDQC	EB-010913	Equipment blank			1	1			1/9/2013	1202	007212		160-1250-1	2/11/13
FIELDQC	EB-011013	Equipment blank			1	1			1/10/2013	1520	007221		160-1267-1	2/25/13
FIELDQC	EB-011413	Equipment blank			1	1			1/14/2013	1550	007224		160-1277-1	2/25/13
FIELDQC	EB-011513	Equipment blank			1	1			1/15/2013	1545	007227		160-1284-1	2/28/13
FIELDQC	EB-011613	Equipment blank			1	1			1/16/2013	1530	007230		160-1293-1	2/27/13
FIELDQC	EB-011713	Equipment blank			1	1			1/17/2013	1520	007234		160-1319-1	2/28/13
FIELDQC	EB-012213	Equipment blank			1	1			1/22/2013	1530	007238		160-1325-1	2/28/13
FIELDQC	EB-012313	Equipment blank			1	1			1/23/2013	1520	007241		160-1333-1	3/8/13
FIELDQC	EB-012413	Equipment blank			1	1			1/24/2013	1558	007249		160-1345-1	3/5/13
FIELDQC	EB-012513	Equipment blank			1	1			1/25/2013	1425	007260		160-1355-1	3/15/13
FIELDQC	EB-012813	Equipment blank			1	1			1/28/2013	1530	007263		160-1358-1	3/21/13
FIELDQC	EB-012913	Equipment blank			1	1			1/29/2013	1245	007306		160-1358-1	3/21/13
FIELDQC	EB-013013	Equipment blank			1	1			1/30/2013	1510	007268		160-1378-1	3/21/13
FIELDQC	EB-013113	Equipment blank			1	1			1/31/2013	1440	007272		160-1423-1	3/14/13
FIELDQC	EB-020413	Equipment blank			1	1			2/4/2013	1513	007275		160-1466-1	3/22/13
FIELDQC	EB-020513	Equipment blank			1	1			2/5/2013	1603	007277		160-1465-1	3/22/13
FIELDQC	EB-021113	Equipment blank			1	1			2/11/2013	1235	007280		160-1509-1	3/18/13
FIELDQC	EB-	Equipment blank												
FIELDQC	SB-	Source blank (If needed)												
			141	**141.00**	**671**	**671**	**7**	**7**						
				100%		**100.00%**								
				0.00		0.00								

APPENDIX A-2

Photographic Log

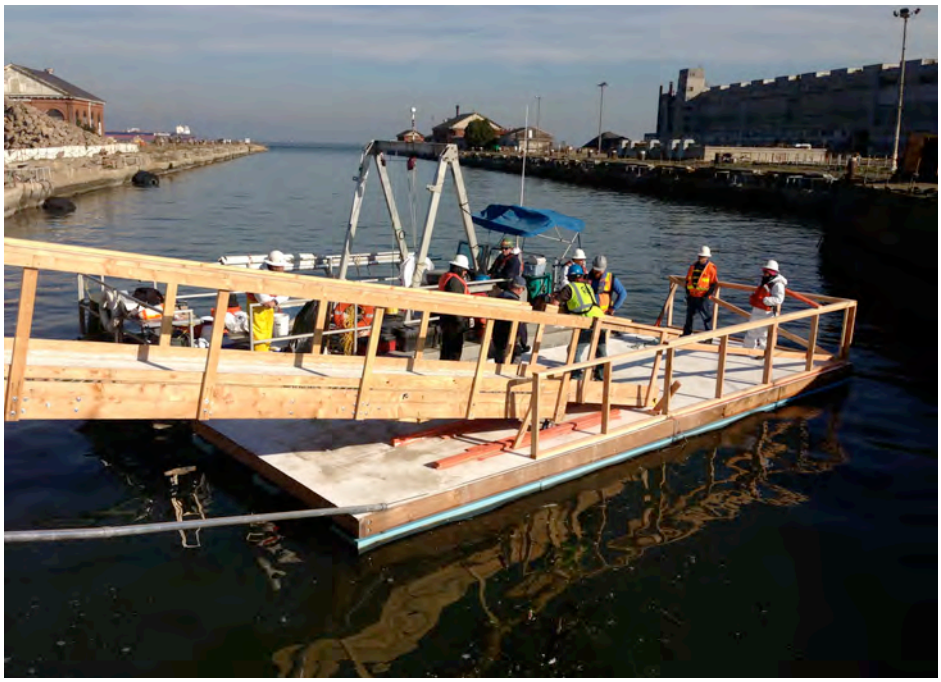
ITSI Gilbane

Photographic Documentation

Project: Radiological Data Gap Investigation, Parcel F, Phase 2b
Client: U.S. Navy
Location: Hunters Point Naval Shipyard, San Francisco, CA
Photograph Dates: November 26, 2013 through February 14, 2013

Prepared by: ITSI Gilbane
Project Number: 07225.0002

Photograph No. 1



Date: January 3, 2013

Site: Parcel F

Description:

Completed dock and gangway.

Photograph No. 2

Date: January 3, 2013

Site: Parcel F

Description:

Clam deployment.

Project: Radiological Data Gap Investigation, Parcel F, Phase 2b
Client: U.S. Navy
Location: Hunters Point Naval Shipyard, San Francisco, CA
Photograph Dates: November 26, 2013 through February 14, 2013

Prepared by: ITSI Gilbane
Project Number: 07225.0002

Photograph No. 3

Date: January 4, 2013

Site: Parcel F

Description:

Utility Locate.

Photograph No. 4

Date: January 10, 2013

Site: Parcel F

Description:

Vibracore sampling.

Project: Radiological Data Gap Investigation, Parcel F, Phase 2b
Client: U.S. Navy
Location: Hunters Point Naval Shipyard, San Francisco, CA
Photograph Dates: November 26, 2013 through February 14, 2013

Prepared by: ITSI Gilbane
Project Number: 07225.0002

Photograph No. 5

Date: January 9, 2013

Site: Parcel F

Description:

Vibracore drill head and barrel.

Photograph No. 6

Date: January 9, 2013

Site: Parcel F

Description:

Rad Tech taking swipe sample on the vibracore barrel.

Project: Radiological Data Gap Investigation, Parcel F, Phase 2b
Client: U.S. Navy
Location: Hunters Point Naval Shipyard, San Francisco, CA
Photograph Dates: November 26, 2013 through February 14, 2013

Prepared by: ITSI Gilbane
Project Number: 07225.0002

Photograph No. 7

Date: January 23, 2013

Site: Parcel F

Description:

Rad tech screening table.

Photograph No. 8

Date: January 23, 2013

Site: Parcel F

Description:

Rad Tech taking swipe sample on the sample sleeve.

Project: Radiological Data Gap Investigation, Parcel F, Phase 2b
Client: U.S. Navy
Location: Hunters Point Naval Shipyard, San Francisco, CA
Photograph Dates: November 26, 2013 through February 14, 2013

Prepared by: ITSI Gilbane
Project Number: 07225.0002

Photograph No. 9

Date: January 10, 2013

Site: Parcel F

Description:

Vibracore sample collection.

Photograph No. 10

Date: January 04, 2013

Site: Parcel F

Description:

Rad tech taking a swipe sample on the pipe dredge.

Project: Radiological Data Gap Investigation, Parcel F, Phase 2b
Client: U.S. Navy
Location: Hunters Point Naval Shipyard, San Francisco, CA
Photograph Dates: November 26, 2013 through February 14, 2013

Prepared by: ITSI Gilbane
Project Number: 07225.0002

Photograph No. 11

Date: January 04, 2013

Site: Parcel F

Description:

Pipe dredge sample collection.

Photograph No. 12

Date: January 4, 2013

Site: Parcel F

Description:

Sample processing.

Project: Radiological Data Gap Investigation, Parcel F, Phase 2b
Client: U.S. Navy
Location: Hunters Point Naval Shipyard, San Francisco, CA
Photograph Dates: November 26, 2013 through February 14, 2013

Prepared by: ITSI Gilbane
Project Number: 07225.0002

Photograph No. 13

Date: February 5, 2013

Site: Parcel F

Description:

Clam retrieval.

APPENDIX A-3

Boring Logs

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TK
Location:	HPS, San Francisco	Date:	1/4/13
Client:	US Navy		

Station ID:	BN221	Time On Station:	1200	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	0.5
Core Sample ID:		Northing (ft):		Recovery:	0.5
Logged by:	TK	Easting (ft):		Time of collection:	1343
Collection Mechanism:	pipe dredge	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	42.10	Recovery:	
		Tide (ft):	2.13	Time of collection:	
		Time Off Station:	1400		

As Sampled depth below mudline (ft)*	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
	Silt(ML)	Silt, wet, none plasticity, trace fine sand	5Y3/2 dark olive gray	very soft		none	BN221-1	
1	Bottom of boring		0.5 ft					
2								
3								
4								

Comments:

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TGR
Location:	HPS, San Francisco	Date:	1/15/2013
Client:	US Navy		

Station ID:	BN103	Time On Station:	1310	Attempt:	Feet
Station Descriptor:		Date:	1/15/13	1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	2
Logged by:	TGR	Easting (ft):		Time of collection:	1340
Collection Mechanism:	core barrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	43	Recovery:	
		Tide (ft):	6.08	Time of collection:	
		Time Off Station:	1400		

As Sampled depth below mudline (ft)	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
		No recovery						
1								
2		No recovery						
3	(ML) sandy silt	sandy silt, wet plasticity none, trace fine sands	5y3/2 dark olive gray	very soft		none	BN103-3	
	Same as above color change		5y2.5/2 Black			none	BN103-4	
4	Bottom of boring		4'					

Comments:

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TH
Location:	HPS, San Francisco	Date:	1/15/13
Client:	US Navy		

Station ID:	BN316	Time On Station:	1230	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	4
Logged by:	TH	Easting (ft):		Time of collection:	1250
Collection Mechanism:	core barrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	20.3	Recovery:	
		Tide (ft):	5.32	Time of collection:	
		Time Off Station:	1310		

As Sampled depth below mudline (ft)*	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
	silt (ML)	silt, wet, nonplastic, trace fine sand	5Y 3/2 dark Olive gray	very Soft		none	BN316-1	
1								
2	Same as above Color change		5Y 2.5/2 Black			none	BN316-2	
3						none	BN316-3	
4						none	BN316-4	
	Bottom of boring		4'					

Comments:

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TH
Location:	HPS, San Francisco	Date:	1/16/13
Client:	US Navy		

Station ID:	BS105	Time On Station:	1130	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	1
Logged by:	TH	Easting (ft):		Time of collection:	1240
Collection Mechanism:	Core barrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	54.5	Recovery:	
		Tide (ft):	3.01	Time of collection:	
		Time Off Station:	1250		

As Sampled depth below mudline (ft)	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
	No recovery							
1								
2	no recovery							
3	no recovery							
4	(SM) silty sand	silty sands wet, sub angular – sub rounded poorly graded	5Y 4/2 olive gray	very loose		none	BS105-4	10% shells

Comments: Bottom of boring 4!

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TH
Location:	HPS, San Francisco	Date:	1/17/13
Client:	US Navy		

Station ID:	BS118	Time On Station:	1113	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	4
Logged by:	TH	Easting (ft):		Time of collection:	1120
Collection Mechanism:	core barrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	10.2	Recovery:	
		Tide (ft):	1.75	Time of collection:	
		Time Off Station:	1140		

As Sampled depth below mudline (ft)*	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
0	(CL) clayey silt	clayey silt, wet, low plasticity	5Y 4/4 olive	very soft		none	BS118-1	
1	same as above color change		5Y 2.5/2 Black			none	BS118-2	
2						none	BS118-3	
3						none	BS118-4	
4	Bottom of boring			4'				

Comments:

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	TK
Project Name:	HPS Parcel F	Chief Scientist:	
Location:	HPS, San Francisco	Date:	1/17/13
Client:	US Navy		

Station ID:	BS111	Time On Station:	1003	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	4
Logged by:	TK	Easting (ft):		Time of collection:	1025
Collection Mechanism:	Corebarrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	13.6	Recovery:	
		Tide (ft):	2.06	Time of collection:	
		Time Off Station:	1109		

As Sampled depth below mudline (ft)	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
0	(CL) clayey silt	clayey silt, wet, low plasticity,	5Y2.5/2 Black	very soft		none	BS111-1	
1								
						none	BS111-2	
2								
						none	BS111-3	
3								
						none	BS111-4	
4	Bottom of boring 4'							

Comments:

Page 1 of 1

USNAVY HPNS PARCEL F PHASE 2 RADIONUCLIDE DGI

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	0722 5.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TH
Location:	HPS, San Francisco	Date:	1/23/13
Client:	US Navy		

Station ID:	BS124	Time On Station:	1000	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	4
Logged by:	TH	Easting (ft):		Time of collection:	1014
Collection Mechanism:	Core barrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	21.6	Recovery:	
		Tide (ft):	6.39	Time of collection:	
		Time Off Station:	1040		

As Sampled depth below mudline (ft)*	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
0	Silt (ML)	Silt, wet, non plasticity	5Y3/2 dark olive gray	very soft		none	BS124-1	
1								
2	same as above color change		5Y2.5/2 Black			none	BS124-2	
3						none	BS124-3	
4	Bottom of boring 4'					none	BS124-4	

Comments:

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TH
Location:	HPS, San Francisco	Date:	1/24/13
Client:	US Navy		

Station ID:	SB241	Time On Station:	0950	Attempt:		Feet
Station Descriptor:		Date:		1	Total Penetration:	4
Core Sample ID:		Northing (ft):			Recovery:	4
Logged by:	TH	Easting (ft):			Time of collection:	1000
Collection Mechanism:	Corebarrel	GPS Accuracy:		2	Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	6.5		Recovery:	
		Tide (ft):	6.91		Time of collection:	
		Time Off Station:	1015			

As Sampled depth below mudline (ft)*	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
0	Silt(ML)	Silt, wet, none plasticity, trace fine sand, 5% shells	5Y4/1 dark gray	very soft		none	SB241-1	5% shells
1								
2	Same as above color change Increase in shell content		5Y2.5/2 Black			none	SB241-2	25% shells
3						none	SB241-3	
4						none	SB241-4	40% shells
	Bottom of boring				4'			

Comments:

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TQR
Location:	HPS, San Francisco	Date:	1/24/13
Client:	US Navy		

Station ID:	BN312	Time On Station:	1350	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	4
Logged by:	TR	Easting (ft):		Time of collection:	1413
Collection Mechanism:	core barrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	8.5	Recovery:	
		Tide (ft):	1.84	Time of collection:	
		Time Off Station:	1430		

As Sampled depth below mudline (ft)*	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
0	Silt (ML)	Silt, wet, none plasticity	5Y3/2 dark olive gray	very soft		none	BN312-1	
1								
2						none	BN312-2	
3						none	BN312-3	
4						none	BN312-4	

Comments: Bottom of boring 4'

ROC core, geochronology and sed flume samples taken.

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	072285.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TH
Location:	HPS, San Francisco	Date:	1/28/13
Client:	US Navy		

Station ID:	SB 214	Time On Station:	1155	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	2
Logged by:	TH	Easting (ft):		Time of collection:	1208
Collection Mechanism:	core barrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	5.0	Recovery:	
		Tide (ft):	6.78	Time of collection:	
		Time Off Station:	1230		

As Sampled depth below mudline (ft)	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
1		no recovery						
2		no recovery						
3	(CL) Sandy Clay	sandy clay, wet, trace fine sand, low-med plasticity trace shells	5Y3/2 dark Olive gray	soft		none	SB214-3	trace shells
						none	SB214-4	
4		Bottom of boring		4'				

Comments:

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Attachment #17-2 – Forms

ITSI Gilbane

Project #:	072225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TR
Location:	HPS, San Francisco	Date:	1/29/13
Client:	US Navy		

Station ID:	SA412	Time On Station:	0913	Attempt:		Feet
Station Descriptor:		Date:		1	Total Penetration:	4
Core Sample ID:		Northing (ft):			Recovery:	4
Logged by:	TR	Easting (ft):			Time of collection:	0930
Collection Mechanism:	core barrel	GPS Accuracy:		2	Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	7.8		Recovery:	
		Tide (ft):	3.71		Time of collection:	
		Time Off Station:	0953			

As Sampled depth below mudline (ft)*	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
0	(CL) silty clay	silty clay, wet, med plasticity	5Y2.5/1 Black	very soft,		none	SA412-1	
1								
2						none	SA412-2	
3						None	SA412-3	
4	Same as above but	w/ 5% shells				None	SA412-4	5% shells
	Bottom of boring		4'					

Comments:

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	JL
Location:	HPS, San Francisco	Date:	1/30/13
Client:	US Navy		

Station ID:	SA426	Time On Station:	1400	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	4
Logged by:	JL	Easting (ft):		Time of collection:	1423
Collection Mechanism:	Core barrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	10	Recovery:	
		Tide (ft):	5.98	Time of collection:	
		Time Off Station:	1443		

As Sampled depth below mudline (ft)*	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
	(CL) Clay	clay, wet, med plasticity	5Y 4/2 olive gray	soft		none	SA426-1	
1	same as above	color change	5Y 2.5/2 Black			none	SA426-2	
2								
3						none	SA426-3	
						none	SA426-4	
4	Bottom of boring 4'							

Comments:

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Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TR
Location:	HPS, San Francisco	Date:	1/31/13
Client:	US Navy		

Station ID:	SB104	Time On Station:	1020	Attempt:		Feet
Station Descriptor:		Date:		1	Total Penetration:	2
Core Sample ID:		Northing (ft):			Recovery:	1
Logged by:	TR	Easting (ft):			Time of collection:	1050
Collection Mechanism:	core barrel	GPS Accuracy:		2	Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	6.2'		Recovery:	
		Tide (ft):	2.69		Time of collection:	
		Time Off Station:	~~1105~~ 1105			

As Sampled depth below mudline (ft)	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
1	(SM) silty sand	silty sand, wet, poorly graded subangular-subrounded 50% shells	5Y4/1 dark gray	med dense		none		
						none	SB104-1	50% shells
2	no recovery							
	Bottom of boring		2'					
3								
4								

Comments:

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	0122 5.00 02	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TH
Location:	HPS, San Francisco	Date:	1/31/13
Client:	US Navy		

Station ID:	SB101	Time On Station:	1350	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	4
Logged by:	TH	Easting (ft):		Time of collection:	1410
Collection Mechanism:	Core barrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	6.5	Recovery:	
		Tide (ft):	5.64	Time of collection:	
		Time Off Station:	1430		

As Sampled depth below mudline (ft)*	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
	(CL) clay	clay, wet, med plasticity	1GLEY 3/5GY dark greenish gray	Soft		none	SB101-1	20% shells
1								
						none	SB101-2	
2								
						none	SB101-3	
3								
	same as above, increase in shells					none	SB101-4	35% shells
4	Bottom of boring 4'							

Comments:

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	TR
Location:	HPS, San Francisco	Date:	2/4/13
Client:	US Navy		

Station ID:	B504	Time On Station:	1045	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	4
Logged by:	TR	Easting (ft):		Time of collection:	1100
Collection Mechanism:	corebarrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	22.5	Recovery:	
		Tide (ft):	1.51	Time of collection:	
		Time Off Station:	1125		

As Sampled depth below mudline (ft)*	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
0	silt(ml)	Silt, wet, none plasticity	5Y3/2 dark olive gray	very soft		none		
1								
2	Same as above Color change		5Y2.5/2 Black			none		
3						none		
4	Bottom of boring			4'				

Comments:
geochronology and sed flume sample taken only.

Page 1 of 1

Attachment #17-2 – Forms

ITSI Gilbane

Project #:	07225.0002	Vessel:	
Project Name:	HPS Parcel F	Chief Scientist:	JK
Location:	HPS, San Francisco	Date:	2/4/13
Client:	US Navy		

Station ID:	BN201	Time On Station:	1325	Attempt:	Feet
Station Descriptor:		Date:		1 Total Penetration:	4
Core Sample ID:		Northing (ft):		Recovery:	4
Logged by:	JK	Easting (ft):		Time of collection:	1350
Collection Mechanism:	Core barrel	GPS Accuracy:		2 Total Penetration:	
Coordinate System:	CA State Planar/Zone3/NAD27/USFt	Water Depth (ft):	28.9	Recovery:	
		Tide (ft):	0.36	Time of collection:	
		Time Off Station:	1420		

As Sampled depth below mudline (ft)	Lithology - Include USCS code	Type	Color	Consistency	Maximum particle size	Odor	Sample IDs	Comments
0	(ML) Silt	Silt, wet, none plasticity	5Y2.5/1 black	soft very		none	BN201-1	
1								
2						none	BN201-2	
3						none	BN201-3	
4						none	BN201-4	
	Bottom of boring				4'			

Comments:

Page 1 of 1

APPENDIX A-4-1

Daily Field Logs

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 12/18/12	Recorder: TLR	Project #: 07225-0002
Start Time (local): 0900	Stop time (local): 1915	
Sampling Area(s): Paridise Cove & Oyster Point		
Weather Conditions: sunny 48°F		

Sampling Activities (by Station): 0900 arrive at Pier 40 where boat is located. Health & Safety tailgate & meeting was done at trailer at 730 am.
0930 pull up zeroed clams RZ01-TS. They have been sitting since 1542 yesterday in the water. Load boat. Have a safety tailgate about being on boat.
1000 left pier 40. Head out to Paridise Cove.

~~Comments:~~ 1045 arrive at location RP01A. GPS location N37°53.924 & W122°27.875. Water depth 5.31'/5.08' ft. 1100 retreve sediment w/Pipe dredge.
1113 put 40 clams in sediment. Close up cage.
1127 deploy clams into water. Exact location N37°53.924 W122°27.876

~~Field Personnel:~~ 1140 move over to RP02A. Dredge sed. Water depth 3.07'/2.9' N 37°53.967 W 122°28.012.
1155 put 40 clams in cage

~~Health and Safety Issues:~~ 1215 deploy clams. 1230 move over to RP03A. Dredge sediment. 14.1' water depth put 39 clams in cage. N37°54.009 W122°27.737

Field Team Leader Review and Approval Jeremy Ruhe

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 12/18/12	Recorder: Tbn	Project #: 07225-0002
Start Time (local): 0900	Stop time (local): 1915	
Sampling Area(s): Paridise Cove & Oyster Point		
Weather Conditions: Sunny 48°F		

Sampling Activities (by Station):

1245 deploy clams. Location of anchor to clam cage is N37° 54. 000 W122° 27. 729
1300 Left Paridise Cove. Head to Pier 40. for bathroom break. 1330 Pier 40 bathroom break.
1409 arrive at Oyster Pt & location RY01A 13.6'/13.8' depth of water. Predge sediment & place 40 clams into cage. 1436 deploy clams

~~Comments~~: Location N37°39. 875 W122°22.383. Location of anchor N37°39. 872 W122°22.369
1445 set up on RY02A
1500 dredge sediment for clams. 22.7' depth of water. 40 clams placed in cage.
1521 deploy clams N37°39. 938 W122°21. 943

~~Field Personnel~~: location of anchor for clam cage N37°39. 928 W122°21. 926
1535 move over to RY03A. Dredge sediment 24.2' depth water. 39 clams in cage.

~~Health and Safety Issues~~: 1600 Deploy clams. N37°40.328 W122°21.694 Location of anchor for clam cage N37°40. 312 W122°21. 677 1608 Head back to Pier 40. 1645 Demob bout. Tony & Geoff pitched

Field Team Leader Review and Approval Jenn Ruhs

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 12/18/12	Recorder: Tom	Project #: 07225-0002
Start Time (local): 0900	Stop time (local): 1915	
Sampling Area(s): Paradise Cove & Oyster Point		
Weather Conditions: Sunny 48° F		

Sampling Activities (by Station):

up at Pier 40. Load trucks & demob boat.
Ed took cooler w/ zeroed clams to Fed Ex.
1722 offsite head back to Walnut Creek.
1900 arrive at Walnut Creek office.
1915 finish

Comments:

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval Tom Ruhm

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 12/19/12 | Recorder: Tom | Project #: 07225-0002

Start Time (local): 0900 | Stop time (local): 1905

Sampling Area(s): South Basin Area

Weather Conditions: Sunny 38°F

Sampling Activities (by Station): 0900 arrive at Pier 40 mob boat. Tapping down carpet around moon pool.
1000 Health & safety tailgate on boat
1009 Leaving pier 40. Heading over to Hunters Pt.
1100 arrive at clam location SB02A set ~~anchors~~ TK. anchors. 1115 tide 1.92 ft low MLLW
1130 Decide to take lunch prior to getting dirty.
1150 finish lunch. Set up on SB02A. Dredge sediment

~~Comments:~~ coordinates of N37°43.041 cage water depth 5.5 ft. W.122°22.272
1240 deploy first cage SB02A-1TS dredge sediment for second cage. Drop of 1st cage 37°43.041 122°22.265 anchor.
1311 assemble 2nd cage. SB02A-2TS

~~Field Personnel:~~ 1335 Deploy SB02A-2TS N37°43.041 W122°22.278 cage 9 meters off 1st line N37°43.038 W122°22.272 anchor
1340 assemble 3rd cage SB02A-3TS

~~Health and Safety Issues:~~ N37°43.046 W122°22.2804 13 meters off 1st ~~2nd~~ line. ~~TK~~ TK 1403 Deploy 3rd cage SB02A-3TS
1410 N37°43.041' W122°22.2729 anchor
1412 Decon dredge pipe

Field Team Leader Review and Approval Teresa Rubia

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 12/19/12	Recorder: TDK	Project #: 07225.0002
Start Time (local): 0900	Stop time (local): 1905	
Sampling Area(s): South Basin Area		
Weather Conditions: Sunny 48°F		

Sampling Activities (by Station): 1415 move over to SB05A
1425 set anchor at SB05A
1430 dredge sediment for cage #1. Assemble cage.
depth of water 3.70' N37°43.1886
W122°22.4890 cage 40 clams
1500 Deploy clams SB05A-1TS
N37°43.1937 W122°22.4914 anchor
1510 Set up on SB05A-2TS. Dredge sediment
Comments: N37°43.1873 W122°22.4891 cage
1526 Deploy clams SB05A-2TS 40 clams
N37°43.1916 W122°22.4934 anchor
1532 dredge soil for cage #3. Assemble cage.
SB05A-3TS N37°43.1902 W122°22.4925 cage.
1551 Deploy clams SB05A-3TS 40 clams
Field Personnel: N37°43.1945 W122°22.4940 anchor
Pull up anchors. Decon dredge pipe, anchors.
1600 Head back to pier 40.
1700 Back at pier 40. Demob boat.
Health and Safety Issues: 1720 left pier 40. Head back to walnut creek.
1900 Back at walnut creek office.
1905 finished

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 12/20/12	Recorder: TGR	Project #: 07225.0002
Start Time (local): 0700	Stop time (local): 1000	

Sampling Area(s): South Basin Area

Weather Conditions: 18-20 knots of wind Sunny 60°F

Sampling Activities (by Station): 0700 Field operations stopped due to weather. Captain of the boat and harbor master determined weather conditions were to rough to continue clam deployment. Stop work was determined by National Oceanic and Atmospheric Administration (NOAA). Clams were taken back ~~by~~ by

Comments: Andrew Smith w/ SAIC. Clean up and demot off site
1000 offsite

~~Field Personnel:~~

~~Health and Safety Issues:~~

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/2/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 1100	Stop time (local): 1430	
Sampling Area(s): Pier 40		
Weather Conditions: Sunny 52°F		

Sampling Activities (by Station): 1100 Head over to pier 40 to create cages for reaaclamation of Clams. 1240 do a man over board on the boat. Go out to the break water. 1320 finish man over board drill 1330 Casidy from SAIC. She preped clams. 1335 deploy clams into the water approximately 2 feet below water surface. Let clams sit 12-18 hrs. Clean up 1400 offsite of pier 40. Head back to walnut creek 1430 finished

Comments:

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Rubio

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/3/13	Recorder: TR	Project #: 07225-0002
Start Time (local): 0800		Stop time (local): 1630

Sampling Area(s): South Basin area

Weather Conditions: Sunny cold 41°F

Sampling Activities (by Station): 0815 Boat arrives from pier 40. Load boat. 0830 Healed & safety tailgate on boat. 0845 left dock and head to SB07A for clam deployment.
0909 arrive at clam location SB07A. Set anchors SB07A-VV open moonpool. Use pipe dredge. 0930 take sediment sample - van veen. 0945 deploy clams 122°22.6630 & 37°43.3541 SB07A-1TS

Comments: anchor 122°22.3484
for clam cage. 37° 43.6625
0954 move over to SB07A-2TS. Pipe dredge
0959 assemble clam cage.
1015 deploy clams 122°22.6644 37°43.3535
122°22.6646 37°43.3490 anchor for clam cage

Field Personnel: 1030 dredge for cage SB07A-3TS
1050 deploy clams 122°22.6658 37°43.3514
122°22°6671 37°43.3474 anchor for clams cage
1055 Decon pipe dredge

Health and Safety Issues: 1100 Head over to Clam location BS09A in Berths South area.
1120 arrive at BS09A. take lunch
1150 finish lunch

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/3/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0800		Stop time (local): 1630

Sampling Area(s): Berths South area

Weather Conditions: Sunny cold 41°F

Sampling Activities (by Station): 1156 Setup on BS09A.
1200 Dredge soil from BS09A-~~1TS~~ TR VV
assemble clam cage. BS09A-1TS
1225 deploy clams 122°21.7981 37°43.0344
122°21.7970 37°43.0328 anchor for clam cage
1230 Dredge soil for BS09A-2TS
1251 deploy clams 122°21.7980 37°43.0364
122°21.7961 37°43.0313 anchor for clam cage

Comments: 1255 dredge soil w/ Pipe dredge for BS09A-3TS
assemble cages
1313 deploy clams 122°21.7982 37°43.0333
122°21.7947 37°43.0300 anchor for clam cage
1321 Decon pipe dredge. Pull up anchors.
1326 Head over to BN11A. Stop at dock first

Field Personnel: to get extra screen for cages & use restroom.
1409 Head over to BN11A. 1425 Dredge soil for
BN11A-VV. Assemble cage. BN11A-1TS
1450 deploy clams 122°21.4521 37°43.6017

Health and Safety Issues: 122°21.4430 37°43.6090 anchor for cage
line is going NE northeast.
1500 Dredge for BN11A-2TS. Assemble cages.
Tony & Geoff were able to watch from shore.

Field Team Leader Review and Approval Teresa Rubio

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/3/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 1500		Stop time (local): 1630

Sampling Area(s): Berths North Area

Weather Conditions: Sunny Cold 51°F

Sampling Activities (by Station): BN11A-2TS

1515 Deploy clams 122°21.4506 37°43.6014
122°21.4497 37°43.6068 anchor for cage

1523 Dredge soil for BN11A-3TS
assemble clam cages.

1545 Deploy clams 122°21.4504 37°43.6021
122°21.4424 37°43.6047 anchor for cage

1557 Pull anchors & head back to dock.

Comments: 1607 De-mat boat. Get scanned out.
1630 offsite. Head back to Walnut Creek.

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Rule

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/4/13	Recorder: TG	Project #: 07225.0002
Start Time (local): 0900	Stop time (local):	
Sampling Area(s): Berths North Area		
Weather Conditions: Sunny 52°F		

Sampling Activities (by Station):

0900 arrive at dock. Mob onto boat.
0915 Health & Safety tailgate & prep meeting to discuss the sampling procedures.
Had to get new drill bit to assemble vibracore.
1120 left dock
1140 arrive at BN221.
1200 Anchor off & set up on BN221

Comments: 122°21.7415 37°43.4424. Depth of water 42.10'. Fill vibracore w/ water. Lower pipe & piston core into water. 2.13' tide. Pushed from 33.5 - 37' into sediment. Pulled core out & material so sludgy it ran out the catcher. Try & use pipe dredge. 1300 some

Field Personnel: Sample but not enough to fill jars.
1335 2nd attempt w/ pipe dredge. Not enough. Do a larger sweep of floor to get more volume.
1343 sampled BN221-1. Only able to get

Health and Safety Issues: 0-6" sample. 1400 move over to BN222
122°21.7667 37°43.4444. 1415 BN222-1.
Take MS/MSD. 9 jars total.
1426 move over to BN223.

Field Team Leader Review and Approval Teresa Rich

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/4/13	Recorder: TR	Project #: 07225.0002
Start Time (local): 0900		Stop time (local):

Sampling Area(s): Berths North Area

Weather Conditions: Sunny 52°F

Sampling Activities (by Station): 1435 sample BN223-1
122°21.7813 37°43.4513
1435 Head back to dock.
1500 take equipment blank EB-010413
3 poly w/ HNO3. Demob boat.
1620 offsite.
1800 back at Walnut creek.

Comments:

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval Teren Rue

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/7/13	Recorder: TK	Project #: 07225.0002
Start Time (local): 0800	Stop time (local): 1600	
Sampling Area(s): Berths North Area.		
Weather Conditions: cloudy 43° foggy		

Sampling Activities (by Station): 0815 met at dock. 0830 Health & Safety tailgate meeting. 0845 left dock. Head over to dry dock 4 Berths North Area. Continue taking core samples. 0900 Arrive at BN224. DTW 39' Drop dredge pipe. 122°21.7946 37°43.4700 0903 Take sample BN224-1. Move over to BN225. 122°21.8180 37°43.4720 0919 Take sample BN225-1 Tide 6.22'

Comments: Move over to BN226 122°21.8358 37°43.4884 0936 take sample BN226-1 move over to BN227 122°21.8543 37°43.513 0954 take sample BN227-1 MS/MSD 9 bottles. Move over to BN228 122°21.8670 37°43.5077

Field Personnel: 1010 take sample BN228-1 Rope in the way of sample BN230. Able to let the rope out. Able to go over it. 37°43.5239 122°21.9045

Health and Safety Issues: 1024 take sample BN230-1 1036 Move over to BN229 122°21.8875 37°43.5300 we are about 9 meters off due to the Kason boat

Field Team Leader Review and Approval Teresa Richer

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/7/13	Recorder: TBr	Project #: 07225.0002
Start Time (local): 0800	Stop time (local): 1600	

Sampling Area(s): Berths North Area

Weather Conditions: Cloudy 43° foggy. Sunny in afternoon.

Sampling Activities (by Station): 1042 take sample BN229-1
1050 Head over to dry dock #2
1100 Decide to take lunch at our dock 3.
1135 finish lunch. Head over to dry dock #2
1200 set up on BN211. DTW 12'. tide 1.9'
Since we have about 28' of sediment. Use the vibracore. 1213. Pull out vibracore. Scan pipe.
122°21.6198 37° 6200 43.6943

Comments: 1232 take sample BN211-3 & BN211-4
Recovery is 28.5" complete time 1230
1255 BN212 122°21.5907 37°43.7027
1255 BN212-1, 1300 BN212-2, 1303 BN212-3
1305 BN212-4
1334 Set up on BN213 37°43.7014

Field Personnel: 122°21.5687 #
1350 take sample BN213-1
1352 BN213-2
1354 BN213-3 1355 BN213-4

Health and Safety Issues: Take swipes on all samples.
1432 Head back to dock. Take an equipment blank 1450 Demob boat
1600 offsite back to WC.

Field Team Leader Review and Approval Teren Ruha

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/8/13 | Recorder: Th | Project #: 07225.0002

Start Time (local): 0740 | Stop time (local): 1800

Sampling Area(s): Berths North Area

Weather Conditions: Sunny 46°F

Sampling Activities (by Station): 0740 Boat arrive at dock. mob onto boat. Health & Safety tailgate meeting.
0828 arrive at dry dock 2. Set up on BN214 tide 7.59 ft DTW 14.6' 37°43.7104/122°21.5626
0835 take sample BN214-1 µs/MSD
0836 BN214-2, 0837 BN214-3, 0838 BN214-4
Move over to BN215 37°43.7109/122°21.5457

Comments: 0930 take sample BN215-3, 0931 BN215-4
0952 move over to BN216 37°43.7145/122°21.5290
take sample 1010 BN216-1, 1012 BN216-2, 1013 BN216-3, 1014 BN216-4. All 4 cores were sampled for rad for the first liner taken. The 2nd liner there was only enough sample for

Field Personnel: 3 cores analyzed for geophysical. Only sample location BN216-2, BN216-3 & BN216-4 were taken for geophysical.
1100 move over to BN217 37°43.7244

Health and Safety Issues: 122°21.5052
1116 take sample BN217-3, 1117 BN217-4
1130 stopped work due to safety concerns w/ the suspended load. 1135 take equipment blank

Field Team Leader Review and Approval [signature]

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/8/13	Recorder: JW	Project #: 07225.0002
Start Time (local): 0740		Stop time (local): 1800
Sampling Area(s): Berths North area		
Weather Conditions: Sunny 46°F		

Sampling Activities (by Station):

1200 set up on BN218 37°43.7222/122°21.4897
1220 take semple BN218-2, 1222 BN218-3,
1223 BN218-4. 1240 Head over to dock to take
lunch. 1320 finish lunch head over to dry
dock 2. set up on BN219 DTW 5'
37°43.7319/122°21.4794
1410 take sample BN219-2, 1411 BN219-3

Comments: 1412 BN219-4
1418 move over to BN220. Take MS/MSD
1430 BN220 37°43.7272/122°21.4582
8 ft of water
1440 take sample BN220-3
1442 BN220-4

Field Personnel: 1510 Head back to dock. De mob boat
1630 finish & offsite. Head back to WC.
1800 back at WC. Finished

Health and Safety Issues:

Field Team Leader Review and Approval Jen Rohr

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1-9-13	Recorder: Tony Olmstead	Project #: 07225.0002
Start Time (local): 6:30	Stop time (local): 16:00	

Sampling Area(s): Hunters Point NS Parcel F Dry dock 3

Weather Conditions: Partly Foggy AM / Rain in afternoon / Windy picked up.

Amd
~~Sampling Activities (by Station)~~ 06:30: onsite. Finish paperwork to R10CC.

07:30: At dock get into PPE. Kyle scan in coolers did QC Checks on Rad equipment.

07:45: TEC @ dock. Held tailgate. Kyle scanned boat in.

08:00: Headed to BN-210 in day dock #3.

08:25: on station @ BN 210 37° 43.7648'N / 122° 21.5373'W 21.5' depth 7.71 ft tide.

08:50: Sample time for BN-210 soil was smooth and dark gray

Amd
~~Comments~~: 09:00: set up at BN-209 37° 43.7623'N / 122° 21.5618'W 7.90' tide 28.2' depth. slighty sandy light brown on top .5" dark gray below to 4'

09:30: Sample time for BN-209. Move to BN-208. BN-208 is a MS/MSD.

09:40: set up on station BN-208 37° 43.7499'N / 122° 21.5833'W

Amd
~~Field Personnel~~: 7.77' tide. 31.5' depth slighty sandy light brownish green top 1'. Botton 3' dark gray to black.

10:15: Sample time. 1 core 1 pipe dredge. (BN-208)

10:35: set up on BN-207 37° 43.7457'N / 122° 21.6051'W

Amd
~~Health and Safety Issues~~: 31.5' depth 6.73' tide. top 1' light brown. Bottom 3' dark gray to black

11:13 Sample time BN-207.

11:20: Back @ dock for lunch

Field Team Leader Review and Approval _____

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1-9-13	Recorder: Tony Olmstead	Project #: 07225.0002
Start Time (local): 6:30	Stop time (local): 16:00	

Sampling Area(s): Hunters Point Parcel F Dry Dock 3

Weather Conditions: Foggy Rain in afternoon / wind picked up.

Amd
~~Sampling Activities (by Station)~~: 12:00: Set up @ Station BN-206
37° 43.7331'N / 122° 21.6256'W 4.41' tide. 32' depth
Top 1.5 light brown/greenish bottom 2.5' dark gray/black.
12:43: Sample time BN-206.
12:45: set up @ station BN-205
37° 43.7349'N / 122° 21.6499'W 29.5' depth 2.42' tide
top 0.5' light brown/green, bottom 3.5' dark gray/black.
13:25: Sample time BN-205.

Amd
~~Comments~~: 13:30: Set up @ station BN-204
37° 43.7271'N / 122° 21.6586'W 1.27' tide 29.2' depth
top 0.5' light brown/green / bottom 3.5' dark gray/black.
14:11: Sample time BN-204.
14:15: Move to station BN-203. BN-203 is a MS/MSD
0.16' tide. 37° 43.7283'N / 122° 21.6912'W 28.2' depth.

Amd
~~Field Personnel~~: Top 1' light brown/gray/bottom 3' dark gray/black.
14:32: Sample time for BN-203.
15:00: Back at the dock. Weather turning foul.
type to start QC on Rad equipment. Secure at

Amd
~~Health and Safety Issues~~: boat and equipment.
16:00: off site. site secure

Field Team Leader Review and Approval _____

pg. 2 of 2

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/10/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0800	Stop time (local): 1815	

Sampling Area(s): Berths North Area

Weather Conditions: Sunny 44°F

Sampling Activities (by Station): 0800 arrive at dock. Health & Safety tailgate meeting. 0830 left dock. Set up on BN104 37°43.5557 122°21.4888 0848 at BN104 32' DTW tide 7.41' 0900 BN104-1, 0901 BN104-2, 0902 BN104-3 0903 BN104-4. 0927 setup on BN105. Throw anchors. 37°43.5180 122°21.5534 DTW 16'

~~Comments:~~ 0953 take sample BN105-1 MS/MSD 0954 BN105-2, 0955 BN105-3, 0956 BN105-4 1011 set up on BN106 37°43.4120, 122°21.6555 DTW 21.5' tide 7.91' take rad & geophysical samples. 1030 BN106-2, 1031 BN106-3 ~~1002~~ 1032 BN106-4. 1120 pull anchors. Head over to

~~Field Personnel:~~ BN101. 37°43.—— 122°21.—— tie off to share. Unable to tie off due to strong current. 1155 take lunch 1240 left dock head over to BN313 ~~BN3~~. Set anchors. 37°43.4190

~~Health and Safety Issues:~~ 122°21.~~4196~~7396 DTW 22.7' 4.33' tide. 1300 take sample BN313-1, 1304 BN313-2 1306 BN313-3 BN313-4 @ 1308 1330 move over to BN314

Field Team Leader Review and Approval Teresa Rath

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/10/13 | Recorder: TH | Project #: 07225.0002

Start Time (local): 0800 | Stop time (local): 1815

Sampling Area(s): Berths North area

Weather Conditions: sunny 44°F

Sampling Activities (by Station): 37°43.483/122°21.7273
DTW 18.5' 1340 take sample BN314-2
1342 BN314-3, 1344 BN314-4.
1412 BN315 37°43.4184/122°21.7175
DTW 17.0' tide 1.76'
1420 BN315-1, 1421 BN315-2, 1422 BN315-3,
1424 BN315-4
1436 move over to BN317. Throw out anchors

Comments: at location BN317 37°43.4033
122.21.7271 DTW 15'
1455 BN317-1, 1457 BN317-2, 1459 BN317-3
1501 BN317-4
1510 Pull anchors.
1520 Do on equipment Blank EB-011013

Field Personnel: 1536 Back at dock. Demob boat.
1620 fill out chains.
1640 offsite head back to WC
1815 Back in WC. Finished

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Ruhn

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/14/13	Recorder: JDN	Project #: 07225.0002
Start Time (local): 0740	Stop time (local): 1830	
Sampling Area(s): South Basin Area		
Weather Conditions: Sunny 39°F		

Sampling Activities (by Station): 0745 Boat arrive at dock. Mob on to boat. Health & safety tailgate meeting. 0830 Left dock head over to South Basin Area. Issue w/ GPS. Had to recalculate. Fixed GPS. 0930 arrive at SB201. Drop anchors 37°43.295 122°22.815. DTW 3.00' tide 3.63' 0959 SB201-1, 1000 SB201-2, 1001 SB201-3 1002 SB201-4

~~Comments~~: 1020 move over to SB202, 37°43.055 122°22.770 3.5 DTW. 1040 SB202-1, 1041 SB202-2, 1042 SB202-3 1043 SB202-4. 1100 move over to SB203 3.3 DTW ~~4.43~~ tide 5.15' 37°43.398 122°22.719 1117 SB203-1 take MS/MSD, 1118 SB203-2, 1119 SB203-3, 1120 SB203-4

~~Field Personnel~~: 1135 SB204 37°43.428 122°22.701 5.92' tide 3.0 DTW 1153 SB204-1, 1154 SB204-2 1155 SB204-3, 1156 SB204-4. Sample for rad and geophysical. Sample had some odor.

~~Health and Safety Issues~~: 1225 off location SB204 & setup on SB205 37°43.3822 122°22.6764. 1240 Take lunch 1320 finish lunch. Begin SB205. 6' DTW 7.00 tide. 1340 SB205-1, 1341 SB205-2, 1342 SB205-3

Field Team Leader Review and Approval Jenna Ruhir

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/14/13	Recorder: Jon	Project #: 107225.0002
Start Time (local): 0740		Stop time (local): 1830

Sampling Area(s): Berths North Area

Weather Conditions: Sunny 46°F

Sampling Activities (by Station): 1343 SB205-4. 1350 move over to BN108. 1420 set anchors. Tide 6.58' DTW 53' 1440 Hit refusal w/ the vibracore. Going to try pipe dredge. Pipe dredge worked to get the 1st sample 1500 BN108-1. Pull anchors. Head over to BN318 37°43.+121 122°28.1TR.7387 set anchors. DTW 19.5' 5.46' tide. 1533 BN318-1, 1534 BN318-2, 1535 BN318-3

~~Comments:~~ 1536 BN318-4.
Take 1550 equipment blank
1555 Head back to dock.
1605 Back at dock. Demob boat.
1700 Left site. Head back to WC.
1830 Back at WC. Finished for the day.

~~Field Personnel:~~

~~Health and Safety Issues:~~

Field Team Leader Review and Approval Jessica Ruh

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/15/13	Recorder: TH	Project #: 07225.0002
Start Time (local): 0800		Stop time (local): 1830

Sampling Area(s): Berths North Area

Weather Conditions: Sunny 39°F

Sampling Activities (by Station): 0800 Boat arrived at dock. 0815 Health & Safety tailgate meeting. Mob boat. 0827 Left dock. 0840 Drop anchors at BN107 tide 1.90 ft. 37° 43. 4295/122°. 21.5536 10.2' DTW 0903 BN107-1, 0904 BN107-2, 0905 BN107-3, 0906 BN107-4. 0911 Pull anchors. Set up on BN109 set anchors. DTW 14.3' 37°43.3813 122°21.7307 0940 BN109-1

Comments: 0941 BN109-2, 0942 BN109-3 0943 BN109-4 Pull anchors. 0956 Head over to BN111. Set anchors 37°43.3820, 122°21.6491 DTW 12.5' tide 2.80' 1020 BN111-1, 1021 BN111-2, 1022 BN111-3, 1023 BN111-4 1035 pull anchors. 1045 set up on BN110. Set anchors 37°43.3577 122°21.6097

Field Personnel: DTW 14.0' 1110 BN110-2 MS/MSD, 1111 BN110-3 1112 BN110-4 Use pipe dredge for MS/MSD. 1140 take lunch. 1215 finish lunch 1230 Set up on BN316. 37°43. #126 122°21.7229

Health and Safety Issues: Did not take the sedflume sample only the ROC sample. DTW 20.3' 1250 at BN316-1, 1251 BN316-2, 1252 BN316-3, 1253 BN316-4 Pull anchors. 1310 move over to BN103. Set up and

Field Team Leader Review and Approval Jenn Ruh

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/15/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0800		Stop time (local): 1830

Sampling Area(s): Berths North area

Weather Conditions: Sunny 45°F

Sampling Activities (by Station): throw anchors for location BN103.
tide 6.08' 37°43.5619 122°21.4311
43' DTW 1340 BN103-3, 1341 BN103-4. Pull anchors. 1400 move on to BN102. Throw anchors. 37°43.6337 122°21.4457 tide 6.36', 45' DTW 1432 BN102-1, 1433 BN102-2, 1434 BN102-3 1435 BN102-4. 1445 pull anchors. Set up on BN309. set anchors 1500. 37°43.7596

Comments: 122°21.4998 DTW 11.0' tide 6.04'
1520 BN309-1, 1521 BN309-2, 1522 BN309-3
1523 BN309-4. Pull anchors
1545 take equipment blank
1550 Head back to dock. Demob boat.
1700 off site. Back to WC

Field Personnel: 1830 arrived at WC. Finished.

Health and Safety Issues:

Field Team Leader Review and Approval Jenn Ruhe

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/16/13 | Recorder: Tom | Project #: 07225.0002

Start Time (local): 0800 | Stop time (local): 1800

Sampling Area(s): Berths North Area / Berths South area.

Weather Conditions: Sunny 39°F

Sampling Activities (by Station): 0800 arrive at dock. Load boat. 0820 Health & Safety tailgate meeting. 0840 left dock. Set up on BN310 tide 1.90' DTW 14.2' 37°43.7748 122°21.5062. 0910 BN310-1, 0911 BN310-2, 0912 BN310-3, 0913 BN310-4 37°43.7745 ~~5134~~ DTW 8' move over to BN311 122°21.5134 0930 sample BN311-1, 0931 BN311-2,

Comments: 0932 BN311-3 0933 BN311-4 0950 move over to BN101. Set anchors 37°43.6738 122°21.4223 DTW38.4' tide 1.85' 1012 BN101-1, 1013 BN101-2, 1014 BN101-3 1015 BN101-4 take MS/MSD on core. 1040 pull anchors & Head over to BS104 tide 2.50'

Field Personnel: 1055, Set anchors at BS104 DTW 10.5 37°43.2064/122°21.5845. 1110 BS104-1, 1111 BS104-2 BS104-3 @ 1112, 1113 BS104-4. 1130 pull anchors move over to BS105. Set anchors DTW54.5' tide 3.01'

Health and Safety Issues: 37°43.1262 122°21.5447 1150 pull up pipe. Nothing in catcher. Have to ~~pipe dredge~~. Use Vibra core. 1230 pull up vibra core. 1240 BS105-4

Field Team Leader Review and Approval Teresa Ruha

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/16/13	Recorder: TR	Project #: 07225.0002
Start Time (local): 0800		Stop time (local): 1800
Sampling Area(s): Berths South		
Weather Conditions: Sunny 49°F		

Sampling Activities (by Station): 1250 take lunch, 1320 finish lunch. 1336 drop anchors. Set up on BS108 37°43.1653 122°21.7556 TR 7536 5.04 tide. DTW 12.2' 1350 BS108-1, 1351 BS108-2, 1352 BS108-3, 1353 BS108-4

1400 set up on BS107. Three anchors. 37°43.1182 122°21.6763 DTW 14.5' 1420 BS107-1, 1421 BS107-2, 1422 BS107-3

Comments: TR 1423 BS107-4

1438 pull up anchors. Move over to BS106 37°43.0876 122°21.6077 DTW 20.5' tide 5.68'

1456 BS106-1, 1457 BS106-2, 1458 BS106-3, 1459 BS106-4

Field Personnel: TR 1520 pull anchors. Take equipment blank 1530. Head back to dock. Demob boat. 1550 fill out & go over chains. 1640 offsite. Head back to WC.

Health and Safety Issues: 1800 finish for the day

Field Team Leader Review and Approval Teresa Ruba

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/17/13	Recorder: T&R	Project #: 07225.0002
Start Time (local): 0800	Stop time (local): 1800	
Sampling Area(s): Berths South Area.		
Weather Conditions: Sunny 43°F		

Sampling Activities (by Station): 0800 arrive at the dock. mob boat. Health & Safety tailgate meeting. 0830 Left dock Head over to Berths South area. 0850 set anchors for BS 109 37°43.0305 / 122°21.5975 DTW 16.6' tide 2.36' 0900 BS109-1, 0901 BS109-2, 0902 BS109-3 0103 BS109-4. 0925 Pull anchors. Move over to BS 110, 0933 throw anchors.

~~Comments:~~ 37°~~43~~ 42.TK .9807 / 122°21.5235 DTW 21.5' 0943 BS110-1, 0944 BS110-2, 0945 BS110-3, 0946 BS110-4, 1003 Pull anchors. Move over to BS 111. Throw anchors 37°~~43~~ 42.TK .9293 122°21.5501 DTW 13.6' 1025 BS111-1 MS/MSD w/ pipe dredge. 1026 BS111-2, 1027 BS111-3, 1028 BS111-4

~~Field Personnel:~~ 1104 Pull anchors & setup on BS118 37°~~43~~ 42.TK .8813 122°21.6025 DTW 10.2 tide 1.75' 1120 BS118-1, 1121 BS118-2 1122 BS118-3, 1123 BS118-4. 1140 pull

~~Health and Safety Issues:~~ anchors. Move to BS119 Set anchors 37°~~43~~ 42.TK .8663 122°21.6378. 1200 BS119-1, 1201 BS119-2, 1202 BS119-3, 1203 BS119-4 1220 Pull anchors. Head back to dock.

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Site Name: Parcel F Hunters Point Shipyard
Site Location: San Francisco, CA

Title: Amendment to Revised Final Sampling and Analysis Plan (Battelle, June 2011)
Amendment Date: October 2012

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/17/13	Recorder: TGR	Project #: 07225.0002
Start Time (local): 0800		Stop time (local): 1800
Sampling Area(s): Berths South Area		
Weather Conditions: Sunny 43°F		

Sampling Activities (by Station): 1245 Back at dock. Take lunch.
1320 finish lunch. Left dock. Head over to BS112. Anchor off. 37°43.9903 122°21.6448 DTW. 15.0' tide 3.53' 1345 BS112-1, 1346 BS112-2, 1347 BS112-3, 1348 BS112-4
1400 Pull anchors. Set up on BS113. Anchor off 37°43.0166 122°21.6618 DTW 13.9'
1420 BS113-1, 1421 BS113-2, 1422 BS113-3

Comments: 1423 BS113-4. 1443 pull off anchors. Set up on BS114. 37°43.0705 122°21.7566 DTW 13.3 tide 4.65'
1500 BS114-1, 1501 BS114-2, 1502 BS114-3, 1503 BS114-4.
1520 Equipment Blank.

Field Personnel: 1525 Head back to dock. 1540 arrive at dock. Demob back. Fill out COCs.
1630 finish & offsite. Back to WC.
1800 at WC. Finished.

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Ruba

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/22/13	Recorder: TDh	Project #: 07225.0002
Start Time (local): 0800	Stop time (local): 1730	

Sampling Area(s): Berths South Area.

Weather Conditions: Sunny 42°F

Sampling Activities (by Station): 0800 arrive at dock. Mob boat. 0815 Health & Safety tailgate meeting. 0820 Left dock. Set up on BS115. 37°42.9911 122°21.7962 Tide 6.65' DTW 19.2' 0855 BS115-1, 0856 BS115-2, 0857 BS115-3, 0858 BS115-4. Pull anchors 0915 Move over to BS116. Throw anchors. DTW 16.5' 37°42.9584 122°21.6686 0955 BS116-1 MS/MSD 0956 BS116-2, 0957 BS116-3, 0958 BS116-4.

~~Comments:~~ 1020 Pull anchors. Set anchors for BS117 37°42.9239 122°21.6596 DTW 12.0' Take sample for RAD & Geophysical. 1043 BS117-1, 1044 BS117-2, 1045 BS117-3, 1046 BS117-4. 1124 Pull anchors. Head over to BS122. 37°42.98 122°21.8270 DTW 18.5' tide 3.55

~~Field Personnel:~~ 1149 BS122-1, 1150 BS122-2, 1151 BS122-3 1152 BS122-4. 1212 Take lunch. 1245 Finish lunch. Set up on BS123. Throw anchors. 37°42.9397 122°21.8618 DTW 16.5' Tide 1.96'

~~Health and Safety Issues:~~ 1300 BS123-1, 1301 BS123-2, 1302 BS123-3 1303 BS123-4. 1320 pull anchors. 1330 Set up on BS121 37°42.9361 122°21.7871 DTW 12.7' 1350 BS121-1 MS/MSD, 1351 BS121-2, 1352 BS121-3

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/22/13	Recorder: TGR	Project #: 07225.0002
Start Time (local): 0800		Stop time (local): 1730

Sampling Area(s): Berths South Area

Weather Conditions: Slightly cloudy 53°F

Sampling Activities (by Station): 1353 BS121-4. 1410 pull anchors & setup on BS120 37° 42.8954 122° 21.7209 DTW 12.8' tide 0.56' 1430 BS120-1, 1431 BS120-2, 1432 BS120-3, 1433 BS120-4.
1454 Pull anchors. Move over to BS126. Set anchors 37° 42.8747 122° 21.7739 tide 0.33' DTW 14.7'. 1515 BS126-1, 1516 BS126-2, 1517 BS126-3, 1518 BS126-4.

~~Comments:~~ 1530 Equipment blank EB-012213
1535 pull anchors. Head back to dock.
1550 Back at dock. Demob boat. Fill out chains.
1630 offsite. Back to WC.
1730 At walnut creek. Finished for the day.

~~Field Personnel:~~

~~Health and Safety Issues:~~

Field Team Leader Review and Approval Teresa Ruha

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/23/13	Recorder: TGK	Project #: 07225-0002
Start Time (local): 0740		Stop time (local): 1800

Sampling Area(s): Berths South Area

Weather Conditions: Cloudy 50°F

Sampling Activities (by Station): 0740 Boat arrived at dock. Scan boat in. 0800 Health & Safety tailgate. Mob boat 0815 Left dock. 0830 Set up on ~~BS128~~ BS127 37°42.8333 122°21.7665 DTW 27.5' tide 6.83' 0845 BS127-1, 0846 BS127-2, 0847 BS127-3, 0848 BS127-4. 0907 pull anchors. Move over to BS130. 37°42.8144 122°21.6943 DTW 26.5' 0936 BS130-1, 0937 BS130-2, 0938 BS130-3

~~Comments:~~ 0939 BS130-4. 0952. Pull anchors. Head over to BS124. Set anchors 37°42.9035 122°21.9185 DTW. 21.6' tide 6.39'. 1014 BS124-1 1015 BS124-2, 1016 BS124-3, 1017 BS124-4. 1040 pull anchors. Move over to BS125. Tie off anchors. 37°42.8520 122°21.8479 DTW 18.0'

~~Field Personnel:~~ tide 5.71' 1100 BS125-1, 1101 BS125-2, 1102 BS125-3, 1103 BS125-4. 1120 pull anchors. Move over to BS128. Throw anchors. 37°42.7863 122°21.7649 DTW. 16.5' tide 4.82'

~~Health and Safety Issues:~~ 1145 BS128-1, 1146 BS128-2, 1147 BS128-3, 1148 BS128-4. 1210 take lunch. 1245 finish lunch Set up on BS129. The current is to strong. Move to BS101 37°43.3428 122°21.7822 DTW 15.2'

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/23/13	Recorder: TGR	Project #: 07225.0002
Start Time (local): 0740	Stop time (local): 1800	

Sampling Area(s): Berths South area

Weather Conditions: Rainy 50°F

Sampling Activities (by Station): 1339 BS101-1, 1340 BS101-2, 1341 BS101-3, 1342 BS101-4. Depths 1-4. Tide 1.66' radiation was taken, depths 2-4 geophysical samples were taken.
1420 move over to BS102. Tide 0.89'
37°43.2787 122°21.7291 DTW 12.5'
1445 BS102-1, 1446 BS102-2, 1447 BS102-3, 1448 BS102-4. 1515 Head back to dock.

Comments: 1520 Equipment blank EB-012313
1600 Demot boat. 1630 offsite & head back to WC. 1800 Back at WC. Finished.

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Ruba

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/24/13 | Recorder: TGK | Project #: 07225.0002

Start Time (local): 0745 | Stop time (local): 1850

Sampling Area(s): Berths South area / South Basin area

Weather Conditions: Cloudy 51°F

Sampling Activities (by Station): 0745 Boat at dock. Mob boat. 0750 Health & Safety tailgate meeting. 0800 Left dock. Head over to BS129. Tide 6.59' DTW 20.7' 37°42.7759 122°21.6965. 0820 BS129-1, 0821 BS129-2, 0822 BS129-3, 0823 BS129-4. 0850 move over to SB206. 0910 set anchors. 37°43.3967 122°22.6386 DTW 6.2' tide 6.92' 0920 SB206-1, 0921 SB206-2, 0922 SB206-3,

~~Comments~~: 0923 SB206-4. 0940 pull anchors. Head over to SB241. 0950 Set anchors SB241 37°43.3305 122°22.7894 DTW 6.5' tide 6.91' 1000 SB241-1, 1001 SB241-2, 1002 SB241-3, 1003 SB241-4 Move over to SB240. 37°43.3391 122°22.7739 DTW 6.5' 1025 SB240-1 MS/MSD, 1026 SB240-2,

~~Field Personnel~~: 1027 SB240-3 1028 SB240-4 1050 move to SB242 37°43.3488 122°22.7807 DTW 5.6' tide 6.39' 1055 SB242-1, 1056 SB242-2 1057 SB242-3, 1058 SB242-4. 1112 move over

~~Health and Safety Issues~~: to SB243 37°43.3677 122°22.7680 DTW 4.5' tide 5.84' 1130 SB243-1, 1131 SB243-2, 1132 SB243-3, 1133 SB243-4. 1150 move to SB244 37°43.3757 122°22.7479 DTW 4.2'

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/24/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0745	Stop time (local): 1850	
Sampling Area(s): South Basin area		
Weather Conditions: Cloudy 51°F		

Sampling Activities (by Station): 1153 SB244-1, 1154 SB244-2, 1155 SB244-3, 1156 SB244-4, move to SB239 37°43.3647/122°22.7518 DTW 8.8' tide 4.82' Take sample SB239 for Rad & geophysical 1220 SB239-1, 1221 SB239-2, 1222 SB239-3, 1223 SB239-4. Take lunch 1258 1350 finish lunch. Head over to BN312 37°43.746 122° 21. 5211 DTW 8.5' Tide 1.84'

~~Comments~~: 1413 BN312-1, 1414 BN312-2 1415 BN312-3, 1416 BN312-4. Move over to BN308 DTW 6.5' tide 0.97' 37°43.7590 122°21.5145 1440 BN308-1, 1441 BN308-2, 1442 BN308-3, 1443 BN308-4. 1500 Set up on BN307 37°43.7561 122°21.5250 DTW 6.5' tide 0.62'

~~Field Personnel~~: 1510 BN307-1, 1511 BN307-2, 1512 BN307-3, 1513 BN307-4. Sample for both RAD & geophysical. 1554 finish location BN309. Head back to dock. 1558 take equipment blank.

~~Health and Safety Issues~~: 1600 Back at dock. Demob boat. 1700 left head to WC. 1850 Back at WC

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1-25-13 | Recorder: TO | Project #: 07225.0002

Start Time (local): 6:30 | Stop time (local): 16:00

Sampling Area(s): South Basin

Weather Conditions: Cloudy, light rain AM.

Sampling Activities (by Station): 0745: Go over to dock to get on the boat. Put on PPE. load boat with equipment. RCT scans boat in.

0800: Tailgate. Head out towards the South Basin. (BS103)

0845: Set up @ SB-245. 37° 43.4076'N 122° 22.7324'W tide 6.29 Water depth. 4.4' 4' of recovery. Color is the dark gray, consistent with others in area. Sample times -/9:10 -2 9:11-39:12-49 3/3

09:10: Set up @ SB-238. 37° 43.4108'N 122° 22.7127'W

Comments: tide 6.62 WD 4.9' 3.5' of recovery light brown on top .5' dark gray bottom 3'. SB-238-1/0925 SB-238-2/0926 SB-238-3/0927 SB-238-4/0928

09:35: Move to station SB-207. 37° 43.3800'N 122° 22.5892'W tide 6.90 WD 5.5' light brown top 1' bottom 2.5' dark gray 3.5' of recovery. SB-207-1/10:05 SB207-2/1006 SB207-3/1007

Field Personnel: SB-207-4/1008.

10:10 move to station SB-208 37° 43.3482'N 122° 22.6322'W 7' WD tide 6.97 top 1' light brown bottom 3' dark gray. 46" recovery SB-208-1/1045 SB-208-2/1046 SB-208-3/1047 SB-208-4/1048

Health and Safety Issues: Move to SB-209

11:00 set up @ SB-209 37° 43.3161'N 122° 22.6539'W /MS/MSD 7.3' WD tide 6.80 5' recovery. Top 1.5' light brown bottom 3.5' dark gray. SB-209-1/11:24 SB-209-2/11:25 SB-209-3/11:26 SB-209-4/11:27

Field Team Leader Review and Approval

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1.25.13 | Recorder: To | Project #: 07225.0002

Start Time (local): 6:30 | Stop time (local): 16:00

Sampling Area(s): South Basin

Weather Conditions: Cloudy AM, light Rain / Partly Cloudy PM.

Sampling Activities (by Station): 11:40: Lunch.
12:15: set up @ SB-210. 37° 43.3048'N 122° 22.6984'W
6'WD tide 5.25 Geo TECH ~~Chron~~ sample @ this location.
Soil dark gray. 4' recovery SB-210-1/12:50 SB-210-2/12:51
SB-210-3/12:52 SB-210-4/12:53. Geo ~~Chron~~ TECH sample time.
SB-210-1/13:06 SB-20-2/1307 SB-210-3/13:08 SB-210/13:09
13:15: move SB-211 37° 43.2698'N 122° 22.7254'W
4.5' WD tide 3.81 42" recovery top .5' light brown.
Comments: Ano bottom 3' dark gray. SB-211-1/13:41 SB-211-2/13:42 SB-211-3/1343
SB-211-4/1344.
13:45: move to SB-212. 37° 43.2490'N 122° 22.6952'W
4.5'WD tides 2.94 4' recovery top 1' light brown bottom
3' dark gray. SB-212-1/14:15 SB-212-2/14:16 SB-212-3/14:17 SB-212-4/14:18
14:30: Head back to the dock.
Field Personnel: Ano 14:45: Back @ dock Start Chains for sample
Shipment.
16:00: Coolers to fed ex. Headed back to WC.
off site Site. Secure.
Health and Safety Issues: Ano

Field Team Leader Review and Approval

Attachment #17-2 – Forms (Continued)

Daily Log Form

ITSI Gilbane

Date: 1/28/13 Recorder: Tom Project #: 07225.0002

Start Time (local): 0800 Stop time (local): 1830

Sampling Area(s): South Basin Area

Weather Conditions: Sunny 47°F

Sampling Activities (by Station): 0800 Boat arrive. Health & Safety tailgate meetry. Load Boat. 0820 Head out to South Basin Area. Set up on SB 213. Throw anchors 37°43.2848 122°22.5899 tide 3.83' DTW 3.5' 0900 SB213-2, 0901 SB213-3, 0902 SB213-4 Set up on SB216 throw anchors 37°43.2105 122°22.5786 DTW 6.0'. 0940 SB216-1 take an MS/MSD, 0941 SB216-2, 0942 SB216-3, 0943 SB216-4. Pull anchors 1015 Set up on SB217 37°43.2100 122°22.6122 DTW 7.2' tide 5.69' 1030 SB217-1, 1031 SB217-2, 1032 SB217-3, 1033 SB217-4. 1050 pull anchors & set up on SB218. 37°43.1938 122°22.5239 DTW 6.5' Tide 6.26' 1100 SB218-1, 1101 SB218-2, 1102 SB218-3, 1103 SB218-4 1123 pull anchors. Head over to SB215. Throw anchors. 37°43.2395 122°22.5546 DTW 6.3' tide 6.60' 1135 SB215-2, 1136 SB215-3, 1137 SB215-4 1155 move over to SB214. set anchors 37°43.3146 122°22.5757 DTW 5.0' tide 6.78' 1208 SB214-3, 1209 SB214-4 hit refusal at 4.8', but able to push through.

Comments:

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Ruhl

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/28/13	Recorder: TGR	Project #: 07225.0002
Start Time (local): 0800	Stop time (local): 1830	

Sampling Area(s): South Basin Area

Weather Conditions: Sunny 47°F

Sampling Activities (by Station): 1230 take lunch. 1320 finish lunch. 1330 Set up on SB108. Throw anchors 37°43.2004 122°22.7605 DTW 6.5' tide 6.11' Sample 1340 SB108-1, 1341 SB108-2, 1342 SB108-3, 1343 SB108-4. 1405 pull anchors. 1410 set up on SB219 37°43.1536 122°22.4727 DTW 3.5' tide 5.33' 1420 Hit refusal. concrete. No sample was taken. 1430 move over to SB106

Comments: 37°43.0577 122°22.3647 DTW 7.2' 1445 SB106-1 MS/MSD, 1446 SB106-2, 1447 SB106-3 1448 SB106-4. 1515 pull anchors. 1520 Head back to dock. 1530 Equipment blank taken EB-012813. 1539 Back at dock. Demob boat and QC coolers. Scan out boat.

Field Personnel: 1700 off site back to WC. 1830 Back at WC. Finished for the day

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Ruha

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/29/13	Recorder: Tba	Project #: 07225.0002
Start Time (local): 0745	Stop time (local): 1530	

Sampling Area(s): Submarine area

Weather Conditions: Slightly cloudy 46°F

Sampling Activities (by Station): 0745 arrive at dock. Mob boat Scanboat in. Health & Safety tailgate meeting. 0815 Leave dock. Head over to submarine area. Set up on SA411. Throw anchors. 37°43.8940 122°21.7181 DTW 12.5' tide 2.85' 0853 SA411-1, 0854 SA411-2, 0855 SA411-3, 0856 SA411-4. 0913 pull anchors. Set up on SA412. Throw anchors 37°43.8767 122°21.7188

~~Comments:~~ DTW 7.8' tide 3.71' 0930 SA412-1, 0931 SA412-2, 0932 SA412-3, 0933 SA412-4 0953 pull anchors. move over to SA410 37°43.8685 122°21.7520 DTW 7.2' tide 4.40' 1000 The wench is not working. Have to go back to the dock. Mark w/ TEG is bringing up a new motor for wench tomorrow.

~~Field Personnel:~~ At dock fix wench. 1030 have lunch. 1115 finish lunch. Head over to submarine area. 1120 Set up on SA410 Throw anchors. 37°43.8688 122°21.7523 DTW 8.5' tide 5.91' 1140 SA410-1, 1141 SA410-2, 1142 SA410-3, 1143 SA410-4

~~Health and Safety Issues:~~ 1200 set up on SA417. Throw anchors. Close to Booms. 37°43.8553 122°21.7548 DTW 9.7' tide 6.33'. unable to take sample. The wench broke

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/29/13	Recorder: Tom	Project #: 07225-0002
Start Time (local): 0745	Stop time (local): 1530	
Sampling Area(s): Submarine area		
Weather Conditions: Sunw/slight clouds 50°F		

Sampling Activities (by Station): again. 1230 pull anchors. Head back to dock. Demob boat. QC coolers. Scan out boat. Fill out Fed ex. 1245 Take equipment blank EB-012913. Do some paperwork.
1430 offsite. Head back to WC.
1530 Back in WC and finished for the day.

Comments:

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Ruha

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/30/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0745	Stop time (local): 1800	
Sampling Area(s): Submarine area		
Weather Conditions: Sunny 53°F		

Sampling Activities (by Station): 0745 arrive at dock. Load boat Health & Safety tailgate meeting. 0809 Left dock head over to Submaine area. Setup on SA417 Throw anchors 37°43.8537 /22°21.7525 DTW 4.5' tide 2.06' 0842 SA417-3, 0843 SA417-4. Pull anchors 0850 move over to SA415 setup 37°43.8800 /22°21.8071 DTW 6.0' tide 2.45' 0920 SA415-4 Hit refusal at 3.5' but abble to push down. 0932 move over to SA414 37°43.8905 /122°21.7849 DTW 5.10' tide 2.91' 0945 SA414-1 MS/MSD for RAD and geophysical. Geophysial MS/MSD was only analyzed for TOC. 1020 move over to SA413 DTW 11' tide 4.28' 37°43.8906 /22°21.7672 11:00 SA413-1, 1101 SA413-2 1102 SA413-3, 1103 SA413-4 1120 set anchors for SA418 DTW 8.0' tide 4.90' 37°43.9069 /122°21.7825 1140 SA418-1, 1141 SA418-2, 1142 SA418-3, 1143 SA418-4. 1150 move over to SA416. 37°43.9155 /122°21.7653 DTW 9.3' tide 5.28' 1155 SA416-2, 1156 SA416-3, 1157 SA416-4, 1215 take lunch 1250 finish lunch. Pull anchors move to SA419

~~Comments:~~ ~~Field Personnel:~~ ~~Health and Safety Issues:~~

Field Team Leader Review and Approval Jeremy Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/30/13	Recorder: TG	Project #: 07225.0002
Start Time (local): 0745	Stop time (local): 1800	
Sampling Area(s): Submarine area		
Weather Conditions:		

Sampling Activities (by Station): DTW 16.5' 37°43.9217 122°21.7816 tide 6.04' 1300 SA419-2, 1301 SA419-3, 1302 SA419-4. 1320 pull anchors move over to SA420 37°43.9560 122°21.9702 DTW 10.0' tide 6.15' 1345 SA420-1, 1346 SA420-2 1347 SA420-3 1348 SA420-4. 1400 set up on SA426 37°43.9510 122°21.9697 DTW 10' tide 5.98' 1423 SA426-1, 1424 SA426-2, 1425 SA426-3 1426 SA426-4. 1443 move over to SA421 37°43.9480 122°21.9667 DTW 10' 1450 SA421-1, 1451 SA421-2, 1452 SA421-3, 1453 SA421-4. 1510 Equipment blank taken EB-013013. 1515 Head back to dock. 1530 Back at dock. Demob boat, scan boat, QC coolers.

Comments: 1630 finish head to WC.

Field Personnel: 1800 finished back at WC.

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Rubin

pg 2 of 2

Site Name: Parcel F Hunters Point Shipyard
Site Location: San Francisco. CA

Title: Amendment to Revised Final Sampling and Analysis Plan (Battelle. June 2011)
Amendment Date: October 2012

Attachment #17-2 – Forms (Continued)

TSI Gilbane

Daily Log Form

Date: 1/31/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0745	Stop time (local): 1730	
Sampling Area(s): South Basin area		
Weather Conditions: Sunny 47°F		

Sampling Activities (by Station): 0745 Boat arrived at dock. Load boat. 0800 Health & Safety tailgate meeting. 0820 Left dock. Head over to SA422. Setup on SA422 37°43.9497 122°21.9734 DTW 6.0' tide 1.67' ① 0850 SA422-1, 0851 SA422-2, 0852 SA422-3, 0853 SA422-4. Rad and geophysical samples taken for both 1-4ft. 0930 Head over to ② BS103. 0940 throw anchors & set on BS103

Comments: 37°43.2547 122°21.6647 DTW 9.2' tide 2.10' 1000 BS103-1, 1001 BS103-2 1002 BS103-3 1003 BS103-4. 1020 Head over to South basin area. ③ Setup on SB104. 37°42.9279 122°21.9305 DTW 6.2' tide 2.69' 1035 use the vibracore. Hit refusal at 2.0'

Field Personnel: 1050 SB104-1. Only able to get the surface. Very sandy w/ shells. Head over to ④ SB105 37°42.9883 122°22.0551 DTW 4.5' tide 3.31' 1115 SB105-1, 1116 SB105-2

Health and Safety Issues: 1132 move over to SB107. Pull anchors. 37°43.0523 122°22.2070 DTW 6.10' Tide 3.88' 1150 SB107-1, 1151 SB107-2, ⑤ 1152 SB107-3, 1153 SB107-4. 1205 take lunch

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 1/31/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0745	Stop time (local): 1730	

Sampling Area(s): South Basin area

Weather Conditions: Sunny 53°F

Sampling Activities (by Station): 1240 finish lunch. At location SB107 Rad and geophysical samples were taken. Pull anchors. Head over to SB219
1300 Setup on SB219. Throw anchors.
37°43.1546 122°22.4726 DTW 3.6'
tide 5.41' 1330 SB219-1. 1350 move over to SB101. Throw anchors 37°43.1158
122°22.3830 DTW 6.5' tide 5.64'

~~Comments:~~ 1410 SB101-1, 1411 SB101-2, 1412 SB101-3, 1413 SB101-4. 1430 pull anchors. Head back to dock. DO equipment blank EB-013113 taken at 1440. 1500 back at dock. Demob QC coolers, Scan out boat. 1600 finished and head to WC. 1730 back at WC.

~~Field Personnel~~:

~~Health and Safety Issues~~:

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2/4/13	Recorder: TBM	Project #: 07225.0002
Start Time (local): 0745	Stop time (local): 1730	
Sampling Area(s): South Basin area		
Weather Conditions: Cloudy 48°F		

Sampling Activities (by Station): 0745 arrive at dock. mob boat scan boat. 0820 Health & Safety tail gate meeting. 0827 Head over to South Basin area. 0856 Set anchors. Setup on SB232 DTW 1.9' tide 4.24' 37°43.3973 122°22.7406 MS/MSD on SB232-1 0900 SB232-1, 0901 SB232-2, 0902 SB232-3, 0903 SB232-4 move over to SB234 37°43.3873 122°22.7462 DTW 1.3'

~~Comments:~~ tide 3.63' 0930 SB234-1, 0931 SB234-2, 0932 SB234-3, 0933 SB234-4. move over to SB103 couldn't get SB233 & SB246 it is to shallow. 0950 move over to SB103. 37°43.0434 122°22.0966 DTW 2.3' tide 2.71'. 1005 SB103-1, 1006 SB103-2,

~~Field Personnel:~~ 1007 SB103-3. very shallow. 1035 move over to SB102. To shallow to take sample. The boat would get stuck. Head over to BS04 to do a geochronology sample. 37°43.1299 122°21.5689

~~Health and Safety Issues:~~ DTW 22.5' tide 1.51' 1100 BS04-GC. Have to cut w/ plunger at the dock. 49" of core. 1125 Head back to Dry Dock 3. Setup on BW312 1133 Throw anchors & tie off. 37°43.7650 122°21.5212

Field Team Leader Review and Approval Teresa Ruha

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Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2/4/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0745	Stop time (local): 1730	
Sampling Area(s): South Basin aread / Dry Dock 3		
Weather Conditions: Cloudy 48°F		

Sampling Activities (by Station): BN312 DTW 7.7' tide 0.90' 1145 BN312-GC. Geochronology sample. Have to cut w/ plunger at dock. 56" of core. 1210 pull anchors. Head to dock. 1220. Take lunch. 1320 finish w/ lunch. Head over to BN201. 37°43.7148 122°21.7195 DTW 28.9' tide 0.36' The Kasan is in way of the exact coordinates. We had to move it

Comments: north east. 1330 BN201-1, 1331 BN201-2, 1332 BN201-3, 1333 BN201-4. BN201 is a Rad and Geophysical samples.
1420 move over to BN202. Throw anchors.
37°43.~~7180~~1741 22°21.6976 DTW 29.6' tide 0.94'
1440 BN202-1, 1441 BN202-2, 1442 BN202-3

Field Personnel: 1443 BN202-4. 1503 Head back to dock. Dem of boat, scan boat. ~~1510~~ 1513 take equipment blank. Fill out chain & pack clams ready for shipment. 1630 offsite. Head back

Health and Safety Issues: to WC. 1730 back at WC. Finished for the day.

Field Team Leader Review and Approval Tera Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2/4/13	Recorder: GEW	Project #: 07225.0002
Start Time (local): 0730		Stop time (local): 1400

Sampling Area(s): CLAM COLLECTION AT BACKGROUND AREAS

Weather Conditions: FOG 45°-50°F

Sampling Activities (by Station): 0730 MEET GRADY WHITE AT PIER 40. TAILGATE MEETING. 0745 LEAVE DOCK FOR PARADISE COVE. 0800 ARRIVE & SET BOUY FOR RP03A. 0830 COULD NOT FIND. HEAD TO RP01A. 0840 HOOKED ROPE. RECOVERED 35 CLAMS. FND 6 DEAD. FND LARGE POLYCHAETE IN TRAP (CLAM EATER). 0900 HEAD TO RP02A. 0920 HOOKED ROPE. 0925 RECOVERED 36 CLAMS. 5-6 DEAD. 0940 HEAD BACK TO RP03A.

Comments: DRAGGED BACK & FORTH FOR AN HOUR. COULD NOT FIND TRAP. 1050 BREAK. 1100 HEAD TO OYSTER POINT. 1140 ARRIVE. 1145 RY01A. HOOKED ROPE. RECOVER 37 CLAMS. 1209 HEAD TO RY02A. 1216 HOOK ROPE. RECOVER 40 CLAMS. 1243 HEAD TO RY03A. HOOK ROPE. RECOVER 39 CLAMS.

Field Personnel: 1300 HEAD BACK TO PIER 40. 1330 AT PIER 40. CLEAN BOAT. 1400 HEAD BACK TO HUNTERS POINT. PACK CLAMS FOR SHIPPING.

Health and Safety Issues:

Field Team Leader Review and Approval _____

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2/5/13	Recorder: TGR	Project #: 07225.0002
Start Time (local): 0800		Stop time (local): 1830
Sampling Area(s): South Basin Area		
Weather Conditions: Cloudy 48°F		

Sampling Activities (by Station): 0800 arrive at dock. Load boat. Health & Safety tailgate meeting. 0820 left dock. Head over to South Basin Area. Set up on SB233 37°43.3931 122°22.7389 DTW 4.3' tide 6.09' 0855 SB233-1, 0856 SB233-2, 0857 SB233-3, 0858 SB233-4. 0918 move over to SB246. 37°43.3960 122°22.7440 DTW 3.0' tide 5.35' 0925 SB246-1 MS/MSD, 0926 SB246-2 0927 SB246-3 0928 SB246-4. 0955 move over to SB102. Where coordinates are its located right on rocks. We have to move station. The coast is rock. 37°43.1072 122°22.3253 DTW 4.5' tide 3.97' Hit refusal, move the boat slightly to get out of the rocks. 37°43.1017 122°22.3377 1020 approximately 33m off original coordinates. DTW 4.5' tide 3.75'. Still unable to get core try again move boat 37°43.0954 122°22.3394 44m off original coordinates DTW 4.5' tide 3.33'. Still unable to get core. Hitting refusal each time. It is all rock. The core can't get down. move out another teport. 37°43.0917 122°22.3477

Comments:

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Ruha

pg 1 of 2

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2/5/13 | Recorder: Tom | Project #: 07225-0002

Start Time (local): 0800 | Stop time (local): 1830

Sampling Area(s): South Basin area

Weather Conditions: Cloudy 48° F

Sampling Activities (by Station): we are now 57m away from original coordinates. DTW 4.5' tide 2.81'
1105 SB102-1, 1106 SB102-2, 1107 SB102-3
1108 SB102-4. 1130 take lunch 12.0 finish lunch. Completed all the cores. Drew now on the boat and now retrieving clams at location SB02A. 1240 SB02A-3TS, 1241 SB02A-2TS 1300 SB02A-1TS. 1317 pull anchors. Head over

Comments: to BS09A to retrieve clams. 1330 pull cages at BS09A tide -0.03'. 1350 BS09A-3TS 1400 BS09A-1TS, 1412 BS09A-2TS.
1435 Move over to BN11A. ~~15~~m 1505 BN11A-1TS ~~1520~~ 1520 BN11A-2TS. 1540 BN11A-3TS
1547 Head back to dock. 1600 Back at dock.

Field Personnel: 1603 take equipment blank. Demob boat, QC coolers. Fill out chains. 1730 left site. Head to WC.
1830 Back at WC. Finished.

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Rubio

pg 2 of 2.

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2-6-13	Recorder: TO	Project #: 07225.0002
Start Time (local): 630	Stop time (local): 15:00	

Sampling Area(s): Clam pickup (SB07A & SB05A)

Weather Conditions: Sunny AM,

Sampling Activities (~~by Station~~) (AMO): 0630: @ job trailer to send off paperwork
0745: At dock to meet barge. load materials to pickup clams.
0800: Tailgate Called tomorrows work due to weather.
0815: Head out to pick up clams in South Basin.
08:30: set up @ SB07A
08:45: pull trap SB07A-3 depth of water 6.5, tide 7.13'
35 clams recovered.
0910: pull trap SB07A-1 depth of water 6.5, tide 7.02'

~~Comments~~ (AMO): 37 clams recovered

0925: pull trap SB07A-2 depth of water 6.4, tide 6.83'
38 clams recovered.
0930: pull anchors, move to station SB05A.
0945: pull trap SB05A-3 5.6' depth of water, tide 6.31'
36 clams recovered.

~~Field Personnel~~ (AMO): 0955: Pull trap SB05A-1 5.5' depth of water, tide 6.13'
38 clams recovered.
1005: pull trap SB05A-2 5.4' depth of water, tide 5.77.
38 clams recovered

~~Health and Safety Issues~~ (AMO): 1020: Pull anchors head back to the dock.
10:30: Back @ the dock. Start unloading the boat and scanning the biologist equipment out.

Field Team Leader Review and Approval

Pg 1 of 2

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2-6-13	Recorder: TO	Project #: 07225.0002
Start Time (local): 6:30		Stop time (local): 15:00

Sampling Area(s): Clamp pickup (SB 07A & SB 05A)

Weather Conditions: Sunny AM

Sampling Activities (~~by Station~~ AM): 10:50 : Pacific Eco equipment has been Cleared. Biologist ok to leave and take equipment.

11:00: Teg (drillers) Cleared to go back to South harbor.

12:00: lunch.

12:30: Finishing paperwork.

15:00: Paperwork QC Complete.

15:15: offsite. Site Secure

Comments:

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2/11/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0745	Stop time (local): 1600	
Sampling Area(s): Berths North & South		
Weather Conditions: Sunny 48°F		

Sampling Activities (by Station): 0745 arrive at dock. 0800 boat arrive. Load boat. Scan boat. 0830 Health & Safety tailgate meeting. Doing sedflume sampling today. 0840 left dock. Head over to BS04 Throw anchors & setup. 37°43.1283 122°21.5694 DTW 26' tide 3.49'. There is only 35' piping and the water height is to high. We are moving the location around the corner inside the berth south west of original location. 37°43.1179 122°21.6316 DTW 20.5' tide 4.31' 0930 sedflume sample taken. Kurt is processing the sample. BS04 Pushing a Vibracore sample 2 ft right next to Kurts Sample. 0945 BS04-1SF, 0946 BS04-2SF The SF determines its a sedflume since we already have an BS04 location. 1015 pull anchors move over to ~~BN316~~ BN312. Tie off an set anchors. 37°43.7652 122°21.5226 DTW 13' tide 5.74'. 1035 sedflume taken. Kurt processing his sample. Push a 2 ft core. 1056 BN312-1SF, 1057 BN312-2SF. 1102 pull anchors. 1112 Move over to BN316. 1119 set anchors. DTW 21.5' tide 6.68'

Comments:

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Rucha

pg 1 of 2

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2/11/13 | Recorder: TGa | Project #: 07225.0002

Start Time (local): 0745 | Stop time (local): 1600

Sampling Area(s): Berths North & South

Weather Conditions: Sunny 48° F

Sampling Activities (by Station): BN316 37° 43. 4111 122° 21. 7209. 1130 sedflume sample taken. Kurt + process sample 1145 take sample BN316 BN316-1SF 1146 BN316-2SF Kurt was not happy with the core, so we are taking another sedflume. 1215 second sedflume taken. BN316A. Kurt is satisfied w/ sample taken. Equipment blank taken 1235 EB-021113

~~Comments:~~ 1310 take lunch 1350 finish lunch. Demot boat, scan out boat, QC coolers. Fill out chain.
1500 offsite. Head back to WC.
1600 Back at WC. Finished for the day.

~~Field Personnel~~:

~~Health and Safety Issues~~:

Field Team Leader Review and Approval Teresa Rutka

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2/12/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0800		Stop time (local): 1600
Sampling Area(s): South Basin area		
Weather Conditions: Sunny. 54°F		

Sampling Activities (by Station): 0800 arrive at dock. Load boat. Health & Safety tailgate meeting. 0830 Left dock and head over to south basin. 0900 arrive at south basin location. Unable to sample at exact coordinate location due to low tide. Tide was 2.30' at 0905. Have to wait till the tide comes up. 0930 the tide is high enough that the boat can get to the sample coordinates.

Tom Comments: Now able to take sediment for USACE. We are taking approximately 45-50 gallons of sediment by using the pipe dredge. We are filling 2/3 of 3-30 gallon steel drums. The pipe dredge is going on the surface 0-6". DTW 2.0' tide 3.07' 0940 - take sample SB-USACE1

Tom Field Personnel: Filled 2-250 ml poly & 1-500 ml poly. Sample material is silt which is dark olive gray in color and only has ~10% shells in sample. 1020 take equipment blank EB021213.

Tom Health and Safety Issues: 1040 Kyle is scanning jars and pipe dredge. 1050 Head back to dock. 1120 back at dock. Scan equipment off boat. 1145 take lunch. Pizza provided by ITSI Gilbane.

Field Team Leader Review and Approval Teresa Reha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2/12/13	Recorder: TBR	Project #: 07225.0002
Start Time (local): 0800	Stop time (local): 1600	

Sampling Area(s): South Basin Area

Weather Conditions: Sunny 54°F

Sampling Activities (by Station): 1245 finish lunch.
1250 take as source blank SB-021213
QC coolers. Coordinates for SB-USACE7 is
37°43.3285 122°22.5807
1430 finish paperwork.
1500 offsite. Head back to WC..
1600 Back at WC. Finished for the day

Comments:

Field Personnel:

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

ITSI Gilbane

Daily Log Form

Date: 2/13/13	Recorder: Tom	Project #: 07225.0002
Start Time (local): 0630	Stop time (local): 1730	
Sampling Area(s): NA		
Weather Conditions: Sunny 49°F		

Sampling Activities (by Station): 0630 arrive at Hunters Point trailer. Prepare labels, chain of custodys and paperwork of cutting geochronology samples. Each sample location BN312 and BS04 will be cut into 2 cm sections. Each 2cm section is labled and put in a ziplock bag. Some of the samples will be analyzed for Cs-137, Pb-210 and D2937m bulk density, the other samples will be archived. 1135 Head over to Conex. Prepare rad area to cut samples. 1240 Begin cutting BN312. organize samples and chain of custody. 1441 Begin cutting BS04. 1540 stop cutting BS04. Organize conex. Kyle is scanning the boat out.

Comments:

Field Personnel: 1630 left Hunters Point. Head back to WC. 1730 Arrive at WC. Finished for the day

Health and Safety Issues:

Field Team Leader Review and Approval Teresa Ruha

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APPENDIX A-4-2

Tailgate Safety Meetings

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: 12-18-2012 Time: 0750 Page: 1 of 1

Customer: Project: Contract #: N62473-11-D-2227/0002 Proj. #: 07225.0002

Work Description: Clam deployment, dock completion

TODAY'S WORK

CLAM DEPLOYMENT. CONTINUED BUILDING OF GANGWAY

SAFETY TOPIC(S) PRESENTED (attach outline/notes as necessary)

Specific Topic(s): SLIPS, TRIPS, FALLS, WEAR PFD'S AROUND WATER

Air monitoring results: N/A

Incidents/Accidents: N/A

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

N/A

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
MATEO HEADRICK	[signature]	TEG			
Chris Carothers	[signature]	TEG			
Jon Carr	[signature]	TEG			
GEOFF WOLFE	[signature]	ITSI GILBANE			
Andrew Gantner	[signature]	PER			
Ed Gillera	[signature]	ITSI			
Teresa Ruha	Teresa Ruha	ITSI			
KYLE GORDON	[signature]	ITSI/ITA			
P Merte	[signature]	teg			
ALEX PAWMAN	[signature]	TEG			
MARK [illegible]	[signature]	TEG			
A Klok	[signature]	ROICC			
Peter Strogoff	[signature]	ROICC			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: 12/19/2012 Time: 0730 Page: 1 of 1

Customer: US NAVY Project: Rad. Data Gap Contract #: Proj. #:

Work Description:

TODAY'S WORK

Clam deployment, Parcel F, completion of DOCK construction

SAFETY TOPIC(S) PRESENTED (attach outline/notes as necessary)

Specific Topic(s): PPE: prot. toes, eye prot, traffic vest, hard hat, PFD (Near water, on boat, on dock) Clam deployment, Tyvek, badge, gloves

~~Air monitoring results:~~ Mr care near moon pool, Hypothermia, Capt. to go over boat

Incidents/Accidents: None safety, shutoff switches, etc

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
P Mertz	[signature]	Teg			
M Mertz	[signature]	TEG			
Jim Carr	[signature]	TEG			
Andrew Conton	[signature]	PER			
Ed Gillem	[signature]	ITSI			
Teresa Ruhn	Teresa Ruhn	ITSI			
Geoff Wolfe	[signature]	ITSI Gilbane			
Alex Palomino	[signature]	TEG			
Chris Conton	[signature]	TEG			
Mateo Headrick	[signature]	TEG			
Kyle Gordon	[signature]	ITSI/ITA			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane TAILGATE SAFETY MEETING

Date: 12.20.12 Time: 7:30 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description:

TODAY'S WORK

Demob (Tools, personal gear only) for xmas break (water is too rough for clam deployment)

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, trips, falls, PPE: hard hat, safety glasses, steel toes, PFDs on boat, dock, near water

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

Wind + waves make boat operations ineffective + somewhat unsafe today. Work cancelled

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
ALEX PALOMINO		TCG			
KYLE GORDON		+TA			
GEOFF WOLFE		ITSI Gilbane			
Teresa Rubin	Teresa Rubin	ITS/Gilbane			
Ed Gillen		ITSI Gilbane			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) _____ (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) _____ (Signature)

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: 1/2/2013 Time: 0800 Page: 1 of

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description:

TODAY'S WORK

Clam deployment? sample collection

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

slip, trips, falls, hypothermia, dock access requires PFD & boat or skiff present. 2 person max on ramp. PPE: hand hat, safety glasses, protective toe boots, traffic vest.

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Teresa Ruha	Teresa Ruha	ITSI-Gilbane			
Ed Gillera	[signature]	ITSI-Gilbane			
Tony Olmstead	[signature]	ITSI-Gilbane			
Kyle Gordon	[signature]	ITSI/ATH			
Geoff Wolfe	[signature]	ITSI Gilbane			
Chris Carothers	[signature]	TEG			
Mateo Headrick	[signature]	TEG			
P. Merte	[signature]	TEG			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 1/3/2012 Time: 0 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sediment sampling

TODAY'S WORK

Clam deployment

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, trips, falls, hypothermia, glare. PPE: hardhats, safety glasses, prot. toe boots, PFD near water, on dock, gloves. Caution at edge of moon pool. Work in ergonomically low stress positions. 2 persons ~~on~~ max on ramp. Dock off limits if no boat present.

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

N/A

Chanel 67 is agreed chanel for marine band communications

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	N/A

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Geoff Wolfe	[signature]	ITSI Gilbane			
Ed Gillens	[signature]	ITSI Gilbane			
Teresa Ruha	[signature]	ITSI Gilbane			
[illegible] Gordon	[signature]	ITSI / ITM			
Mateo Hendrick	[signature]	TEG			
P Meth	[signature]	TEG			
Chris Cantha	[signature]	TEG			
Andrew Gantre	[signature]	PER			
Alex Palomino	[signature]	TEG			
Jon Carr	[signature]	TEG			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: Jan 4, 2012 Time: 0915 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sediment sampling

TODAY'S WORK

Sediment sampling / coring

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, trips, & fall hazards, hypothermia, glare off water, poor to none on cell phones - use marine radio. PPE: hardhats, steel toes, 2-87 eye wave, gloves, Tyvek. Caution near moon pool, railing gaps, PFD's req on water, boats & dock, 2 person max on ramp, Utility locate service to avoid any contact w/ bottom sediments - no anchors

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

Stay Clear of lines (ropes)

Boat / TEG needs to be back @ ITSI-Gilbane dock by 3:30.

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	N/A

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Kyle Gerber	[signature]	ITSI / FTA			
Teresa Ruha	Teresa Ruha	ITSI Gilbane			
Ed Gillera	[signature]	ITSI Gilbane			
Geoff Wolfe	[signature]	ITSI Gilbane			
Pierre Aumard	[signature]	Subtronic			
Aaron Smith	[signature]	Subtronic			
MATEO HEADRICK	[signature]	TEG			
P Montes	[signature]	Teg			
Alex Palmer	[signature]	TEG			
Jon Carr	[signature]	TEG			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: January 7, 2013 Time: 0830 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sediment Sampling

TODAY'S WORK

Sediment sampling

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, trips, falls, proper lifting methods. PPE: hard hats, safety glasses, prot. toes, gloves, Tyvek, PFDs req on dock, boat. 2 person max on ramp, dock off limits if boat not present. new boat hook on dock, hypothermia, glare on water

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

None

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	N/A

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Geoff Wolfe	[signature]	GILBANE			
Ed Gillera	[signature]	ITSI Gilbane			
Teresa Ruhn	[signature]	ITSI Gilbane			
N Merritt	[signature]	TEG			
Kyle Gunder	[signature]	ITSI/TEG			
Mateo Hendrick	[signature]	TEG			
Chris Carter	[signature]	TEG			
P Mertz	[signature]	TEG			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: Jan 8th Time: 0830 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sediment sampling

TODAY'S WORK

Sediment sampling

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

slips, trips, falls. PPE: hand hats, prot. eyewear, gloves, TYNEK safety boots. PFDs near water - on boat or on dock, proper lifting methods, getting cold on Wednesday

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

None

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
~~N/A~~	~~N/A~~
~~Ins~~ Install safety line on vibracore head	
to be used during vertical core removal	Mateo TEG

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Teresa Ruhe	[signature]	ITSI Gilbane			
GEOFF WOLFE	[signature]	ITSI GILBANE			
Ed Gilbert	[signature]	ITSI Gilbane			
Chris Cunothy	[signature]	TEG			
MATEO HEADRICK	[signature]	TEG			
P Merte	[signature]	TEG			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: 1-9-13 Time: 7:45 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sediment Sampling

TODAY'S WORK

Core Sediment Sampling in dry dock 3.

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, trips, falls, pinch points, lift properly, PPE (TLD, Tyvek, gloves, ect) Stay warm. Sharp objects, PFD's, Stay clear of moon pool if you don't need to be there. Close moon pool when not needed. Radio station 67

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

None

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	N/A

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Geoff Wolfe	GWolfe	ITSI Gilbane			
Brian Dee	[signature]	ITSI			
Ed Gillera	[signature]	ITSI			
P Meeker	[signature]	TEG			
Chris Carothers	[signature]	TEG			
Matteo Heaurick	[signature]	TEG			
Mike Gordon	[signature]	ITSI / ITA			
Teresa Ruha	[signature]	ITSI Gilbane			

MEETING CONDUCTED BY

Health & Safety Officer: [signature] Name (printed) B. Dee Signature

Site Superintendent: Tony Olmstead Name (printed) [signature] Signature

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: 1-10-13 Time: 0745 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sediment samples

TODAY'S WORK

Core sediment sample collection
DD3

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, Trip, falls. PPE, Cold weather, wind, wet surfaces, suspended loads, Clear of moon pool if not working in the area, Water, Hydration

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

ERRG barge unloading rip-rap in DD3
- Stay well clear of loading area.

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
GEOFF WOLFE	G Wolfe	ITSI Gilbane			
Ed Gillera		ITSI Gilbane			
TOMASZ RUMA		ITSI G'bane			
MATEO HENDRICK		TEG			
Chris Carothers		TEG			
KYLE GORDON		ITSI/TTM			

MEETING CONDUCTED BY

Health & Safety Officer: B. Dee (Name (printed)) (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 1/14/13 Time: 0745 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sample Collection

TODAY'S WORK

Parcel F sample collection
- Outside of DDF

Rough water, wind

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slip, Trip, fall, wet surfaces, cold weather

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

N/A

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Mark Meyer	[signature]	TEG			
Ed Oiltera	[signature]	ITSI			
Chris Carothe	[signature]	TEG			
Kyle Gordon	[signature]	ITSI/ITA			
Teresa Rohm	[signature]	ITSI/Gilbane			
P Meyer	[signature]	TEG			
G. Wolfe	[signature]	ITSI/Gilbane			

MEETING CONDUCTED BY

Health & Safety Officer: B. Lee (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 1-15-13 Time: 8:00 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sediment Core Sampling.

TODAY'S WORK

Sediment Core Sampling and pipe dredging.

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Moon Pool Safety, tie off barrel, rope safety, PPE, TLD's, Rad safety. No eating or drinking in EZ. Slips, trips, falls. Stay warm. Radio on 67. Text in emergency.

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

N/A

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Ed Gilfera	[signature]	ITSI Gilbane			
Teresa Rohr	[signature]	ITSI Gilbane			
Chris Carothers	[signature]	TEG			
P. Merritt	[signature]	TEG			
M. MERFE	[signature]	TEG			
KYLE GORDON	[signature]	ITSI L+TA			
GEOFF WOLFE	[signature]	ITSI GILBANE			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 1/16/12 Time: 0745 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sample collection

TODAY'S WORK

Samples at berth 29-26 area -, South basin

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slip, Trip, Fall, wet surfaces, Hyc, cold weather Pinch points,

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
Purchase 20# Fire extinguisher for Sample barge	Geoff W.

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Chris Cerato	[signature]	TEG			
Pinente	[signature]	TEG			
Geoff Wolfe	[signature]	ITSI Gilbane			
Ed Gillera	[signature]	ITSI Gilbane			
Kyle Gordon	[signature]	ITSI/+TA			
Teresa Ruhr	Teresa Ruhr	ITSI Gilbane			
M. Mirkle	[signature]	TEG			

MEETING CONDUCTED BY

Health & Safety Officer: B. Dee (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 1/17/13 Time: 0745 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sediment samples

TODAY'S WORK

Sediment sample collection So. Berths area.

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slip, trip, fall, wet surfaces, Pinch points Cold weather. Boat traffic

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

Power tools, (band saw)

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Kyle Gordon	[signature]	ITSI/ATH			
Geoff Wolfe	[signature]	ITSI/Gilbane			
Chris Carothers	[signature]	TEG			
Mark Wierte	[signature]	TEG			
Ed Gillera	[signature]	ITSI Gilbane			
Teresa Ruha	[signature]	ITSI/Gilbane			
P Prenta	[signature]	TEG			

MEETING CONDUCTED BY

Health & Safety Officer: B. Dee (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane TAILGATE SAFETY MEETING

Date: 1/22/2012 Time: 0815 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description:

TODAY'S WORK

Sediment sampling - south berths

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slip, trips, falls. - ~~Keep~~ housekeeping. Proper lifting. Keep hand & body away from suspended drill head, PPE: eye prot., hard hats, tyvek, gloves, prot. boots, ~~PFD~~ (near water), Hypothermia windchill

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

None

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Chris Cannon		TEC			
MATEO HERRICK		TEC			
J Morte		TEC			
Kyle Gonder		ITSI/ITM			
GEOFF WOLFE		ITSI Gilbane			
Teresa Ruha		ITSGilbane			
Ed Gillera		ITS Gilbane			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name printed) Signature

Site Superintendent: Tony Olmstead (Name printed) Signature

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: Jan 23, 2013 Time: Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sediment sampling in SF bay

TODAY'S WORK

sediment sampling south berth

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

possible rain - keep dry to prevent hypothermia: wet footing = greater slip risk trips, falls, PPE: hardhats, protective eyewear, prot. toes, tyvek, ~~glasses~~ gloves PFD's required on dock & boat. USE proper lifting methods

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
P Merk	[signature]	TEG			
Chris Cerother	[signature]	TEG			
MATEO HENDRICK	[signature]	TEG			
GEOFF WOLFE	[signature]	ITSI GILBANE			
Ed Gilbert	[signature]	ITSI Gilbane			
Teresa Ruha	Teresa Ruha	ITSI Gilbane			
KYLA GORDON	[signature]	ITSI/TTA			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: January 24, 2013 Time: 0815 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: core sampling in bay

TODAY'S WORK

Sampling south berths, south basin

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, trips, falls, House keeping PPE: hardhats, Tyvek, Cloves, eye prot., steel toes, PFD (on boat or dock) proper lifting, big tides

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

N/A

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Teresa Ruha	Teresa Ruha	ITSI Gilbane			
Kyle Gordon	[signature]	ITSI/HTA			
Mateo Headrick	[signature]	TEG			
Chris Carothers	[signature]	TEG			
P Minetto	[signature]	Teg			
Geoff Wolfe	[signature]	ITSI Gilbane			
Ed Collera	[signature]	ITSI Gilbane			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: Jan 25, 2013 Time: 0815 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Sediment sampling

TODAY'S WORK

Sediment sampling

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

PPE: TYVEX, Gloves (Taped), eyepnot, steel toes, PFD on boat or dock. care working next to suspend drill head

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
MATEO HEADRICK	[signature]	TEG			
P Martin	[signature]	TEG			
Chris Carothers	[signature]	TEG			
Ed Gilkeson	[signature]	ITSI Gilbane			
GEOFF WOLFE	[signature]	ITSI GILBANE			
KYLE GORDON	[signature]	ITSI/ATA			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 1-28-13 Time: Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Core Sampling from barge.

TODAY'S WORK

Core Sampling in the south basin.

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, Trips, falls. Moon pool safety, ropes, PPE, PFDs, TLDs.
Stay warm, No eat or drinking in EZ, Cutting safety. Man overboard procedures

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Tony Poon	[signature]	ITSI			
Mateo Headrick	[signature]	TEG			
Chris Cavothers	[signature]	TEG			
P Martz	[signature]	Teg			
Geoff Wolf	[signature]				
Fersa Kuh	[signature]	ITSI Gilbane			
Ed Gillera	[signature]	ITSI Gilbane			
Kyle Gordon	[signature]	ITSI / +TIA			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: 1-29-2013 Time: 0815 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Core sampling from barge

TODAY'S WORK

Core sampling South basin

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slip, trips, falls. PPE: Tyvek (taped to boots + gloves) eye pro., footpro., hardhats gloves, PFDs on boat or dock, housekeeping, No eat or drinking in EZ

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

None

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Chris Cawthon		TCG			
Tony Poon		ITSI			
Geoff White		ITSI Gilbane			
Ed Gillen		ITSI Gilbane			
Kyle Gordon		ITSI/TTA			
Mark		TEG			
Mateo Headrick		TEG			
Teresa Ruha		ITSI Gilbane			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) _____ (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) _____ (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 1-30-2013 Time: Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: core sampling from barge

TODAY'S WORK

core sampling in N. dock Area

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Housekeeping, slips, trips, falls, proper lifting, control suspended loads from swinging due to boat motion, PPE Tyvek taped to gloves + prot. toe boots, eye pnot, hard hats PFDs on dock + boat, no eating/drinking in EZ

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
MATEO HEADRICK	[signature]	TEG			
Chris Caughan	[signature]	TEG			
P Monte	[signature]	TEG			
GEOFF WOLFE	[signature]	ITSI GILBANE			
KYLIE GORDON	[signature]	ITSI/TTA			
Ed Gillera	[signature]	ITSI Gilbane			
Teresa Ruhu	[signature]	ITSI Gilbane			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 1-31-2013 Time: 0815 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: core sampling ~~in submarine dock~~ from barge

TODAY'S WORK

Core sampling in submarine dock Area

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, trips, falls, control suspended loads from swinging due to boat motion PPE: TYVEK taped to prot. toe boots + gloves, eye prots, hard hats, PFDs on dock + boat, no eating/drinking in EZ proper lifting methods. Make sure new crew member is brought up to speed on work details. End of project approaches - Keep focused on safety.

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

None

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Ed Gillen	[signature]	ITSI Gilbane			
Teresa Ruhe	[signature]	ITSI Gilbane			
Kyle Gordon	[signature]	ITSI/HTA			
[signature]	[signature]	TEG			
MATEO HEADRICK	[signature]	TEG			
Tony Poon	[signature]	ITSI			
Chris Cortez	[signature]	TEG			
Geoff Wolfe	[signature]	ITSI Gilbane			
MARK MT[illegible]	[signature]	TEG			
Alex Palomar	[signature]	TEG			
El Pals[illegible]	[signature]	ITSI			
Tony Moch	[signature]	ITSI/HTA			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 2/4/13 Time: 7:30 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Collect Clams @ background locations

TODAY'S WORK

Collect Clams

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

BOAT SAFETY, rope safety, cold weather, PPE
Slips from wet surfaces. PFDs required

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

N/A

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Jon Carr	[signature]	TEG			
Geoff Wolfe	[signature]	ITSI Gilbane			
Mark [illegible]	[signature]	TEG			
Andrew Gantru	[signature]	PER			

MEETING CONDUCTED BY

Health & Safety Officer: [signature] Name (printed) Mark Blaisdell Signature

Site Superintendent: Tony Olmstead Name (printed) [signature] Signature

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: 4 Feb. 2013 Time: 0815 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Core sampling in bay

TODAY'S WORK

Core sampling / clam retrieval (Under separate Tailgate form)

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

PFDs required for boat + dock. PPE: TYVEK taped to prot. toe boots & gloves, hardhats, eye prot. slips, trips & falls. No eating or drinking in EZ. control suspended drill head from swinging, proper lifting,

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Chris Cavotta	[signature]	TEG			
Teresa Ruha	[signature]	ITSI/Gilbane			
MATEO HEADRICK	[signature]	TEG			
TONY POON	[signature]	ITSI			
ALEX PALOMA	[signature]	TEG			
KYLE GLADDEN	[signature]	ITSI/ATA			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 24/5/2013 mc Time: 0815 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Core sampling from barge

TODAY'S WORK

core sampling, Clam pick up

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slip, trips, falls. Housekeeping, hypothermia, PPE: Tyvek, (taped to gloves + Prot. toe boots) hardhats, eye prot. PFDs req on boat + dock, control drill head to prevent swinging, moon pool covered when not in use

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

None

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Tony Pooh	Tony P	ITSI			
Geoff Wolfe	[illegible]	ITSI Gilbane			
Chris Carothers	[illegible]	TEG			
M. Meltz	[illegible]	TEG			
Jon Carr	[illegible]	TEG			
Andrew Gantner	[illegible]	PER			
Alex Palmer	[illegible]	TEG			
Mateo Hendrick	[illegible]	TEG			
Teresa Ruha	[illegible]	ITSI Gilbane			
Kyle Gordon	[illegible]	ITSI/+TA			
ARVIND ACHARYA	[illegible]	ITSI GILBANE			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: Feb 6, 2013 Time: 0815 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Core sampling from barge

TODAY'S WORK

clam recovery

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

PFDs required on boat + dock, PPE: Tyvek - taped to prot. toe boots + gloves, hard hats eye protection. caution near moon pool, pool covered when not in use. Use proper lifting methods, sunscreen, Afternoon winds, STAY FOCUSED!

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
ALEX Parkman		TEG			
GEOFF WOLFE		ITSI GILBANE			
Andrew Gantner		PER			
MATEO HEADRICK		TEG			
KYLE GORDON		ITSI/ATA			
TONY POON		ITSI			
JON CRAW		TEG			
MARK MEYER		TEG			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) Mark Blaisdell (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 2-7-13 Time: 9:00 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: QC Audit

TODAY'S WORK

QC Audit

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, Trips, Falls, weather, PPE (steel toe, vest, hard hat), PFDs if 25' from water. Paper Cuts. 15 mph when speed limit not posted.

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

None

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Kyle Gordon	[signature]	ITSI / +TA			
Geoff Wolfe	[signature]	ITSI Gilbane			
Tony Poon	[signature]	ITSI Gilbane			
Cheryl Prince	[signature]	ITSI Gilbane			
Ed Palser	[signature]	ITSI			
Laura Tryboski	[signature]	ITSI Gilbane			
Mark Blaisdell	[signature]	ITSI Gilbane			
Teresa Ruha	[signature]	ITSI Gilbane			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 2-11-2013 Time: Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: Core sampling

TODAY'S WORK

Sed flume sampling

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Awareness of extra crew member. slips trips, falls. PPE: Tyvek taped to gloves + prot. toe boots, ~~sw~~ hardhats, eye protection, UV exposure, Stay warm, good housekeeping, PFDs required on dock + boat. use proper lifting methods, control suspended loads

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

None

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Alex Palomar	[signature]	TEG			
Tony Poon	[signature]	ITSI			
Geoff Wolf	[signature]	ITSI Gilbane			
Kyle Gordon	[signature]	ITSI/TH			
Teresa Ruha	[signature]	ITSI/Gilbane			
MATEO HEADRICK	[signature]	TEG			
Kurt Nelson	[signature]	SEI			
Jon Carr	[signature]	TEG			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane **TAILGATE SAFETY MEETING**

Date: 2-12-2013 Time: Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description:

TODAY'S WORK

Sediment sampling

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slip, trips, falls, PPE TYVEK (taped) gloves, boots, eye pro, hand hats PFDs reg on dock + boat proper lifting USCG by radio for emergencies,

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
MATEO HEADRICK	[signature]	TEG			
Jon Carr	[signature]	TEG			
ALEX Palomar	[signature]	TEG			
GEOFF WOLFE	[signature]	IBI Gilbane			
Tony Poon	[signature]	ITSI			
Teresa Ruha	[signature]	ITS/Gilbane			
KYLE GORDON	[signature]	ITSI/TTN			
ARVIND ACHARYA	Ad Acha	ITSI/Gilbane			

MEETING CONDUCTED BY

Health & Safety Officer: Mark Blaisdell (Name (printed)) [signature] (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) [signature] (Signature)

ITSI Gilbane TAILGATE SAFETY MEETING

Date: 2-13-13 Time: 7:30 Page: 1 of 1

Customer: NAVFAC - BRAC Project: Radiological Data Gap Investigation, Parcel F, Phase 2b Contract #: N62473-11-D-227/ 002 Proj. #: 07225.0002

Work Description: GeoChron Sampling processing

TODAY'S WORK

GeoChron Sample processing, Clearing TEG Boat to Demob.

SAFETY TOPIC(S) PRESENTED (attach outline/notes if used)

Slips, trips, falls, TLDs, PFDs, PPE, Pinch points, traffic.

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

N/A

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
KYLE GORMAN		ITSI/TTA			
GEOFF WOLFE		EBB GLOBAL			
Tony Poon		ITSI Gilbane			
Teresa Ruha	Teresa Ruha	ITSI Gilbane			
ALEX PALOMA		TEG			
MARCO HEADRICK		TEG			
JON CARR		TEG			

MEETING CONDUCTED BY

Health & Safety Officer: Tony Olmstead (Name printed) _____ (Signature)

Site Superintendent: Tony Olmstead (Name printed) _____ (Signature)

ITSI Gilbane

TAILGATE SAFETY MEETING

Date: 2-14-13 Time: 06:30 Page: 1 of 1

Customer: US Navy Project: Parcel F Contract #: N62473-11-D-2224 CTO 0002 Proj. #: 07225.0002

Work Description: De Mob Clear Connex

TODAY'S WORK

Demobilization

SAFETY TOPIC(S) PRESENTED (attach outline/notes as necessary)

Specific Topic(s): Slips, trips, falls, PPE, TLD

Air monitoring results: N/A

Incidents/Accidents: N/A

SAFETY ISSUES/CONCERNS RAISED BY SITE PERSONNEL

None

SAFETY ACTIONS TO BE TAKEN TODAY

Action Item	Assigned To
N/A	

ATTENDEES

Name (print)	Signature	Company	Name (print)	Signature	Company
Kyle Gannon		ITSI/LTAT			
Tony Poon		ITSI Gilbane			
Geoff Wolfe		ITSI Gilbane			
Teresa Kuhn		ITSI Gilbane			

MEETING CONDUCTED BY

Health & Safety Officer: Tony Olmstead (Name (printed)) (Signature)

Site Superintendent: Tony Olmstead (Name (printed)) (Signature)

APPENDIX A-4-3

Daily Production Reports

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	26-Nov-12	01
07225.0002			

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Foggy	PM	Sunny	Low	55	N/A
				High	62	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Worker Yes/No	ITSI Gilbane Staff Name	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Teresa Ruha	Geologist	1	Rig Geologist	8.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	8.00
	Carolé Fried	H&S officer	1	Health and Safety Offficer	8.00
	Ken Leonard	PM	1	Project manager	8.00
	Ed Palser	RSO	1	Radiation safety officer	4.00

Subcontractor Personnel On Site

Scheduled Worker Yes/No	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Jon Carr	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	8.00
	TEG	Peter Mertz	1	Driller	8.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Chris Carothers	1	Driller	8.00
	Pacific EcoRisk	Drew Gantner	1	Biologist	8.00
	SAIC	Andrew Smith	1	Geologist	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**52.00**
Total Subcontractor Work-Hours on Site This Day	**72.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**124.00**
Cumulative Total Work-Hours From Previous Report	124.00
Cumulative Work-Hours from Start of Construction	**124.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? Yes No

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	26-Nov-12	01
07225.0002			

Equipment

Equipment/material received today to be used on job site:

None

Construction and field equipment on job site today (include field instruments):

None

Work Performed Today

Description of work performed today:

Mob preparatory meeting and badging. Site overview with the crew.

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Pre con meeting with Navy.

Next Week: Start sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:

None.

Visitors

Name	Organization	Purpose of Visit
N/A		

Signed

ITSI Gilbane Superintendent Signature:		Date: 26-Nov-12
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO / T.O NO	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	27-Nov-12	02

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Foggy	PM	Sunny	Low	55	N/A
				High	62	

Additional Comments:

N/A

ITSI Gilbane Personnel On Site

Subcontract Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Teresa Ruha	Geologist	1	Rig Geologist	8.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	8.00
	Ken Leonard	PM	1	Project manager	8.00
	Ed Palser	RSO	1	Radiation safety officer	4.00

Subcontractor Personnel On Site

Subcontract Activity No.	Employer	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00
	Timmy's Team	Timmy Mock	1	Rad Supervisior	4.00

Total ITSI Gilbane Work-Hours on Site This Day	**44.00**
Total Subcontractor Work-Hours on Site This Day	**12.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**56.00**
Cumulative Total Work-Hours From Previous Report	124.00
Cumulative Work-Hours from Start of Construction	**180.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project	CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
	N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	27-Nov-12	02
	07225.0002			

Equipment

Equipment/material received today to be used on job site:

None

Construction and field equipment on job site today (include field instruments):

None.

Work Performed Today

Description of work performed today:

Pre con meeting with the Navy. See meeting sign in sheet for all attendees.

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Prep for temporary dock

Next Week: Start sampling

Issues or Concerns

Description of issues / concerns encountered on site:

none

Visitors

Name	Organization	Purpose of Visit
Shirley Ng	Navy RIOCC	Pre con
Glen Nelson	Navy CSO	Pre con
Peter Stroganoff	Navy RIOCC	Pre con

Signed

ITSI Gilbane Superintendent Signature		Date: 27-Nov-12
Printed Name and Title	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	28-Nov-12	03
07225.0002			

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Rain	PM	Cloudy	Low	55	N/A
				High	62	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	8.00

Subcontractor Personnel On Site

Scheduled Activity No	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	TEG	Alex Palomar	1	Driller	6.00

Total ITSI Gilbane Work-Hours on Site This Day	**24.00**
Total Subcontractor Work-Hours on Site This Day	**6.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**30.00**
Cumulative Total Work-Hours From Previous Report	180.00
Cumulative Work-Hours from Start of Construction	**210.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	28-Nov-12	03
07225.0002			

Equipment

Equipment/material received today to be used on job site:

Coolers and sample containers from testamerica. The Rad tech equipment showed up at Walnut Creek office.

Construction and field equipment on job site today (include field instruments):

None

Work Performed Today

Description of work performed today:

Prep to build temporary dock

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Prep for temporary dock

Next Week: Start sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:

Dry dock #4 had 3 to 4 foot swells. Had to change location of temporary dock to dry dock #3. Confirmed with John Sounal from ERRG to confirm site location

Visitors

Name	Organization	Purpose of Visit
None		

Signed

ITSI Gilbane Superintendent Signature		
Printed Name and Title	Tony Olmstead Superintendent	Date: 28-Nov-12

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / T.O NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	29-Nov-12	04

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Cloudy	PM	Cloudy	Low	55	N/A
				High	62	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Subcontract Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	8.00

Subcontractor Personnel On Site

Subcontract Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**24.00**
Total Subcontractor Work-Hours on Site This Day	**8.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**32.00**
Cumulative Total Work-Hours From Previous Report	210.00
Cumulative Work-Hours from Start of Construction	**242.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? Yes

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	29-Nov-12	04
07225 0002			

Equipment

Equipment/material received today to be used on job site:

Mobile Mini. Rad tech equipment. (2-ea-2360 Ludlum, model 19 and lapel air samplers)

Construction and field equipment on job site today (include field instruments):

None

Work Performed Today

Description of work performed today:

Prep to build temporary dock

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Prep for temporary dock

Next Week: Start sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:

Not all Rad equipment showed up. The 2929 will be here on monday december 3

Visitors

Name	Organization	Purpose of Visit
None		

Signed

ITSI Gilbane Superintendent Signature		Date: 29-Nov-12
Printed Name and Title	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	03-Dec-12	05

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Cloudy	PM	Cloudy	Low	55	N/A
				High	62	

Additional Comments
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity? (y, n)	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	8.00
	Teresa Ruha	Geologist	1	Geologist	8.00
	Mark Blaisdell	H&S	1	Health and Safety	4.00

Subcontractor Personnel On Site

Additional Activity (y, n)	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**36.00**
Total Subcontractor Work-Hours on Site This Day	**8.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**44.00**
Cumulative Total Work-Hours From Previous Report	242.00
Cumulative Work-Hours from Start of Construction	**286.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost-time accidents on this date? Yes No

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	03-Dec-12	05

Equipment

Equipment/material received today to be used on job site:

Mobile Mini. Rad tech equipment. (2929 Ludlum), Generator, temp fencing

Construction and field equipment on job site today (include field instruments):

None

Work Performed Today

Description of work performed today:

Prep to build temporary dock. Mobilization

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Prep for temporary dock/ QC meeting.

Next Week: Start sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:

N/A

Visitors

Name	Organization	Purpose of Visit
None		

Signed

ITSI Gilbane Superintendent Signature:		Date: 12/3/2012
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	04-Dec-12	06

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Cloudy	PM	Cloudy	Low	55	N/A
				High	62	

Additional Comments
N/A

ITSI Gilbane Personnel On Site

Subcontract Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	8.00
	Teresa Ruha	Geologist	1	Geologist	8.00

Subcontractor Personnel On Site

Subcontract Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**32.00**
Total Subcontractor Work-Hours on Site This Day	**8.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**40.00**
Cumulative Total Work-Hours From Previous Report	286.00
Cumulative Work-Hours from Start of Construction	**326.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No ☐ Yes ☐

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No ☐ Yes ☐

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / CTO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	04-Dec-12	06
07225.0002			

Equipment

Equipment/material received today to be used on job site:

None

Construction and field equipment on job site today (include field instruments):

Lulum 2- each 2360, 2929 and model19

Work Performed Today

Description of work performed today:

QC meeting/Prep to build temporary dock. Mobilization

Work Planned Next Day

Description of work planned for next working day or next work assignment:

Next Day: Prep for temporary dock

Next Week: Start sampling

Issues or Concerns

Description of issues/ concerns encountered on site:

NRC (subcontractor(backed out of building temporary dock. Will get pricing for new contractor.

Visitors

Name	Organization	Purpose of Visit
Peter Stroganoff	Navy- RIOCC	QC meeting
Doug Delong	Navy- CSO	QC meeting
Andy Uehisa	Navy-RIOCC	QC meeting

Signed

ITSI Genuine Supt/Assistant Signature		Date: 12/4/2012
Printed Name and Title	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / T/O NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	05-Dec-12	07

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Cloudy	PM	Cloudy	Low	55	N/A
				High	62	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Ohmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	8.00
	Teresa Ruha	Geologist	1	Geologist	8.00

Subcontractor Personnel On Site

Scheduled Activity No	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**32.00**
Total Subcontractor Work-Hours on Site This Day	**8.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**40.00**
Cumulative Total Work-Hours From Previous Report	326.00
Cumulative Work-Hours from Start of Construction	**366.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No ☐ Yes ☐

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No ☐ Yes ☐ If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	05-Dec-12	07

Equipment

Equipment/material received today to be used on job site:

None

Construction and field equipment on job site today (include field instruments):

Calibrate rad equipment 2929, 2360 and 19.

Work Performed Today

Description of work performed today:

Prep to build temporary dock. Mobilization, calibrate Rad equipment

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Prep for temporary dock

Next Week: Start sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:

TEG will build temporary dock and and gang way at dry dock 3.

Visitors

Name	Organization	Purpose of Visit
None		

Signed

ITSI Gilbane Superintendent Signature:		Date: 12/5/2012
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	06-Dec-12	08

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Cloudy	PM	Cloudy	Low	55	N/A
				High	62	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Schedule Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs.
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	8.00
	Teresa Ruha	Geologist	1	Geologist	8.00

Subcontractor Personnel On Site

Schedule Activity No.	Employer	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**32.00**
Total Subcontractor Work-Hours on Site This Day	**8.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**40.00**
Cumulative Total Work-Hours From Previous Report	366.00
Cumulative Work-Hours from Start of Construction	**406.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No ☐ Yes ☐

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No ☐ Yes ☐ If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / T.O. NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	06-Dec-12	08

Equipment

Equipment/material received today to be used on job site:

None

Construction and field equipment on job site today (include field instruments):

Calibrate Rad equipment (ludlum 2360 and 2929)

Work Performed Today

Description of work performed today:

Prep to build temporary dock, Mobilization, calibrate Rad equipment

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Prep for temporary dock

Next Week: Start sampling

Issues or Concerns

Discussion of Issues / Concerns encountered on site:

None

Visitors

Name	Organization	Purpose of Visit
None		

Signed

ITSI Gilbane Superintendent Signature		Date: 12/6/2012
Printed Name and Title	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	07-Dec-12	09

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Sunny	PM	Sunny	Low	55	N/A
				High	62	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	4.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	4.00

Total ITSI Gilbane Work-Hours on Site This Day	**4.00**
Total Subcontractor Work-Hours on Site This Day	**4.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**8.00**
Cumulative Total Work-Hours From Previous Report	406.00
Cumulative Work-Hours from Start of Construction	**416.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No ☐ Yes ☐

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? Yes ☐ No ☐ If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	07-Dec-12	09

Equipment

Equipment/material received today to be used on job site:

None

Construction and field equipment on job site today (include field instruments):

Model 19(to scan rad samples from TetraTech)

Work Performed Today

Description of work performed today:

Send 8 samples from Tetra Tech (phase 1) to Test America to verify findings/ data from phase 1 of the project.

Work Planned Next Day

Description of work planned for next working day or next workweek week:

Next Day: N/A

Next Week: Prep for temporary dock

Issues or Concerns

Description of Issues / concerns encountered on site:

None

Visitors

Name	Organization	Purpose of Visit
None		

Signed

ITSI Gilbane Superintendent Signature:		Date: 12/7/2012
Printed Name/and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	11-Dec-12	10

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Cloudy	PM	Cloudy	Low	55	N/A
				High	62	

Additional Comments:

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Mark Blaisdell	H&S	1	Health & Safety	6.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00
	TEG	Alex Palomar	1	Driller	6.00
	TEG	John Carr	1	Driller	6.00

Total ITSI Gilbane Work-Hours on Site This Day	**22.00**
Total Subcontractor Work-Hours on Site This Day	**20.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**42.00**
Cumulative Total Work-Hours From Previous Report	416.00
Cumulative Work-Hours from Start of Construction	**458.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) — Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? — If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project	CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
	N62473-11-D-2227 to 0002 07225 0002	Parcel F Radiological Data Gap Investigation	11-Dec-12	10

Equipment

Equipment/material received today to be used on job site:

Materials to build gangway to temp dock. Clam traps to hold clams for sampling.

Construction and field equipment on job site today (include field instruments):

Calibrate Rad equipment (ludlum 2360 and 2929), general hand tools

Work Performed Today

Description of work performed today:

QC meeting,Prep to build temporary dock. Mobilization, calibrate Rad equipment.

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Prep for temporary dock

Next Week: Start sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:

Doug Delong will talk to Simon Loli Navy RPM about sampling in dry dock due to lack of sediment. ITSI will continue with sampling as stated in work plan until directed diferently by Navy RPM.

Visitors

Name	Organization	Purpose of Visit
Doud Delong	Navy- CSO	QC meeting
Peter Stroganoff	Navy- RIOCC	QC meeting
Andy Uehisa	Navy- RIOCC	QC Meeting

Signed

ITSI Gilbane Superintendent Signature		Date: 12/11/2012
Printed Name and Title	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	12-Dec-12	11
07225.0002			

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Cloudy	PM	Cloudy	Low	55	N/A
				High	62	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**16.00**
Total Subcontractor Work-Hours on Site This Day	**8.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**32.00**
Cumulative Total Work-Hours From Previous Report	458.00
Cumulative Work-Hours from Start of Construction	**490.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No ☐ Yes ☐

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No ☐ Yes ☐

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	12-Dec-12	11
07225.0002			

Equipment

Equipment/material received today to be used on job site:

None.

Construction and field equipment on job site today (include field instruments):

Calibrate Rad equipment (ludlum 2360 and 2929)

Work Performed Today

Description of work performed today:

Mobilization. Complete calibration of Rad equipment

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Prep for temporary dock

Next Week: Start sampling

Issues or Concerns

Discussion of issues / concerns encountered or visitors:

None

Visitors

Name	Organization	Purpose of Visit
None		

Signed

ITSI Gilbane Superintendent Signature:		Date: 12/12/2012
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	13-Dec-12	12
07225.0002			

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	Partly Cloudy	PM	Cloudy	Low	45	N/A
				High	52	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs.
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Charles Cronister	Op.	1	Equipment Operator	8.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty Position	Number	Description of Work Performed	Hrs.
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00
	TEG	Alex Palomar	1	Driller	6.00
	TEG	Mateo Headrick	1	Driller	6.00
	TEG	Jon Carr	1	Driller	6.00

Total ITSI Gilbane Work-Hours on Site This Day	**24.00**
Total Subcontractor Work-Hours on Site This Day	**26.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**50.00**
Cumulative Total Work-Hours From Previous Report	490.00
Cumulative Work-Hours from Start of Construction	**540.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	13-Dec-12	12
07225.0002			

Equipment

Equipment/material received today to be used on job site:

Materials to build gangway to temp dock.

Construction and field equipment on job site today (include field instruments):

Calibrate Rad equipment (ludlum 2360 and 2929)

Work Performed Today

Description of work performed today:

build temporary dock/ gangway. Mobilization. Survey inside of connex box to have a background for when sampling starts as wells as 6 coolers to be used for sampling.

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: N/A

Next Week: Acclamte claims, depoly claims finish mobilization.

Issues or Concerns

Description of issues / concerns encountered on site:

None

Visitors

Name	Organization	Purpose of Visit
None		

Signed

ITSI Gilbane Superintendent Signature		Date: 12/13/2012
Printed Name and Title	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	17-Dec-12	13

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM:	rain	PM:	Cloudy	Low	55	N/A
				High	60	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Jon Carr	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	8.00
	TEG	Chris Carothers	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**50.00**
Total Subcontractor Work-Hours on Site This Day	**58.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**108.00**
Cumulative Total Work-Hours From Previous Report	540.00
Cumulative Work-Hours from Start of Construction	**648.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? Yes No

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	17-Dec-12	13
07225.0002			

Equipment

Equipment/material received today to be used on job site:

12'x32' dock towed down from Pt. Richmond.

Construction and field equipment on job site today (include field instruments):

Rad equipment (ludlum 2360 ,19 and 2929)

Work Performed Today

Description of work performed today:

build temporary dock/ gangway. Mobilization, incoming survey of the TEG boat. Temp dock hauled down from Pt. Richmond.

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Claim depolymeny and perparatory.

Next Week: N/A (holiday)

Issues or Concerns

Discussion of issues / concerns encountered and/or:

None

Visitors

Name	Organization	Purpose of Visit
None		

Signed

ITSI Gilbane Superintendent Signature:		Date: 12/13/2012
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	18-Dec-12	14
07225.0002			

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	sunny	PM	sunny	Low	50	N/A
				High	60	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Subcontract Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Subcontract Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Jon Carr	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	8.00
	TEG	Chris Carothers	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**50.00**
Total Subcontractor Work-Hours on Site This Day	**58.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**108.00**
Cumulative Total Work-Hours From Previous Report	648.00
Cumulative Work-Hours from Start of Construction	**756.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / T.O NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	18-Dec-12	14

Equipment

Equipment/material received today to be used on job site:

none

Construction and field equipment on job site today (include field instruments):

Rad equipment (ludlum 2360 ,19 and 2929) 26' Grady white boat to depoly clams at back ground locations.

Work Performed Today

Description of work performed today:

build temporary dock/ gangway. Mobilization, deploy clams at background locations (pardise cove and oyster point), preparatory for clam deployment and QC meeting.

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Clam depolyment continue gangway for temp dock.
Next Week: N/A (holiday)

Issues or Concerns

Discussion of issues / concerns encountered on site:

None

Visitors

Name	Organization	Purpose of Visit
Peter Stroganoff	Navy- RIOCC	preparatory and qc meeting
Andy Ueshia	Navy- RIOCC	preparatory and qc meeting

Signed

ITSI Gilbane Representative Signature:		Date: 12/18/2012
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	19-Dec-12	15
ITSI Gilbane Project No. 07225.0002			

Weather

Weather Conditions				Temp (F)		Ground Conditions
AM	sunny	PM	sunny	Low	40	N/A
				High	60	

Additional Comments
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Jon Carr	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	8.00
	TEG	Chris Carothers	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**50.00**
Total Subcontractor Work-Hours on Site This Day	**58.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**108.00**
Cumulative Total Work-Hours From Previous Report	756.00
Cumulative Work-Hours from Start of Construction	**864.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.)	No		Yes	X

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date?	No	X	Yes		If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	19-Dec-12	15
07225.0002			

Equipment

Equipment/material received today to be used on job site:
New piece of rad equipment to do gamma counts (NaI detector)

Construction and field equipment on job site today (include field instruments):

Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 26' Grady white boat to help install dock. 12'x32' sample barge for clam deployment.

Work Performed Today

Description of work performed today:

Installed temporary dock/ gangway. Deploy clams at sample locations (see Geologist daily for details)

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Clam deployment continue gangway for temp dock.
Next Week: N/A (holiday)

Issues or Concerns

Discussion of issues / concerns encountered on site:
Peter Stroganoff has reviewed the AHA and has asked for the signed copy.

Visitors

Name	Organization	Purpose of Visit
Andy Ueshia	Navy- RIOCC	Pick up AHA for gangway install

Signed

ITSI Gilbane Superintendent Signature:		Date: 12/19/2012
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	20-Dec-12	16
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny/Windy	PM	sunny/Windy	Low	40	white caps
				High	60	

Additional Comments
Very windy

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	4.00
	Geoff Wolfe	QCM	1	Quality Control Manager	4.00
	Teresa Ruha	Geo	1	Geologist	4.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	4.00
	Mark Blaisdell	H&S	1	Health and Safety	4.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	4.00
	TEG	Alex Palomar	1	Driller	2.00
	TEG	Mateo Headrick	1	Driller	2.00
	TEG	Jon Carr	1	Driller	2.00
	TEG	Pete Mertz	1	Driller	2.00
	TEG	Mark Mertz	1	Driller	2.00
	TEG	Chris Carothers	1	Driller	2.00
	PacificEco Risk	Drew Gatner	1	Biologist	2.00

Total ITSI Gilbane Work-Hours on Site This Day	**20.00**
Total Subcontractor Work-Hours on Site This Day	**18.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**38.00**
Cumulative Total Work-Hours From Previous Report	878.00
Cumulative Work-Hours from Start of Construction	**916.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) — Yes: X

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? — If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT #
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	20-Dec-12	16
07225.0002			

Equipment

Equipment/material received today to be used on job site:

N/A

Construction and field equipment on job site today (include field instruments):

Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:

No work onsite today. The winds were to high making the sea's to rough to go out into.

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Clam deployment continue gangway for temp dock.
Next Week: N/A (holiday)

Issues or Concerns

Discussion of issues / concerns encountered onsite:

Weather too bad to go in.

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature		Date: 12/20/2012
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	02-Jan-13	17

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny	PM	sunny	Low	40	smooth
				High	60	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	8.00
	Geoff Wolfe	QCM	1	Quality Control Manager	8.00
	Teresa Ruha	Geo	1	Geologist	8.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	8.00
	Mark Blaisdell	H&S	1	Health and Safety	8.00

Subcontractor Personnel On Site

Subcontract Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	8.00
	TEG	Chris Carothers	1	Driller	4.00
	TEG	Mateo Headrick	1	Driller	4.00
	TEG	Pete Mertz	1	Driller	4.00
	PacificEco Risk	Cassidy	1	Biologist	1.00

Total ITSI Gilbane Work-Hours on Site This Day	**40.00**
Total Subcontractor Work-Hours on Site This Day	**21.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**61.00**
Cumulative Total Work-Hours From Previous Report	916.00
Cumulative Work-Hours from Start of Construction	**977.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) — Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP. Held man overboard drill outside pier 40 break water. Drill went very smoothly. Everyone that will be on the boat was involved in the drill.

Were there any lost time accidents on this date? — If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	02-Jan-13	17
07225.0002			

Equipment

Equipment/material received today to be used on job site:
Sample bottles

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Re-mob from holiday. Re acclamate clams to be deployed tomorrow 1/2/13.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Clam deployment .
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/2/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	03-Jan-13	18
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny	PM	sunny	Low	40	smooth
				High	60	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00
	PacificEco Risk	Drew Gatner	1	Biologist	8.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Jon Carr	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**50.00**
Total Subcontractor Work-Hours on Site This Day	**58.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**108.00**
Cumulative Total Work-Hours From Previous Report	977.00
Cumulative Work-Hours from Start of Construction	**1085.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No ☐ Yes ☐

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:
Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No ☐ Yes ☐ If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	03-Jan-13	18
07225.0002			

Equipment

Equipment/material received today to be used on job site:
Lumber to build guard rail on west and south side of the dock

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Place clams at BN11A, BS09A and SB07A. Build guard rail on west and south side of the dock.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Clam deployment .
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered or delays:
N/A

Visitors

Name	Organization	Purpose of Visit
Peter Srtoganoff	Navy- RIOCC	General site visit

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/3/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	04-Jan-13	19
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny	PM	sunny	Low	40	smooth
				High	60	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employee	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Jon Carr	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**50.00**
Total Subcontractor Work-Hours on Site This Day	**50.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**100.00**
Cumulative Total Work-Hours From Previous Report	1085.00
Cumulative Work-Hours from Start of Construction	**1185.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this Date? If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	04-Jan-13	19
07225.0002			

Equipment

Equipment/material received today to be used on job site:
cable to repair line to dock on north east corner.

Construction and field equipment on job site today (include field instruments):

Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Repair cable on north west corner of the dock. Start sediment sampling in dry dock #4 See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: N/A
Next Week: Sediment sampling

Issues or Concerns

Discussion of Issues / Concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/4/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	07-Jan-13	20
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny	PM	sunny	Low	40	smooth
				High	60	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Subcontract Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Subcontract Activity No.	Employer	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	2.00

Total ITSI Gilbane Work-Hours on Site This Day	**50.00**
Total Subcontractor Work-Hours on Site This Day	**36.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**86.00**
Cumulative Total Work-Hours From Previous Report	1185.00
Cumulative Work-Hours from Start of Construction	**1271.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP. Had to be careful entering and exiting the dock with the barge due to ERRG having a barge of rock inside dry dock #3. ITSI-Gilbane and ERRG worked with each other to make sure that there was safe passage by the barge.

Were there any lost time accidents on this date?

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	07-Jan-13	20
07225.0002			

Equipment

Equipment/material received today to be used on job site:
Small Vanveen and ponar for sediment sampling. Safety hook for dock.

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Finished sediment sampling in dry dock #4 sampled (3) locations in dry dock #2. See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next workweek:
Next Day: Sediment sampling in dry dock #2
Next Week: Sediment sampling

Issues or Concerns

Discussion of Issues/ Concerns encountered or else:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature		
Printed Name and Title	Tony Olmstead Superintendent	Date 1/7/2013

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	08-Jan-13	21

Weather

Weather Conditions				Temp (F)		Sea/Water Conditions
AM	sunny	PM	sunny	Low	40	smooth
				High	60	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Subcontract Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Subcontract Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**50.00**
Total Subcontractor Work-Hours on Site This Day	**34.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**84.00**
Cumulative Total Work-Hours From Previous Report	1271.00
Cumulative Work-Hours from Start of Construction	**1355.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) — Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? — If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	08-Jan-13	21
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sampling complete in dry dock #2 for sediment cores. See Geologist daily for details. QC meet ing.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Sediment sampling in dry dock #3
Next Week: Sediment sampling

Issues or Concerns

Discussion of Issues / Concerns and Unusual Events:
N/A

Visitors

Name	Organization	Purpose of Visit
Shirley Ng	Navy- RIOCC	QC meeting
Fred Niehoff	Navy- RIOCC	QC meeting
Doug Delong	Navy- CSO	QC meeting

Signed

ITSI Gilbane Superintendent Signature		Date: 1/8/2013
Printed Name and Title	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	09-Jan-13	22
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Foggy	PM	Cloudy/Windy	Low	40	choppy in afternoon
				High	60	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Brian Dee	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**50.00**
Total Subcontractor Work-Hours on Site This Day	**34.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**84.00**
Cumulative Total Work-Hours From Previous Report	1355.00
Cumulative Work-Hours from Start of Construction	**1439.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:
Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	09-Jan-13	22
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sampling complete in dry dock #3 for sediment cores. See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Sediment sampling in dry dock #3
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues/ concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A		
N/A		
N/A		

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/9/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	10-Jan-13	23
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Foggy	PM	Cloudy/Windy	Low	40	choppy in afternoon
				High	60	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Brian Dee	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	50.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	84.00
Cumulative Total Work-Hours From Previous Report	1439.00
Cumulative Work-Hours from Start of Construction	1523.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No ☐ Yes ☒

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted:

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No ☒ Yes ☐

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	10-Jan-13	23

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in berth #10. See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Finish sediment sampling in berth #10
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A		
N/A		
N/A		

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/10/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	14-Jan-13	24

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny/ cold	PM	sunny	Low	40	choppy in am, calming in afternoon
				High	60	

Additional Comments
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position		Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Brian Dee	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	50.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	84.00
Cumulative Total Work-Hours From Previous Report	1523.00
Cumulative Work-Hours from Start of Construction	1607.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	14-Jan-13	24
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in berth #10 and in south basin. See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Finish sediment sampling in berth #10
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A		
N/A		
N/A		

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/14/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	15-Jan-13	25

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny/cold	PM	sunny	Low	40	calm
				High	60	

Additional Comments
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	50.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	84.00
Cumulative Total Work-Hours From Previous Report	1607.00
Cumulative Work-Hours from Start of Construction	1691.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No: | Yes: X

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No: X | Yes: | If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	15-Jan-13	25

Equipment

Equipment/material received today to be used on job site:
3- new lapel air monitors as back up for the 2 that are already onsite.

Construction and field equipment on job site today (include field instruments):

Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in berth #10 and outside of dry dock #3. See Geologist daily for details. QC meeting

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Continue core sediment core sampling.locations vary pending on weather and seas.
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
Peter Stroganoff	Navy-RIOCC	QC Meeting
Fred Niehoff	Navy-RIOCC	QC Meeting
Doug Delong	Navy- CSO	QC Meeting

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/15/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	Report No.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	16-Jan-13	26

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny/cold	PM	sunny	Low	40	calm
				High	60	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Brian Dee	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	50.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	84.00
Cumulative Total Work-Hours From Previous Report	1691.00
Cumulative Work-Hours from Start of Construction	1775.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No ☐ Yes ☐

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No ☐ Yes ☐ If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	16-Jan-13	26

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in berth #10 and outside of dry dock #3. See Geologist daily for details. QC meeting

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Continue core sediment core sampling.locations vary pending on weather and seas.
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A		
N/A		
N/A		

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/16/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	[illegible]
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	17-Jan-13	27
[illegible] 07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny/cold	PM	sunny	Low	40	calm
				High	60	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Brian Dee	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	**50.00**
Total Subcontractor Work-Hours on Site This Day	**34.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**84.00**
Cumulative Total Work-Hours From Previous Report	1775.00
Cumulative Work-Hours from Start of Construction	**1859.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) [illegible] Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? [illegible] If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	17-Jan-13	27

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in south berths . See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Continue core sediment core sampling.locations vary pending on weather and seas.
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
Peter Stroganoff	Navy- RIOCC	General site visit
N/A		
N/A		

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/23/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	22-Jan-13	28
ITSI Gilbane Project No. 07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny/cold	PM	partly cloudy	Low	40	calm
				High	60	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	0.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	40.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	74.00
Cumulative Total Work-Hours From Previous Report	1859.00
Cumulative Work-Hours from Start of Construction	1933.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No [ ] Yes [X]

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? Yes [ ] No [ ]

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	22-Jan-13	28
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in south berths . See Geologist daily for details. QC meeting

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Continue core sediment core sampling.locations vary pending on weather and seas.
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
Peter Stroganoff	Navy- RIOCC	QC Meeting
Doug Delong	Navy- CSO	QC Meeting
Fred Niehoff	Navy- RIOCC	QC Meeting

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/23/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	23-Jan-13	29
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Cloudy	PM	Rain	Low	40	calm
				High	58	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	50.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	84.00
Cumulative Total Work-Hours From Previous Report	1933.00
Cumulative Work-Hours from Start of Construction	2017.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No [ ] Yes [X]

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? Yes [ ] No [ ]

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	23-Jan-13	29
07225.0002			

Equipment

Equipment/material received today to be used on job site:
Box of 3 3/4" caps for samples and 5 boxes of 2gallon ziplock bags.

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in south berths . See Geologist daily for details. QC meeting

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Continue core sediment core sampling.locations vary pending on weather and seas.
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A		
N/A		
N/A		

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/23/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	24-Jan-13	30
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Cloudy	PM	Cloudy	Low	40	calm
				High	58	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	50.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	84.00
Cumulative Total Work-Hours From Previous Report	2017.00
Cumulative Work-Hours from Start of Construction	2101.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No [ ] Yes [X]

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? Yes [ ] No [ ]

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	24-Jan-13	30
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in south berths and south basin . See Geologist daily for details. QC meeting

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Continue core sediment core sampling.locations vary pending on weather and seas.
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A		
N/A		
N/A		

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/24/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	25-Jan-13	31

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Cloudy	PM	Cloudy	Low	40	calm
				High	58	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	0.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	40.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	74.00
Cumulative Total Work-Hours From Previous Report	2017.00
Cumulative Work-Hours from Start of Construction	2191.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No [ ] Yes [X]

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No [X] Yes [ ]

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	25-Jan-13	31
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in south berths and south basin . See Geologist daily for details. QC meeting

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Continue core sediment core sampling.locations vary pending on weather and seas.
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A		
N/A		
N/A		

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/25/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	28-Jan-13	32
TASK/DELIVERY ORDER 07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Sunny	PM	Sunny	Low	40	calm
				High	62	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	60.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	94.00
Cumulative Total Work-Hours From Previous Report	2191.00
Cumulative Work-Hours from Start of Construction	2285.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No [ ] Yes [ ]

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No [ ] Yes [ ]

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	28-Jan-13	32
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in south basin . See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Continue core sediment core sampling.locations vary pending on weather and seas. QC Meeting
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A		
N/A		
N/A		

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/28/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	29-Jan-13	33

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Sunny	PM	Sunny	Low	40	calm
				High	62	

Additional Comments:
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00
	Ed Palser	RSO	1	Rad Safety Officer	4.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	64.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	98.00
Cumulative Total Work-Hours From Previous Report	2285.00
Cumulative Work-Hours from Start of Construction	2383.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No Yes

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No Yes

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	29-Jan-13	33
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in sub bays. See Geologist daily for details. QC meeting

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Continue core sediment core sampling.locations vary pending on weather and seas.
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
The winch on the barge broke. TEG is bring a new winch up from Santa Cruz today and will install.

Visitors

Name	Organization	Purpose of Visit
Peter Stroganoff	Navy-RIOCC	QC Meeting
Doug Delong	Navy-CSO	QC Meeting
Shirley Ng	Navy-RIOCC	QC Meeting
Andy Uehisa	Navy-RIOCC	QC Meeting

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/29/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	30-Jan-13	34
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Sunny	PM	Sunny	Low	40	calm
				High	62	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	0.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00
	TEG	Alex Palomar	1	Driller	0.00
	TEG	Mark Mertz	1	Driller	0.00

Total ITSI Gilbane Work-Hours on Site This Day	**50.00**
Total Subcontractor Work-Hours on Site This Day	**34.00**
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	**84.00**
Cumulative Total Work-Hours From Previous Report	2383.00
Cumulative Work-Hours from Start of Construction	**2467.00**

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No ☐ Yes ☒

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No ☐ Yes ☐

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	30-Jan-13	34

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in sub bays. See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Continue core sediment core sampling.locations vary pending on weather and seas.
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
TEG replaced the winch that had broke on 1/28/13.

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/30/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	31-Jan-13	35
PROJECT NO. 07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Sunny	PM	Sunny	Low	40	calm
				High	62	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Ed Gillera	Sample Coordinator	1	Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00
	Ed Palser	RSO	1	Rad safety officer	2.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Pete Mertz	1	Driller	8.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	0.00
	Timmy's Team	Timmy Mock	1	Rad Tech/ Owner	2.00

Total ITSI Gilbane Work-Hours on Site This Day	62.00
Total Subcontractor Work-Hours on Site This Day	44.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	106.00
Cumulative Total Work-Hours From Previous Report	2467.00
Cumulative Work-Hours from Start of Construction	2573.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.)	No		Yes	X

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date?	No	X	Yes		If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	31-Jan-13	35
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge

Work Performed Today

Description of work performed today:
Sample for sediment cores in sub bays and in the south basin. See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: N/A
Next Week: Sediment sampling, Pick up of the Clams

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature:		Date: 1/31/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	04-Feb-13	36

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Foggy	PM	Sunny	Low	40	calm
				High	60	

Additional Comments
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Ed Palser	RSO	1	Rad safety officer	8.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	6.00
	TEG	Jon Carr	1	Driller	6.00
	Pacific Eco	Drew Gantner	1	Biologist	6.00

Total ITSI Gilbane Work-Hours on Site This Day	58.00
Total Subcontractor Work-Hours on Site This Day	52.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	110.00
Cumulative Total Work-Hours From Previous Report	2573.00
Cumulative Work-Hours from Start of Construction	2683.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No [ ] Yes [X]

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No [X] Yes [ ]

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	04-Feb-13	36
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):

Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge , 24" Grady White (boat to pick up the clams at the back ground locations)

Work Performed Today

Description of work performed today:
Sample for sediment cores in the south basin. Pick up clams from the back ground locations (oyster point and pardise cove) See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next working week:

Next Day: Pick up clams. QC meeting
Next Week: Sediment sampling if needed

Issues or Concerns

Discussion of issues / concerns encountered on site:
1 clam location at Paradise cove could not be found.

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature:		Date: 2/4/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	05-Feb-13	37
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Partly foggy	PM	Sunny	Low	40	calm
				High	60	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Ed Palser	RSO	1	Rad safety officer	8.00
	Arvind Acharya	Program Manager	1	Program manager	8.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	8.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	8.00
	TEG	Jon Carr	1	Driller	8.00
	Pacific Eco	Drew Gantner	1	Biologist	8.00

Total ITSI Gilbane Work-Hours on Site This Day	66.00
Total Subcontractor Work-Hours on Site This Day	58.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	124.00
Cumulative Total Work-Hours From Previous Report	2683.00
Cumulative Work-Hours from Start of Construction	2807.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.)	No		Yes	X

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date?	No	X	Yes		If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	05-Feb-13	37
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge , 24" Grady White (boat to pick up the clams at the back ground locations)

Work Performed Today

Description of work performed today:
Sample for sediment cores in the south basin. Pick up clams See Geologist daily for details. QC meeting.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Pick up clams.
Next Week: Sediment sampling if needed

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
Peter Stroganoff	Navy-RIOCC	QC Meeting
Andy Uehisa	Navy-RIOCC	QC Meeting
Doug Delong	Navy-CSO	QC Meeting

Signed

ITSI Gilbane Superintendent Signature:		Date: 2/5/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	06-Feb-13	38
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Sunny	PM	Sunny	Low	40	calm
				High	60	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	0.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Ed Palser	RSO	1	Rad safety officer	8.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	1.00
	TEG	Mateo Headrick	1	Driller	4.00
	TEG	Alex Palomar	1	Driller	4.00
	TEG	Mark Mertz	1	Driller	1.00
	TEG	Jon Carr	1	Driller	1.00
	Pacific Eco	Drew Gantner	1	Biologist	4.00

Total ITSI Gilbane Work-Hours on Site This Day	48.00
Total Subcontractor Work-Hours on Site This Day	25.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	72.00
Cumulative Total Work-Hours From Previous Report	2807.00
Cumulative Work-Hours from Start of Construction	2879.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No [ ] Yes [ ]

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No [ ] Yes [ ]

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	06-Feb-13	38
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) 12'x32' sample barge , 24" Grady White demoblized

Work Performed Today

Description of work performed today:
Pick up clams in south basin (SB05A & SB07A). See Geologist daily for details.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Internal QC audit
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature:		Date: 2/6/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	07-Feb-13	39
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Cloudy/Rain	PM	Rain	Low	40	calm
				High	60	

Additional Comments
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Ed Palser	RSO	1	Rad safety officer	8.00
	Cheryl Prince	QC PM	1	Quality Control Program Manager	8.00
	Laura Tryboski	QC Specialist	1	Quality Control Specialist	8.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	0.00
	TEG	Mateo Headrick	1	Driller	0.00
	TEG	Alex Palomar	1	Driller	0.00
	TEG	Mark Mertz	1	Driller	0.00
	TEG	Jon Carr	1	Driller	0.00

Total ITSI Gilbane Work-Hours on Site This Day	74.00
Total Subcontractor Work-Hours on Site This Day	10.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	84.00
Cumulative Total Work-Hours From Previous Report	2879.00
Cumulative Work-Hours from Start of Construction	2963.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No [ ] Yes [X]

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No [X] Yes [ ]

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	07-Feb-13	39

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) .

Work Performed Today

Description of work performed today:
internal QC audit. Todays sedflume sampling called due to weather, see attached NOAA report.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: N/A
Next Week: Sediment sampling

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature:		Date: 2/7/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	11-Feb-13	40
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny	PM	sunny	Low	40	calm
				High	60	

Additional Comments
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Ed Palser	RSO	1	Rad safety officer	0.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	0.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	0.00
	TEG	Jon Carr	1	Driller	8.00
	Sea Engineering	Kurt Nelson	1	SedFlume	8.00

Total ITSI Gilbane Work-Hours on Site This Day	50.00
Total Subcontractor Work-Hours on Site This Day	42.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	92.00
Cumulative Total Work-Hours From Previous Report	2963.00
Cumulative Work-Hours from Start of Construction	3055.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.)	No		Yes	X

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date?	No	X	Yes		If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	11-Feb-13	40
07225.0002			

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) . 12x32 barge for sampling. SedFlume sampling equipment/ materials

Work Performed Today

Description of work performed today:
SedFlume sampling at 3 locations. See Geologist daily for details and locations

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: 50 gallons of sediment for USACE/ QC meeting
Next Week: Sediment sampling if needed/ Demobilization

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature:		Date: 2/11/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	12-Feb-13	41
07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	sunny	PM	sunny	Low	40	calm
				High	60	

Additional Comments

N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Ed Palser	RSO	1	Rad safety officer	0.00
	Arvind Archya	Program Manager	1	Program Manager	

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	0.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Mark Mertz	1	Driller	0.00
	TEG	Jon Carr	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	50.00
Total Subcontractor Work-Hours on Site This Day	42.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	92.00
Cumulative Total Work-Hours From Previous Report	2963.00
Cumulative Work-Hours from Start of Construction	3055.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.)	No		Yes	X

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date?	No	X	Yes		If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	12-Feb-13	41

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) . 12x32 barge for sampling.

Work Performed Today

Description of work performed today:
Sediment sampling for USACE (approx. 50 gallons) in the south basin. See Geologist daily for details and locations. QC meeting

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Processing of the geochron samples for shipment
Next Week: Demobilization

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
Peter Stragnoff	Navy-RIOCC	QC meeting
Andy Uehisa	Navy-RIOCC	QC meeting
Doug Delong	Navy- CSO	QC meeting

Signed

ITSI Gilbane Superintendent Signature:		Date: 2/12/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	13-Feb-13	42

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Foggy	PM	sunny	Low	40	calm
				High	60	

Additional Comments
N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	10.00
	Ed Palser	RSO	1	Rad safety officer	6.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00
	TEG	Chris Carothers	1	Driller	0.00
	TEG	Mateo Headrick	1	Driller	8.00
	TEG	Alex Palomar	1	Driller	8.00
	TEG	Jon Carr	1	Driller	8.00

Total ITSI Gilbane Work-Hours on Site This Day	56.00
Total Subcontractor Work-Hours on Site This Day	34.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	90.00
Cumulative Total Work-Hours From Previous Report	3055.00
Cumulative Work-Hours from Start of Construction	3145.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.)	No		Yes	X

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date?	No	X	Yes	

If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	13-Feb-13	42

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, NaI detector and 2929) . 12x32 barge for sampling.

Work Performed Today

Description of work performed today:
Process geochron samples for shipment, See Geologist daily for details. Scan the TEG barge out for release.

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: Demobilization
Next Week: Demobilization

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature:		Date: 2/13/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002	Parcel F Radiological Data Gap Investigation	14-Feb-13	43
ITSI Project: 07225.0002			

Weather

Weather Conditions				Temp (F)		Bay/Water Conditions
AM	Foggy	PM	sunny	Low	40	calm
				High	60	

Additional Comments: N/A

ITSI Gilbane Personnel On Site

Scheduled Activity No.	ITSI Gilbane Staff Name	Trade/Duty Position	Number	Description of Work Performed	Hrs
	Tony Olmstead	Superintendent	1	Superintendent	10.00
	Geoff Wolfe	QCM	1	Quality Control Manager	10.00
	Teresa Ruha	Geo	1	Geologist	10.00
	Tony Poon	Alt. Sample Coordinator	1	Alt. Sample Coordinator	10.00
	Mark Blaisdell	H&S	1	Health and Safety	0.00
	Ed Palser	RSO	1	Rad safety officer	0.00

Subcontractor Personnel On Site

Scheduled Activity No.	Employer	Trade/Duty/Position	Number	Description of Work Performed	Hrs
	Timmy's Team	Kyle Gordon	1	Rad Tech	10.00

Total ITSI Gilbane Work-Hours on Site This Day	40.00
Total Subcontractor Work-Hours on Site This Day	10.00
Subtotal ITSI Gilbane + Subcontractor Work-Hours on Site This Day	50.00
Cumulative Total Work-Hours From Previous Report	3145.00
Cumulative Work-Hours from Start of Construction	3195.00

Safety

Was a job safety meeting held this date? (If "yes," attach copy of meeting minutes.) No: | Yes: X

Description of Health & Safety Actions Taken Today / Safety Inspections Conducted

Site over view. Went over AHA's and APP.

Were there any lost time accidents on this date? No: X | Yes: | If "YES", a copy of the completed Accident Investigation Report is required. (Ref to APP)

ITSI Gilbane

DAILY PRODUCTION REPORT

(Attach Continuation Page as Needed)

Project

CONTRACT NO. / TO NO.	PROJECT TITLE / LOCATION	REPORT DATE	REPORT NO.
N62473-11-D-2227 to 0002 07225.0002	Parcel F Radiological Data Gap Investigation	14-Feb-13	43

Equipment

Equipment/material received today to be used on job site:
N/A

Construction and field equipment on job site today (include field instruments):
Rad equipment (Ludlum 2360 ,19, Nal detector and 2929) .

Work Performed Today

Description of work performed today:
Scan geochron samples for shipment. Scan the connex for free relase

Work Planned Next Day

Description of work planned for next working day or next working week:
Next Day: N/A
Next Week: Demobilization

Issues or Concerns

Discussion of issues / concerns encountered on site:
N/A

Visitors

Name	Organization	Purpose of Visit
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Signed

ITSI Gilbane Superintendent Signature:		Date: 2/14/2013
Printed Name and Title:	Tony Olmstead Superintendent	

NOTE: ATTACH PERTINENT INFORMATION TO THIS REPORT.

APPENDIX A-4-4

Daily Quality Control Reports

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 1
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 11/26/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☑ NO ☐

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work
18	Mobilization

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☑ NO ☐

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work
18	Mobilization

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☐	NO ☑
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☐	NO ☑

Schedule Activity No.	Definable Feature of Work and Work Description

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	**Geoff Wolfe**	11/26/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

Field Change Request

(Page 1 of 1)

Project Name:	Page of
Hunters Point Naval Shipyard Parcel F Radiological Data Gap Investigation	1 2
Project No./Task Code:	Field Change No.:
07225.0002	07225.0002.0001
Applicable Document(s): *Revised Final Sampling and Analysis Plan for Radiological Screening and Data Gap Investigation at Parcel F, Hunters Point Naval Shipyard, San Francisco Bay, California* (Batelle, 2011) *Final Amendment to Final Sampling and Analysis Plan for Radiological Data Gap Investigation, Hunters Point Naval Shipyard, San Francisco, California* (ITSI Gilbane, 2012)	Document Date: June 3, 2011 November 2, 2012

Problem Description:

The SAP documents require that the sediment core samples for ROC, TOC, particle size, and bulk density to be sent to the laboratory be collected in plastic jars. Due to unstable conditions on the boat where samples are to be processed, procedures calling for intensive sampling handling, such as transfer to jars, are not optimal.

Recommended Solution:

ITSI Gilbane recommends that the samples be shipped to the lab directly in the 3.5-inch by 1-foot acetate sleeves with ends capped with Teflon tape and end caps. There is no technical difference to sample quality.

Impact on Present and Completed Work:

This process involves less sample handling that will lead to less chance of cross-contamination, less process decontamination, and increased efficiency. Field crews were notified of the change and implemented in the field.

Requested by:	Title:	Date:
Kristen Carlyon	Project Chemist	November 26, 2012

Technical and Management Review/Approval

Recommended Disposition:

The Client was notified of the minor change via email.

Clarification: ☐	Minor Change: ■	Major Change: ☐
Client Approval **Is Not Required**: ■		Client Approval **Is Required**: ☐
Regulatory Agency Approval **Is Not Required**: ■		Regulatory Agency Approval **Is Required**: ☐

ITSI Technical Reviewer

Comments:
Approved: Streamlined sample handling resulting in potentially greater productivity while also offering reduced potential for sample loss or cross-contamination is a positive change that should be implemented.

Signature:	Date:
	26 November 2012

ITSI Project Manager

Comments:
Change is approved for implementation.

Signature:	Date:
	28 November 2012

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 2
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 11/27/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

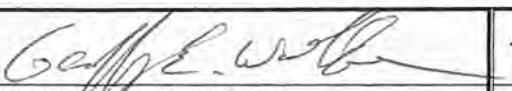
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe 	11/27/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 3
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 11/28/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

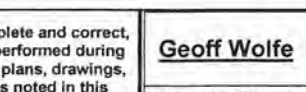
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe 	11/28/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 4
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 11/29/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	11/29/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 5
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/03/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	12/03/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 6
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/04/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	12/04/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 7
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/05/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

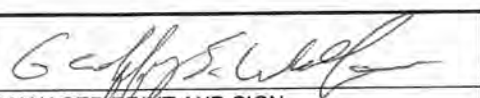
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe 	12/05/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 8
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/06/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

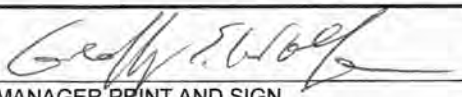
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe  PROJECT QC MANAGER PRINT AND SIGN	12/06/2012 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 9
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/07/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.

Geoff Wolfe	12/07/2012
PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 10
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/11/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

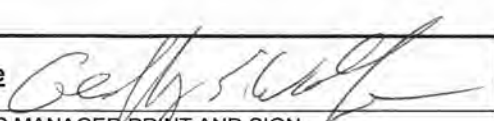
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe 	12/11/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 11
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/12/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	12/12/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 12
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/13/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

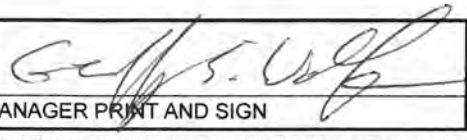
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	**Geoff Wolfe** 	12/13/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 13
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/17/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	12/17/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE			
	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 14
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/18/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☑ NO ☐

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work
21	Clam Tissue and Benthic Grab Sample Collection

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization
	The gangway will be lifted by a battery operated winch, with the battery being removed at the end of every day. The area around our site is fenced in which also adds another level of security. The dock and gangway are being installed as a permanent structure (even though we will remove it at the end of the project), this should make the security and safety of the structures more than adequate.

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe PROJECT QC MANAGER/PRINT AND SIGN	12/18/2012 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 15
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/19/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☑ NO ☐

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work
21	Clam Tissue and Benthic Grab Sample Collection

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
18	Mobilization

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

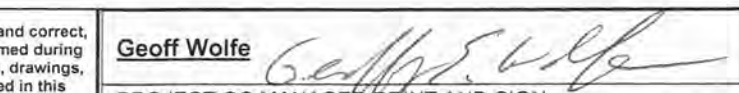
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe  PROJECT QC MANAGER PRINT AND SIGN	12/19/2012 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 16
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 12/20/2012

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
21	Clam Tissue and Benthic Grab Sample Collection / Didn't go out on boat due to weather.

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	12/20/2012
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 17
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/02/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
21	Clam Tissue and Benthic Grab Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe PROJECT QC MANAGER PRINT AND SIGN	01/02/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 18
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/03/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
21	Clam Tissue and Benthic Grab Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	01/03/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 19
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/04/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☑ NO ☐

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work
19	Core Sample Collection

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☑ NO ☐

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work
19	Core Sample Collection

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.

Geoff Wolfe	01/04/2013
PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 20
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/07/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe — PROJECT QC MANAGER PRINT AND SIGN	01/07/2013 — DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 21
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/08/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

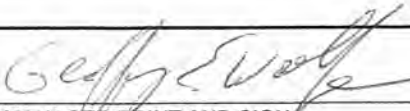
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe 	01/08/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 22
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/09/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe PROJECT QC MANAGER PRINT AND SIGN	01/09/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 23
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/10/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

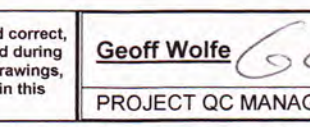
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	**Geoff Wolfe**  PROJECT QC MANAGER PRINT AND SIGN	01/10/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 24
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/14/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe PROJECT QC MANAGER/PRINT AND SIGN	01/14/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 25
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/15/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe PROJECT QC MANAGER PRINT AND SIGN	01/15/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

Field Change Request

(Page 1 of 1)

Project Name:	Page of
Hunters Point Naval Shipyard Parcel F Radiological Data Gap Investigation	1 2
Project No./Task Code: 07225.0002/05400	Field Change No.: 07225.0002.0002
Applicable Document(s): *Revised Final Sampling and Analysis Plan for Radiological Screening and Data Gap Investigation at Parcel F, Hunters Point Naval Shipyard, San Francisco Bay, California* (Batelle, 2011) *Final Amendment to Final Sampling and Analysis Plan for Radiological Data Gap Investigation, Hunters Point Naval Shipyard, San Francisco, California* (ITSI Gilbane, 2012)	Document Date: June 3, 2011 November 2, 2012

Problem Description:

The SAP states Core Scientific International will analyze the geochronology samples. However, Core Scientific is not properly licensed to handle the samples. In addition, the SAP requires only Pb-210 and Cs-137 determinations for the samples, but dry weight bulk density data is required to interpretation with modeling and plotting.

Recommended Solution:

ITSI Gilbane recommends that the samples be analyzed by Test America using the SAP parameters with the addition of bulk density by ASTM D2937M (a SAP analysis). The results will be directed to Core Scientific International for interpretation with modeling and plotting.

Impact on Present and Completed Work:

The proposed change will result in more robust evaluation of the geochronology data, while complying with SAP requirements. Field crews and Test America Laboratory was notified of the change to be implemented.

Requested by:	Title:	Date:
Kristen Carlyon	Project Chemist	January 15, 2013

Technical and Management Review/Approval

Recommended Disposition:

The Client was notified of the minor change and provided a copy of this FCR via email February 15, 2013.

Clarification: ☐	Minor Change: ■	Major Change: ☐
Client Approval **Is Not Required**: ■		Client Approval **Is Required**: ☐
Regulatory Agency Approval **Is Not Required**: ■		Regulatory Agency Approval **Is Required**: ☐

ITSI Technical Reviewer

Comments:
Change complies with SAP requirements.

Signature:	Date:
Jeffrey Hess	January 15, 2013

ITSI Project Manager

Comments:
Change is approved for implementation.

Signature:	Date:
Rachel Hess	January 15, 2013

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 26
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/16/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe — PROJECT QC MANAGER PRINT AND SIGN	01/16/2013 — DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 27
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/17/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

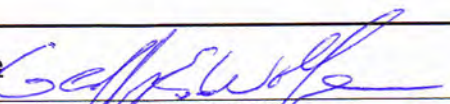
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe 	01/17/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 28
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/22/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

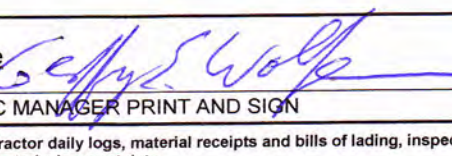
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe  PROJECT QC MANAGER PRINT AND SIGN	01/22/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 29
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/23/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

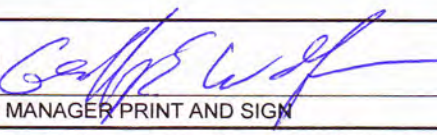
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe  PROJECT QC MANAGER PRINT AND SIGN	01/23/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 30
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/24/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	01/24/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 31
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/25/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	01/25/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 32
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/28/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	01/28/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 33
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/29/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe PROJECT QC MANAGER PRINT AND SIGN	01/29/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 34
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/30/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

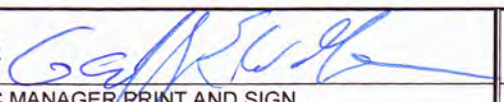
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe 	01/30/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO:	N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 35
	PROJECT TITLE / LOCATION:	Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 01/31/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	01/31/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 36
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 02/04/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection
21	Clam Tissue and Benthic Grab Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe PROJECT QC MANAGER PRINT AND SIGN	02/04/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 37
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 02/05/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection
21	Clam Tissue and Benthic Grab Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

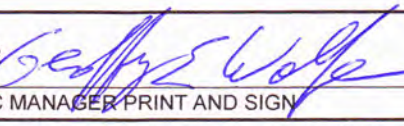
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe  PROJECT QC MANAGER PRINT AND SIGN	02/05/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 38
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 02/06/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
21	Clam Tissue and Benthic Grab Sample Collection

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

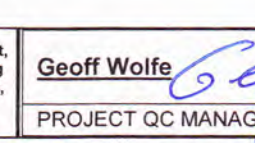
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe  PROJECT QC MANAGER/PRINT AND SIGN	02/06/2013 DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 39
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 02/07/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☐	NO ☑
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☐	NO ☑

Schedule Activity No.	Definable Feature of Work and Work Description

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

Internal QC audit performed.

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe [signature]	02/07/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 40
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 02/11/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample Collection - Sedflume

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe G. Wolfe	02/11/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 41
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 02/12/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
NA	Sediment Collection for USACE

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

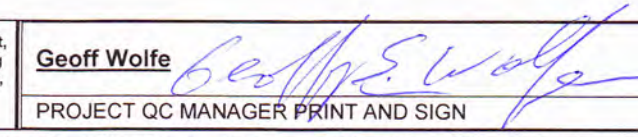
None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe 	02/12/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 42
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 02/13/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample – Geochronology sample processing

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	02/13/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

ITSI Gilbane

DAILY QUALITY CONTROL REPORT

PHASE	CONTRACT NO / TO NO: N62473-11-D-2227/ 002	ITSI GILBANE PROJECT NO.: 07225.0002	REPORT NO: 43
	PROJECT TITLE / LOCATION: Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA		DATE: 02/14/2013

PREPARATORY

PREPARATORY PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach 2-page Preparatory Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

INITIAL

INITIAL PHASE INSPECTIONS PERFORMED TODAY — YES ☐ NO ☑

(Attach Initial Phase Checklist for each DFOW.)

Schedule Activity No.	Definable Feature of Work

FOLLOW-UP

FOLLOW UP INSPECTIONS PERFORMED TODAY

WORK OBSERVED COMPLIES WITH CONTRACT AS APPROVED DURING INITIAL PHASE?	YES ☑	NO ☐
WORK OBSERVED COMPLIES WITH SAFETY REQUIREMENTS?	YES ☑	NO ☐

Schedule Activity No.	Definable Feature of Work and Work Description
19	Core Sample – Geochronology sample processing

TESTS PERFORMED TODAY (List: tests performed, methods used, who performed the tests. Note: equipment calibration check, test location, test results.)

None

REWORK ITEMS IDENTIFIED TODAY	REWORK ITEMS CORRECTED TODAY
DFOW / Description	DFOW / Description
None	None

SUBMITTALS REVIEWED TODAY

None.

MATERIAL RECEIPT INSPECTIONS PERFORMED

Supplier	Material Received/Results (Attach completed Material Receipt Inspection Checklist)
None	None

INSTRUCTIONS GIVEN TO SUBCONTRACTORS OR RECEIVED FROM CLIENT / DIFFERING SITE CONDITIONS, ERRORS OR DISCREPANCIES NOTED / REMARKS:

None

On behalf of ITSI Gilbane, I certify that this report is complete and correct, and that the equipment and material used and the work performed during this reporting period are in compliance with the contract plans, drawings, and specifications to the best of my knowledge, except as noted in this report.	Geoff Wolfe	02/14/2013
	PROJECT QC MANAGER PRINT AND SIGN	DATE

NOTE: Include as an attachment to the Daily QC Report: The Daily Production Report, Subcontractor daily logs, material receipts and bills of lading, inspection and test results, Nonconformance Reports, Site Safety Sign-in Logs, and other records developed or received on today's report date.

APPENDIX A-4-5

Preparatory Phase Checklists

ITSI Gilbane

PREPARATORY PHASE CHECKLIST

CONTRACT NO. / TO NO.: **N62473-11-D-2227/ 002**		ITSI GILBANE PROJECT NO.: 07225.0002
PROJECT TITLE / LOCATION: **Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA**		DATE: 11/26/2012
DEFINABLE FEATURE OF WORK: Mobilization	SCHEDULE ACTIVITY NO.: 18	SPECIFICATION SECTION: NA

PERSONNEL PRESENT

CLIENT REP NOTIFIED ___ HOURS IN ADVANCE? YES ☑ NO ☑

NAME	TRADE/DUTY/POSITION	COMPANY/AGENCY
Geoff Wolfe	QC Manager	ITSI Gilbane
Teresa Ruha	Geologist	ITSI Gilbane
Ed Guillera	Sample Coordinator	ITSI Gilbane
Mateo Headrick	Driller	TEG
Jon Carr	Driller	TEG
Peter Merte	Driller	TEG
Chris Carothers	Driller	TEG
Andrew Smith	Driller	SAIC
Tony Olmstead	Superintendent/Field Team Leader	ITSI Gilbane
Kyle Glennon	Rad Tech	Timmies Team
Carole Fried	H&S Manager	ITSI Gilbane
Alex Palomar	Driller	TEG
Andrew Ganter	Biologist	Pacific Ecorisk
Mark Merte	Driller	TEG
Ken Leonard	Project Manager	ITSI Gilbane
Ed Palser	Rad Manager	ITSI Gilbane

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☐ NO ☑

Submittals not required for mobilization.

ARE ALL MATERIALS ON SITE? YES ☐ NO ☑

Submittals not required for mobilization.

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL (THIS SHOULD BE DONE AS MATERIAL ARRIVES).

COMMENTS: NA

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☐ NO ☑

Need to decide location of Mobile Mini.

SPECIFICATIONS

REVIEW EACH APPLICABLE SPECIFICATION PARAGRAPH

LIST SPECIFICATIONS COVERED: NA

DISCUSS PROCEDURES FOR ACCOMPLISHING THE WORK: NA

CLARIFY ANY DIFFERENCES: NA

PRELIMINARY WORK & PERMITS

IS PRELIMINARY WORK CORRECT? YES ☑ NO ☐ ARE PERMITS ON FILE? YES ☐ NO ☑

Investigate locations for embark/de-embark boat.
Permits are not required for mobilization

ITSI Gilbane

PREPARATORY PHASE CHECKLIST

CONTRACT NO. / TO NO.: **N62473-11-D-2227/ 002**		ITSI GILBANE PROJECT NO.: 07225.0002
PROJECT TITLE / LOCATION: **Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA**		DATE: 11/26/2012
DEFINABLE FEATURE OF WORK: Mobilization	SCHEDULE ACTIVITY NO.: 18	SPECIFICATION SECTION: NA

TESTING

IDENTIFY TESTS TO BE PERFORMED, FREQUENCY, AND BY WHOM. (Reference Item of Work as identified on Testing and Inspection Plan and Log)

NA

WHEN REQUIRED? NA

WHERE REQUIRED? NA

REVIEW TESTING PLAN. NA

ARE TESTING FACILITIES APPROVED? YES ☑ NO ☐

IF "NO," WHAT ACTIONS TAKEN?

SAFETY

IS ACTIVITY HAZARD ANALYSIS APPROVED? YES ☑ NO ☐

REVIEW APPLICABLE PORTIONS OF EM 385-1-1.

COMMENTS:

MEETING COMMENTS

CLIENT AND AGENCY REPRESENTATIVES COMMENTS DURING MEETING:

None

OTHER ITEMS OR REMARKS

None

Geoff E. Wolfe GEOFF WOLFE	11/26/2012
ITSI GILBANE QC MANAGER SIGNATURE AND PRINTED NAME	DATE

ITSI Gilbane

PREPARATORY PHASE CHECKLIST

CONTRACT NO. / TO NO.: **N62473-11-D-2227/ 002**		ITSI GILBANE PROJECT NO.: 07225.0002
PROJECT TITLE / LOCATION: **Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA**		DATE: 12-18-2012
DEFINABLE FEATURE OF WORK: Clam Tissue and Benthic Grab Sample Collection	SCHEDULE ACTIVITY NO.: 21	SPECIFICATION SECTION: N/A

PERSONNEL PRESENT

CLIENT REP NOTIFIED 24 HOURS IN ADVANCE? YES ☑ NO ☐

NAME	TRADE/DUTY/POSITION	COMPANY/AGENCY
Peter Stroganoff	ROICC	US Navy
Alex Uehisa	ROICC	US Navy
Geoff Wolfe	QC Manager	ITSI Gilbane
Tony Olmstead	Superintendent	ITSI Gilbane
Teresa Ruha	Geologist	ITSI Gilbane
Ed Gillera	Sample Coordinator	ITSI Gilbane
Mark Blaisdell	Health and Safety Officer	ITSI Gilbane
Kyle Gordon	Rad. Technician	ITSI Gilbane/TTA
Andrew Gantner	Biologist	Pacific EcoRisk
Mark Mertz	Driller	TEG
Pete Mertz	Driller	TEG
Alex Palomar	Driller	TEG
Jon Carr	Driller	TEG
Mateo Headrick	Driller	TEG
Chris Carothurs	Driller	TEG

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☑ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

N/A

ARE ALL MATERIALS ON SITE? YES ☑ NO ☐

IF "NO," WHAT ITEMS ARE MISSING?

N/A

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL (THIS SHOULD BE DONE AS MATERIAL ARRIVES).

COMMENTS:

N/A

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☑ NO ☐

IF "NO," WHAT ACTIONS TAKEN?

N/A

SPECIFICATIONS

REVIEW EACH APPLICABLE SPECIFICATION PARAGRAPH

LIST SPECIFICATIONS COVERED:

N/A

DISCUSS PROCEDURES FOR ACCOMPLISHING THE WORK:

Deploy clams in cages. There will be 7 locations for clam deployment. 2 are background samples. Each location requires 3 cages with ~40 clams per cage. Clams will sit at deployed locations for ~30 days. Clams will be collected and sent to the laboratory for tissue analysis.

CLARIFY ANY DIFFERENCES:

N/A

PRELIMINARY WORK & PERMITS

IS PRELIMINARY WORK CORRECT? YES ☑ NO ☐ ARE PERMITS ON FILE? YES ☑ NO ☐

IF "NO," WHAT ACTIONS TAKEN?

N/A

ITSI Gilbane

PREPARATORY PHASE CHECKLIST

CONTRACT NO. / TO NO.: **N62473-11-D-2227/ 002**		ITSI GILBANE PROJECT NO.: 07225.0002
PROJECT TITLE / LOCATION: **Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA**		DATE: 12-18-2012
DEFINABLE FEATURE OF WORK: Clam Tissue and Benthic Grab Sample Collection	SCHEDULE ACTIVITY NO.: 21	SPECIFICATION SECTION: N/A

TESTING

IDENTIFY TESTS TO BE PERFORMED, FREQUENCY, AND BY WHOM. (Reference Item of Work as identified on Testing and Inspection Plan and Log)

After clams are collected, they will not be allowed to purge their gut to allow a conservative assessment of risk to the environment and humans by including sediment contained in the gut to be included in the radionuclide analysis. Organisms will be shipped under chain of custody to the Test America Richland, WA laboratory.

WHEN REQUIRED?

N/A

WHERE REQUIRED?

At specified locations in Work Plan figures.

REVIEW TESTING PLAN.

Testing will be for Strontium-90, Gamma Isotopes, U-235 and Ra-226

ARE TESTING FACILITIES APPROVED? YES ☑ NO ☐

IF "NO," WHAT ACTIONS TAKEN?

N/A

SAFETY

IS ACTIVITY HAZARD ANALYSIS APPROVED? YES ☑ NO ☐

REVIEW APPLICABLE PORTIONS OF EM 385-1-1.

COMMENTS:

Wear proper PPE for being on the boat (ie, PFDs, steel toed boots, etc.)

MEETING COMMENTS

CLIENT AND AGENCY REPRESENTATIVES COMMENTS DURING MEETING:

N/A

OTHER ITEMS OR REMARKS

The clams arrived at Pacific EcoRisk. However, we only received 875, with 15 DOA. Drew called the supplier and they sent more for a total of 980 living clams. Ordered 900 with the understanding that they standardly ship and additional 10%, so expecting 990. If all survive acclimation and deployment there will be 120 clams per sample (Including the zero time sample). Assuming 2g tissue per clam, which equals 240 g tissue per sample, meeting the goal of 200 to 250 g per sample to achieve the analytical goals.

Geoff Wolfe	12/18/2012
ITSI GILBANE QC MANAGER SIGNATURE AND PRINTED NAME	DATE

ITSI Gilbane

PREPARATORY PHASE CHECKLIST

CONTRACT NO. / TO NO.: **N62473-11-D-2227/ 002**		ITSI GILBANE PROJECT NO.: 07225.0002
PROJECT TITLE / LOCATION: **Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA**		DATE: 01-04-2013
DEFINABLE FEATURE OF WORK: Core Sample Collection	SCHEDULE ACTIVITY NO.: 19	SPECIFICATION SECTION: N/A

PERSONNEL PRESENT

CLIENT REP NOTIFIED 0 HOURS IN ADVANCE? YES ☐ NO ☑

NAME	TRADE/DUTY/POSITION	COMPANY/AGENCY
Geoff Wolfe	QC Manager	ITSI Gilbane
Tony Olmstead	Superintendent	ITSI Gilbane
Teresa Ruha	Geologist	ITSI Gilbane
Ed Gillera	Sample Coordinator	ITSI Gilbane
Mark Blaisdell	Health and Safety Officer	ITSI Gilbane
Kyle Gordon	Rad. Technician	ITSI Gilbane/TTA
Pete Mertz	Driller	TEG
Alex Palomar	Driller	TEG
Jon Carr	Driller	TEG
Mateo Headrick	Driller	TEG
Chris Carothurs	Driller	TEG

SUBMITTALS

REVIEW SUBMITTALS AND/OR SUBMITTAL REGISTER. HAVE ALL SUBMITTALS BEEN APPROVED? YES ☑ NO ☐

IF NO, WHAT ITEMS HAVE NOT BEEN SUBMITTED?

N/A

ARE ALL MATERIALS ON SITE? YES ☑ NO ☐

IF "NO," WHAT ITEMS ARE MISSING?

N/A

CHECK APPROVED SUBMITTALS AGAINST DELIVERED MATERIAL (THIS SHOULD BE DONE AS MATERIAL ARRIVES).

COMMENTS:

N/A

MATERIAL STORAGE

ARE MATERIALS STORED PROPERLY? YES ☑ NO ☐

IF "NO," WHAT ACTIONS TAKEN?

N/A

SPECIFICATIONS

REVIEW EACH APPLICABLE SPECIFICATION PARAGRAPH

LIST SPECIFICATIONS COVERED:

Referenced SOP Section 17-1-6 – Vibracore Sediment Sample Collection

DISCUSS PROCEDURES FOR ACCOMPLISHING THE WORK:

Vibracore sampling to collect 120 cm samples.

CLARIFY ANY DIFFERENCES:

N/A

PRELIMINARY WORK & PERMITS

IS PRELIMINARY WORK CORRECT? YES ☑ NO ☐ ARE PERMITS ON FILE? YES ☑ NO ☐

IF "NO," WHAT ACTIONS TAKEN?

N/A

ITSI Gilbane

PREPARATORY PHASE CHECKLIST

CONTRACT NO. / TO NO.: **N62473-11-D-2227/ 002**		ITSI GILBANE PROJECT NO.: 07225.0002
PROJECT TITLE / LOCATION: **Radiological Data Gap Investigation, Parcel F, Phase 2b, Hunters Point Naval Shipyard, San Francisco, CA**		DATE: 01-04-2013
DEFINABLE FEATURE OF WORK: Core Sample Collection	SCHEDULE ACTIVITY NO.: 19	SPECIFICATION SECTION: N/A

TESTING

IDENTIFY TESTS TO BE PERFORMED, FREQUENCY, AND BY WHOM. (Reference Item of Work as identified on Testing and Inspection Plan and Log)

Testing of sediment samples as detailed in the SOP. See SAP Worksheet #19 – Analytical SOP Requirements Table. Sediment samples will be sent to Test America. Sedflume samples will be sent to Core Scientific.

WHEN REQUIRED?

N/A

WHERE REQUIRED?

At specified locations in Work Plan figures.

REVIEW TESTING PLAN

Testing will be for Sr-90, Co-60, Cs-137, Pu-239, U-235 and Ra-226

ARE TESTING FACILITIES APPROVED? YES ☑ NO ☐

IF "NO," WHAT ACTIONS TAKEN?

N/A

SAFETY

IS ACTIVITY HAZARD ANALYSIS APPROVED? YES ☑ NO ☐

REVIEW APPLICABLE PORTIONS OF EM 385-1-1.

COMMENTS:

Wear proper PPE for being on the boat and Rad protection (ie, PFDs, steel toed boots, etc.) In the Exclusion Zone: wear Tyvek, gloves, no touching face and no eating or drinking.

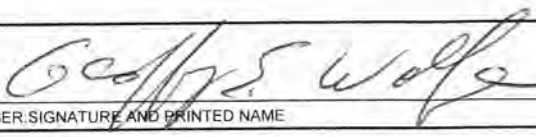
MEETING COMMENTS

CLIENT AND AGENCY REPRESENTATIVES COMMENTS DURING MEETING:

N/A

OTHER ITEMS OR REMARKS

In drydock areas the samples were collected by using the vanveen at the sample location. This was due to the lack of sediment build up and hitting refusal with the Vibracore push sampler. ITSI has received numerous reports that the drydocks were empty in the early 2000's and picture confirmation shows that the concrete bottoms did not have any sediment built up on them.

Geoff Wolfe 	01/04/2013
ITSI GILBANE QC MANAGER SIGNATURE AND PRINTED NAME	DATE

APPENDIX A-4-6

Initial Phase Checklists

ITSI Gilbane

INITIAL PHASE CHECKLIST

CONTRACT NO. / TO NO.: **N62473-11-D-2227/ 002**		ITSI GILBANE PROJECT NO.: **07225.0002**
PROJECT TITLE / LOCATION: **Radiological Data Gap Investigation, Parcel F, Phase 2b Hunters Point Naval Shipyard, San Francisco, CA**		DATE: 11/26/2012
DEFINABLE FEATURE OF WORK: Mobilization	SCHEDULE ACTIVITY NO.: 18	SPECIFICATION SECTION: N/A

PERSONNEL PRESENT

CLIENT REP NOTIFIED ☐ HOURS IN ADVANCE: YES ☐ NO ☐

NAME	TRADE/DUTY/POSITION	COMPANY/AGENCY
Geoff Wolfe	QC Manager	ITSI Gilbane
Teresa Ruha	Geologist	ITSI Gilbane
Ed Guillera	Sample Coordinator	ITSI Gilbane
Mateo Headrick	Driller	TEG
Jon Carr	Driller	TEG
Peter Merte	Driller	TEG
Chris Carothers	Driller	TEG
Andrew Smith	Driller	SAIC
Tony Olmstead	Superintendent/Field Team Leader	ITSI Gilbane
Kyle Glennon	Rad Tech	Timmies Team
Carole Fried	H&S Manager	ITSI Gilbane
Alex Palomar	Driller	TEG
Andrew Ganter	Biologist	Pacific Ecorisk
Mark Merte	Driller	TEG
Ken Leonard	Project Manager	ITSI Gilbane
Ed Palser	Rad Manager	ITSI Gilbane

PROCEDURE COMPLIANCE

CONFIRM FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. CONFIRM COORDINATION BETWEEN PLANS, SPECIFICATIONS, AND SUBMITTALS.	YES ☐ NO ☐
COMMENTS:	

PRELIMINARY WORK

IS PRELIMINARY WORK COMPLETE AND CORRECT?	YES ☑ NO ☐
IF NOT, WHAT ACTIONS TAKEN? The initial location of the dock for the project (Dry Dock #4) was determined to be unsafe during storms due to the 3' swells that were coming in. The potential for damage or destruction was too high. Dry Dock #2 was subsequently chosen as a safer place to install the dock and ramp. Other subcontractors working in the area were contacted to verify that our location was not in their way.	

ITSI Gilbane

INITIAL PHASE CHECKLIST

CONTRACT NO. / TO NO.: **N62473-11-D-2227/ 002**				ITSI GILBANE PROJECT NO.: **07225.0002**
PROJECT TITLE / LOCATION: **Radiological Data Gap Investigation, Parcel F, Phase 2b Hunters Point Naval Shipyard, San Francisco, CA**				DATE: 11/26/2012
DEFINABLE FEATURE OF WORK: Mobilization	SCHEDULE ACTIVITY NO.: 18			SPECIFICATION SECTION: N/A
WORKMANSHIP	IS REQUIRED LEVEL OF WORKMANSHIP ESTABLISHED?			YES ☑ NO ☐ (IF "NO," EXPLAIN IN "COMMENTS.")
	WHERE IS WORK LOCATED? Dry Dock #2.			
	IS SAMPLE PANEL REQUIRED?	YES ☐	NO ☑	(IF "YES," MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE. AND DESCRIBE LOCATION OF SAMPLE.)
	WILL THE INITIAL WORK BE CONSIDERED AS A SAMPLE?	YES ☐	NO ☑	
	COMMENTS:			
RESOLUTION	RESOLVE ANY DIFFERENCES: The originally chosen dock location (Dry Dock #4) was determined to be unsafe during storms due to its southerly facing orientation. The swells rolling in were up to 3'. The potential for damage or destruction of the dock was too high. Dry Dock #2 was determined to be more protected and therefore chosen as the location to install the dock.			
	COMMENTS:			
CHECK SAFETY	WERE JOB CONDITIONS REVIEWED USING EM 385-1-1 AND ACTIVITY HAZARD ANALYSIS?			YES ☑ NO ☐ (IF "NO," EXPLAIN IN "COMMENTS.")
	COMMENTS:			
OTHER	OTHER ITEMS OR REMARKS:			
	Geoff Wolfe — ITSI GILBANE QC MANAGER SIGNATURE AND PRINTED NAME			11/26/2012 — DATE

ITSI Gilbane

INITIAL PHASE CHECKLIST

CONTRACT NO. / TO NO.: **N62473-11-D-2227/ 002**		ITSI GILBANE PROJECT NO.: **07225.0002**
PROJECT TITLE / LOCATION: **Radiological Data Gap Investigation, Parcel F, Phase 2b Hunters Point Naval Shipyard, San Francisco, CA**		DATE: 12/19/2012
DEFINABLE FEATURE OF WORK: Clam Deployment	SCHEDULE ACTIVITY NO.: 21	SPECIFICATION SECTION: N/A

PERSONNEL PRESENT

CLIENT REP NOTIFIED ☐ HOURS IN ADVANCE: YES ☐ NO ☑

NAME	TRADE/DUTY/POSITION	COMPANY/AGENCY
Geoff Wolfe	QC Manager	ITSI Gilbane
Tony Olmstead	Superintendent	ITSI Gilbane
Teresa Ruha/ Ed Gillera	Geologist/ Sample Coordinator	ITSI Gilbane
Mark Blaisdell	Health and Safety Officer	ITSI Gilbane
Kyle Gordon	Rad. Technician	ITSI Gilbane/TTA
Andrew Gantner	Biologist	TEG
Mark Mertz	Driller	TEG
Alex Palomar	Driller	TEG
Jon Carr	Driller	TEG
Mateo Headrick	Driller	TEG

ROCEDURE COMPLIANCE

CONFIRM FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. CONFIRM COORDINATION BETWEEN PLANS, SPECIFICATIONS, AND SUBMITTALS.	YES ☑ NO ☐
COMMENTS: N/A	

PRELIMINARY WORK

IS PRELIMINARY WORK COMPLETE AND CORRECT?	YES ☑ NO ☐
IF NOT, WHAT ACTIONS TAKEN? N/A	

WORKMANSHIP

IS REQUIRED LEVEL OF WORKMANSHIP ESTABLISHED?			YES ☑ NO ☐ (IF "NO," EXPLAIN IN "COMMENTS.")
WHERE IS WORK LOCATED? Paradise Cove, Oyster Point and Parcel F.			
IS SAMPLE PANEL REQUIRED?	YES ☐	NO ☑	(IF "YES," MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE. DESCRIBE LOCATION OF SAMPLE.)
WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE?	YES ☐	NO ☑	
COMMENTS: N/A			

RESOLUTION

RESOLVE ANY DIFFERENCES: N/A
COMMENTS: N/A

CHECK SAFETY

WERE JOB CONDITIONS REVIEWED USING EM 385-1-1 AND ACTIVITY HAZARD ANALYSIS?	YES ☑ NO ☐ (IF "NO," EXPLAIN IN "COMMENTS.")
COMMENTS: N/A	

OTHER

OTHER ITEMS OR REMARKS: N/A

Geoff Wolfe Geoff E Wolfe	12/19/2012
ITSI GILBANE QC MANAGER SIGNATURE AND PRINTED NAME	DATE

ITSI Gilbane

INITIAL PHASE CHECKLIST

CONTRACT NO. / TO NO.: **N62473-11-D-2227/ 002**		ITSI GILBANE PROJECT NO.: **07225.0002**
PROJECT TITLE / LOCATION: **Radiological Data Gap Investigation, Parcel F, Phase 2b Hunters Point Naval Shipyard, San Francisco, CA**		DATE: 01/04/2013
DEFINABLE FEATURE OF WORK: Core Sample Collection	SCHEDULE ACTIVITY NO.: 19	SPECIFICATION SECTION: N/A

PERSONNEL PRESENT

CLIENT REP NOTIFIED ☐ HOURS IN ADVANCE: YES ☐ NO ☑

NAME	TRADE/DUTY/POSITION	COMPANY/AGENCY
Geoff Wolfe	QC Manager	ITSI Gilbane
Tony Olmstead	Superintendent	ITSI Gilbane
Teresa Ruha/ Ed Gillera	Geologist/ Sample Coordinator	ITSI Gilbane
Mark Blaisdell	Health and Safety Officer	ITSI Gilbane
Kyle Gordon	Rad. Technician	ITSI Gilbane/TTA
Chris Carothurs	Driller	TEG
Pete Mertz	Driller	TEG
Alex Palomar	Driller	TEG
Jon Carr	Driller	TEG
Mateo Headrick	Driller	TEG

ROCEDURE COMPLIANCE

CONFIRM FULL COMPLIANCE WITH PROCEDURES IDENTIFIED AT PREPARATORY PHASE. CONFIRM COORDINATION BETWEEN PLANS, SPECIFICATIONS, AND SUBMITTALS.	YES ☑ NO ☐
COMMENTS: N/A	

PRELIMINARY WORK

IS PRELIMINARY WORK COMPLETE AND CORRECT?	YES ☑ NO ☐
IF NOT, WHAT ACTIONS TAKEN? N/A	

WORKMANSHIP

IS REQUIRED LEVEL OF WORKMANSHIP ESTABLISHED?			YES ☑ NO ☐ (IF "NO," EXPLAIN IN "COMMENTS.")
WHERE IS WORK LOCATED? Parcel F.			
IS SAMPLE PANEL REQUIRED?	YES ☐	NO ☑	(IF "YES," MAINTAIN IN PRESENT CONDITION AS LONG AS POSSIBLE. DESCRIBE LOCATION OF SAMPLE.)
WILL THE INIITAL WORK BE CONSIDERED AS A SAMPLE?	YES ☐	NO ☑	
COMMENTS: N/A			

RESOLUTION

RESOLVE ANY DIFFERENCES: N/A
COMMENTS: N/A

CHECK SAFETY

WERE JOB CONDITIONS REVIEWED USING EM 385-1-1 AND ACTIVITY HAZARD ANALYSIS?	YES ☑ NO ☐ (IF "NO," EXPLAIN IN "COMMENTS.")
COMMENTS: N/A	

OTHER

OTHER ITEMS OR REMARKS: N/A

Geoff Wolfe ITSI GILBANE QC MANAGER SIGNATURE AND PRINTED NAME	01/04/2013 DATE

APPENDIX A-5

Clam Deployment Collection Logs

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI

MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: RY01A			Project #: ~~G927502~~ 07225.0002
Deployment			
Date: 12/18/12	Time (local): 1409	Recorder: JM	

Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag. from Cage to Weight	Coordinate System:
1	122°22.383	37°39.875		CA State Planar; Zone3; NAD27; US Survey Ft
2				
3				

Water Depth (ft): 13.8	Tide (ft)	Water Depth (MLLW; ft):
Comments:		

Recovery		
Date: 2/4/13	Time (local): 11:45	Recorder: GCW
Water Depth (ft): 8.4	Tide (ft) 1.1	Water Depth (MLLW; ft):
Comments: RECOVERED ~37		

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	40	37	3	RY01A-TS
2				
3				

Quality Control Samples

Zero Time	No. of Mollusks:	Sample ID:	Other

Comments:

Field Personnel Deployment:

Field Personnel Recovery:

ITSI Gilbane

Field Team Leader Review and Approval

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI

MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: RY02A			Project #: G927502
Deployment			
Date: 12/18/12	Time (local): 1445	Recorder: TR	

Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag. from Cage to Weight	Coordinate System:
1	122°21.943	37°39.938		CA State Planar; Zone3; NAD27; US Survey Ft
2				
3				

Water Depth (ft): 22.7	Tide (ft)	Water Depth (MLLW; ft):

Comments:

Recovery		
Date: 2/4/13	Time (local): 1216	Recorder: GEW
Water Depth (ft): 16	Tide (ft) 0.8-	Water Depth (MLLW; ft):

Comments:

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	40	40	Ø	RY02A-TS
2				
3				

Quality Control Samples

Zero Time	No. of Mollusks:	Sample ID:	Other

Comments:

Field Personnel Deployment:

Field Personnel Recovery:

ITSI Gilbane

Field Team Leader Review and Approval

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI
MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: RY03A | Project #: ~~G92750~~2 07225.0002

Deployment

Date: 12/18/12 | Time (local): 1535 | Recorder: TR

Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag. from Cage to Weight	Coordinate System:
1	122°21.694	37°40.328		CA State Planar; Zone3; NAD27; US Survey Ft
2				
3				

Water Depth (ft): 24.2 | Tide (ft) | Water Depth (MLLW; ft):

Comments:

Recovery

Date: 2/4/13 | Time (local): 1245 | Recorder: GEW

Water Depth (ft): 18' | Tide (ft) 0.5' | Water Depth (MLLW; ft):

Comments:

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	~~40~~ 39	39	0	RY03A-TS
2				
3				

Quality Control Samples

Zero Time	No. of Mollusks:	Sample ID:	Other

Comments:

Field Personnel Deployment:

Field Personnel Recovery:

ITSI Gilbane

Field Team Leader Review and Approval

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI

MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: RP01A			Project #: ~~G927502~~ 07225.0002	
Deployment				
Date: 12/18/12	Time (local): 1045		Recorder:	
Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag. from Cage to Weight	Coordinate System:
1	122° 27. 876	37° 53. 924		CA State Planar; Zone3; NAD27; US Survey Ft
2				
3				
Water Depth (ft): 5.08'	Tide (ft)		Water Depth (MLLW; ft):	
Comments:				

Recovery			
Date: 2/4/13	Time (local): 0840	Recorder: GEW	
Water Depth (ft): 6.5	Tide (ft) 4.2	Water Depth (MLLW; ft):	
Comments: 6 Bead. FND LARGE POLYCHAETE IN TKAP. RETURNED 35 CLAMS.			

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	40	35	5	RP01A-TS
2				
3				

Quality Control Samples

Zero Time	No. of Mollusks:	Sample ID:	Other
Comments:			
Field Personnel Deployment:			
Field Personnel Recovery:			

ITSI Gilbane

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI

MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: RP02A			Project #: ~~G827502~~ 07225.0002
Deployment			
Date: 12/18/12	Time (local): 1140		Recorder: TM

Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag. from Cage to Weight	Coordinate System:
1	122°28.012	37°53.967		CA State Planar; Zone3; NAD27; US Survey Ft
2				
3				

Water Depth (ft): 2.9	Tide (ft)	Water Depth (MLLW; ft):

Comments:

Recovery		
Date: 2/4/13	Time (local): 0925	Recorder: GEW
Water Depth (ft): 3.1'	Tide (ft) 3.2'	Water Depth (MLLW; ft):

Comments: Recovered 36 clams. 5-6 Dead.

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	Tk 39 40	36	4-5	RP02A-TS
2				
3				

Quality Control Samples

Zero Time	No. of Mollusks:	Sample ID:	Other

Comments:

Field Personnel Deployment:

Field Personnel Recovery:

ITSI Gilbane

Field Team Leader Review and Approval

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI
MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: RP03A | Project #: ~~G927502~~ 07225.0002

Deployment

Date: 12/18/12 | Time (local): 1230 | Recorder: JK

Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag. from Cage to Weight	Coordinate System:
1	122°27.737	37°54.009		CA State Planar; Zone3; NAD27; US Survey Ft
2				
3				

Water Depth (ft): 14.1 | Tide (ft) | Water Depth (MLLW; ft):

Comments:

Recovery

Date: 2/4/13 | Time (local): | Recorder: GEW

Water Depth (ft): 15~ | Tide (ft) | Water Depth (MLLW; ft):

Comments: COULD NOT FIND

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	39	Ø		RP03A-TS
2				
3				

Quality Control Samples

Zero Time	No. of Mollusks:	Sample ID:	Other

Comments:

Field Personnel Deployment:

Field Personnel Recovery:

ITSI Gilbane

Field Team Leader Review and Approval

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI

MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: SB02A			Project #~~G027502~~ 07225.0002
Deployment			
Date: 12/19/12	Time (local): 1240		Recorder: TGn

Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag. from Cage to Weight	Coordinate System:
1	122°22.272	37°43.041		CA State Planar; Zone3; NAD27; US Survey Ft
2	122°22.278	37°43.041		
3	122°22.2804	37°43.0416		

Water Depth (ft): 5.5'	Tide (ft) 3.87	Water Depth (MLLW; ft):
Comments:		

Recovery		
Date: 2/5/13	Time (local): 1230	Recorder: TGn
Water Depth (ft): 4.8'	Tide (ft) 0.77'	Water Depth (MLLW; ft):
Comments:		

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	40	39	1	SB02A-1TS
2	40	39	1	SB02A-2TS
3	40	38	2	SB02A-3TS

Quality Control Samples

Zero Time	No. of Mollusks:	Sample ID:	Other
Comments:			

Field Personnel Deployment: TGn

Field Personnel Recovery: TGn

ITSI Gilbane

Field Team Leader Review and Approval Teresa Rucha

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI
MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: B509A | Project #: ~~G927502~~ 07225.0002

Deployment

Date: 1/3/13 | Time (local): 1200 | Recorder: Tom

Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag; from Cage to Weight	Coordinate System:
1	122°21.7981	37°43.0344		CA State Planar; Zone3; NAD27; US Survey Ft
2	122°21.7980	37°43.0364		
3	122°21.7982	37°43.0333		

Water Depth (ft): 12.7' | Tide (ft) 3.10' | Water Depth (MLLW; ft):

Comments:

Recovery

Date: 2/5/13 | Time (local): 1340 | Recorder: Tom

Water Depth (ft): 7.8' | Tide (ft) -0.03 | Water Depth (MLLW; ft):

Comments:

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	40	38	2	B509A-1TS
2	40	38	2	B509A-2TS
3	40	34	6	B509A-3TS

Quality Control Samples

Zero Time	No. of Mollusks:	Sample ID:	Other

Comments:

Field Personnel Deployment: Tom

Field Personnel Recovery: Tom

ITSI Gilbane

Field Team Leader Review and Approval Jeremy Ruhe

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI

MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: BN11A | Project #: ~~G927502~~ 07225.0002

Deployment

Date: 1/3/13 | Time (local): 1420 | Recorder: TGR

Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag. from Cage to Weight	Coordinate System:
1	122°21.4521	37°43.6017		CA State Planar; Zone3; NAD27; US Survey Ft
2	122°21.4506	37°43.6014		
3	122°21.4504	37°43.6021		

Water Depth (ft): 39.40' | Tide (ft) 4.87' | Water Depth (MLLW; ft):

Comments:

Recovery

Date: 2/5/13 | Time (local): 1456 | Recorder: TGR

Water Depth (ft): 45.2' | Tide (ft) 0.04 | Water Depth (MLLW; ft):

Comments:

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	40	37	3	BN11A-1TS
2	40	40	0	BN11A-2TS
3	40	37	3	BN11A-3TS

Quality Control Samples

Zero Time | No. of Mollusks: | Sample ID: | Other

Comments:

Field Personnel Deployment: TGR

Field Personnel Recovery: TGR

ITSI Gilbane

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI

MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: SB05A | Project #: ~~G927502~~ 07225.0002

Deployment

Date: 12/19/12 | Time (local): 1425 | Recorder: TBR

Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag. from Cage to Weight	Coordinate System:
1	122°22.4890	37°43.1886		CA State Planar; Zone3; NAD27; US Survey Ft
2	122°22.4891	37°43.1873		
3	122°22.4925	37°43.1902		

Water Depth (ft): 3.70 | Tide (ft) 4.49 | Water Depth (MLLW; ft):

Comments:

Recovery

Date: 2-6-13 | Time (local): 0945 | Recorder: TO

Water Depth (ft): 5.6' | Tide (ft) 6.31 | Water Depth (MLLW; ft):

Comments: Sample time for SB05A-3 0945, SB05A-1 0955
SB05A-2 1005

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	40	38	2	SB05A-1TS
2	40	38	2	SB05A-2TS
3	40	36	4	SB05A-3TS

Quality Control Samples

Zero Time	No. of Mollusks:	Sample ID:	Other

Comments:

Field Personnel Deployment:

Field Personnel Recovery:

ITSI Gilbane

Field Team Leader Review and Approval Teresa Ruha

Attachment #17-2 – Forms (Continued)

US NAVY HPS PARCEL F PHASE 2 RADIONUCLIDE DGI
MOLLUSK DEPLOYMENT/RETRIEVAL LOG

Station ID: SB07A | Project #: ~~G927502~~ 07225.0002

Deployment

Date: 1/3/13 | Time (local): 0945 | Recorder: TK

Cage No.	Easting (ft):	Northing (ft):	Direction of Tag Line Deg Mag. from Cage to Weight	Coordinate System:
1	122°22.6630	37°43.3541		CA State Planar; Zone3; NAD27; US Survey Ft
2	122°22.6644	37°43.3535		
3	122°22.6658	37°43.3514		

Water Depth (ft): 2.11' | Tide (ft) 2.42' | Water Depth (MLLW; ft):

Comments:

Recovery

Date: 2-6-13 | Time (local): 0845 | Recorder: TO

Water Depth (ft): 6.5 | Tide (ft) 7.13 | Water Depth (MLLW; ft):

Comments: Sample times SB07A-3 0845, SB07A-1 0910, SB07A-2 0925

Cage Deployment Information

Cage Number	No. Mollusks Deployed	No. Mollusks Recovered	No. Empty Shells	Sample ID
1	40	37	3	SB07A-1TS
2	40	38	2	SB07A-2TS
3	40	35	5	SB07A-3TS

Quality Control Samples

Zero Time	No. of Mollusks:	Sample ID:	Other

Comments:

Field Personnel Deployment:

Field Personnel Recovery:

ITSI Gilbane

Field Team Leader Review and Approval Teresa Rucha

APPENDIX A-6

Sediment Core Disposal

Hunters Point: Field Content Sheet & Transfer Document

RADWASTE COORDINATOR

Container Specifics			
1) Type:	☐ Bin ☐ 55-gallon Drum ☒ Other: Acrylic Casing	2) Container identification	BN316
3) Generator/Contractor:	☒ ITSI ☐ other		

4) Date initiated:	5) Date Completed:	6) Weight (confirmed to ITSI by TES):	7) On site location(s) staged:
2/11/13	2/11/13	30 lbs.	ITSI Hunters Point Trailer

*** History of Contents ***

	8) Work Area Origin:	9) Waste Type:	10) Volume (CY):	11) (+) or (-)	12) Sr HP Tech:
a)	Parcel F (Bay)	a) Sediment	a) 0.75 ft³	a) 0.25 ft³	✓ Kyle Gordon
b)		b)	b)	b)	
c)		c)	c)	c)	

13) Other (Specify):

RCT & HP SUP

Radiological Status of Transfer Container/Package

14) Maximum identified dose rate (exterior):	2 ☒ uR/hr ☐ mR/hr ITSI HP Tech ✓ (initials) Kyle Gordon (printed name)
15) Potential ROCs:	Ra-226, Cs-137, Sr-90, Pu-239, U-235 Other:
16) Estimated curie content:	See lab analysis data report (attached)
17) Reviewed by:	Print: Ed Palser Sign: Ed Palser Date 3/14/13 OK to relinquish? ☒ YES ☐ NO

TES

18) Radioactive contaminants (exterior surface check):	_____ dpm/100cm² alpha _____ dpm/100cm² beta /gamma
	TES HP Tech _____ (print) _____ (sign)

ITSI & TES

Completion of Container / Package Transfer

19) Relinquished by (ITSI Rep): Print & Sign	Date/Time:	20) Received by (TES Rep): Print & Sign	Date/Time: ☐ initial transfer ☐ other _____ (specify)
21) Relinquished by (2nd Attempt): Print & Sign	Date/Time:	22) Received by: Print & Sign	Date/Time: Reason for repeat of prior attempt:
23) Relinquished by (3rd Attempt): Print & Sign	Date/Time:	24) Received by: Print & Sign	Date/Time: Reason for repeat of prior attempt:

Comments: TES incoming survey performed using a Ludlum 2360 with a 43-68 probe using a Large Area Swipe (LAS) for 2 minute static count as per DOT release limits in 49 CFR 173.443 for Contamination Control.

Note: TES to furnish a copy of completed form to ITSI RSOR for inclusion in project MOU archives. (Received by: _____/_____ ITSI Project RSO initial & date

Hunters Point: Field Content Sheet & Transfer Document

RADWASTE COORDINATOR

Container Specifics			
1) Type:	☐ Bin ☐ 55-gallon Drum ☒ Other: Acrylic Casing	2) Container Identification	BN316A
3) Generator/Contractor:	☒ ITSI ☐ other		
4) Date Initiated:	5) Date Completed:	6) Weight (confirmed to ITSI by TES):	7) On site location(s) staged:
2/11/13	2/11/13	30lbs	ITSI Hunters Point Trailer

*** History of Contents ***

	8) Work Area Origin:	9) Waste Type:	10) Volume (CY):	11) (+) or (-)	12) Sr HP Tech:
a)	Parcel F (Bay)	a) Sediment	a) 0.75 ft³	a) 0.25 ft³	✓ K. Gerdou
b)		b)	b)	b)	
c)		c)	c)	c)	

13) Other (Specify):

RCT & HP SUP

Radiological Status of Transfer Container/Package

14) Maximum identified dose rate (exterior):	2 ☒ uR/hr ☐ mR/hr ITSI HP Tech ✓ (initials) Kyle Gerdou (printed name)
15) Potential ROCs:	Ra-226, Cs-137, Sr-90, Pu-239, U-235 Other:
16) Estimated curie content:	See lab analysis data report (attached)
17) Reviewed by:	Print: Ed Pelser Sign: [signature] Date 5/10/13 OK to relinquish? ☒ YES ☐ NO

TES

18) Radioactive contaminants (exterior surface check): _____ dpm/100cm² alpha _____ dpm/100cm² beta /gamma

TES HP Tech _____ (print) _____ (sign)

ITSI & TES

Completion of Container / Package Transfer

19) Relinquished by (ITSI Rep): Print & Sign	Date/Time:	20) Received by (TES Rep): Print & Sign	Date/Time: ☐ initial transfer ☐ other _____ (specify)
21) Relinquished by (2nd Attempt): Print & Sign	Date/Time:	22) Received by: Print & Sign	Date/Time: Reason for repeat of prior attempt:
23) Relinquished by (3rd Attempt): Print & Sign	Date/Time:	24) Received by: Print & Sign	Date/Time: Reason for repeat of prior attempt:

Comments: TES incoming survey performed using a Ludlum 2360 with a 43-68 probe using a Large Area Swipe (LAS) for 2 minute static count as per DOT release limits in 49 CFR 173.443 for Contamination Control.

Note: TES to furnish a copy of completed form to ITSI RSOR for inclusion in project MOU archives. (Received by: _____/_____ ITSI Project RSO initial & date

Hunters Point: Field Content Sheet & Transfer Document

RADWASTE COORDINATOR

Container Specifics			
1) Type:	☐ Bin ☐ 55-gallon Drum ☐ Other: [illegible]	2) Container Identification	BN316
3) Generator/Contractor:	☒ ITSI ☐ other _____		
4) Date Initiated: 2/11/13	5) Date Completed: 2/11/13	6) Weight (confirmed to ITSI by TES): 30 lbs.	7) On site location(s) staged: ITSI Hunters Point Trailer

*** History of Contents ***

8) Work Area Origin:	9) Waste Type:	10) Volume (CY):	11) (+) or (-)	12) Sr HP Tech:
a) Parcel F (Bay)	a) Sediment	a) 0.75 ft³	a) 0.25 ft³	[illegible]
b)	b)	b)	b)	
c)	c)	c)	c)	

13) Other (Specify):

RCT & HP SUP

Radiological Status of Transfer Container/Package

14) Maximum identified dose rate (exterior):	5 ☒ uR/hr ☐ mR/hr ITSI HP Tech [illegible] (initials) [illegible] (printed name)
15) Potential ROCs:	Cs-137, Pu-239, U-235
16) Estimated curie content:	See lab analysis data report (attached)
17) Reviewed by:	Print Ed Pelser Sign: [illegible] Date 5/10/13 Ok to relinquish? ☒ YES ☐ NO

TES

18) Radioactive contaminants (exterior surface check):	<2220 dpm/100cm² alpha <2200 dpm/100cm² beta/gamma 5 uR/hr ~~.5~~ [illegible] 6/25/13
	TES HP Tech [illegible] (print) [illegible] (sign)

ITSI & TES

Completion of Container / Package Transfer

19) Relinquished by (ITSI Rep) Print & Sign: Tony Poon [illegible] 1540	Date/Time: 6/25/13	20) Received by (TES Rep): Print & Sign: Jeremy Wheatley [illegible]	Date/Time: ☒ initial transfer ☐ other _____ (specify) 6/25/13 1540
21) Relinquished by (2nd Attempt): Print & Sign	Date/Time:	22) Received by: Print & Sign	Date/Time: Reason for repeat of prior attempt:
23) Relinquished by (3rd Attempt): Print & Sign	Date/Time:	24) Received by: Print & Sign	Date/Time: Reason for repeat of prior attempt:

Comments: TES incoming survey performed using a Ludlum 2360 with a 43-89 probe using a Large Area Swipe (LAS) for 2 minute static count as per DOT release limits in 49 CFR 173 443 for Contamination Control

Note: TES to furnish a copy of completed form to ITSI RSOR for inclusion in project MOU archives. (Received by: _____/_____ ITSI Project RSO Initial & date

Hunters Point: Field Content Sheet & Transfer Document

RADWASTE COORDINATOR

Container Specifics			
1) Type:	☐ Bin ☐ 55-gallon Drum ☐ Other: [illegible]	2) Container Identification	[illegible]
3) Generator/Contractor:	☒ ITSI ☐ other		
4) Date Initiated:	5) Date Completed:	6) Weight (confirmed to ITSI by TES):	7) On site location(s) staged:
2/11/13	[illegible]	301 bu	ITSI Hunters Point Trailer

*** History of Contents ***

8) Work Area Origin:	9) Waste Type:	10) Volume (CY):	11) (+) or (-)	12) Sr HP Tech:
a) Parcel F (Bay)	a) Sediment	a) 0.75 ft³	a) 0.25 ft³	[illegible]
b)	b)	b)	b)	
c)	c)	c)	c)	

13) Other (Specify)

RCT & HP SUP

Radiological Status of Transfer Container/Package

14) Maximum identified dose rate (exterior):	5 ☒ uR/hr ☐ mR/hr ITSI HP Tech [illegible] (initials) [illegible] (printed name)
15) Potential ROCs:	Cs-137, Pu-239, U-235
16) Estimated curie content:	See lab analysis data report (attached)
17) Reviewed by:	Print: [illegible] Sign: [illegible] Date: 6/10/13 Ok to relinquish? ☒ YES ☐ NO

TES

18) Radioactive contaminants (exterior surface check):	<220 dpm/100cm² alpha <2200 dpm/100cm² beta/gamma 5 mR/hr. TES HP Tech [illegible] (print) [illegible] (sign)

ITSI & TES

Completion of Container / Package Transfer

19) Relinquished by (ITSI Rep): Print & Sign Tony Pom [illegible]	Date/Time: 6/25/13 1540	20) Received by (TES Rep): Print & Sign Jeremy Whatley [illegible]	Date/Time: 6/25/13 340 ☒ initial transfer ☐ other: _____ (specify)
21) Relinquished by (2nd Attempt): Print & Sign	Date/Time:	22) Received by: Print & Sign	Date/Time: Reason for repeat of prior attempt:
23) Relinquished by (3rd Attempt): Print & Sign	Date/Time:	24) Received by: Print & Sign	Date/Time: Reason for repeat of prior attempt:

Comments: TES incoming survey performed using a Ludlum 2360 with a 43-89 probe using a Large Area Swipe (LAS) for 2 minute static count as per DOT release limits in 49 CFR 173 443 for Contamination Control

Note: TES to furnish a copy of completed form to ITSI RSOR for inclusion in project MOU archives. (Received by: _____ / _____ ITSI Project RSO initial & date

APPENDIX A-7

Radiological Field Documentation

Survey Data Sheet

Tech / Date: 1/11/13 RSO / Date: 1/11/13

Survey No.:	7225.0002-001
Date:	13-Dec-12
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	mobile Mini #AS40RYU0517
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-12		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	See Attached	1	-1	125	-810	N/A	N/A	N/A	N/A
2	See Attached	0	-11	162	-433	N/A	N/A	N/A	N/A
3	See Attached	8	64	263	598	N/A	N/A	N/A	N/A
4	See Attached	0	-11	215	108	N/A	N/A	N/A	N/A
5	See Attached	4	27	218	139	N/A	N/A	N/A	N/A
6	See Attached	4	27	231	271	N/A	N/A	N/A	N/A
7	See Attached	2	8	196	-86	N/A	N/A	N/A	N/A
8	See Attached	1	-1	241	373	N/A	N/A	N/A	N/A
9	See Attached	3	17	212	78	N/A	N/A	N/A	N/A
10	See Attached	1	-1	233	292	N/A	N/A	N/A	N/A
11	See Attached	0	-11	214	98	N/A	N/A	N/A	N/A
12	See Attached	1	-1	211	67	N/A	N/A	N/A	N/A
13	See Attached	1	-1	202	-24	N/A	N/A	N/A	N/A
14	See Attached	3	17	239	353	N/A	N/A	N/A	N/A
15	See Attached	2	8	152	-535	N/A	N/A	N/A	N/A
16	See Attached	2	8	141	-647	N/A	N/A	N/A	N/A
17	See Attached	2	8	114	-922	N/A	N/A	N/A	N/A
18	See Attached	5	36	119	-871	N/A	N/A	N/A	N/A
19	See Attached	4	27	135	-708	N/A	N/A	N/A	N/A
20	See Attached	4	27	127	-790	N/A	N/A	N/A	N/A
21	See Attached	2	8	146	-596	N/A	N/A	N/A	N/A
22	See Attached	3	17	158	-473	N/A	N/A	N/A	N/A
23	See Attached	5	36	146	-596	N/A	N/A	N/A	N/A
24	See Attached	5	36	140	-657	N/A	N/A	N/A	N/A
25	See Attached	4	27	164	-412	N/A	N/A	N/A	N/A
26	See Attached	4	27	123	-831	N/A	N/A	N/A	N/A
27	See Attached	1	-1	152	-535	N/A	N/A	N/A	N/A
28	See Attached	4	27	180	-249	N/A	N/A	N/A	N/A
29	See Attached	4	27	147	-586	N/A	N/A	N/A	N/A
30	See Attached	2	8	178	-269	N/A	N/A	N/A	N/A
31	See Attached	1	-1	184	-208	N/A	N/A	N/A	N/A
32	See Attached	0	-11	189	-157	N/A	N/A	N/A	N/A
33	See Attached	0	-11	198	-65	N/A	N/A	N/A	N/A
34	See Attached	5	36	148	-576	N/A	N/A	N/A	N/A
35	See Attached	3	17	175	-300	N/A	N/A	N/A	N/A
36	See Attached	3	17	144	-616	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/11/13 RSO / Date: 1/11/13

Survey No.:	7225.0002-001
Date:	13-Dec-12
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	mobile Mini #AS40RYU0517
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

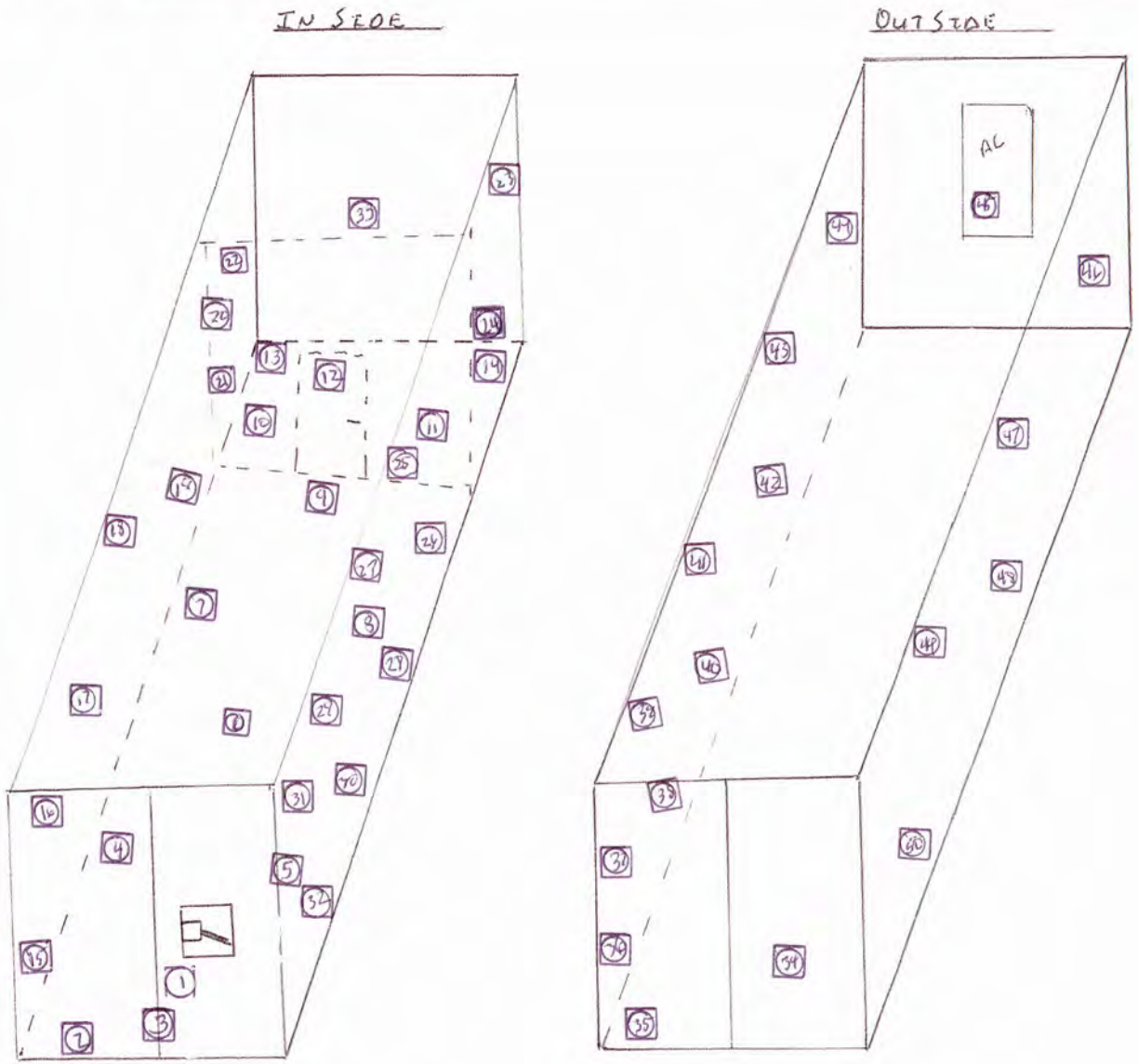
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-12		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	See Attached	8	64	139	-667	N/A	N/A	N/A	N/A
38	See Attached	4	27	212	78	N/A	N/A	N/A	N/A
39	See Attached	5	36	155	-504	N/A	N/A	N/A	N/A
40	See Attached	4	27	145	-606	N/A	N/A	N/A	N/A
41	See Attached	4	27	199	-55	N/A	N/A	N/A	N/A
42	See Attached	6	45	147	-586	N/A	N/A	N/A	N/A
43	See Attached	6	45	148	-576	N/A	N/A	N/A	N/A
44	See Attached	4	27	155	-504	N/A	N/A	N/A	N/A
45	See Attached	3	17	148	-576	N/A	N/A	N/A	N/A
46	See Attached	4	27	126	-800	N/A	N/A	N/A	N/A
47	See Attached	4	27	128	-780	N/A	N/A	N/A	N/A
48	See Attached	6	45	196	-86	N/A	N/A	N/A	N/A
49	See Attached	6	45	149	-565	N/A	N/A	N/A	N/A
50	See Attached	2	8	177	-280	N/A	N/A	N/A	N/A
51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Ir mation Sheet



Comments:

General Information

Survey No.: 7225.0002-001 **Building Number:** N/A

Date: 13-Dec-12 **Survey Tech.:** K.Gordon

= Exposure Rate Reading (in µR/hr)

/ # / # = contact/ 1 ft / 3 ft readings (in µR/hr)

(#) = Smear Location ☐ = DIRECT LOCATION

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/11/2013 11:01:35 AM

Survey ID: 7225.0002-001

Alpha MDA 17 DPM

ALPHA BKGD = 0.10
ALPHA EFF. = 25.90%
ALPHA F = 1.00
Count Time = 1.00 min

Beta MDA = 18 DPM

BETA BKGD = 2.50
BETA EFF. = 58.40%
BETA F = 1.00
BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	0.000	-0.386	-4.281
2	2	Sample 2	0.000	1.000	-0.386	-2.568
3	3	Sample 3	0.000	4.000	-0.386	2.568
4	4	Sample 4	0.000	2.000	-0.386	-0.856
5	5	Sample 5	0.000	2.000	-0.386	-0.856
6	6	Sample 6	0.000	3.000	-0.386	0.856
7	7	Sample 7	0.000	0.000	-0.386	-4.281
8	8	Sample 8	0.000	1.000	-0.386	-2.568
9	9	Sample 9	0.000	0.000	-0.386	-4.281
10	10	Sample 10	1.000	3.000	3.475	0.856
11	11	Sample 11	0.000	0.000	-0.386	-4.281
12	12	Sample 12	0.000	2.000	-0.386	-0.856
13	13	Sample 13	0.000	1.000	-0.386	-2.568
14	14	Sample 14	0.000	1.000	-0.386	-2.568
15	15	Sample 15	0.000	3.000	-0.386	0.856
16	16	Sample 16	0.000	1.000	-0.386	-2.568
17	17	Sample 17	0.000	3.000	-0.386	0.856
18	18	Sample 18	0.000	3.000	-0.386	0.856
19	19	Sample 19	0.000	2.000	-0.386	-0.856
20	20	Sample 20	0.000	2.000	-0.386	-0.856
21	21	Sample 21	0.000	0.000	-0.386	-4.281
22	22	Sample 22	0.000	0.000	-0.386	-4.281
23	23	Sample 23	0.000	6.000	-0.386	5.993
24	24	Sample 24	0.000	0.000	-0.386	-4.281
25	25	Sample 25	0.000	1.000	-0.386	-2.568
26	26	Sample 26	0.000	1.000	-0.386	-2.568
27	27	Sample 27	0.000	2.000	-0.386	-0.856
28	28	Sample 28	0.000	5.000	-0.386	4.281
29	29	Sample 29	0.000	2.000	-0.386	-0.856
30	30	Sample 30	0.000	3.000	-0.386	0.856
31	31	Sample 31	0.000	7.000	-0.386	7.705
32	32	Sample 32	0.000	5.000	-0.386	4.281
33	33	Sample 33	0.000	7.000	-0.386	7.705
34	34	Sample 34	0.000	4.000	-0.386	2.568
35	35	Sample 35	0.000	0.000	-0.386	-4.281
36	36	Sample 36	0.000	0.000	-0.386	-4.281
37	37	Sample 37	0.000	3.000	-0.386	0.856
38	38	Sample 38	0.000	0.000	-0.386	-4.281
39	39	Sample 39	0.000	1.000	-0.386	-2.568
40	40	Sample 40	0.000	0.000	-0.386	-4.281
41	41	Sample 41	0.000	5.000	-0.386	4.281
42	42	Sample 42	0.000	1.000	-0.386	-2.568
43	43	Sample 43	0.000	1.000	-0.386	-2.568
44	44	Sample 44	0.000	1.000	-0.386	-2.568
45	45	Sample 45	0.000	2.000	-0.386	-0.856
46	46	Sample 46	0.000	3.000	-0.386	0.856
47	47	Sample 47	0.000	3.000	-0.386	0.856
48	48	Sample 48	0.000	2.000	-0.386	-0.856
49	49	Sample 49	1.000	0.000	3.475	-4.281
50	50	Sample 50	0.000	1.000	-0.386	-2.568

Counted By: _____ Reviewed By: _____ Date: 1/11/13

Survey Data Sheet

Tech / Date: 1/10/13 RSO / Date: 1/10/13

Survey No.:	7225.0002-002
Date:	13-Dec-12
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #001-006
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 001 I/S	1	-1	214	98	N/A	N/A	N/A	N/A
2	Cooler - 001 O/S	2	8	203	-14	N/A	N/A	N/A	N/A
3	Cooler - 002 I/S	3	17	206	16	N/A	N/A	N/A	N/A
4	Cooler - 002 O/S	2	8	165	-402	N/A	N/A	N/A	N/A
5	Cooler - 003 I/S	2	8	224	200	N/A	N/A	N/A	N/A
6	Cooler - 003 O/S	2	8	208	37	N/A	N/A	N/A	N/A
7	Cooler - 004 I/S	1	-1	166	-392	N/A	N/A	N/A	N/A
8	Cooler - 004 O/S	4	27	200	-45	N/A	N/A	N/A	N/A
9	Cooler- 005 I/S	1	-1	199	-55	N/A	N/A	N/A	N/A
10	Cooler - 005 O/S	1	-1	220	159	N/A	N/A	N/A	N/A
11	Cooler - 006 I/S	3	17	156	-494	N/A	N/A	N/A	N/A
12	Cooler - 006 O/S	2	8	192	-127	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/10/2013 2:18:37 PM

Survey ID: 7225.0002-002

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 001 I/S	0.000	3.000	-0.386	0.856
2	2	Cooler - 001 O/S	0.000	6.000	-0.386	5.993
3	3	Cooler - 002 I/S	0.000	3.000	-0.386	0.856
4	4	Cooler - 002 O/S	0.000	4.000	-0.386	2.568
5	5	Cooler - 003 I/S	0.000	0.000	-0.386	-4.281
6	6	Cooler - 003 O/S	1.000	0.000	3.475	-4.281
7	7	Cooler - 004 I/S	0.000	0.000	-0.386	-4.281
8	8	Cooler - 004 O/S	2.000	3.000	7.336	0.856
9	9	Cooler - 005 I/S	0.000	2.000	-0.386	-0.856
10	10	Cooler - 005 O/S	0.000	3.000	-0.386	0.856
11	11	Cooler - 006 I/S	0.000	2.000	-0.386	-0.856
12	12	Cooler - 006 O/S	0.000	4.000	-0.386	2.568

Counted By: _____ Reviewed By: _____ Date: 1/10/13

Survey Data Sheet

Tech / Date: 1/11/13 RSO / Date: 1/11/13

Survey No.:	7225.0002-003
Date:	17-Dec-12
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	See Attached	2	8	157	-484	N/A	N/A	N/A	N/A
2	See Attached	0	-11	151	-545	N/A	N/A	N/A	N/A
3	See Attached	0	-11	149	-565	N/A	N/A	N/A	N/A
4	See Attached	3	17	157	-484	N/A	N/A	N/A	N/A
5	See Attached	4	27	174	-310	N/A	N/A	N/A	N/A
6	See Attached	1	-1	183	-218	N/A	N/A	N/A	N/A
7	See Attached	3	17	156	-494	N/A	N/A	N/A	N/A
8	See Attached	2	8	153	-524	N/A	N/A	N/A	N/A
9	See Attached	4	27	143	-627	N/A	N/A	N/A	N/A
10	See Attached	1	-1	99	-1,076	N/A	N/A	N/A	N/A
11	See Attached	1	-1	162	-433	N/A	N/A	N/A	N/A
12	See Attached	1	-1	183	-218	N/A	N/A	N/A	N/A
13	See Attached	2	8	151	-545	N/A	N/A	N/A	N/A
14	See Attached	1	-1	150	-555	N/A	N/A	N/A	N/A
15	See Attached	4	27	100	-1,065	N/A	N/A	N/A	N/A
16	See Attached	0	-11	156	-494	N/A	N/A	N/A	N/A
17	See Attached	4	27	138	-678	N/A	N/A	N/A	N/A
18	See Attached	6	45	155	-504	N/A	N/A	N/A	N/A
19	See Attached	4	27	135	-708	N/A	N/A	N/A	N/A
20	See Attached	0	-11	166	-392	N/A	N/A	N/A	N/A
21	See Attached	1	-1	167	-382	N/A	N/A	N/A	N/A
22	See Attached	6	45	176	-290	N/A	N/A	N/A	N/A
23	See Attached	8	64	178	-269	N/A	N/A	N/A	N/A
24	See Attached	8	64	104	-1,024	N/A	N/A	N/A	N/A
25	See Attached	4	27	170	-351	N/A	N/A	N/A	N/A
26	See Attached	3	17	112	-943	N/A	N/A	N/A	N/A
27	See Attached	4	27	189	-157	N/A	N/A	N/A	N/A
28	See Attached	2	8	134	-718	N/A	N/A	N/A	N/A
29	See Attached	7	55	91	-1,157	N/A	N/A	N/A	N/A
30	See Attached	5	36	113	-933	N/A	N/A	N/A	N/A
31	See Attached	2	8	90	-1,167	N/A	N/A	N/A	N/A
32	See Attached	1	-1	88	-1,188	N/A	N/A	N/A	N/A
33	See Attached	5	36	135	-708	N/A	N/A	N/A	N/A
34	See Attached	2	8	158	-473	N/A	N/A	N/A	N/A
35	See Attached	0	-11	134	-718	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/11/13 RSO / Date: 1/11/13

Survey No.:	7225.0002-003
Date:	17-Dec-12
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/11/2013 10:01:17 AM

Survey ID: 7225.0002-003

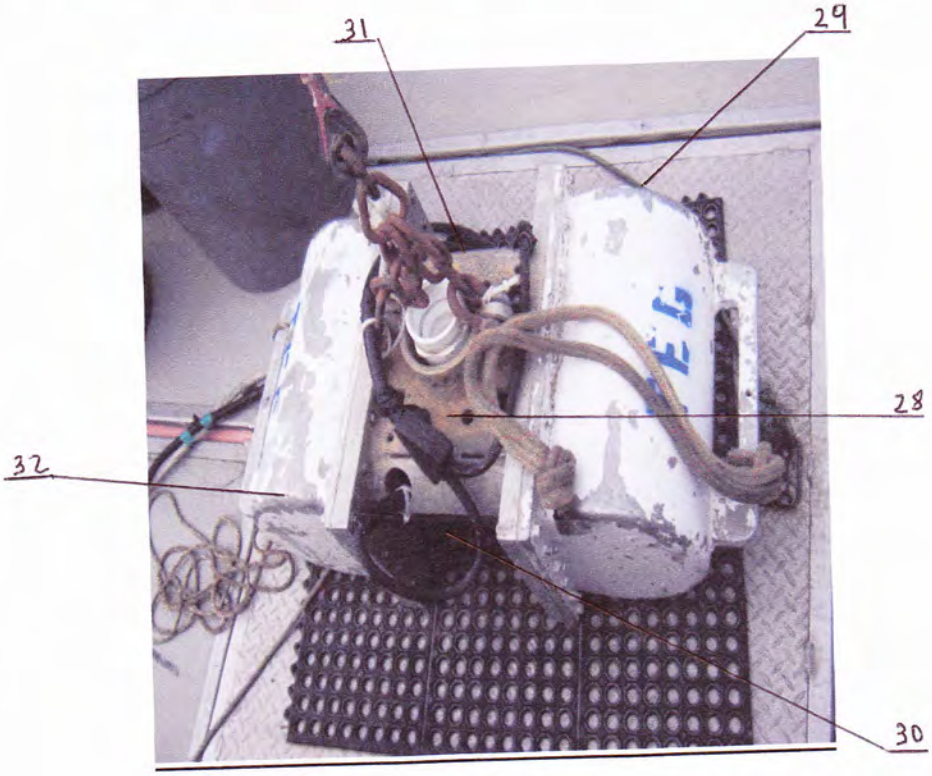
Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

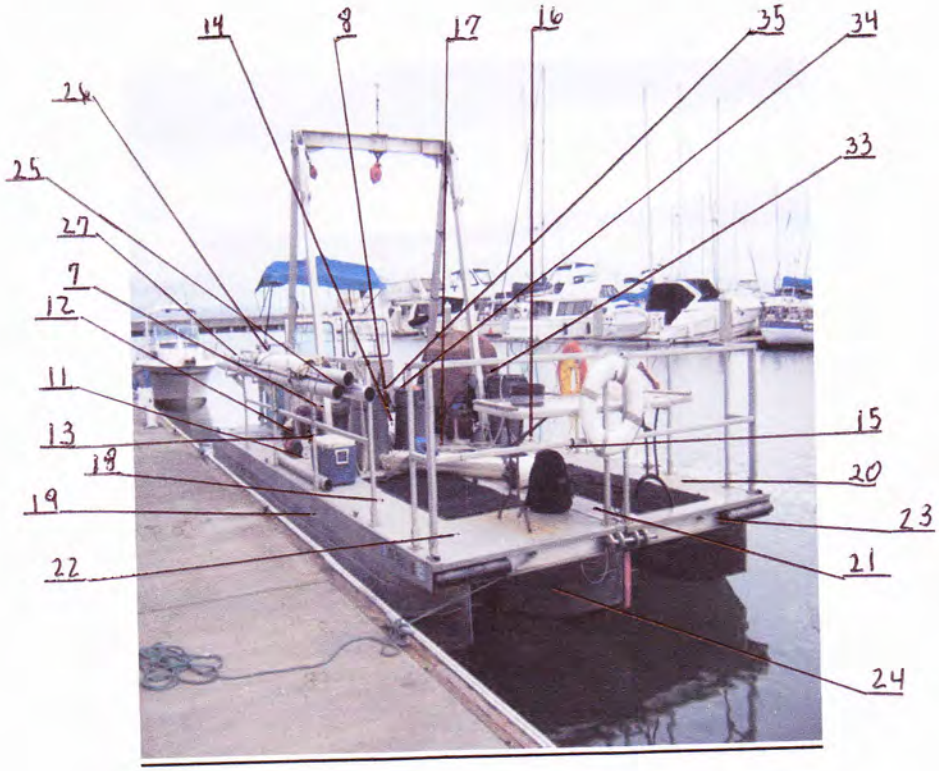
SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	1.000	-0.386	-2.568
2	2	Sample 2	0.000	5.000	-0.386	4.281
3	3	Sample 3	0.000	2.000	-0.386	-0.856
4	4	Sample 4	1.000	1.000	3.475	-2.568
5	5	Sample 5	0.000	0.000	-0.386	-4.281
6	6	Sample 6	0.000	0.000	-0.386	-4.281
7	7	Sample 7	0.000	4.000	-0.386	2.568
8	8	Sample 8	0.000	0.000	-0.386	-4.281
9	9	Sample 9	0.000	0.000	-0.386	-4.281
10	10	Sample 10	0.000	2.000	-0.386	-0.856
11	11	Sample 11	0.000	1.000	-0.386	-2.568
12	12	Sample 12	0.000	4.000	-0.386	2.568
13	13	Sample 13	1.000	3.000	3.475	0.856
14	14	Sample 14	0.000	1.000	-0.386	-2.568
15	15	Sample 15	0.000	0.000	-0.386	-4.281
16	16	Sample 16	0.000	3.000	-0.386	0.856
17	17	Sample 17	0.000	1.000	-0.386	-2.568
18	18	Sample 18	0.000	5.000	-0.386	4.281
19	19	Sample 19	1.000	3.000	3.475	0.856
20	20	Sample 20	0.000	1.000	-0.386	-2.568
21	21	Sample 21	0.000	2.000	-0.386	-0.856
22	22	Sample 22	0.000	4.000	-0.386	2.568
23	23	Sample 23	0.000	2.000	-0.386	-0.856
24	24	Sample 24	0.000	0.000	-0.386	-4.281
25	25	Sample 25	0.000	2.000	-0.386	-0.856
26	26	Sample 26	0.000	3.000	-0.386	0.856
27	27	Sample 27	0.000	0.000	-0.386	-4.281
28	28	Sample 28	0.000	1.000	-0.386	-2.568
29	29	Sample 29	0.000	0.000	-0.386	-4.281
30	30	Sample 30	0.000	1.000	-0.386	-2.568
31	31	Sample 31	0.000	2.000	-0.386	-0.856
32	32	Sample 32	0.000	0.000	-0.386	-4.281
33	33	Sample 33	0.000	1.000	-0.386	-2.568
34	34	Sample 34	0.000	1.000	-0.386	-2.568
35	35	Sample 35	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 1/11/13

Survey 07225.0002-003 TEG Boat CF 1059 UB



Survey 07225.0002-003 TEG Boat CF 1059 UB



Survey Data Sheet

Tech / Date: 1/10/13 RSO / Date: 1/10/13

Survey No.:	7225.0002-004	**Item Surveyed:**	Mini Ponar 008890 and Pipe dredge
Date:	17-Dec-12	**Contaminant/Limits:**	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Building Number:	N/A	**Comments:**	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta
Survey Tech.:	K.Gordon		
Count Rm. Tech.:	C.Bryson		
Survey Type:	incoming		

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Inside Pipe Dredege	5	36	130	-759	N/A	N/A	N/A	N/A
2	Side Pipe Dredge	1	-1	180	-249	N/A	N/A	N/A	N/A
3	Bottom Pipe Dredge	3	17	182	-229	N/A	N/A	N/A	N/A
4	Top Mini Ponar	2	8	191	-137	N/A	N/A	N/A	N/A
5	Bottom Mini Ponar	1	-1	176	-290	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/10/2013 2:02:02 PM

Survey ID: 7225.0002-004

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	0.000	-0.386	-4.281
2	2	Sample 2	0.000	2.000	-0.386	-0.856
3	3	Sample 3	0.000	3.000	-0.386	0.856
4	4	Sample 4	0.000	4.000	-0.386	2.568
5	5	Sample 5	0.000	0.000	-0.386	-4.281

Counted By: _____ Reviewed By: _____ Date: 1/10/13

Survey Data Sheet

Tech / Date: 12/19/12 RSO / Date: 12/19/12

Survey No.:	7225.0002-005
Date:	19-Dec-12
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	PR 157821	PR 157821
Instrument / SN:	184930	184930	157320	157320
Inst. Set-Up Date:	3-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Oct-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	1.15	204.4	0.18	40
Efficiency:	0.107	0.098	0.172	0.091
MDA (dpm):	75	707	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	starboard side moon pool	1	-1	145	-606	0	-1	159	-7
2	bow side moon pool	2	8	164	-412	0	-1	153	-24
3	moon pool cover	1	-1	137	-688	0	-1	192	83
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/10/13 RSO / Date: 1/10/13

Survey No.:	7225.0002-006
Date:	19-Dec-12
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Sample #'s SB02A-VV and SB05A-VV
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SB02A-VV	(Gamma Bkg 950)	N/A	N/A	1,187	237	N/A	N/A	N/A	N/A
2	SB05A-VV	(Gamma Bkg 1410)	N/A	N/A	1,585	175	N/A	N/A	N/A	N/A
3	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/10/2013 1:57:33 PM

Survey ID: 7225.0002-006

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SB02A-VV	0.000	2.000	-0.386	-0.856
2	2	SB05A-VV	0.000	4.000	-0.386	2.568

Counted By: _____ Reviewed By: _____ Date: 1/10/13

Survey Data Sheet

Tech / Date: 1/10/13 RSO / Date: 1/10/13

Survey No.:	7225.0002-007
Date:	03-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Sample #'s SB07A-VV, BS09A-VV, and BN11A-VV
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SB07A-VV Jar 1	(Gamma Bkg 1478)	N/A	N/A	1,624	146	N/A	N/A	N/A	N/A
2	SB07A-VV Jar 2	(Gamma Bkg 1478)	N/A	N/A	1,722	244	N/A	N/A	N/A	N/A
3	SB07A-VV Jar 3	(Gamma Bkg 1478)	N/A	N/A	1,853	375	N/A	N/A	N/A	N/A
4	BS09A-VV Jar 1	(Gamma Bkg 1951)	N/A	N/A	2,133	182	N/A	N/A	N/A	N/A
5	BS09A-VV Jar2	(Gamma Bkg 1951)	N/A	N/A	2,186	235	N/A	N/A	N/A	N/A
6	BS09A-VV Jar3	(Gamma Bkg 1951)	N/A	N/A	2,180	229	N/A	N/A	N/A	N/A
7	BN11A-VV Jar 1	(Gamma Bkg 1841)	N/A	N/A	1,974	133	N/A	N/A	N/A	N/A
8	BN11A-VV Jar2	(Gamma Bkg 1841)	N/A	N/A	1,966	125	N/A	N/A	N/A	N/A
9	BN11A-VV Jar3	(Gamma Bkg 1841)	N/A	N/A	2,061	220	N/A	N/A	N/A	N/A
10	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/10/2013 3:13:10 PM

Survey ID: 7225.0002-007

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SB07A-VV Jar 1	0.000	2.000	-0.386	-0.856
2	2	SB07A-VV Jar 2	0.000	5.000	-0.386	4.281
3	3	SB07A-VV Jar 3	0.000	1.000	-0.386	-2.568
4	4	BS09A-VV Jar 1	0.000	0.000	-0.386	-4.281
5	5	BS09A-VV Jar 2	0.000	1.000	-0.386	-2.568
6	6	BS09A-VV Jar 3	0.000	4.000	-0.386	2.568
7	7	BN11A-VV Jar 1	0.000	0.000	-0.386	-4.281
8	8	BN11A-VV Jar 2	0.000	2.000	-0.386	-0.856
9	9	BN11A-VV Jar 3	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 1/10/13

Survey Data Sheet

Tech / Date: 1/3/13 RSO / Date: 1/3/13

Survey No.:	7225.0002-008
Date:	03-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	PR 157821	PR 157821
Instrument / SN:	184930	184930	157320	157320
Inst. Set-Up Date:	3-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Oct-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	1.15	204.4	0.18	40
Efficiency:	0.107	0.098	0.172	0.091
MDA (dpm):	75	707	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	4	27	198	-65	1	0	156	-16
2	port side moon pool	4	27	166	-392	0	-1	220	160
3	starboard side moon pool	1	-1	165	-402	1	0	166	12
4	pipe dredge	1	-1	183	-218	0	-1	172	28
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/3/13 RSO / Date: 1/3/13

Survey No.:	7225.0002-009
Date:	03-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	Pacific Eco Risk gear
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	PR 157821	PR 157821
Instrument / SN:	184930	184930	157320	157320
Inst. Set-Up Date:	3-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Oct-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	1.15	204.4	0.18	40
Efficiency:	0.107	0.098	0.172	0.091
MDA (dpm):	75	707	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	rain coat	2	8	156	-494	2	2	165	9
2	overall	4	27	148	-576	2	2	216	149
3	pfd	4	27	111	-953	0	-1	159	-7
4	knee pad	5	36	179	-259	0	-1	145	-46
5	kneepad	1	-1	156	-494	0	-1	175	36
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/3/13 RSO / Date: 1/3/13

Survey No.:	7225.0002-010
Date:	03-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	PR 157821	PR 157821
Instrument / SN:	184930	184930	157320	157320
Inst. Set-Up Date:	3-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Oct-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	1.15	204.4	0.18	40
Efficiency:	0.107	0.098	0.172	0.091
MDA (dpm):	75	707	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	2	8	148	-576	0	-1	167	15
2	port side moon pool	6	45	177	-280	0	-1	142	-54
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/4/13 RSO / Date: 1/4/13

Survey No.:	7225.0002-011
Date:	04-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR179868	PR 157821	PR 157821
Instrument / SN:	275772	184930	157320	157320
Inst. Set-Up Date:	11-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	2	15	157	116	0	-1	194	89
2	starborard side moon pool	1	4	113	-531	2	2	167	15
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/10/13 RSO / Date: 1/10/13

Survey No.:	7225.0002-012
Date:	04-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Item Surveyed:	Sample #s: BN221-1, BN222-1, and BN223-1
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BN221-1 Jar 1	(Gamma Bkg 2254)	N/A	N/A	1,999	-225	N/A	N/A	N/A	N/A
2	BN221-1 Jar 2	(Gamma Bkg 2254)	N/A	N/A	2,165	-89	N/A	N/A	N/A	N/A
3	BN221-1 Jar 3	(Gamma Bkg 2254)	N/A	N/A	2,234	-20	N/A	N/A	N/A	N/A
4	BN222-1 Jar 1	(Gamma Bkg 2196)	N/A	N/A	2,120	-76	N/A	N/A	N/A	N/A
5	BN222-1 Jar 2	(Gamma Bkg 2196)	N/A	N/A	2,248	52	N/A	N/A	N/A	N/A
6	BN222-1 Jar 3	(Gamma Bkg 2196)	N/A	N/A	2,191	0	N/A	N/A	N/A	N/A
7	BN222-1 Jar 4	(Gamma Bkg 2196)	N/A	N/A	2,333	137	N/A	N/A	N/A	N/A
8	BN222-1 Jar 5	(Gamma Bkg 2196)	N/A	N/A	2,409	213	N/A	N/A	N/A	N/A
9	BN222-1 Jar 6	(Gamma Bkg 2196)	N/A	N/A	2,182	-14	N/A	N/A	N/A	N/A
10	BN222-1 Jar 7	(Gamma Bkg 2196)	N/A	N/A	2,306	110	N/A	N/A	N/A	N/A
11	BN222-1 Jar 8	(Gamma Bkg 2196)	N/A	N/A	2,268	72	N/A	N/A	N/A	N/A
12	BN222-1 Jar 9	(Gamma Bkg 2196)	N/A	N/A	2,618	422	N/A	N/A	N/A	N/A
13	BN223-1 Jar 1	(Gamma Bkg 2150)	N/A	N/A	1,878	-272	N/A	N/A	N/A	N/A
14	BN223-1 Jar 2	(Gamma Bkg 2150)	N/A	N/A	1,847	-303	N/A	N/A	N/A	N/A
15	BN223-1 Jar 3	(Gamma Bkg 2150)	N/A	N/A	3,172	1,022	N/A	N/A	N/A	N/A
16	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/10/2013 1:29:43 PM

Survey ID: 7225.0002-012

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BN221-1 Jar 1	0.000	2.000	-0.386	-0.856
2	2	BN221-1 Jar 2	0.000	0.000	-0.386	-4.281
3	3	BN221-1 Jar 3	0.000	4.000	-0.386	2.568
4	4	BN222-1 Jar 1	1.000	2.000	3.475	-0.856
5	5	BN222-1 Jar 2	1.000	3.000	3.475	0.856
6	6	BN222-1 Jar 3	1.000	3.000	3.475	0.856
7	7	BN222-1 Jar 4	0.000	3.000	-0.386	0.856
8	8	BN222-1 Jar 5	0.000	3.000	-0.386	0.856
9	9	BN222-1 Jar 6	0.000	3.000	-0.386	0.856
10	10	BN222-1 Jar 7	0.000	1.000	-0.386	-2.568
11	11	BN222-1 Jar 8	0.000	3.000	-0.386	0.856
12	12	BN222-1 Jar 9	0.000	2.000	-0.386	-0.856
13	13	BN223-1 Jar 1	0.000	2.000	-0.386	-0.856
14	14	BN223-1 Jar 2	0.000	2.000	-0.386	-0.856
15	15	BN223-1 Jar 3	0.000	3.000	-0.386	0.856

Counted By: _____ Reviewed By: _____ Date: 1/10/13

Survey Data Sheet

Tech / Date: 1/4/13 RSO / Date: 1/4/13

Survey No.:	7225.0002-013
Date:	04-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299677	PR299677	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-13	11-Dec-13	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.68	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	starboard side moon pool	0	-6	142	-10	2	2	173	31
2	bow side moon pool	1	4	148	-2	1	0	169	20
3	moon pool cover	4	35	98	-75	1	0	168	17
4	pipe dredge	0	-6	105	-65	0	-1	150	-32
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/10/13 RSO / Date: 1/10/13

Survey No.:	7225.0002-014
Date:	04-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	ITSI Dock
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299677	PR299677	Protean	Protean
Instrument / SN:	275772	275772	See file	See file
Inst. Set-Up Date:	12./11/12	12./11/12		
Cal. Due Date:	4-Dec-13	4-Dec-13		
Bkgd (cpm)	0.6	149.1		
Efficiency:	0.096	0.68		
MDA (dpm):	69	874		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Northeast Corner Dock	0	-6	116	-49	N/A	N/A	N/A	N/A
2	Southeast Corner Dock	3	25	122	-40	N/A	N/A	N/A	N/A
3	Southwest Corner Dock	4	35	121	-41	N/A	N/A	N/A	N/A
4	Gangway Bottom	3	25	116	-49	N/A	N/A	N/A	N/A
5	Gangway Top	1	4	188	57	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/10/2013 3:04:52 PM

Survey ID: 7225.0002-014

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	1.000	-0.386	-2.568
2	2	Sample 2	0.000	2.000	-0.386	-0.856
3	3	Sample 3	0.000	1.000	-0.386	-2.568
4	4	Sample 4	0.000	4.000	-0.386	2.568
5	5	Sample 5	1.000	4.000	3.475	2.568

Counted By: _____ Reviewed By: _____ Date: 1/10/13

Survey Data Sheet

Tech / Date: 1/10/13 RSO / Date: 1/10/13

Survey No.:	7225.0002-015
Date:	04-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	Mobile Mini # A540RYU0517
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299677	PR299677	Protean	Protean
Instrument / SN:	275772	275772	See file	See file
Inst. Set-Up Date:	12./11/12	12./11/12		
Cal. Due Date:	4-Dec-13	4-Dec-13		
Bkgd (cpm)	0.6	149.1		
Efficiency:	0.096	0.68		
MDA (dpm):	69	874		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Storage area floor	0	-6	163	20	N/A	N/A	N/A	N/A
2	Storage area floor	2	15	143	-9	N/A	N/A	N/A	N/A
3	Office area floor	2	15	165	23	N/A	N/A	N/A	N/A
4	Office area floor	2	15	130	-28	N/A	N/A	N/A	N/A
5	Instrument table	6	56	160	16	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/10/2013 2:44:27 PM

Survey ID: 7225.0002-015

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	1.000	-0.386	-2.568
2	2	Sample 2	0.000	2.000	-0.386	-0.856
3	3	Sample 3	0.000	1.000	-0.386	-2.568
4	4	Sample 4	0.000	4.000	-0.386	2.568
5	5	Sample 5	1.000	4.000	3.475	2.568

Counted By: _____ Reviewed By: _____ Date: 1/10/13

Survey Data Sheet

Tech / Date: 1/7/13 RSO / Date: 1/7/13

Survey No.:	7225.0002-016
Date:	07-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR179868	PR 157821	PR 157821
Instrument / SN:	275772	184930	157320	157320
Inst. Set-Up Date:	11-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	3	25	150	13	1	0	170	23
2	port side moon pool	1	4	97	-766	0	-1	156	-16
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/11/13 RSO / Date: 1/11/13

Survey No.:	7225.0002-017
Date:	07-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BN224-BN23 and BN211-BN213
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BN224-1 Jar 1	(Gamma Bkg 1948)	N/A	N/A	2,167	219	N/A	N/A	N/A	N/A
2	BN224-1 Jar 2	(Gamma Bkg 1948)	N/A	N/A	2,211	263	N/A	N/A	N/A	N/A
3	BN224-1 Jar 3	(Gamma Bkg 1948)	N/A	N/A	2,171	223	N/A	N/A	N/A	N/A
4	BN225-1 Jar 1	(Gamma Bkg 2007)	N/A	N/A	2,036	29	N/A	N/A	N/A	N/A
5	BN225-1 Jar 2	(Gamma Bkg 2007)	N/A	N/A	2,296	289	N/A	N/A	N/A	N/A
6	BN225-1 Jar 3	(Gamma Bkg 2007)	N/A	N/A	2,048	41	N/A	N/A	N/A	N/A
7	BN226-1 Jar 1	(Gamma Bkg 1973)	N/A	N/A	2,154	181	N/A	N/A	N/A	N/A
8	BN226-1 Jar 2	(Gamma Bkg 1973)	N/A	N/A	2,086	113	N/A	N/A	N/A	N/A
9	BN226-1 Jar 3	(Gamma Bkg 1973)	N/A	N/A	2,252	279	N/A	N/A	N/A	N/A
10	BN227-1 Jar 1	(Gamma Bkg 2152)	N/A	N/A	2,333	181	N/A	N/A	N/A	N/A
[illegible]	BN227-1 Jar 2	(Gamma Bkg 2152)	N/A	N/A	2,174	22	N/A	N/A	N/A	N/A
[illegible]	BN227-1 Jar 3	(Gamma Bkg 2152)	N/A	N/A	2,098	-54	N/A	N/A	N/A	N/A
13	BN227-1 Jar 4	(Gamma Bkg 2152)	N/A	N/A	2,207	55	N/A	N/A	N/A	N/A
14	BN227-1 Jar 5	(Gamma Bkg 2152)	N/A	N/A	2,015	-137	N/A	N/A	N/A	N/A
15	BN227-1 Jar 6	(Gamma Bkg 2152)	N/A	N/A	2,097	-55	N/A	N/A	N/A	N/A
16	BN227-1 Jar 7	(Gamma Bkg 2152)	N/A	N/A	2,208	56	N/A	N/A	N/A	N/A
17	BN227-1 Jar 8	(Gamma Bkg 2152)	N/A	N/A	1,984	-168	N/A	N/A	N/A	N/A
18	BN227-1 Jar 9	(Gamma Bkg 2152)	N/A	N/A	1,921	-231	N/A	N/A	N/A	N/A
19	BN228-1 Jar 1	(Gamma Bkg 2011)	N/A	N/A	2,083	72	N/A	N/A	N/A	N/A
20	BN228-1 Jar 2	(Gamma Bkg 2011)	N/A	N/A	2,138	127	N/A	N/A	N/A	N/A
21	BN228-1 Jar 3	(Gamma Bkg 2011)	N/A	N/A	2,086	75	N/A	N/A	N/A	N/A
22	BN230-1 Jar 1	(Gamma Bkg 2040)	N/A	N/A	2,178	138	N/A	N/A	N/A	N/A
23	BN230-1 Jar 2	(Gamma Bkg 2040)	N/A	N/A	2,157	117	N/A	N/A	N/A	N/A
24	BN230-1 Jar 3	(Gamma Bkg 2040)	N/A	N/A	2,028	-12	N/A	N/A	N/A	N/A
25	BN229-1 Jar 1	(Gamma Bkg 1759)	N/A	N/A	1,972	213	N/A	N/A	N/A	N/A
26	BN229-1 Jar 2	(Gamma Bkg 1759)	N/A	N/A	1,967	208	N/A	N/A	N/A	N/A
27	BN229-1 Jar 3	(Gamma Bkg 1759)	N/A	N/A	2,057	298	N/A	N/A	N/A	N/A
28	BN211-3	(Gamma Bkg 2048)	N/A	N/A	2,495	447	N/A	N/A	N/A	N/A
29	BN211-4	(Gamma Bkg 2048)	N/A	N/A	2,396	348	N/A	N/A	N/A	N/A
30	BN212-1	(Gamma Bkg 2118)	N/A	N/A	2,987	869	N/A	N/A	N/A	N/A
31	BN212-2	(Gamma Bkg 2118)	N/A	N/A	2,466	348	N/A	N/A	N/A	N/A
[illegible]	BN212-3	(Gamma Bkg 2118)	N/A	N/A	2,414	296	N/A	N/A	N/A	N/A
[illegible]	BN212-4	(Gamma Bkg 2118)	N/A	N/A	2,454	336	N/A	N/A	N/A	N/A
34	BN213-1	(Gamma Bkg 2212)	N/A	N/A	2,198	-14	N/A	N/A	N/A	N/A
35	BN213-2	(Gamma Bkg 2212)	N/A	N/A	2,248	36	N/A	N/A	N/A	N/A
36	BN213-3	(Gamma Bkg 2212)	N/A	N/A	2,195	-17	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/11/13 RSO / Date: 1/11/13

Survey No.:	7225.0002-017
Date:	07-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Item Surveyed:	Smp#s : BN224-BN23 and BN211-BN213
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	BN213-4 (Gamma Bkg 2212)	N/A	N/A	2,354	142	N/A	N/A	N/A	N/A
38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/11/2013 12:38:34 PM

Survey ID: 7225.0002-017

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BN224-1 Jar 1	0.000	0.000	-0.386	-4.281
2	2	BN224-1 Jar 2	0.000	2.000	-0.386	-0.856
3	3	BN224-1 Jar 3	0.000	1.000	-0.386	-2.568
4	4	BN225-1 Jar 1	0.000	2.000	-0.386	-0.856
5	5	BN225-1 Jar 2	0.000	1.000	-0.386	-2.568
6	6	BN225-1 Jar 3	0.000	4.000	-0.386	2.568
7	7	BN226-1 Jar 1	0.000	4.000	-0.386	2.568
8	8	BN226-1 Jar 2	0.000	1.000	-0.386	-2.568
9	9	BN226-1 Jar 3	0.000	3.000	-0.386	0.856
10	10	BN227-1 Jar 1	0.000	0.000	-0.386	-4.281
11	11	BN227-1 Jar 2	0.000	1.000	-0.386	-2.568
12	12	BN227-1 Jar 3	0.000	0.000	-0.386	-4.281
13	13	BN227-1 Jar 4	0.000	2.000	-0.386	-0.856
14	14	BN227-1 Jar 5	0.000	3.000	-0.386	0.856
15	15	BN227-1 Jar 6	0.000	3.000	-0.386	0.856
16	16	BN227-1 Jar 7	0.000	0.000	-0.386	-4.281
17	17	BN227-1 Jar 8	0.000	1.000	-0.386	-2.568
18	18	BN227-1 Jar 9	0.000	2.000	-0.386	-0.856
19	19	BN228-1 Jar 1	0.000	2.000	-0.386	-0.856
20	20	BN228-1 Jar 2	0.000	6.000	-0.386	5.993
21	21	BN228-1 Jar 3	0.000	2.000	-0.386	-0.856
22	22	BN230-1 Jar 1	0.000	1.000	-0.386	-2.568
23	23	BN230-1 Jar 2	0.000	4.000	-0.386	2.568
24	24	BN230-1 Jar 3	0.000	0.000	-0.386	-4.281
25	25	BN229-1 Jar 1	0.000	6.000	-0.386	5.993
26	26	BN229-1 Jar 2	0.000	3.000	-0.386	0.856
27	27	BN229-1 Jar 3	0.000	4.000	-0.386	2.568
28	28	BN211-3	0.000	2.000	-0.386	-0.856
29	29	BN211-4	0.000	5.000	-0.386	4.281
30	30	BN212-1	0.000	1.000	-0.386	-2.568
31	31	BN212-2	0.000	0.000	-0.386	-4.281
32	32	BN212-3	0.000	1.000	-0.386	-2.568
33	33	BN212-4	1.000	0.000	3.475	-4.281
34	34	BN213-1	0.000	2.000	-0.386	-0.856
35	35	BN213-2	0.000	2.000	-0.386	-0.856
36	36	BN213-3	0.000	1.000	-0.386	-2.568
37	37	BN213-4	1.000	1.000	3.475	-2.568

Counted By: _____ Reviewed By: _____ Date: 1/11/13

Survey Data Sheet

Tech / Date: 1/7/13 RSO / Date: 1/7/13

Survey No.:	7225.0002-018
Date:	07-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR179868	PR 157821	PR 157821
Instrument / SN:	275772	184930	157320	157320
Inst. Set-Up Date:	11-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	starborard side moon pool	1	4	101	-707	1	0	172	28
2	bow side moon pool	0	-6	150	13	0	-1	185	64
3	vibracore	1	4	121	-413	1	0	171	25
4	pipe dredge	2	15	97	-766	1	0	175	36
5	starborard side Deck	1	4	104	-663	2	2	170	23
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/2/13 RSO / Date: 1/7/13

Survey No.:	7225.0002-019
Date:	07-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Item Surveyed:	Sample Cooler #006 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	5-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6-Jun-13	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 006 inside	N/A	N/A	5	N/A	1	0	179	47
2	cooler # 006 outside	N/A	N/A	5	N/A	1	0	161	-2
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/8/13 RSO / Date: 1/8/13

Survey No.:	7225.0002-020
Date:	08-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR179868	PR 157821	PR 157821
Instrument / SN:	275772	184930	157320	157320
Inst. Set-Up Date:	11-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	140	-134	0	-1	174	34
2	port side moon pool	0	-6	122	-399	2	2	153	-24
3	sample prep table	1	4	141	-119	1	0	170	23
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/14/13 RSO / Date: 1/14/13

Survey No.:	7225.0002-021	**Item Surveyed:**	Smp#s : BN214-BN220
Date:	08-Jan-13	**Contaminant/Limits:**	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Building Number:	N/A	**Comments:**	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta
Survey Tech.:	K.Gordon		
Count Rm. Tech.:	C.Bryson		
Survey Type:	release		

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BN214-1	(Gamma Bkg 1861)	N/A	N/A	2,242	381	N/A	N/A	N/A	N/A
2	BN214-2	(Gamma Bkg 1861)	N/A	N/A	1,992	131	N/A	N/A	N/A	N/A
3	BN214-3	(Gamma Bkg 1861)	N/A	N/A	2,156	295	N/A	N/A	N/A	N/A
4	BN214-4	(Gamma Bkg 1861)	N/A	N/A	2,193	332	N/A	N/A	N/A	N/A
5	BN214-Jar 1	(Gamma Bkg 1861)	N/A	N/A	2,158	297	N/A	N/A	N/A	N/A
6	BN214-Jar 2	(Gamma Bkg 1861)	N/A	N/A	2,063	202	N/A	N/A	N/A	N/A
7	BN214-Jar 3	(Gamma Bkg 1861)	N/A	N/A	2,056	195	N/A	N/A	N/A	N/A
8	BN214-Jar 4	(Gamma Bkg 1861)	N/A	N/A	1,933	72	N/A	N/A	N/A	N/A
9	BN214-Jar 5	(Gamma Bkg 1861)	N/A	N/A	2,126	265	N/A	N/A	N/A	N/A
10	BN214-Jar 6	(Gamma Bkg 1861)	N/A	N/A	2,122	261	N/A	N/A	N/A	N/A
[illegible]	BN215-3	(Gamma Bkg 1874)	N/A	N/A	2,162	288	N/A	N/A	N/A	N/A
[illegible]	BN215-4	(Gamma Bkg 1874)	N/A	N/A	2,154	280	N/A	N/A	N/A	N/A
13	BN216-2	(Gamma Bkg 2005)	N/A	N/A	2,135	130	N/A	N/A	N/A	N/A
14	BN216-3	(Gamma Bkg 2005)	N/A	N/A	2,230	225	N/A	N/A	N/A	N/A
15	BN216-4	(Gamma Bkg 2005)	N/A	N/A	2,185	180	N/A	N/A	N/A	N/A
16	BN216-1 2nd Core	(Gamma Bkg 2005)	N/A	N/A	2,145	140	N/A	N/A	N/A	N/A
17	BN216-2 2nd Core	(Gamma Bkg 2005)	N/A	N/A	2,343	338	N/A	N/A	N/A	N/A
18	BN216-3 2nd Core	(Gamma Bkg 2005)	N/A	N/A	2,168	163	N/A	N/A	N/A	N/A
19	BN216-4 2nd Core	(Gamma Bkg 2005)	N/A	N/A	2,261	256	N/A	N/A	N/A	N/A
20	BN217-3	(Gamma Bkg 2313)	N/A	N/A	2,329	16	N/A	N/A	N/A	N/A
21	BN217-4	(Gamma Bkg 2313)	N/A	N/A	2,286	-27	N/A	N/A	N/A	N/A
22	BN218-2	(Gamma Bkg 1894)	N/A	N/A	2,119	225	N/A	N/A	N/A	N/A
23	BN218-3	(Gamma Bkg 1894)	N/A	N/A	2,126	232	N/A	N/A	N/A	N/A
24	BN218-4	(Gamma Bkg 1894)	N/A	N/A	2,204	310	N/A	N/A	N/A	N/A
25	BN219-2	(Gamma Bkg 1765)	N/A	N/A	1,622	-143	N/A	N/A	N/A	N/A
26	BN219-3	(Gamma Bkg 1765)	N/A	N/A	1,836	71	N/A	N/A	N/A	N/A
27	BN219-4	(Gamma Bkg 1765)	N/A	N/A	1,758	-7	N/A	N/A	N/A	N/A
28	BN220-3 Jar 1	(Gamma Bkg 1571)	N/A	N/A	1,582	11	N/A	N/A	N/A	N/A
29	BN220-3 Jar 2	(Gamma Bkg 1571)	N/A	N/A	1,630	59	N/A	N/A	N/A	N/A
30	BN220-3 Jar 3	(Gamma Bkg 1571)	N/A	N/A	1,694	123	N/A	N/A	N/A	N/A
31	BN220-3 Jar 4	(Gamma Bkg 1571)	N/A	N/A	1,593	22	N/A	N/A	N/A	N/A
[illegible]	BN220-3 Jar 5	(Gamma Bkg 1571)	N/A	N/A	1,633	62	N/A	N/A	N/A	N/A
[illegible]	BN220-3 Jar 6	(Gamma Bkg 1571)	N/A	N/A	1,658	87	N/A	N/A	N/A	N/A
34	BN220-3	(Gamma Bkg 1571)	N/A	N/A	1,525	-46	N/A	N/A	N/A	N/A
35	BN220-4	(Gamma Bkg 1571)	N/A	N/A	1,636	65	N/A	N/A	N/A	N/A
36	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/4/13 RSO / Date: 1/4/13

Survey No.:	7225.0002-021
Date:	08-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BN214-BN220
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/14/2013 10:04:52 AM

Survey ID: 7225.0002-021

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BN214-1	1.000	0.000	3.475	-4.281
2	2	BN214-2	0.000	1.000	-0.386	-2.568
3	3	BN214-3	0.000	0.000	-0.386	-4.281
4	4	BN214-4	0.000	1.000	-0.386	-2.568
5	5	BN214-Jar 1	0.000	3.000	-0.386	0.856
6	6	BN274-Jar 2	0.000	4.000	-0.386	2.568
7	7	BN214-Jar 3	0.000	3.000	-0.386	0.856
8	8	BN214-Jar 4	0.000	4.000	-0.386	2.568
9	9	BN214-Jar 5	0.000	0.000	-0.386	-4.281
10	10	BN214-Jar 6	0.000	4.000	-0.386	2.568
11	11	BN215-3	0.000	1.000	-0.386	-2.568
12	12	BN215-4	0.000	0.000	-0.386	-4.281
13	13	BN216-2	0.000	1.000	-0.386	-2.568
14	14	BN216-3	0.000	0.000	-0.386	-4.281
15	15	BN216-4	0.000	2.000	-0.386	-0.856
16	16	BN216-1 2nd Core	0.000	0.000	-0.386	-4.281
17	17	BN216-2 2nd Core	0.000	0.000	-0.386	-4.281
18	18	BN216-3 2nd Core	0.000	3.000	-0.386	0.856
19	19	BN216-4 2nd Core	0.000	4.000	-0.386	2.568
20	20	BN217-3	0.000	2.000	-0.386	-0.856
21	21	BN217-4	0.000	3.000	-0.386	0.856
22	22	BN218-2	0.000	4.000	-0.386	2.568
23	23	BN218-3	0.000	3.000	-0.386	0.856
24	24	BN218-4	0.000	1.000	-0.386	-2.568
25	25	BN219-2	0.000	1.000	-0.386	-2.568
26	26	BN219-3	0.000	2.000	-0.386	-0.856
27	27	BN219-4	1.000	2.000	3.475	-0.856
28	28	BN220-3 Jar 1	0.000	3.000	-0.386	0.856
29	29	BN220-3 Jar 2	0.000	1.000	-0.386	-2.568
30	30	BN220-3 Jar 3	0.000	3.000	-0.386	0.856
31	31	BN220-3 Jar 4	0.000	0.000	-0.386	-4.281
32	32	BN220-3 Jar 5	0.000	4.000	-0.386	2.568
33	33	BN220-3 Jar 6	0.000	5.000	-0.386	4.281
34	34	BN220-3	0.000	2.000	-0.386	-0.856
35	35	BN220-4	0.000	3.000	-0.386	0.856

Counted By: _____ Reviewed By: _____ Date: 1/14/13

Survey Data Sheet

Tech / Date: 1/8/13 RSO / Date: 1/8/13

Survey No.:	7225.0002-022
Date:	08-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR179868	PR 157821	PR 157821
Instrument / SN:	275772	184930	157320	157320
Inst. Set-Up Date:	11-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	130	-281	1	0	139	-62
2	port side moon pool	0	-6	113	-531	2	2	169	20
3	instrument table	0	-6	111	-560	2	2	163	4
4	sample prep table	0	-6	114	-516	1	0	174	34
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/8/13 RSO / Date: 1/8/13

Survey No.:	7225.0002-023
Date:	08-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #005 and #003 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	5-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6-Jun-13	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 005 inside	N/A	N/A	5	N/A	0	-1	153	-24
2	cooler # 005 outside	N/A	N/A	5	N/A	2	2	147	-40
3	cooler # 003 outside	N/A	N/A	5	N/A	1	0	152	-27
4	cooler # 003 outside	N/A	N/A	5	N/A	5	6	184	61
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/9/13 RSO / Date: 1/9/13

Survey No.:	7225.0002-024
Date:	09-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR179868	PR 157821	PR 157821
Instrument / SN:	275772	184930	157320	157320
Inst. Set-Up Date:	11-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	125	-354	1	0	151	-29
2	port side moon pool	1	4	106	-634	1	0	171	25
3	sample prep area	1	4	124	-369	1	0	151	-29
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/11/13 RSO / Date: 1/11/13

Survey No.:	7225.0002-025
Date:	09-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #007 and #008
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 007 I/S	2	8	242	384	N/A	N/A	N/A	N/A
2	Cooler - 007 O/S	2	8	232	282	N/A	N/A	N/A	N/A
3	Cooler - 008 I/S	0	-11	199	-55	N/A	N/A	N/A	N/A
4	Cooler - 008 O/S	2	8	235	312	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/11/2013 12:15:04 PM

Survey ID: 7225.0002-025

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 007 I/S	0.000	2.000	-0.386	-0.856
2	2	Cooler - 007 O/S	0.000	6.000	-0.386	5.993
3	3	Cooler - 008 I/S	0.000	0.000	-0.386	-4.281
4	4	Cooler - 008 O/S	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 1/11/13

Survey Data Sheet

Tech / Date: 1/14/13 RSO / Date: 1/14/13

Survey No.:	7225.0002-026
Date:	09-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BN203-BN210
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	193171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BN210-2	(Gamma Bkg 1647)	N/A	N/A	2,024	377	N/A	N/A	N/A	N/A
2	BN210-3	(Gamma Bkg 1647)	N/A	N/A	1,993	346	N/A	N/A	N/A	N/A
3	BN210-4	(Gamma Bkg 1647)	N/A	N/A	2,250	603	N/A	N/A	N/A	N/A
4	BN209-2	(Gamma Bkg 2250)	N/A	N/A	2,234	-16	N/A	N/A	N/A	N/A
5	BN209-3	(Gamma Bkg 2250)	N/A	N/A	2,283	33	N/A	N/A	N/A	N/A
6	BN209-4	(Gamma Bkg 2250)	N/A	N/A	2,211	-39	N/A	N/A	N/A	N/A
7	BN208-2	(Gamma Bkg 1935)	N/A	N/A	2,102	167	N/A	N/A	N/A	N/A
8	BN208-3	(Gamma Bkg 1935)	N/A	N/A	2,176	241	N/A	N/A	N/A	N/A
9	BN208-4	(Gamma Bkg 1935)	N/A	N/A	2,220	285	N/A	N/A	N/A	N/A
10	BN208 Jar 1	(Gamma Bkg 1935)	N/A	N/A	2,323	388	N/A	N/A	N/A	N/A
11	BN208 Jar 2	(Gamma Bkg 1935)	N/A	N/A	2,214	279	N/A	N/A	N/A	N/A
12	BN208 Jar 3	(Gamma Bkg 1935)	N/A	N/A	2,089	154	N/A	N/A	N/A	N/A
13	BN208 Jar 4	(Gamma Bkg 1935)	N/A	N/A	2,201	266	N/A	N/A	N/A	N/A
14	BN208 Jar 5	(Gamma Bkg 1935)	N/A	N/A	2,209	274	N/A	N/A	N/A	N/A
15	BN208 Jar 6	(Gamma Bkg 1935)	N/A	N/A	2,258	323	N/A	N/A	N/A	N/A
16	BN207-2	(Gamma Bkg 2049)	N/A	N/A	2,262	213	N/A	N/A	N/A	N/A
17	BN207-3	(Gamma Bkg 2049)	N/A	N/A	2,278	229	N/A	N/A	N/A	N/A
18	BN207-4	(Gamma Bkg 2049)	N/A	N/A	2,282	233	N/A	N/A	N/A	N/A
19	BN206-1	(Gamma Bkg 2222)	N/A	N/A	2,390	168	N/A	N/A	N/A	N/A
20	BN206-2	(Gamma Bkg 2222)	N/A	N/A	2,277	55	N/A	N/A	N/A	N/A
21	BN206-3	(Gamma Bkg 2222)	N/A	N/A	2,428	206	N/A	N/A	N/A	N/A
22	BN206-4	(Gamma Bkg 2222)	N/A	N/A	2,335	113	N/A	N/A	N/A	N/A
23	BN205-1	(Gamma Bkg 2157)	N/A	N/A	2,218	61	N/A	N/A	N/A	N/A
24	BN205-2	(Gamma Bkg 2157)	N/A	N/A	2,168	11	N/A	N/A	N/A	N/A
25	BN205-3	(Gamma Bkg 2157)	N/A	N/A	2,255	98	N/A	N/A	N/A	N/A
26	BN205-4	(Gamma Bkg 2157)	N/A	N/A	2,244	87	N/A	N/A	N/A	N/A
27	BN204-1	(Gamma Bkg 2073)	N/A	N/A	2,281	208	N/A	N/A	N/A	N/A
28	BN204-2	(Gamma Bkg 2073)	N/A	N/A	2,145	72	N/A	N/A	N/A	N/A
29	BN204-3	(Gamma Bkg 2073)	N/A	N/A	2,269	196	N/A	N/A	N/A	N/A
30	BN204-4	(Gamma Bkg 2073)	N/A	N/A	2,307	234	N/A	N/A	N/A	N/A
31	BN203-2	(Gamma Bkg 1927)	N/A	N/A	2,342	415	N/A	N/A	N/A	N/A
32	BN203-3	(Gamma Bkg 1927)	N/A	N/A	2,196	269	N/A	N/A	N/A	N/A
33	BN203-4	(Gamma Bkg 1927)	N/A	N/A	2,457	530	N/A	N/A	N/A	N/A
34	BN203 Jar 1	(Gamma Bkg 1927)	N/A	N/A	2,568	641	N/A	N/A	N/A	N/A
35	BN203 Jar 2	(Gamma Bkg 1927)	N/A	N/A	2,809	882	N/A	N/A	N/A	N/A
36	BN203 Jar 3	(Gamma Bkg 1927)	N/A	N/A	2,398	471	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/14/13 RSO / Date: 1/14/13

Survey No.:	7225.0002-026
Date:	09-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed: Smp#s : BN203-BN210

Contaminant/Limits: Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%

Comments: Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	193171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	BN203 Jar 4	(Gamma Bkg 1927)	N/A	N/A	2,648	721	N/A	N/A	N/A	N/A
38	BN203 Jar 5	(Gamma Bkg 1927)	N/A	N/A	2,177	250	N/A	N/A	N/A	N/A
39	BN203 Jar 6	(Gamma Bkg 1927)	N/A	N/A	2,358	431	N/A	N/A	N/A	N/A
40	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
41	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/14/2013 2:10:11 PM

Survey ID: 7225.0002-026

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BN210-2	0.000	2.000	-0.386	-0.856
2	2	BN210-3	0.000	2.000	-0.386	-0.856
3	3	BN210-4	1.000	3.000	3.475	0.856
4	4	BN209-2	0.000	6.000	-0.386	5.993
5	5	BN209-3	0.000	4.000	-0.386	2.568
6	6	BN209-4	0.000	0.000	-0.386	-4.281
7	7	BN208-2	0.000	2.000	-0.386	-0.856
8	8	BN208-3	0.000	1.000	-0.386	-2.568
9	9	BN208-4	0.000	2.000	-0.386	-0.856
10	10	BN208 Jar 1	1.000	1.000	3.475	-2.568
11	11	BN208 Jar 2	0.000	0.000	-0.386	-4.281
12	12	BN208 Jar 3	0.000	2.000	-0.386	-0.856
13	13	BN208 Jar 4	0.000	0.000	-0.386	-4.281
14	14	BN208 Jar 5	0.000	2.000	-0.386	-0.856
15	15	BN208 Jar 6	0.000	0.000	-0.386	-4.281
16	16	BN207-2	0.000	1.000	-0.386	-2.568
17	17	BN207-3	0.000	0.000	-0.386	-4.281
18	18	BN207-4	0.000	3.000	-0.386	0.856
19	19	BN206-1	0.000	6.000	-0.386	5.993
20	20	BN206-2	0.000	4.000	-0.386	2.568
21	21	BN206-3	0.000	1.000	-0.386	-2.568
22	22	BN206-4	0.000	1.000	-0.386	-2.568
23	23	BN205-1	0.000	0.000	-0.386	-4.281
24	24	BN205-2	0.000	1.000	-0.386	-2.568
25	25	BN205-3	0.000	0.000	-0.386	-4.281
26	26	BN205-4	0.000	1.000	-0.386	-2.568
27	27	BN204-1	0.000	0.000	-0.386	-4.281
28	28	BN204-2	0.000	2.000	-0.386	-0.856
29	29	BN204-3	0.000	3.000	-0.386	0.856
30	30	BN204-4	0.000	1.000	-0.386	-2.568
31	31	BN203-2	0.000	3.000	-0.386	0.856
32	32	BN203-3	0.000	2.000	-0.386	-0.856
33	33	BN203-4	0.000	0.000	-0.386	-4.281
34	34	BN203 Jar 1	1.000	4.000	3.475	2.568
35	35	BN203 Jar 2	0.000	2.000	-0.386	-0.856
36	36	BN203 Jar 3	0.000	0.000	-0.386	-4.281
37	37	BN203 Jar 4	0.000	1.000	-0.386	-2.568
38	38	BN203 Jar 5	0.000	1.000	-0.386	-2.568
39	39	BN203 Jar 6	0.000	3.000	-0.386	0.856

Counted By: _____ Reviewed By: _____ Date: 1/14/13

Survey Data Sheet

Tech / Date: 1/9/13 RSO / Date: 1/9/13

Survey No.:	7225.0002-027	**Item Surveyed:**	TEG Boat CF 1059 UB
Date:	09-Jan-13	**Contaminant/Limits:**	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Building Number:	N/A	**Comments:**	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta
Survey Tech.:	K.Gordon		
Count Rm. Tech.:	C.Bryson		
Survey Type:	Contamination		

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR179868	PR 157821	PR 157821
Instrument / SN:	275772	184930	157320	157320
Inst. Set-Up Date:	11-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	2	15	135	-207	0	-1	153	-24
2	port side moon pool	0	-6	101	-707	3	3	164	6
3	starboard side deck	2	15	107	-619	1	0	171	25
4	vibracore	0	-6	109	-590	3	3	148	-38
5	pipe dredge	2	15	124	-369	1	0	169	20
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/9/13 RSO / Date: 1/9/13

Survey No.:	7225.0002-028
Date:	09-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #004,#007 and #008 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	5-Dec-13	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6-Jun-13	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 004 inside	N/A	N/A	5	N/A	1	0	156	-16
2	cooler # 004 outside	N/A	N/A	5	N/A	0	-1	170	23
3	cooler # 007 outside	N/A	N/A	5	N/A	2	2	161	-2
4	cooler # 007 outside	N/A	N/A	5	N/A	2	2	154	-21
5	cooler # 008 outside	N/A	N/A	5	N/A	0	-1	156	-16
6	cooler # 008 outside	N/A	N/A	5	N/A	0	-1	182	56
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/14/13 RSO / Date: 1/14/13

Survey No.:	7225.0002-029
Date:	09-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #009-013
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 009 I/S	1	-1	185	-198	N/A	N/A	N/A	N/A
2	Cooler - 009 O/S	2	8	218	139	N/A	N/A	N/A	N/A
3	Cooler - 010 I/S	1	-1	208	37	N/A	N/A	N/A	N/A
4	Cooler - 010 O/S	5	36	225	210	N/A	N/A	N/A	N/A
5	Cooler - 011 I/S	1	-1	211	67	N/A	N/A	N/A	N/A
6	Cooler - 011 O/S	2	8	207	27	N/A	N/A	N/A	N/A
7	Cooler - 012 I/S	0	-11	215	108	N/A	N/A	N/A	N/A
8	Cooler - 012 O/S	1	-1	198	-65	N/A	N/A	N/A	N/A
9	Cooler - 013 I/S	2	8	197	-76	N/A	N/A	N/A	N/A
10	Cooler - 013 O/S	1	-1	189	-157	N/A	N/A	N/A	N/A
[illegible]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/14/2013 10:53:24 AM

Survey ID: 7225.0002-029

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 009 I/S	0.000	3.000	-0.386	0.856
2	2	Cooler - 009 O/S	0.000	3.000	-0.386	0.856
3	3	Cooler - 010 I/S	1.000	2.000	3.475	-0.856
4	4	Cooler - 010 O/S	0.000	1.000	-0.386	-2.568
5	5	Cooler - 011 I/S	0.000	1.000	-0.386	-2.568
6	6	Cooler - 011 O/S	1.000	1.000	3.475	-2.568
7	7	Cooler - 012 I/S	0.000	3.000	-0.386	0.856
8	8	Cooler - 012 O/S	0.000	3.000	-0.386	0.856
9	9	Cooler - 013 I/S	0.000	2.000	-0.386	-0.856
10	10	Cooler - 013 O/S	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 1/14/13

Survey Data Sheet

Tech / Date: 1/18/13 RSO / Date: 1/18/13

Survey No.:	7225.0002-030
Date:	10-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	Mobile Mini # AS40RYU0517
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-12	4-Oct-12		
Bkgd (cpm)	1.15	204.7		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Storage area floor	1	-1	257	534	N/A	N/A	N/A	N/A
2	Storage area floor	4	27	230	258	N/A	N/A	N/A	N/A
3	Office area floor	2	8	234	299	N/A	N/A	N/A	N/A
4	Office area floor	2	8	255	513	N/A	N/A	N/A	N/A
5	Instrument table	2	8	225	207	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/18/2013 9:25:14 AM

Survey ID: 7225.0002-030

Alpha MDA 17 DPM

ALPHA BKGD = 0.10
ALPHA EFF. = 25.90%
ALPHA F = 1.00
Count Time = 1.00 min

Beta MDA = 18 DPM

BETA BKGD = 2.50
BETA EFF. = 58.40%
BETA F = 1.00
BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	0.000	-0.386	-4.281
2	2	Sample 2	0.000	1.000	-0.386	-2.568
3	3	Sample 3	0.000	5.000	-0.386	4.281
4	4	Sample 4	0.000	3.000	-0.386	0.856
5	5	Sample 5	0.000	1.000	-0.386	-2.568

Counted By: _____ Reviewed By: _____ Date: 1/10/13

Survey Data Sheet

Tech / Date: 1/18/13 RSO / Date: 1/18/13

Survey No.:	7225.0002-031
Date:	10-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	ITSI Dock
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR298426	PR298426	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-12	4-Oct-12		
Bkgd (cpm)	1.15	204.7		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Northeast Corner Dock	3	17	191	-140	N/A	N/A	N/A	N/A
2	Southeast Corner Dock	3	17	174	-313	N/A	N/A	N/A	N/A
3	Southwest Corner Dock	5	36	190	-150	N/A	N/A	N/A	N/A
4	Gangway Bottom	4	27	195	-99	N/A	N/A	N/A	N/A
5	Gangway Top	4	27	278	748	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/18/2013 9:33:48 AM

Survey ID: 7225.0002-031

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	4.000	-0.386	2.568
2	2	Sample 2	0.000	4.000	-0.386	2.568
3	3	Sample 3	0.000	3.000	-0.386	0.856
4	4	Sample 4	0.000	2.000	-0.386	-0.856
5	5	Sample 5	0.000	3.000	-0.386	0.856

Counted By: _____ Reviewed By: _____ Date: 1/18/13

Survey Data Sheet

Tech / Date: 1/10/13 RSO / Date: 1/10/13

Survey No.:	7225.0002-032
Date:	10-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR179868	PR 157821	PR 157821
Instrument / SN:	275772	184930	157320	157320
Inst. Set-Up Date:	11-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	159	146	1	0	189	75
2	port side moon pool	1	4	109	-590	1	0	149	-35
3	sample prep area	1	4	152	43	1	0	185	64
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/18/13 RSO / Date: 1/18/13

Survey No.:	7225.0002-033
Date:	10-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BN104-BN106 and BN313-BN315 and BN317
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BN104-1	(Gamma Bkg 1242)	N/A	N/A	1,493	251	N/A	N/A	N/A	N/A
2	BN104-2	(Gamma Bkg 1242)	N/A	N/A	1,255	13	N/A	N/A	N/A	N/A
3	BN104-3	(Gamma Bkg 1242)	N/A	N/A	1,256	14	N/A	N/A	N/A	N/A
4	BN104-4	(Gamma Bkg 1242)	N/A	N/A	1,385	143	N/A	N/A	N/A	N/A
5	BN105-1	(Gamma Bkg 972)	N/A	N/A	1,159	187	N/A	N/A	N/A	N/A
6	BN105-2	(Gamma Bkg 972)	N/A	N/A	1,166	194	N/A	N/A	N/A	N/A
7	BN105-3	(Gamma Bkg 972)	N/A	N/A	1,168	196	N/A	N/A	N/A	N/A
8	BN105-4	(Gamma Bkg 972)	N/A	N/A	1,101	129	N/A	N/A	N/A	N/A
9	BN105 Jar 1	(Gamma Bkg 972)	N/A	N/A	1,225	253	N/A	N/A	N/A	N/A
10	BN105 Jar 2	(Gamma Bkg 972)	N/A	N/A	1,094	122	N/A	N/A	N/A	N/A
11	BN105 Jar 3	(Gamma Bkg 972)	N/A	N/A	1,353	381	N/A	N/A	N/A	N/A
12	BN105 Jar 4	(Gamma Bkg 972)	N/A	N/A	1,137	165	N/A	N/A	N/A	N/A
13	BN105 Jar 5	(Gamma Bkg 972)	N/A	N/A	1,450	478	N/A	N/A	N/A	N/A
14	BN105 Jar 6	(Gamma Bkg 972)	N/A	N/A	1,252	280	N/A	N/A	N/A	N/A
15	BN106-2 1st Core	(Gamma Bkg 1323)	N/A	N/A	1,273	-50	N/A	N/A	N/A	N/A
16	BN106-3 1st Core	(Gamma Bkg 1323)	N/A	N/A	1,414	91	N/A	N/A	N/A	N/A
17	BN106-4 1st Core	(Gamma Bkg 1323)	N/A	N/A	1,372	49	N/A	N/A	N/A	N/A
18	BN106-2 2nd Core	(Gamma Bkg 1323)	N/A	N/A	1,427	104	N/A	N/A	N/A	N/A
19	BN106-3 2nd Core	(Gamma Bkg 1323)	N/A	N/A	1,439	116	N/A	N/A	N/A	N/A
20	BN106-4 2nd Core	(Gamma Bkg 1323)	N/A	N/A	1,425	102	N/A	N/A	N/A	N/A
21	BN313-1	(Gamma Bkg 1131)	N/A	N/A	1,571	440	N/A	N/A	N/A	N/A
22	BN313-2	(Gamma Bkg 1131)	N/A	N/A	1,530	399	N/A	N/A	N/A	N/A
23	BN313-3	(Gamma Bkg 1131)	N/A	N/A	1,534	403	N/A	N/A	N/A	N/A
24	BN313-4	(Gamma Bkg 1131)	N/A	N/A	1,411	280	N/A	N/A	N/A	N/A
25	BN314-2	(Gamma Bkg 1204)	N/A	N/A	1,407	203	N/A	N/A	N/A	N/A
26	BN314-3	(Gamma Bkg 1204)	N/A	N/A	1,482	278	N/A	N/A	N/A	N/A
27	BN314-4	(Gamma Bkg 1204)	N/A	N/A	1,507	303	N/A	N/A	N/A	N/A
28	BN315-1	(Gamma Bkg 1381)	N/A	N/A	1,331	-50	N/A	N/A	N/A	N/A
29	BN315-2	(Gamma Bkg 1381)	N/A	N/A	1,365	-16	N/A	N/A	N/A	N/A
30	BN315-3	(Gamma Bkg 1381)	N/A	N/A	1,435	54	N/A	N/A	N/A	N/A
31	BN315-4	(Gamma Bkg 1381)	N/A	N/A	1,371	-10	N/A	N/A	N/A	N/A
32	BN317-1	(Gamma Bkg 1216)	N/A	N/A	1,216	0	N/A	N/A	N/A	N/A
33	BN317-2	(Gamma Bkg 1216)	N/A	N/A	1,312	96	N/A	N/A	N/A	N/A
34	BN317-3	(Gamma Bkg 1216)	N/A	N/A	1,434	218	N/A	N/A	N/A	N/A
35	BN317-4	(Gamma Bkg 1216)	N/A	N/A	1,343	127	N/A	N/A	N/A	N/A
36	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/18/13 RSO / Date: 1/18/13

Survey No.:	7225.0002-033
Date:	10-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Item Surveyed:	Smp#s : BN104-BN106 and BN313-BN315 and BN317
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/18/2013 9:59:40 AM

Survey ID: 7225.0002-033

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BN104-1	0.000	0.000	-0.386	-4.281
2	2	BN104-2	0.000	4.000	-0.386	2.568
3	3	BN104-3	0.000	3.000	-0.386	0.856
4	4	BN104-4	0.000	3.000	-0.386	0.856
5	5	BN105-1	1.000	1.000	3.475	-2.568
6	6	BN105-2	0.000	0.000	-0.386	-4.281
7	7	BN105-3	0.000	5.000	-0.386	4.281
8	8	BN105-4	0.000	1.000	-0.386	-2.568
9	9	BN105 Jar 1	0.000	3.000	-0.386	0.856
10	10	BN105 Jar 2	0.000	3.000	-0.386	0.856
11	11	BN105 Jar 3	0.000	3.000	-0.386	0.856
12	12	BN105 Jar 4	0.000	2.000	-0.386	-0.856
13	13	BN105 Jar 5	0.000	0.000	-0.386	-4.281
14	14	BN105 Jar 6	0.000	4.000	-0.386	2.568
15	15	BN106-2 1st Core	0.000	1.000	-0.386	-2.568
16	16	BN106-3 1st Core	0.000	4.000	-0.386	2.568
17	17	BN106-4 1st Core	0.000	2.000	-0.386	-0.856
18	18	BN106-2 2nd Core	0.000	1.000	-0.386	-2.568
19	19	BN106-3 2nd Core	0.000	2.000	-0.386	-0.856
20	20	BN106-4 2nd Core	0.000	0.000	-0.386	-4.281
21	21	BN313-1	0.000	4.000	-0.386	2.568
22	22	BN313-2	0.000	3.000	-0.386	0.856
23	23	BN313-3	0.000	3.000	-0.386	0.856
24	24	BN313-4	0.000	1.000	-0.386	-2.568
25	25	BN314-2	0.000	1.000	-0.386	-2.568
26	26	BN314-3	0.000	2.000	-0.386	-0.856
27	27	BN314-4	0.000	3.000	-0.386	0.856
28	28	BN315-1	0.000	3.000	-0.386	0.856
29	29	BN315-2	0.000	0.000	-0.386	-4.281
30	30	BN315-3	0.000	0.000	-0.386	-4.281
31	31	BN315-4	0.000	2.000	-0.386	-0.856
32	32	BN317-1	0.000	0.000	-0.386	-4.281
33	33	BN317-2	0.000	0.000	-0.386	-4.281
34	34	BN317-3	1.000	2.000	3.475	-0.856
35	35	BN317-4	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 1/18/13

Survey Data Sheet

Tech / Date: 1/10/13 RSO / Date: 1/10/13

Survey No.:	7225.0002-034
Date:	10-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR179868	PR 157821	PR 157821
Instrument / SN:	275772	184930	157320	157320
Inst. Set-Up Date:	11-Dec-12	3-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Oct-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	4	35	104	-663	0	-1	184	61
2	port side moon pool	2	15	139	-149	1	0	182	56
3	pipe dredge	2	15	85	-943	2	2	150	-32
4	anchor 1	1	4	88	-899	1	0	174	34
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/10/13 RSO / Date: 1/10/13

Survey No.:	7225.0002-035
Date:	10-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #011,#012 and #013 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	5-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6-Jun-13	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 011 inside	N/A	N/A	5	N/A	2	2	185	64
2	cooler # 011 outside	N/A	N/A	5	N/A	1	0	192	83
3	cooler # 012 outside	N/A	N/A	5	N/A	0	-1	180	50
4	cooler # 012 outside	N/A	N/A	5	N/A	4	5	176	39
5	cooler # 013 outside	N/A	N/A	5	N/A	2	2	158	-10
6	cooler # 013 outside	N/A	N/A	5	N/A	2	2	153	-24
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/14/13 RSO / Date: 1/14/13

Survey No.:	7225.0002-036
Date:	14-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	4	35	144	-75	2	2	145	-46
2	port side moon pool	0	-6	112	-546	1	0	172	28
3	sample prep area	0	-6	132	-251	1	0	146	-43
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/18/13 RSO / Date: 1/18/13

Survey No.:	7225.0002-037
Date:	14-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : SB201-SB205, BN108, and BN318
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SB201-1	(Gamma Bkg 1023)	N/A	N/A	1,218	193	N/A	N/A	N/A	N/A
2	SB201-2	(Gamma Bkg 1023)	N/A	N/A	1,338	315	N/A	N/A	N/A	N/A
3	SB201-3	(Gamma Bkg 1023)	N/A	N/A	1,277	254	N/A	N/A	N/A	N/A
4	SB201-4	(Gamma Bkg 1023)	N/A	N/A	1,329	306	N/A	N/A	N/A	N/A
5	SB202-1	(Gamma Bkg 1023)	N/A	N/A	1,212	189	N/A	N/A	N/A	N/A
6	SB202-2	(Gamma Bkg 1023)	N/A	N/A	1,221	198	N/A	N/A	N/A	N/A
7	SB202-3	(Gamma Bkg 1023)	N/A	N/A	1,230	207	N/A	N/A	N/A	N/A
8	SB202-4	(Gamma Bkg 1023)	N/A	N/A	1,390	367	N/A	N/A	N/A	N/A
9	SB203-1	(Gamma Bkg 1393)	N/A	N/A	1,520	127	N/A	N/A	N/A	N/A
10	SB203-2	(Gamma Bkg 1393)	N/A	N/A	1,481	88	N/A	N/A	N/A	N/A
11	SB203-3	(Gamma Bkg 1393)	N/A	N/A	1,490	97	N/A	N/A	N/A	N/A
	SB203-4	(Gamma Bkg 1393)	N/A	N/A	1,427	34	N/A	N/A	N/A	N/A
13	SB203-1 Jar 1	(Gamma Bkg 1393)	N/A	N/A	1,462	69	N/A	N/A	N/A	N/A
14	SB203-1 Jar 2	(Gamma Bkg 1393)	N/A	N/A	1,364	-29	N/A	N/A	N/A	N/A
15	SB203-1 Jar 3	(Gamma Bkg 1393)	N/A	N/A	1,361	-32	N/A	N/A	N/A	N/A
16	SB203-1 Jar 4	(Gamma Bkg 1393)	N/A	N/A	1,412	19	N/A	N/A	N/A	N/A
17	SB203-1 Jar 5	(Gamma Bkg 1393)	N/A	N/A	1,306	-87	N/A	N/A	N/A	N/A
18	SB203-1 Jar 6	(Gamma Bkg 1393)	N/A	N/A	1,295	-98	N/A	N/A	N/A	N/A
19	SB204-1 1st Core	(Gamma Bkg 1285)	N/A	N/A	1,858	573	N/A	N/A	N/A	N/A
20	SB204-2 1st Core	(Gamma Bkg 1285)	N/A	N/A	1,804	519	N/A	N/A	N/A	N/A
21	SB204-3 1st Core	(Gamma Bkg 1285)	N/A	N/A	1,758	473	N/A	N/A	N/A	N/A
22	SB204-4 1st Core	(Gamma Bkg 1285)	N/A	N/A	1,816	531	N/A	N/A	N/A	N/A
23	SB204-1 2nd Core	(Gamma Bkg 1285)	N/A	N/A	1,760	475	N/A	N/A	N/A	N/A
24	SB204-2 2nd Core	(Gamma Bkg 1285)	N/A	N/A	1,778	493	N/A	N/A	N/A	N/A
25	SB204-3 2nd Core	(Gamma Bkg 1285)	N/A	N/A	1,781	496	N/A	N/A	N/A	N/A
26	SB204-4 2nd Core	(Gamma Bkg 1285)	N/A	N/A	1,753	468	N/A	N/A	N/A	N/A
27	SB205-1	(Gamma Bkg 1032)	N/A	N/A	1,163	131	N/A	N/A	N/A	N/A
28	SB205-2	(Gamma Bkg 1032)	N/A	N/A	1,172	140	N/A	N/A	N/A	N/A
29	SB205-3	(Gamma Bkg 1032)	N/A	N/A	1,190	158	N/A	N/A	N/A	N/A
30	SB205-4	(Gamma Bkg 1032)	N/A	N/A	1,224	192	N/A	N/A	N/A	N/A
31	BN108-1 Jar 1	(Gamma Bkg 931)	N/A	N/A	932	1	N/A	N/A	N/A	N/A
32	BN108-1 Jar 2	(Gamma Bkg 931)	N/A	N/A	868	-63	N/A	N/A	N/A	N/A
	BN108-1 Jar 3	(Gamma Bkg 931)	N/A	N/A	860	-71	N/A	N/A	N/A	N/A
34	BN318-1	(Gamma Bkg 1363)	N/A	N/A	1,693	330	N/A	N/A	N/A	N/A
35	BN318-2	(Gamma Bkg 1363)	N/A	N/A	1,691	328	N/A	N/A	N/A	N/A
36	BN318-3	(Gamma Bkg 1363)	N/A	N/A	1,638	275	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/18/13 RSO / Date: 1/18/13

Survey No.:	7225.0002-037
Date:	14-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : SB201-SB205, BN108, and BN318
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	BN318-4	(Gamma Bkg 1363)	N/A	N/A	1,689	326	N/A	N/A	N/A	N/A
38	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
39	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/18/2013 1:52:16 PM

Survey ID: 7225.0002-037

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SB201-1	0.000	2.000	-0.386	-0.856
2	2	SB201-2	0.000	5.000	-0.386	4.281
3	3	SB201-3	0.000	0.000	-0.386	-4.281
4	4	SB201-4	0.000	1.000	-0.386	-2.568
5	5	SB202-1	0.000	4.000	-0.386	2.568
6	6	SB202-2	0.000	0.000	-0.386	-4.281
7	7	SB202-3	0.000	2.000	-0.386	-0.856
8	8	SB202-4	0.000	0.000	-0.386	-4.281
9	9	SB203-1	0.000	5.000	-0.386	4.281
10	10	SB203-2	0.000	0.000	-0.386	-4.281
11	11	SB203-3	0.000	0.000	-0.386	-4.281
12	12	SB203-4	0.000	1.000	-0.386	-2.568
13	13	SB203-1 Jar 1	0.000	1.000	-0.386	-2.568
14	14	SB203-1 Jar 2	0.000	0.000	-0.386	-4.281
15	15	SB203-1 Jar 3	0.000	1.000	-0.386	-2.568
16	16	SB203-1 Jar 4	0.000	6.000	-0.386	5.993
17	17	SB203-1 Jar 5	0.000	3.000	-0.386	0.856
18	18	SB203-1 Jar 6	0.000	5.000	-0.386	4.281
19	19	SB204-1 1st Core	0.000	0.000	-0.386	-4.281
20	20	SB204-2 1st Core	1.000	1.000	3.475	-2.568
21	21	SB204-3 1st Core	0.000	3.000	-0.386	0.856
22	22	SB204-4 1st Core	0.000	2.000	-0.386	-0.856
23	23	SB204-1 2nd Core	0.000	3.000	-0.386	0.856
24	24	SB204-2 2nd Core	0.000	1.000	-0.386	-2.568
25	25	SB204-3 2nd Core	1.000	2.000	3.475	-0.856
26	26	SB204-4 2nd Core	0.000	2.000	-0.386	-0.856
27	27	SB205-1	0.000	4.000	-0.386	2.568
28	28	SB205-2	0.000	1.000	-0.386	-2.568
29	29	SB205-3	0.000	3.000	-0.386	0.856
30	30	SB205-4	0.000	2.000	-0.386	-0.856
31	31	BN108-1 Jar 1	0.000	4.000	-0.386	2.568
32	32	BN108-1 Jar 2	0.000	0.000	-0.386	-4.281
33	33	BN108-1 Jar 3	0.000	0.000	-0.386	-4.281
34	34	BN318-1	0.000	1.000	-0.386	-2.568
35	35	BN318-2	0.000	4.000	-0.386	2.568
36	36	BN318-3	0.000	3.000	-0.386	0.856
37	37	BN318-4	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 1/18/13

Survey Data Sheet

Tech / Date: 1/14/13 RSO / Date: 1/14/13

Survey No.:	7225.0002-038
Date:	14-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	4	35	104	-663	0	-1	184	61
2	port side moon pool	2	15	139	-149	1	0	182	56
3	vibracore	2	15	85	-943	2	2	150	-32
4	pipe dredge	1	4	88	-899	1	0	174	34
5	sample prep area	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/14/13 RSO / Date: 1/14/13

Survey No.:	7225.0002-039
Date:	14-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	Sample Coolers #002,#006 and #010 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 002 inside	N/A	N/A	N/A	N/A	1	0	157	-13
2	cooler # 002 outside	N/A	N/A	N/A	N/A	1	0	151	-29
3	cooler # 009 outside	N/A	N/A	N/A	N/A	2	2	174	34
4	cooler # 009 outside	N/A	N/A	N/A	N/A	1	0	161	-2
5	cooler # 010 outside	N/A	N/A	N/A	N/A	1	0	159	-7
6	cooler # 010 outside	N/A	N/A	N/A	N/A	3	3	152	-27
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/21/13 RSO / Date: 1/21/13

Survey No.:	7225.0002-040
Date:	14-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #014-022
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 014 I/S	2	8	192	-127	N/A	N/A	N/A	N/A
2	Cooler - 014 O/S	3	17	213	88	N/A	N/A	N/A	N/A
3	Cooler - 015 I/S	6	45	200	-45	N/A	N/A	N/A	N/A
4	Cooler - 015 O/S	4	27	222	180	N/A	N/A	N/A	N/A
5	Cooler - 016 I/S	3	17	171	-341	N/A	N/A	N/A	N/A
6	Cooler - 016 O/S	1	-1	209	47	N/A	N/A	N/A	N/A
7	Cooler - 017 I/S	0	-11	212	78	N/A	N/A	N/A	N/A
8	Cooler - 017 O/S	1	-1	231	271	N/A	N/A	N/A	N/A
9	Cooler- 018 I/S	4	27	248	445	N/A	N/A	N/A	N/A
10	Cooler - 018 O/S	3	17	202	-24	N/A	N/A	N/A	N/A
11	Cooler - 019 I/S	5	36	220	159	N/A	N/A	N/A	N/A
12	Cooler - 019 O/S	3	17	207	27	N/A	N/A	N/A	N/A
13	Cooler - 020 I/S	1	-1	198	-65	N/A	N/A	N/A	N/A
14	Cooler - 020 O/S	4	27	230	261	N/A	N/A	N/A	N/A
15	Cooler - 021 I/S	2	8	192	-127	N/A	N/A	N/A	N/A
16	Cooler - 021 O/S	4	27	220	159	N/A	N/A	N/A	N/A
17	Cooler - 022 I/S	0	-11	216	118	N/A	N/A	N/A	N/A
18	Cooler - 022 O/S	0	-11	226	220	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/21/2013 11:08:44 AM

Survey ID: 7225.0002-040

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 014 I/S	0.000	3.000	-0.386	0.856
2	2	Cooler - 014 O/S	0.000	3.000	-0.386	0.856
3	3	Cooler - 015 I/S	0.000	0.000	-0.386	-4.281
4	4	Cooler - 015 O/S	0.000	2.000	-0.386	-0.856
5	5	Cooler - 016 I/S	1.000	2.000	3.475	-0.856
6	6	Cooler - 016 O/S	0.000	2.000	-0.386	-0.856
7	7	Cooler - 017 I/S	0.000	2.000	-0.386	-0.856
8	8	Cooler - 017 O/S	0.000	0.000	-0.386	-4.281
9	9	Cooler- 018 I/S	1.000	2.000	3.475	-0.856
10	10	Cooler - 018 O/S	0.000	2.000	-0.386	-0.856
11	11	Cooler - 019 I/S	0.000	1.000	-0.386	-2.568
12	12	Cooler - 019 O/S	0.000	3.000	-0.386	0.856
13	13	Cooler - 020 I/S	0.000	1.000	-0.386	-2.568
14	14	Cooler - 020 O/S	0.000	1.000	-0.386	-2.568
15	15	Cooler - 021 I/S	0.000	0.000	-0.386	-4.281
16	16	Cooler - 021 O/S	1.000	1.000	3.475	-2.568
17	17	Cooler - 022 I/S	0.000	3.000	-0.386	0.856
18	18	Cooler - 022 O/S	0.000	6.000	-0.386	5.993

Counted By: _____ Reviewed By: _____ Date: 1/23/13

Survey Data Sheet

Tech / Date: 1/15/13 RSO / Date: 1/15/13

Survey No.:	7225.0002-041
Date:	15-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	131	-266	1	0	158	-10
2	port side moon pool	3	25	114	-516	0	-1	151	-29
3	sample prep area	2	15	148	-16	2	2	169	20
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/21/13 RSO / Date: 1/24/13

Survey No.:	7225.0002-042
Date:	15-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BN107,BN109-BN111,BN316,BN102,BN103, and BN309
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	Total (Direct)		Removable	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	Descriptions		Gross cnt	*dpm	Gross cnt	net cnt	Gross cnt	*dpm	Gross cnt	*dpm
1	BN107-1	(Gamma Bkg 1062)	N/A	N/A	1,247	185	N/A	N/A	N/A	N/A
2	BN107-2	(Gamma Bkg 1062)	N/A	N/A	1,272	210	N/A	N/A	N/A	N/A
3	BN107-3	(Gamma Bkg 1062)	N/A	N/A	1,269	207	N/A	N/A	N/A	N/A
4	BN107-4	(Gamma Bkg 1062)	N/A	N/A	1,205	143	N/A	N/A	N/A	N/A
5	BN109-1	(Gamma Bkg 1948)	N/A	N/A	1,926	-22	N/A	N/A	N/A	N/A
6	BN109-2	(Gamma Bkg 1948)	N/A	N/A	2,085	137	N/A	N/A	N/A	N/A
7	BN109-3	(Gamma Bkg 1948)	N/A	N/A	2,094	146	N/A	N/A	N/A	N/A
8	BN109-4	(Gamma Bkg 1948)	N/A	N/A	2,029	81	N/A	N/A	N/A	N/A
9	BN111-1	(Gamma Bkg 1137)	N/A	N/A	1,370	233	N/A	N/A	N/A	N/A
10	BN111-2	(Gamma Bkg 1137)	N/A	N/A	1,406	269	N/A	N/A	N/A	N/A
11	BN111-3	(Gamma Bkg 1137)	N/A	N/A	1,478	341	N/A	N/A	N/A	N/A
12	BN111-4	(Gamma Bkg 1137)	N/A	N/A	1,356	219	N/A	N/A	N/A	N/A
13	BN110-2	(Gamma Bkg 1090)	N/A	N/A	1,241	151	N/A	N/A	N/A	N/A
14	BN110-3	(Gamma Bkg 1090)	N/A	N/A	1,248	158	N/A	N/A	N/A	N/A
15	BN110-4	(Gamma Bkg 1090)	N/A	N/A	1,254	164	N/A	N/A	N/A	N/A
16	BN110-2 Jar 1	(Gamma Bkg 1090)	N/A	N/A	1,258	168	N/A	N/A	N/A	N/A
17	BN110-2 Jar 2	(Gamma Bkg 1090)	N/A	N/A	1,229	139	N/A	N/A	N/A	N/A
18	BN110-2 Jar 3	(Gamma Bkg 1090)	N/A	N/A	1,146	56	N/A	N/A	N/A	N/A
19	BN110-2 Jar 4	(Gamma Bkg 1090)	N/A	N/A	1,207	117	N/A	N/A	N/A	N/A
20	BN110-2 Jar 5	(Gamma Bkg 1090)	N/A	N/A	1,109	19	N/A	N/A	N/A	N/A
21	BN110-2 Jar 6	(Gamma Bkg 1090)	N/A	N/A	1,168	78	N/A	N/A	N/A	N/A
22	BN316-1	(Gamma Bkg 1430)	N/A	N/A	1,580	150	N/A	N/A	N/A	N/A
23	BN316-2	(Gamma Bkg 1430)	N/A	N/A	1,555	125	N/A	N/A	N/A	N/A
24	BN316-3	(Gamma Bkg 1430)	N/A	N/A	1,556	126	N/A	N/A	N/A	N/A
25	BN316-4	(Gamma Bkg 1430)	N/A	N/A	1,351	-79	N/A	N/A	N/A	N/A
26	BN103-3	(Gamma Bkg 1065)	N/A	N/A	1,216	151	N/A	N/A	N/A	N/A
27	BN103-4	(Gamma Bkg 1065)	N/A	N/A	1,260	195	N/A	N/A	N/A	N/A
28	BN102-1	(Gamma Bkg 1139)	N/A	N/A	1,256	117	N/A	N/A	N/A	N/A
29	BN102-2	(Gamma Bkg 1139)	N/A	N/A	1,263	124	N/A	N/A	N/A	N/A
30	BN102-3	(Gamma Bkg 1139)	N/A	N/A	1,296	157	N/A	N/A	N/A	N/A
31	BN102-4	(Gamma Bkg 1139)	N/A	N/A	1,150	11	N/A	N/A	N/A	N/A
32	BN309-1	(Gamma Bkg 1356)	N/A	N/A	1,691	335	N/A	N/A	N/A	N/A
33	BN309-2	(Gamma Bkg 1356)	N/A	N/A	1,662	306	N/A	N/A	N/A	N/A
34	BN309-3	(Gamma Bkg 1356)	N/A	N/A	1,609	253	N/A	N/A	N/A	N/A
35	BN309-4	(Gamma Bkg 1356)	N/A	N/A	1,666	310	N/A	N/A	N/A	N/A
36	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/21/13 RSO / Date: 1/21/13

Survey No.:	7225.0002-042
Date:	15-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BN107,BN109-BN111,BN316,BN102,BN103, and BN309
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/21/2013 11:55:21 AM

Survey ID: 7225.0002-042

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BN107-1	0.000	4.000	-0.386	2.568
2	2	BN107-2	1.000	3.000	3.475	0.856
3	3	BN107-3	0.000	0.000	-0.386	-4.281
4	4	BN107-4	0.000	0.000	-0.386	-4.281
5	5	BN109-1	0.000	1.000	-0.386	-2.568
6	6	BN109-2	0.000	1.000	-0.386	-2.568
7	7	BN109-3	0.000	3.000	-0.386	0.856
8	8	BN109-4	0.000	2.000	-0.386	-0.856
9	9	BN111-1	0.000	3.000	-0.386	0.856
10	10	BN111-2	0.000	2.000	-0.386	-0.856
11	11	BN111-3	0.000	1.000	-0.386	-2.568
12	12	BN111-4	0.000	4.000	-0.386	2.568
13	13	BN110-2	0.000	2.000	-0.386	-0.856
14	14	BN110-3	0.000	4.000	-0.386	2.568
15	15	BN110-4	0.000	4.000	-0.386	2.568
16	16	BN110-2 Jar 1	0.000	0.000	-0.386	-4.281
17	17	BN110-2 Jar 2	0.000	0.000	-0.386	-4.281
18	18	BN110-2 Jar 3	0.000	1.000	-0.386	-2.568
19	19	BN110-2 Jar 4	0.000	2.000	-0.386	-0.856
20	20	BN110-2 Jar 5	0.000	5.000	-0.386	4.281
21	21	BN110-2 Jar 6	0.000	3.000	-0.386	0.856
22	22	BN316-1	0.000	0.000	-0.386	-4.281
23	23	BN316-2	0.000	0.000	-0.386	-4.281
24	24	BN316-3	0.000	3.000	-0.386	0.856
25	25	BN316-4	0.000	2.000	-0.386	-0.856
26	26	BN103-3	0.000	2.000	-0.386	-0.856
27	27	BN103-4	0.000	1.000	-0.386	-2.568
28	28	BN102-1	0.000	1.000	-0.386	-2.568
29	29	BN102-2	0.000	3.000	-0.386	0.856
30	30	BN102-3	0.000	1.000	-0.386	-2.568
31	31	BN102-4	0.000	0.000	-0.386	-4.281
32	32	BN309-1	0.000	3.000	-0.386	0.856
33	33	BN309-2	0.000	3.000	-0.386	0.856
34	34	BN309-3	0.000	3.000	-0.386	0.856
35	35	BN309-4	0.000	1.000	-0.386	-2.568

Counted By: _____ Reviewed By: _____ Date: 1/21/13

Survey Data Sheet

Tech / Date: 1/15/13 RSO / Date: 1/15/13

Survey No.:	7225.0002-043
Date:	15-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	136	-193	1	0	159	-7
2	port side moon pool	1	4	100	-722	1	0	179	47
3	pipe dredge	0	-6	105	-649	1	0	198	100
4	anchor # 1	1	4	93	-825	1	0	163	4
5	sample prep area	2	15	141	-119	0	-1	135	-73
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/15/13 RSO / Date: 1/15/13

Survey No.:	7225.0002-044
Date:	15-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #018,#019 and #021 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	5-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6-Jun-13	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Ur/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 018 inside	N/A	N/A	5	N/A	1	0	146	-43
2	cooler # 018 outside	N/A	N/A	5	N/A	2	2	167	15
3	cooler # 019 outside	N/A	N/A	5	N/A	1	0	155	-18
4	cooler # 019 outside	N/A	N/A	5	N/A	4	5	164	6
5	cooler # 021 outside	N/A	N/A	5	N/A	1	0	159	-7
6	cooler # 021 outside	N/A	N/A	5	N/A	1	0	171	25
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/16/13 RSO / Date: 1/16/13

Survey No.:	7225.0002-045
Date:	16-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	2	15	158	131	1	0	152	-27
2	port side moon pool	1	4	139	-149	0	-1	174	34
3	sample prep area	0	-6	160	160	0	-1	147	-40
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/21/13 RSO / Date: 1/21/13

Survey No.:	7225.0002-046
Date:	16-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed: Smp#s : BN310,BN311,BN101,BS104-BN108

Contaminant/Limits: Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%

Comments: Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BN310-1	(Gamma Bkg 1595)	N/A	N/A	1,714	119	N/A	N/A	N/A	N/A
2	BN310-2	(Gamma Bkg 1595)	N/A	N/A	1,788	193	N/A	N/A	N/A	N/A
3	BN310-3	(Gamma Bkg 1595)	N/A	N/A	1,868	273	N/A	N/A	N/A	N/A
4	BN310-4	(Gamma Bkg 1595)	N/A	N/A	1,784	189	N/A	N/A	N/A	N/A
5	BN311-1	(Gamma Bkg 1580)	N/A	N/A	1,800	220	N/A	N/A	N/A	N/A
6	BN311-2	(Gamma Bkg 1580)	N/A	N/A	1,691	111	N/A	N/A	N/A	N/A
7	BN311-3	(Gamma Bkg 1580)	N/A	N/A	1,928	348	N/A	N/A	N/A	N/A
8	BN311-4	(Gamma Bkg 1580)	N/A	N/A	1,822	242	N/A	N/A	N/A	N/A
9	BN101-1	(Gamma Bkg 1436)	N/A	N/A	1,783	347	N/A	N/A	N/A	N/A
10	BN101-2	(Gamma Bkg 1436)	N/A	N/A	1,657	221	N/A	N/A	N/A	N/A
11	BN101-3	(Gamma Bkg 1436)	N/A	N/A	1,785	349	N/A	N/A	N/A	N/A
12	BN101-4	(Gamma Bkg 1436)	N/A	N/A	1,756	320	N/A	N/A	N/A	N/A
13	BS101-4 msmsd	(Gamma Bkg 1436)	N/A	N/A	1,791	355	N/A	N/A	N/A	N/A
14	BS104-1	(Gamma Bkg 1445)	N/A	N/A	1,571	126	N/A	N/A	N/A	N/A
15	BS104-2	(Gamma Bkg 1445)	N/A	N/A	1,582	137	N/A	N/A	N/A	N/A
16	BS104-3	(Gamma Bkg 1445)	N/A	N/A	1,633	188	N/A	N/A	N/A	N/A
17	BS104-4	(Gamma Bkg 1445)	N/A	N/A	1,485	40	N/A	N/A	N/A	N/A
18	BS105--4	(Gamma Bkg 1236)	N/A	N/A	1,664	428	N/A	N/A	N/A	N/A
19	BS108-1	(Gamma Bkg 1528)	N/A	N/A	1,801	273	N/A	N/A	N/A	N/A
20	BS108-2	(Gamma Bkg 1528)	N/A	N/A	1,671	143	N/A	N/A	N/A	N/A
21	BS108-3	(Gamma Bkg 1528)	N/A	N/A	1,818	290	N/A	N/A	N/A	N/A
22	BS108-4	(Gamma Bkg 1528)	N/A	N/A	1,768	240	N/A	N/A	N/A	N/A
23	BS107-1	(Gamma Bkg 1333)	N/A	N/A	1,557	224	N/A	N/A	N/A	N/A
24	BS107-2	(Gamma Bkg 1333)	N/A	N/A	1,550	217	N/A	N/A	N/A	N/A
25	BS107-3	(Gamma Bkg 1333)	N/A	N/A	1,520	187	N/A	N/A	N/A	N/A
26	BS107-4	(Gamma Bkg 1333)	N/A	N/A	1,535	202	N/A	N/A	N/A	N/A
27	BS106-1	(Gamma Bkg 1189)	N/A	N/A	1,315	126	N/A	N/A	N/A	N/A
28	BS106-2	(Gamma Bkg 1189)	N/A	N/A	1,292	103	N/A	N/A	N/A	N/A
29	BS106-3	(Gamma Bkg 1189)	N/A	N/A	1,356	167	N/A	N/A	N/A	N/A
30	BS106-4	(Gamma Bkg 1189)	N/A	N/A	1,505	316	N/A	N/A	N/A	N/A
31	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
32	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/21/2013 12:43:57 PM

Survey ID: 7225.0002-046

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BN310-1	(Gamma Bkg 1595)	0.000	2.000	-0.386	-0.856
2	2	BN310-2	(Gamma Bkg 1595)	0.000	1.000	-0.386	-2.568
3	3	BN310-3	(Gamma Bkg 1595)	0.000	2.000	-0.386	-0.856
4	4	BN310-4	(Gamma Bkg 1595)	0.000	4.000	-0.386	2.568
5	5	BN311-1	(Gamma Bkg 1580)	0.000	1.000	-0.386	-2.568
6	6	BN311-2	(Gamma Bkg 1580)	0.000	3.000	-0.386	0.856
7	7	BN311-3	(Gamma Bkg 1580)	1.000	0.000	3.475	-4.281
8	8	BN311-4	(Gamma Bkg 1580)	1.000	1.000	3.475	-2.568
9	9	BN101-1	(Gamma Bkg 1436)	0.000	4.000	-0.386	2.568
10	10	BN101-2	(Gamma Bkg 1436)	0.000	3.000	-0.386	0.856
11	11	BN101-3	(Gamma Bkg 1436)	0.000	3.000	-0.386	0.856
12	12	BN101-4	(Gamma Bkg 1436)	0.000	3.000	-0.386	0.856
13	13	BS101-4 msmsd	(Gamma Bkg 1436)	0.000	7.000	-0.386	7.705
14	14	BS104-1	(Gamma Bkg 1445)	0.000	0.000	-0.386	-4.281
15	15	BS104-2	(Gamma Bkg 1445)	0.000	2.000	-0.386	-0.856
16	16	BS104-3	(Gamma Bkg 1445)	0.000	4.000	-0.386	2.568
17	17	BS104-4	(Gamma Bkg 1445)	0.000	2.000	-0.386	-0.856
18	18	BS105-4	(Gamma Bkg 1236)	0.000	4.000	-0.386	2.568
19	19	BS108-1	(Gamma Bkg 1528)	0.000	2.000	-0.386	-0.856
20	20	BS108-2	(Gamma Bkg 1528)	0.000	3.000	-0.386	0.856
21	21	BS108-3	(Gamma Bkg 1528)	0.000	1.000	-0.386	-2.568
22	22	BS108-4	(Gamma Bkg 1528)	0.000	2.000	-0.386	-0.856
23	23	BS107-1	(Gamma Bkg 1333)	0.000	2.000	-0.386	-0.856
24	24	BS107-2	(Gamma Bkg 1333)	0.000	3.000	-0.386	0.856
25	25	BS107-3	(Gamma Bkg 1333)	0.000	3.000	-0.386	0.856
26	26	BS107-4	(Gamma Bkg 1333)	0.000	0.000	-0.386	-4.281
27	27	BS106-1	(Gamma Bkg 1189)	0.000	1.000	-0.386	-2.568
28	28	BS106-2	(Gamma Bkg 1189)	0.000	2.000	-0.386	-0.856
29	29	BS106-3	(Gamma Bkg 1189)	1.000	2.000	3.475	-0.856
30	30	BS106-4	(Gamma Bkg 1189)	0.000	1.000	-0.386	-2.568

Counted By: _____ Reviewed By: _____ Date: 1/24/13

Survey Data Sheet

Tech / Date: 1/16/13 RSO / Date: 1/16/13

Survey No.:	7225.0002-047
Date:	16-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	148	-16	0	-1	161	-2
2	vibracore	1	4	158	131	1	0	167	15
3	anchor #2	0	-6	93	-825	0	-1	149	-35
4	port side bow exit	2	15	90	-869	0	-1	166	12
5	sample prep area	0	-6	128	-310	0	-1	175	36
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/16/13 RSO / Date: 1/16/13

Survey No.:	7225.0002-048
Date:	16-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #015,#016 and #017 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	5-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6-Jun-13	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 015 inside	N/A	N/A	5	N/A	4	5	152	-27
2	cooler # 015 outside	N/A	N/A	5	N/A	5	6	169	20
3	cooler # 016 outside	N/A	N/A	5	N/A	1	0	155	-18
4	cooler # 016 outside	N/A	N/A	5	N/A	1	0	194	89
5	cooler # 017 outside	N/A	N/A	5	N/A	2	2	171	25
6	cooler # 017 outside	N/A	N/A	5	N/A	4	5	150	-32
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/21/13 RSO / Date: 1/21/13

Survey No.:	7225.0002-049
Date:	16-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #023-024
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 023 I/S	1	-1	185	-198	N/A	N/A	N/A	N/A
2	Cooler - 023 O/S	0	-11	164	-412	N/A	N/A	N/A	N/A
3	Cooler - 024 I/S	0	-11	192	-127	N/A	N/A	N/A	N/A
4	Cooler - 024 O/S	1	-1	201	-35	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/21/2013 1:26:06 PM

Survey ID: 7225.0002-049

Alpha MDA 17 DPM

ALPHA BKGD = 0.10
ALPHA EFF. = 25.90%
ALPHA F = 1.00
Count Time = 1.00 min

Beta MDA = 18 DPM

BETA BKGD = 2.50
BETA EFF. = 58.40%
BETA F = 1.00
BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 023 I/S	1.000	2.000	3.475	-0.856
2	2	Cooler - 023 O/S	0.000	0.000	-0.386	-4.281
3	3	Cooler - 024 I/S	0.000	2.000	-0.386	-0.856
4	4	Cooler - 024 O/S	0.000	8.000	-0.386	9.418

Counted By: _____ Reviewed By: _____ Date: 1/24/13

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-050
Date:	17-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	Mobile Mini # AS40RYU0517
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-12	4-Oct-12		
Bkgd (cpm)	1.15	204.7		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Storage area floor	2	8	162	-436	N/A	N/A	N/A	N/A
2	Storage area floor	1	-1	198	-68	N/A	N/A	N/A	N/A
3	Office area floor	0	-11	196	-89	N/A	N/A	N/A	N/A
4	Office area floor	0	-11	170	-354	N/A	N/A	N/A	N/A
5	Instrument table	6	45	135	-711	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/25/2013 11:07:12 AM

Survey ID: 7225.0002-050

Alpha MDA 17 DPM

ALPHA BKGD = 0.10
ALPHA EFF. = 25.90%
ALPHA F = 1.00
Count Time = 1.00 min

Beta MDA = 18 DPM

BETA BKGD = 2.50
BETA EFF. = 58.40%
BETA F = 1.00
BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	1.000	-0.386	-2.568
2	2	Sample 2	1.000	2.000	3.475	-0.856
3	3	Sample 3	0.000	2.000	-0.386	-0.856
4	4	Sample 4	0.000	3.000	-0.386	0.856
5	5	Sample 5	0.000	0.000	-0.386	-4.281

Counted By: _____ Reviewed By: _____ Date: 1/25/13

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-051
Date:	17-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	ITSI Dock
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR298426	PR298426	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-12	4-Oct-12		
Bkgd (cpm)	1.15	204.7		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Northeast Corner Dock	6	45	152	-538	N/A	N/A	N/A	N/A
2	Southeast Corner Dock	6	45	138	-681	N/A	N/A	N/A	N/A
3	Southwest Corner Dock	1	-1	118	-885	N/A	N/A	N/A	N/A
4	Gangway Bottom	3	17	196	-89	N/A	N/A	N/A	N/A
5	Gangway Top	3	17	204	-7	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/25/2013 1:29:29 PM

Survey ID: 7225.0002-051

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Northeast Corner Dock	0.000	0.000	-0.386	-4.281
2	2	Southeast Corner Dock	0.000	3.000	-0.386	0.856
3	3	Southwest Corner Dock	0.000	0.000	-0.386	-4.281
4	4	Gangway Bottom	0.000	4.000	-0.386	2.568
5	5	Gangway Top	0.000	0.000	-0.386	-4.281

Counted By: _____ Reviewed By: _____ Date: 1/25/13

Survey Data Sheet

Tech / Date: 1/17/13 RSO / Date: 1/17/13

Survey No.:	7225.0002-052
Date:	17-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	2	15	146	-46	0	-1	164	6
2	port side moon pool	2	15	113	-531	0	-1	174	34
3	sample prep area	3	25	162	190	0	-1	158	-10
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-053
Date:	17-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BS109-BS111,BS113 BS118 and BS119
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BS109-1	(Gamma Bkg 1181)	N/A	N/A	1,538	357	N/A	N/A	N/A	N/A
2	BS109-2	(Gamma Bkg 1181)	N/A	N/A	1,438	257	N/A	N/A	N/A	N/A
3	BS109-3	(Gamma Bkg 1181)	N/A	N/A	1,360	179	N/A	N/A	N/A	N/A
4	BS109-4	(Gamma Bkg 1181)	N/A	N/A	1,534	353	N/A	N/A	N/A	N/A
5	BS110-1	(Gamma Bkg 1214)	N/A	N/A	1,415	201	N/A	N/A	N/A	N/A
6	BS110-2	(Gamma Bkg 1214)	N/A	N/A	1,448	234	N/A	N/A	N/A	N/A
7	BS110-3	(Gamma Bkg 1214)	N/A	N/A	1,352	138	N/A	N/A	N/A	N/A
8	BS110-4	(Gamma Bkg 1214)	N/A	N/A	1,477	263	N/A	N/A	N/A	N/A
9	BS111-1	(Gamma Bkg 1187)	N/A	N/A	1,426	239	N/A	N/A	N/A	N/A
10	BS111-2	(Gamma Bkg 1187)	N/A	N/A	1,496	309	N/A	N/A	N/A	N/A
11	BS111-3	(Gamma Bkg 1187)	N/A	N/A	1,298	111	N/A	N/A	N/A	N/A
12	BS111-4	(Gamma Bkg 1187)	N/A	N/A	1,527	340	N/A	N/A	N/A	N/A
13	BS111-1 Jar 1	(Gamma Bkg 1187)	N/A	N/A	1,268	81	N/A	N/A	N/A	N/A
14	BS111-1 Jar 2	(Gamma Bkg 1187)	N/A	N/A	1,300	113	N/A	N/A	N/A	N/A
15	BS111-1 Jar 3	(Gamma Bkg 1187)	N/A	N/A	1,325	138	N/A	N/A	N/A	N/A
16	BS111-1 Jar 4	(Gamma Bkg 1187)	N/A	N/A	1,409	222	N/A	N/A	N/A	N/A
17	BS111-1 Jar 5	(Gamma Bkg 1187)	N/A	N/A	1,359	172	N/A	N/A	N/A	N/A
18	BS111-1 Jar 6	(Gamma Bkg 1187)	N/A	N/A	1,303	116	N/A	N/A	N/A	N/A
19	BS118-1	(Gamma Bkg 1169)	N/A	N/A	1,457	288	N/A	N/A	N/A	N/A
20	BS118-2	(Gamma Bkg 1169)	N/A	N/A	1,492	323	N/A	N/A	N/A	N/A
21	BS118-3	(Gamma Bkg 1169)	N/A	N/A	1,493	324	N/A	N/A	N/A	N/A
22	BS118-4	(Gamma Bkg 1169)	N/A	N/A	1,596	427	N/A	N/A	N/A	N/A
23	BS119-1	(Gamma Bkg 1454)	N/A	N/A	1,488	34	N/A	N/A	N/A	N/A
24	BS119-2	(Gamma Bkg 1454)	N/A	N/A	1,502	48	N/A	N/A	N/A	N/A
25	BS119-3	(Gamma Bkg 1454)	N/A	N/A	1,575	121	N/A	N/A	N/A	N/A
26	BS119-4	(Gamma Bkg 1454)	N/A	N/A	1,505	51	N/A	N/A	N/A	N/A
27	BS112-1	(Gamma Bkg 1208)	N/A	N/A	1,358	150	N/A	N/A	N/A	N/A
28	BS112-2	(Gamma Bkg 1208)	N/A	N/A	1,401	193	N/A	N/A	N/A	N/A
29	BS112-3	(Gamma Bkg 1208)	N/A	N/A	1,365	157	N/A	N/A	N/A	N/A
30	BS112-4	(Gamma Bkg 1208)	N/A	N/A	1,253	45	N/A	N/A	N/A	N/A
31	BS113-1	(Gamma Bkg 1297)	N/A	N/A	1,574	277	N/A	N/A	N/A	N/A
32	BS113-2	(Gamma Bkg 1297)	N/A	N/A	1,549	252	N/A	N/A	N/A	N/A
33	BS113-3	(Gamma Bkg 1297)	N/A	N/A	1,685	388	N/A	N/A	N/A	N/A
34	BS113-4	(Gamma Bkg 1297)	N/A	N/A	1,623	326	N/A	N/A	N/A	N/A
35	BS114-1	(Gamma Bkg 1650)	N/A	N/A	1,905	255	N/A	N/A	N/A	N/A
36	BS114-2	(Gamma Bkg 1650)	N/A	N/A	1,789	139	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-053
Date:	17-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BS109-BS111,BS113 BS118 and BS119
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	BS114-3	(Gamma Bkg 1650)	N/A	N/A	1,884	234	N/A	N/A	N/A	N/A
38	BS114-4	(Gamma Bkg 1650)	N/A	N/A	1,893	243	N/A	N/A	N/A	N/A
39	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/25/2013 11:56:06 AM

Survey ID: 7225.0002-053

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BS109-1	0.000	6.000	-0.386	5.993
2	2	BS109-2	0.000	1.000	-0.386	-2.568
3	3	BS109-3	0.000	1.000	-0.386	-2.568
4	4	BS109-4	0.000	4.000	-0.386	2.568
5	5	BS110-1	0.000	1.000	-0.386	-2.568
6	6	BS110-2	0.000	4.000	-0.386	2.568
7	7	BS110-3	0.000	2.000	-0.386	-0.856
8	8	BS110-4	0.000	3.000	-0.386	0.856
9	9	BS111-1	0.000	1.000	-0.386	-2.568
10	10	BS111-2	0.000	2.000	-0.386	-0.856
11	11	BS111-3	0.000	2.000	-0.386	-0.856
12	12	BS111-4	0.000	3.000	-0.386	0.856
13	13	BS111-1 Jar 1	0.000	1.000	-0.386	-2.568
14	14	BS111-1 Jar 2	0.000	2.000	-0.386	-0.856
15	15	BS111-1 Jar 3	0.000	6.000	-0.386	5.993
16	16	BS111-1 Jar 4	0.000	3.000	-0.386	0.856
17	17	BS111-1 Jar 5	0.000	4.000	-0.386	2.568
18	18	BS111-1 Jar 6	0.000	0.000	-0.386	-4.281
19	19	BS118-1	0.000	3.000	-0.386	0.856
20	20	BS118-2	0.000	4.000	-0.386	2.568
21	21	BS118-3	0.000	2.000	-0.386	-0.856
22	22	BS118-4	0.000	4.000	-0.386	2.568
23	23	BS119-1	0.000	1.000	-0.386	-2.568
24	24	BS119-2	0.000	2.000	-0.386	-0.856
25	25	BS119-3	0.000	4.000	-0.386	2.568
26	26	BS119-4	0.000	5.000	-0.386	4.281
27	27	BS112-1	0.000	1.000	-0.386	-2.568
28	28	BS112-2	0.000	2.000	-0.386	-0.856
29	29	BS112-3	0.000	1.000	-0.386	-2.568
30	30	BS112-4	0.000	3.000	-0.386	0.856
31	31	BS113-1	0.000	4.000	-0.386	2.568
32	32	BS113-2	0.000	1.000	-0.386	-2.568
33	33	BS113-3	0.000	9.000	-0.386	11.130
34	34	BS113-4	0.000	7.000	-0.386	7.705
35	35	BS114-1	0.000	2.000	-0.386	-0.856
36	36	BS114-2	0.000	4.000	-0.386	2.568
37	37	BS114-3	0.000	2.000	-0.386	-0.856
38	38	BS114-4	0.000	4.000	-0.386	2.568

Counted By: _____ Reviewed By: _____ Date: 1/25/13

Survey Data Sheet

Tech / Date: 1/17/13 RSO / Date: 1/17/13

Survey No.:	7225.0002-054
Date:	17-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	142	-104	1	0	154	-21
2	stern side moon pool	0	-6	105	-649	0	-1	153	-24
3	pipe dredge	2	15	82	-987	0	-1	180	50
4	anchor # 2	2	15	88	-899	0	-1	159	-7
5	sample prep area	1	4	122	-399	1	0	156	-16
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/17/13 RSO / Date: 1/17/13

Survey No.:	7225.0002-055
Date:	17-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #014,#020 and #022 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	5-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6-Jun-13	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 014 inside	N/A	N/A	5	N/A	2	2	174	34
2	cooler # 014 outside	N/A	N/A	5	N/A	4	5	158	-10
3	cooler # 020 intside	N/A	N/A	5	N/A	1	0	171	25
4	cooler # 020 outside	N/A	N/A	5	N/A	2	2	151	-29
5	cooler # 022 inside	N/A	N/A	5	N/A	2	2	159	-7
6	cooler # 022 outside	N/A	N/A	5	N/A	1	0	161	-2
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-056
Date:	17-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #s: 004,007,008, and 025
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 004 I/S	2	8	253	496	N/A	N/A	N/A	N/A
2	Cooler - 004 O/S	6	45	208	37	N/A	N/A	N/A	N/A
3	Cooler - 007 I/S	4	27	214	98	N/A	N/A	N/A	N/A
4	Cooler - 007 O/S	7	55	270	669	N/A	N/A	N/A	N/A
5	Cooler - 008 I/S	1	-1	226	220	N/A	N/A	N/A	N/A
6	Cooler - 008 O/S	4	27	218	139	N/A	N/A	N/A	N/A
7	Cooler - 025 I/S	1	-1	219	149	N/A	N/A	N/A	N/A
8	Cooler - 025 O/S	9	73	209	47	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/25/2013 1:17:11 PM

Survey ID: 7225.0002-056

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 004 I/S	1.000	3.000	3.475	0.856
2	2	Cooler - 004 O/S	0.000	0.000	-0.386	-4.281
3	3	Cooler - 007 I/S	0.000	1.000	-0.386	-2.568
4	4	Cooler - 007 O/S	0.000	0.000	-0.386	-4.281
5	5	Cooler - 008 I/S	0.000	3.000	-0.386	0.856
6	6	Cooler - 008 O/S	0.000	1.000	-0.386	-2.568
7	7	Cooler - 025 I/S	0.000	1.000	-0.386	-2.568
8	8	Cooler - 025 O/S	0.000	0.000	-0.386	-4.281

Counted By: _____ Reviewed By: _____ Date: 1/25/13

Survey Data Sheet

Tech / Date: 1/22/13 RSO / Date: 1/22/13

Survey No.:	7225.0002-057
Date:	22-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	0	-6	154	72	0	-1	175	36
2	port side moon pool	0	-6	121	-413	5	6	188	72
3	sample prep area	1	4	146	-46	1	0	178	45
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-058
Date:	22-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BS115-BS117, BS120-BS123 and BS126
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BS115-1	(Gamma Bkg 1801)	N/A	N/A	1,987	186	N/A	N/A	N/A	N/A
2	BS115-2	(Gamma Bkg 1801)	N/A	N/A	2,045	244	N/A	N/A	N/A	N/A
3	BS115-3	(Gamma Bkg 1801)	N/A	N/A	1,950	149	N/A	N/A	N/A	N/A
4	BS115-4	(Gamma Bkg 1801)	N/A	N/A	1,939	138	N/A	N/A	N/A	N/A
5	BS116-1	(Gamma Bkg 1354)	N/A	N/A	1,545	191	N/A	N/A	N/A	N/A
6	BS116-2	(Gamma Bkg 1354)	N/A	N/A	1,670	316	N/A	N/A	N/A	N/A
7	BS116-3	(Gamma Bkg 1354)	N/A	N/A	1,605	251	N/A	N/A	N/A	N/A
8	BS116-4	(Gamma Bkg 1354)	N/A	N/A	1,585	231	N/A	N/A	N/A	N/A
9	BS116-1 msmsd	(Gamma Bkg 1354)	N/A	N/A	1,630	276	N/A	N/A	N/A	N/A
10	BS117-1 1st Core	(Gamma Bkg 1306)	N/A	N/A	1,663	357	N/A	N/A	N/A	N/A
11	BS117-2 1st Core	(Gamma Bkg 1306)	N/A	N/A	1,610	304	N/A	N/A	N/A	N/A
12	BS117-3 1st Core	(Gamma Bkg 1306)	N/A	N/A	1,617	311	N/A	N/A	N/A	N/A
13	BS117-4 1st Core	(Gamma Bkg 1306)	N/A	N/A	1,548	242	N/A	N/A	N/A	N/A
14	BS117-1 2nd Core	(Gamma Bkg 1306)	N/A	N/A	1,596	290	N/A	N/A	N/A	N/A
15	BS117-2 2nd Core	(Gamma Bkg 1306)	N/A	N/A	1,556	250	N/A	N/A	N/A	N/A
16	BS117-3 2nd Core	(Gamma Bkg 1306)	N/A	N/A	1,571	265	N/A	N/A	N/A	N/A
17	BS117-4 2nd Core	(Gamma Bkg 1306)	N/A	N/A	1,585	279	N/A	N/A	N/A	N/A
18	BS122-1	(Gamma Bkg 2109)	N/A	N/A	2,175	66	N/A	N/A	N/A	N/A
19	BS122-2	(Gamma Bkg 2109)	N/A	N/A	2,094	-15	N/A	N/A	N/A	N/A
20	BS122-3	(Gamma Bkg 2109)	N/A	N/A	2,159	50	N/A	N/A	N/A	N/A
21	BS122-4	(Gamma Bkg 2109)	N/A	N/A	2,117	8	N/A	N/A	N/A	N/A
22	BS123-1	(Gamma Bkg 1293)	N/A	N/A	1,295	2	N/A	N/A	N/A	N/A
23	BS123-2	(Gamma Bkg 1293)	N/A	N/A	1,502	209	N/A	N/A	N/A	N/A
24	BS123-3	(Gamma Bkg 1293)	N/A	N/A	1,522	229	N/A	N/A	N/A	N/A
25	BS123-4	(Gamma Bkg 1293)	N/A	N/A	1,501	208	N/A	N/A	N/A	N/A
26	BS121-1	(Gamma Bkg 1217)	N/A	N/A	1,449	232	N/A	N/A	N/A	N/A
27	BS121-2	(Gamma Bkg 1217)	N/A	N/A	1,485	268	N/A	N/A	N/A	N/A
28	BS121-3	(Gamma Bkg 1217)	N/A	N/A	1,475	258	N/A	N/A	N/A	N/A
29	BS121-4	(Gamma Bkg 1217)	N/A	N/A	1,493	276	N/A	N/A	N/A	N/A
30	BS121-1 msmsd	(Gamma Bkg 1217)	N/A	N/A	1,432	215	N/A	N/A	N/A	N/A
31	BS120-1	(Gamma Bkg 1211)	N/A	N/A	1,383	172	N/A	N/A	N/A	N/A
32	BS120-2	(Gamma Bkg 1211)	N/A	N/A	1,398	187	N/A	N/A	N/A	N/A
33	BS120-3	(Gamma Bkg 1211)	N/A	N/A	1,390	179	N/A	N/A	N/A	N/A
34	BS120-4	(Gamma Bkg 1211)	N/A	N/A	1,453	242	N/A	N/A	N/A	N/A
35	BS126-1	(Gamma Bkg 1156)	N/A	N/A	1,387	231	N/A	N/A	N/A	N/A
36	BS126-2	(Gamma Bkg 1156)	N/A	N/A	1,302	146	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-058
Date:	22-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BS115-BS117, BS120-BS123 and BS126
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	BS126-3	(Gamma Bkg 1156)	N/A	N/A	1,318	162	N/A	N/A	N/A	N/A
38	BS126-4	(Gamma Bkg 1156)	N/A	N/A	1,367	211	N/A	N/A	N/A	N/A
39	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
40	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/25/2013 1:38:02 PM

Survey ID: 7225.0002-058

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BS115-1	0.000	7.000	-0.386	7.705
2	2	BS115-2	0.000	1.000	-0.386	-2.568
3	3	BS115-3	0.000	0.000	-0.386	-4.281
4	4	BS115-4	0.000	0.000	-0.386	-4.281
5	5	BS116-1	0.000	1.000	-0.386	-2.568
6	6	BS116-2	0.000	3.000	-0.386	0.856
7	7	BS116-3	0.000	2.000	-0.386	-0.856
8	8	BS116-4	0.000	1.000	-0.386	-2.568
9	9	BS116-1 msmsd	0.000	5.000	-0.386	4.281
10	10	BS117-1 1st Core	0.000	1.000	-0.386	-2.568
11	11	BS117-2 1st Core	0.000	3.000	-0.386	0.856
12	12	BS117-3 1st Core	0.000	2.000	-0.386	-0.856
13	13	BS117-4 1st Core	0.000	1.000	-0.386	-2.568
14	14	BS117-1 2nd Core	1.000	5.000	3.475	4.281
15	15	BS117-2 2nd Core	0.000	2.000	-0.386	-0.856
16	16	BS117-3 2nd Core	0.000	5.000	-0.386	4.281
17	17	BS117-4 2nd Core	0.000	1.000	-0.386	-2.568
18	18	BS122-1	0.000	0.000	-0.386	-4.281
19	19	BS122-2	0.000	2.000	-0.386	-0.856
20	20	BS122-3	0.000	2.000	-0.386	-0.856
21	21	BS122-4	0.000	3.000	-0.386	0.856
22	22	BS123-1	0.000	4.000	-0.386	2.568
23	23	BS123-2	0.000	2.000	-0.386	-0.856
24	24	BS123-3	0.000	4.000	-0.386	2.568
25	25	BS123-4	0.000	5.000	-0.386	4.281
26	26	BS121-1	1.000	6.000	3.475	5.993
27	27	BS121-2	0.000	2.000	-0.386	-0.856
28	28	BS121-3	1.000	5.000	3.475	4.281
29	29	BS121-4	0.000	1.000	-0.386	-2.568
30	30	BS121-1 msmsd	0.000	1.000	-0.386	-2.568
31	31	BS120-1	0.000	2.000	-0.386	-0.856
32	32	BS120-2	0.000	7.000	-0.386	7.705
33	33	BS120-3	0.000	2.000	-0.386	-0.856
34	34	BS120-4	0.000	5.000	-0.386	4.281
35	35	BS126-1	1.000	6.000	3.475	5.993
36	36	BS126-2	0.000	4.000	-0.386	2.568
37	37	BS126-3	0.000	3.000	-0.386	0.856
38	38	BS126-4	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 1/25/13

Survey Data Sheet

Tech / Date: 1/22/13 RSO / Date: 1/22/13

Survey No.:	7225.0002-059
Date:	22-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	3	25	135	-207	1	0	170	23
2	port side moon pool	0	-6	114	-516	1	0	186	67
3	vibracore	2	15	95	-796	1	0	179	47
4	anchor # 3	4	35	85	-943	1	0	171	25
5	sample prep area	3	25	130	-281	0	-1	166	12
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/22/13 RSO / Date: 1/24/13

Survey No.:	7225.0002-060
Date:	22-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #007,#024 and #025 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	5-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6-Jun-13	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 007 inside	N/A	N/A	5	N/A	4	5	167	15
2	cooler # 007 outside	N/A	N/A	5	N/A	1	0	141	-57
3	cooler # 024 outside	N/A	N/A	5	N/A	1	0	159	-7
4	cooler # 024 outside	N/A	N/A	5	N/A	1	0	148	-38
5	cooler # 025 outside	N/A	N/A	5	N/A	3	3	164	6
6	cooler # 025 outside	N/A	N/A	5	N/A	2	2	176	39
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-061
Date:	22-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #s: 002, 009, 010, 018, 019, 021, 026
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 002 I/S	3	17	249	455	N/A	N/A	N/A	N/A
2	Cooler - 002 O/S	1	-1	232	282	N/A	N/A	N/A	N/A
3	Cooler - 009 I/S	5	36	231	271	N/A	N/A	N/A	N/A
4	Cooler - 009 O/S	1	-1	212	78	N/A	N/A	N/A	N/A
5	Cooler - 010 I/S	2	8	195	-96	N/A	N/A	N/A	N/A
6	Cooler - 010 O/S	2	8	196	-86	N/A	N/A	N/A	N/A
7	Cooler - 018 I/S	0	-11	206	16	N/A	N/A	N/A	N/A
8	Cooler - 018 O/S	4	27	250	465	N/A	N/A	N/A	N/A
9	Cooler - 019 I/S	3	17	237	333	N/A	N/A	N/A	N/A
10	Cooler - 019 O/S	0	-11	276	731	N/A	N/A	N/A	N/A
11	Cooler - 021 I/S	5	36	235	312	N/A	N/A	N/A	N/A
12	Cooler - 021 O/S	1	-1	249	455	N/A	N/A	N/A	N/A
13	Cooler - 026 I/S	1	-1	215	108	N/A	N/A	N/A	N/A
14	Cooler - 026 O/S	1	-1	261	578	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/25/2013 3:01:50 PM

Survey ID: 7225.0002-061

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 002 I/S	0.000	2.000	-0.386	-0.856
2	2	Cooler - 002 O/S	0.000	1.000	-0.386	-2.568
3	3	Cooler - 009 I/S	1.000	3.000	3.475	0.856
4	4	Cooler - 009 O/S	0.000	1.000	-0.386	-2.568
5	5	Cooler - 010 I/S	0.000	2.000	-0.386	-0.856
6	6	Cooler - 010 O/S	0.000	6.000	-0.386	5.993
7	7	Cooler - 018 I/S	0.000	0.000	-0.386	-4.281
8	8	Cooler - 018 O/S	1.000	1.000	3.475	-2.568
9	9	Cooler - 019 I/S	0.000	6.000	-0.386	5.993
10	10	Cooler - 019 O/S	0.000	3.000	-0.386	0.856
11	11	Cooler - 021 I/S	0.000	1.000	-0.386	-2.568
12	12	Cooler - 021 O/S	0.000	0.000	-0.386	-4.281
13	13	Cooler - 026 I/S	0.000	2.000	-0.386	-0.856
14	14	Cooler - 026 O/S	0.000	0.000	-0.386	-4.281

Counted By: _____ Reviewed By: _____ Date: 1/25/13

Survey Data Sheet

Tech / Date: 1/23/13 RSO / Date: 1/23/13

Survey No.:	7225.0002-062	**Item Surveyed:**	ERG Air Samplers SNs:A2-32568 and A3-48592
Date:	23-Jan-13	**Contaminant/Limits:**	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Building Number:	N/A	**Comments:**	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta
Survey Tech.:	K.Gordon		
Count Rm. Tech.:	C.Bryson		
Survey Type:	Contamination		

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	A2-32568	1	4	156	101	1	0	165	9
2	A3-48592	0	-6	139	-149	0	-1	156	-16
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/23/13 RSO / Date: 1/23/13

Survey No.:	7225.0002-063
Date:	23-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	0	-6	152	43	0	-1	172	28
2	port side moon pool	1	4	125	-354	0	-1	143	-51
3	sample prep area	2	15	155	87	0	-1	161	-2
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/28/13 RSO / Date: 1/28/13

Survey No.:	7225.0002-064
Date:	23-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BS124, BS125, BS127, BS128, BS130, BS101, and BS102
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	191171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BS127-1	(Gamma Bkg 1573)	N/A	N/A	1,710	137	N/A	N/A	N/A	N/A
2	BS127-2	(Gamma Bkg 1573)	N/A	N/A	1,730	157	N/A	N/A	N/A	N/A
3	BS127-3	(Gamma Bkg 1573)	N/A	N/A	1,775	202	N/A	N/A	N/A	N/A
4	BS127-4	(Gamma Bkg 1573)	N/A	N/A	1,787	214	N/A	N/A	N/A	N/A
5	BS130-1	(Gamma Bkg 1331)	N/A	N/A	1,498	167	N/A	N/A	N/A	N/A
6	BS130-2	(Gamma Bkg 1331)	N/A	N/A	1,541	210	N/A	N/A	N/A	N/A
7	BS130-3	(Gamma Bkg 1331)	N/A	N/A	1,632	301	N/A	N/A	N/A	N/A
8	BS130-4	(Gamma Bkg 1331)	N/A	N/A	1,597	266	N/A	N/A	N/A	N/A
9	BS124-1	(Gamma Bkg 1507)	N/A	N/A	1,783	276	N/A	N/A	N/A	N/A
10	BS124-2	(Gamma Bkg 1507)	N/A	N/A	1,706	199	N/A	N/A	N/A	N/A
11	BS124-3	(Gamma Bkg 1507)	N/A	N/A	1,797	209	N/A	N/A	N/A	N/A
12	BS124-4	(Gamma Bkg 1507)	N/A	N/A	1,748	241	N/A	N/A	N/A	N/A
13	BS125-1	(Gamma Bkg 1384)	N/A	N/A	1,581	197	N/A	N/A	N/A	N/A
14	BS125-2	(Gamma Bkg 1384)	N/A	N/A	1,567	183	N/A	N/A	N/A	N/A
15	BS125-3	(Gamma Bkg 1384)	N/A	N/A	1,633	249	N/A	N/A	N/A	N/A
16	BS125-4	(Gamma Bkg 1384)	N/A	N/A	1,595	211	N/A	N/A	N/A	N/A
17	BS128-1	(Gamma Bkg 1264)	N/A	N/A	1,507	243	N/A	N/A	N/A	N/A
18	BS128-2	(Gamma Bkg 1264)	N/A	N/A	1,464	200	N/A	N/A	N/A	N/A
19	BS128-3	(Gamma Bkg 1264)	N/A	N/A	1,546	282	N/A	N/A	N/A	N/A
20	BS128-4	(Gamma Bkg 1264)	N/A	N/A	1,549	285	N/A	N/A	N/A	N/A
21	BS101-2 1st Core	(Gamma Bkg 2089)	N/A	N/A	2,256	167	N/A	N/A	N/A	N/A
22	BS101-3 1st Core	(Gamma Bkg 2089)	N/A	N/A	2,247	158	N/A	N/A	N/A	N/A
23	BS101-4 1st Core	(Gamma Bkg 2089)	N/A	N/A	2,207	118	N/A	N/A	N/A	N/A
24	BS101-1 2nd Core	(Gamma Bkg 2089)	N/A	N/A	2,211	122	N/A	N/A	N/A	N/A
25	BS101-2 2nd Core	(Gamma Bkg 2089)	N/A	N/A	2,357	268	N/A	N/A	N/A	N/A
26	BS101-3 2nd Core	(Gamma Bkg 2089)	N/A	N/A	2,361	272	N/A	N/A	N/A	N/A
27	BS101-4 2nd Core	(Gamma Bkg 2089)	N/A	N/A	2,334	245	N/A	N/A	N/A	N/A
28	BS102-1	(Gamma Bkg 2035)	N/A	N/A	1,939	-96	N/A	N/A	N/A	N/A
29	BS102-2	(Gamma Bkg 2035)	N/A	N/A	1,835	-200	N/A	N/A	N/A	N/A
30	BS102-3	(Gamma Bkg 2035)	N/A	N/A	1,959	-76	N/A	N/A	N/A	N/A
31	BS102-4	(Gamma Bkg 2035)	N/A	N/A	1,831	-204	N/A	N/A	N/A	N/A
32	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/28/2013 11:48:10 AM

Survey ID: 7225.0002-064

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BS127-1	0.000	2.000	-0.386	-0.856
2	2	BS127-2	0.000	0.000	-0.386	-4.281
3	3	BS127-3	2.000	2.000	7.336	-0.856
4	4	BS127-4	0.000	2.000	-0.386	-0.856
5	5	BS130-1	0.000	1.000	-0.386	-2.568
6	6	BS130-2	0.000	4.000	-0.386	2.568
7	7	BS130-3	0.000	1.000	-0.386	-2.568
8	8	BS130-4	0.000	2.000	-0.386	-0.856
9	9	BS124-1	0.000	3.000	-0.386	0.856
10	10	BS124-2	0.000	3.000	-0.386	0.856
11	11	BS124-3	0.000	1.000	-0.386	-2.568
12	12	BS124-4	0.000	6.000	-0.386	5.993
13	13	BS125-1	1.000	1.000	3.475	-2.568
14	14	BS125-2	0.000	4.000	-0.386	2.568
15	15	BS125-3	0.000	1.000	-0.386	-2.568
16	16	BS125-4	1.000	1.000	3.475	-2.568
17	17	BS128-1	0.000	2.000	-0.386	-0.856
18	18	BS128-2	1.000	3.000	3.475	0.856
19	19	BS128-3	0.000	2.000	-0.386	-0.856
20	20	BS128-4	0.000	2.000	-0.386	-0.856
21	21	BS101-2 1st Core	0.000	3.000	-0.386	0.856
22	22	BS101-3 1st Core	0.000	1.000	-0.386	-2.568
23	23	BS101-4 1st Core	0.000	1.000	-0.386	-2.568
24	24	BS101-1 2nd Core	0.000	1.000	-0.386	-2.568
25	25	BS101-2 2nd Core	0.000	2.000	-0.386	-0.856
26	26	BS101-3 2nd Core	0.000	4.000	-0.386	2.568
27	27	BS101-4 2nd Core	0.000	1.000	-0.386	-2.568
28	28	BS102-1	0.000	0.000	-0.386	-4.281
29	29	BS102-2	0.000	2.000	-0.386	-0.856
30	30	BS102-3	0.000	5.000	-0.386	4.281
31	31	BS102-4	0.000	0.000	-0.386	-4.281

Counted By: _____ Reviewed By: _____ Date: 1/28/13

Survey Data Sheet

Tech / Date: 1/23/13 RSO / Date: 1/23/13

Survey No.:	7225.0002-065
Date:	23-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	167	263	1	0	177	42
2	port side moon pool	0	-6	110	-575	0	-1	182	56
3	vibracore	8	77	164	219	0	-1	171	25
4	instrument table	1	4	104	-663	5	6	192	83
5	sample prep area	1	4	184	513	0	-1	149	-35
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/23/13 RSO / Date: 1/23/13

Survey No.:	7225.0002-066
Date:	23-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #008,#019, #021, and #023 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2013	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 008 inside	N/A	N/A	5	N/A	1	0	182	56
2	cooler # 008 outside	N/A	N/A	5	N/A	1	0	152	-27
3	cooler # 019 inside	N/A	N/A	5	N/A	2	2	163	4
4	cooler # 019 outside	N/A	N/A	5	N/A	0	-1	182	56
5	cooler # 021 inside	N/A	N/A	5	N/A	0	-1	163	4
6	cooler # 021 outside	N/A	N/A	5	N/A	2	2	190	78
7	cooler # 023 inside	N/A	N/A	5	N/A	1	0	181	53
8	cooler # 023 outside	N/A	N/A	5	N/A	3	3	153	-24
9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/28/13 RSO / Date: 1/28/13

Survey No.:	7225.0002-067
Date:	23-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #s: 014, 015, 016, 017, 020, and 022
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 014 I/S	3	17	249	455	N/A	N/A	N/A	N/A
2	Cooler - 014 O/S	1	-1	232	282	N/A	N/A	N/A	N/A
3	Cooler - 015 I/S	5	36	231	271	N/A	N/A	N/A	N/A
4	Cooler - 015 O/S	1	-1	212	78	N/A	N/A	N/A	N/A
5	Cooler - 016 I/S	2	8	195	-96	N/A	N/A	N/A	N/A
6	Cooler - 016 O/S	2	8	196	-86	N/A	N/A	N/A	N/A
7	Cooler - 017 I/S	0	-11	206	16	N/A	N/A	N/A	N/A
8	Cooler - 017 O/S	4	27	250	465	N/A	N/A	N/A	N/A
9	Cooler - 020 I/S	3	17	237	333	N/A	N/A	N/A	N/A
10	Cooler - 020 O/S	0	-11	276	731	N/A	N/A	N/A	N/A
11	Cooler - 022 I/S	5	36	235	312	N/A	N/A	N/A	N/A
12	Cooler - 022 O/S	1	-1	249	455	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/28/2013 12:34:28 PM

Survey ID: 7225.0002-067

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 014 I/S	0.000	3.000	-0.386	0.856
2	2	Cooler - 014 O/S	0.000	9.000	-0.386	11.130
3	3	Cooler - 015 I/S	0.000	0.000	-0.386	-4.281
4	4	Cooler - 015 O/S	1.000	1.000	3.475	-2.568
5	5	Cooler - 016 I/S	0.000	0.000	-0.386	-4.281
6	6	Cooler - 016 O/S	1.000	1.000	3.475	-2.568
7	7	Cooler - 017 I/S	0.000	0.000	-0.386	-4.281
8	8	Cooler - 017 O/S	0.000	1.000	-0.386	-2.568
9	9	Cooler - 020 I/S	0.000	1.000	-0.386	-2.568
10	10	Cooler - 020 O/S	0.000	5.000	-0.386	4.281
11	11	Cooler - 022 I/S	0.000	0.000	-0.386	-4.281
12	12	Cooler - 022 O/S	0.000	0.000	-0.386	-4.281

Counted By: _____ Reviewed By: _____ Date: 1/28/13

Survey Data Sheet

Tech / Date: 1/24/13 RSO / Date: 1/24/13

Survey No.:	7225.0002-068
Date:	24-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	2	15	176	396	1	0	172	28
2	port side moon pool	1	4	155	87	1	0	167	15
3	sample prep area	1	4	204	807	2	2	195	91
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/30/13 RSO / Date: 1/30/13

Survey No.:	7225.0002-069
Date:	24-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BS129 SB206 SB239-SB244 BN312 BN308 and BN307
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BS129-1	(Gamma Bkg 1238)	N/A	N/A	1,338	100	N/A	N/A	N/A	N/A
2	BS129-2	(Gamma Bkg 1238)	N/A	N/A	1,422	184	N/A	N/A	N/A	N/A
3	BS129-3	(Gamma Bkg 1238)	N/A	N/A	1,377	139	N/A	N/A	N/A	N/A
4	BS129-4	(Gamma Bkg 1238)	N/A	N/A	1,433	195	N/A	N/A	N/A	N/A
5	SB206-1	(Gamma Bkg 1364)	N/A	N/A	1,605	241	N/A	N/A	N/A	N/A
6	SB206-2	(Gamma Bkg 1364)	N/A	N/A	1,644	280	N/A	N/A	N/A	N/A
7	SB206-3	(Gamma Bkg 1364)	N/A	N/A	1,675	311	N/A	N/A	N/A	N/A
8	SB206-4	(Gamma Bkg 1364)	N/A	N/A	1,656	292	N/A	N/A	N/A	N/A
9	SB241-1	(Gamma Bkg 1347)	N/A	N/A	1,592	245	N/A	N/A	N/A	N/A
10	SB241-2	(Gamma Bkg 1347)	N/A	N/A	1,654	307	N/A	N/A	N/A	N/A
11	SB241-3	(Gamma Bkg 1347)	N/A	N/A	1,502	155	N/A	N/A	N/A	N/A
12	SB241-4	(Gamma Bkg 1347)	N/A	N/A	1,577	230	N/A	N/A	N/A	N/A
13	SB240-1	(Gamma Bkg 1400)	N/A	N/A	1,553	153	N/A	N/A	N/A	N/A
14	SB240-2	(Gamma Bkg 1400)	N/A	N/A	1,486	86	N/A	N/A	N/A	N/A
15	SB240-3	(Gamma Bkg 1400)	N/A	N/A	1,562	162	N/A	N/A	N/A	N/A
16	SB240-4	(Gamma Bkg 1400)	N/A	N/A	1,558	158	N/A	N/A	N/A	N/A
17	SB240-1 msmsd	(Gamma Bkg 1400)	N/A	N/A	1,479	79	N/A	N/A	N/A	N/A
18	SB242-1	(Gamma Bkg 1483)	N/A	N/A	1,677	194	N/A	N/A	N/A	N/A
19	SB242-2	(Gamma Bkg 1483)	N/A	N/A	1,678	195	N/A	N/A	N/A	N/A
20	SB242-3	(Gamma Bkg 1483)	N/A	N/A	1,749	266	N/A	N/A	N/A	N/A
21	SB242-4	(Gamma Bkg 1483)	N/A	N/A	1,753	270	N/A	N/A	N/A	N/A
22	SB243-1	(Gamma Bkg 1527)	N/A	N/A	1,812	285	N/A	N/A	N/A	N/A
23	SB243-2	(Gamma Bkg 1527)	N/A	N/A	1,868	341	N/A	N/A	N/A	N/A
24	SB243-3	(Gamma Bkg 1527)	N/A	N/A	1,818	291	N/A	N/A	N/A	N/A
25	SB243-4	(Gamma Bkg 1527)	N/A	N/A	1,767	240	N/A	N/A	N/A	N/A
26	SB244-1	(Gamma Bkg 1568)	N/A	N/A	1,678	110	N/A	N/A	N/A	N/A
27	SB244-2	(Gamma Bkg 1568)	N/A	N/A	1,766	198	N/A	N/A	N/A	N/A
28	SB244-3	(Gamma Bkg 1568)	N/A	N/A	1,725	157	N/A	N/A	N/A	N/A
29	SB244-4	(Gamma Bkg 1568)	N/A	N/A	1,713	145	N/A	N/A	N/A	N/A
30	SB239-1 1st Core	(Gamma Bkg 1462)	N/A	N/A	1,790	328	N/A	N/A	N/A	N/A
31	SB239-2 1st Core	(Gamma Bkg 1462)	N/A	N/A	1,654	192	N/A	N/A	N/A	N/A
32	SB239-3 1st Core	(Gamma Bkg 1462)	N/A	N/A	1,671	209	N/A	N/A	N/A	N/A
33	SB239-4 1st Core	(Gamma Bkg 1462)	N/A	N/A	1,781	319	N/A	N/A	N/A	N/A
34	SB239-1 2nd Core	(Gamma Bkg 1462)	N/A	N/A	1,693	231	N/A	N/A	N/A	N/A
35	SB239-2 2nd Core	(Gamma Bkg 1462)	N/A	N/A	1,765	303	N/A	N/A	N/A	N/A
36	SB239-3 2nd Core	(Gamma Bkg 1462)	N/A	N/A	1,713	251	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/30/13 RSO / Date: 1/30/13

Survey No.:	7225.0002-069
Date:	24-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : BS129 SB206 SB239-SB244 BN312 BN308 and BN307
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	SB239-4 2nd Core	(Gamma Bkg 1462)	N/A	N/A	1,741	279	N/A	N/A	N/A	N/A
38	BN312-1	(Gamma Bkg 1645)	N/A	N/A	1,746	101	N/A	N/A	N/A	N/A
39	BN312-2	(Gamma Bkg 1645)	N/A	N/A	1,875	230	N/A	N/A	N/A	N/A
40	BN312-3	(Gamma Bkg 1645)	N/A	N/A	2,132	487	N/A	N/A	N/A	N/A
41	BN312-4	(Gamma Bkg 1645)	N/A	N/A	2,240	595	N/A	N/A	N/A	N/A
42	BN308-1	(Gamma Bkg 1893)	N/A	N/A	2,216	323	N/A	N/A	N/A	N/A
43	BN308-2	(Gamma Bkg 1893)	N/A	N/A	2,095	202	N/A	N/A	N/A	N/A
44	BN308-3	(Gamma Bkg 1893)	N/A	N/A	2,240	347	N/A	N/A	N/A	N/A
45	BN308-4	(Gamma Bkg 1893)	N/A	N/A	2,304	411	N/A	N/A	N/A	N/A
46	BN307-1 1st Core	(Gamma Bkg 2221)	N/A	N/A	2,363	142	N/A	N/A	N/A	N/A
47	BN307-2 1st Core	(Gamma Bkg 2221)	N/A	N/A	2,521	300	N/A	N/A	N/A	N/A
48	BN307-3 1st Core	(Gamma Bkg 2221)	N/A	N/A	2,468	247	N/A	N/A	N/A	N/A
49	BN307-4 1st Core	(Gamma Bkg 2221)	N/A	N/A	2,487	266	N/A	N/A	N/A	N/A
50	BN307-1 2nd Core	(Gamma Bkg 2221)	N/A	N/A	2,353	132	N/A	N/A	N/A	N/A
51	BN307-2 2nd Core	(Gamma Bkg 2221)	N/A	N/A	2,528	307	N/A	N/A	N/A	N/A
52	BN307-3 2nd Core	(Gamma Bkg 2221)	N/A	N/A	2,368	147	N/A	N/A	N/A	N/A
53	BN307-4 2nd Core	(Gamma Bkg 2221)	N/A	N/A	2,454	233	N/A	N/A	N/A	N/A
54	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
55	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/30/2013 1:47:15 PM

Survey ID: 7225.0002-069

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BS129-1	0.000	1.000	-0.386	-2.568
2	2	BS129-2	0.000	5.000	-0.386	4.281
3	3	BS129-3	0.000	1.000	-0.386	-2.568
4	4	BS129-4	0.000	2.000	-0.386	-0.856
5	5	SB206-1	0.000	4.000	-0.386	2.568
6	6	SB206-2	1.000	3.000	3.475	0.856
7	7	SB206-3	0.000	2.000	-0.386	-0.856
8	8	SB206-4	0.000	0.000	-0.386	-4.281
9	9	SB241-1	0.000	1.000	-0.386	-2.568
10	10	SB241-2	0.000	1.000	-0.386	-2.568
11	11	SB241-3	0.000	3.000	-0.386	0.856
12	12	SB241-4	0.000	0.000	-0.386	-4.281
13	13	SB240-1	0.000	3.000	-0.386	0.856
14	14	SB240-2	1.000	3.000	3.475	0.856
15	15	SB240-3	0.000	2.000	-0.386	-0.856
16	16	SB240-4	0.000	3.000	-0.386	0.856
17	17	SB240-1 msmsd	0.000	2.000	-0.386	-0.856
18	18	SB242-1	0.000	3.000	-0.386	0.856
19	19	SB242-2	0.000	2.000	-0.386	-0.856
20	20	SB242-3	0.000	4.000	-0.386	2.568
21	21	SB242-4	0.000	2.000	-0.386	-0.856
22	22	SB243-1	0.000	2.000	-0.386	-0.856
23	23	SB243-2	0.000	4.000	-0.386	2.568
24	24	SB243-3	0.000	5.000	-0.386	4.281
25	25	SB243-4	0.000	1.000	-0.386	-2.568
26	26	SB244-1	0.000	0.000	-0.386	-4.281
27	27	SB244-2	0.000	3.000	-0.386	0.856
28	28	SB244-3	0.000	4.000	-0.386	2.568
29	29	SB244-4	0.000	2.000	-0.386	-0.856
30	30	SB239-1 1st Core	0.000	5.000	-0.386	4.281
31	31	SB239-2 1st Core	0.000	2.000	-0.386	-0.856
32	32	SB239-3 1st Core	0.000	6.000	-0.386	5.993
33	33	SB239-4 1st Core	0.000	4.000	-0.386	2.568
34	34	SB239-1 2nd Core	0.000	3.000	-0.386	0.856
35	35	SB239-2 2nd Core	0.000	0.000	-0.386	-4.281
36	36	SB239-3 2nd Core	0.000	1.000	-0.386	-2.568
37	37	SB239-4 2nd Core	0.000	4.000	-0.386	2.568
38	38	BN312-1	0.000	0.000	-0.386	-4.281
39	39	BN312-2	0.000	2.000	-0.386	-0.856
40	40	BN312-3	0.000	2.000	-0.386	-0.856
41	41	BN312-4	0.000	0.000	-0.386	-4.281
42	42	BN308-1	0.000	3.000	-0.386	0.856
43	43	BN308-2	0.000	0.000	-0.386	-4.281
44	44	BN308-3	0.000	4.000	-0.386	2.568
45	45	BN308-4	0.000	5.000	-0.386	4.281
46	46	BN307-1 1st Core	0.000	2.000	-0.386	-0.856
47	47	BN307-2 1st Core	0.000	2.000	-0.386	-0.856
48	48	BN307-3 1st Core	0.000	0.000	-0.386	-4.281
49	49	BN307-4 1st Core	0.000	1.000	-0.386	-2.568
50	50	BN307-1 2nd Core	0.000	0.000	-0.386	-4.281
51	51	BN307-2 2nd Core	0.000	2.000	-0.386	-0.856
52	52	BN307-3 2nd Core	0.000	0.000	-0.386	-4.281
53	53	BN307-4 2nd Core	0.000	1.000	-0.386	-2.568

Counted By: _____ Reviewed By: _____ Date: 1/30/13

Survey Data Sheet

Tech / Date: 1/24/13 RSO / Date: 1/24/13

Survey No.:	7225.0002-070
Date:	24-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	11	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	2	15	216	984	0	-1	164	6
2	port side moon pool	3	25	174	366	0	-1	152	-27
3	vibracore	3	25	128	-310	1	0	161	-2
4	instrument table	5	46	182	484	1	0	167	15
5	sample prep area	2	15	193	646	0	-1	181	53
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/24/13 RSO / Date: 1/24/13

Survey No.:	7225.0002-071
Date:	24-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #002,#009, and #010 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2013	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 002 inside	N/A	N/A	5	N/A	0	-1	186	67
2	cooler # 002 outside	N/A	N/A	5	N/A	2	2	167	15
3	cooler # 009 inside	N/A	N/A	5	N/A	0	-1	170	23
4	cooler # 009 outside	N/A	N/A	5	N/A	0	-1	192	83
5	cooler # 010 inside	N/A	N/A	5	N/A	2	2	161	-2
6	cooler # 010 outside	N/A	N/A	5	N/A	1	0	187	69
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/30/13 RSO / Date: 1/30/13

Survey No.:	7225.0002-072
Date:	25-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	Mobile Mini # AS40RYU0517
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-12	4-Oct-12		
Bkgd (cpm)	1.15	204.7		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Northeast Corner Dock	4	27	266	626	N/A	N/A	N/A	N/A
2	Southeast Corner Dock	1	-1	236	319	N/A	N/A	N/A	N/A
3	Southwest Corner Dock	2	8	204	-7	N/A	N/A	N/A	N/A
4	Gangway Bottom	4	27	231	268	N/A	N/A	N/A	N/A
5	Gangway Top	0	-11	230	258	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/30/2013 2:59:38 PM

Survey ID: 7225.0002-072

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	5.000	-0.386	4.281
2	2	Sample 2	0.000	3.000	-0.386	0.856
3	3	Sample 3	0.000	0.000	-0.386	-4.281
4	4	Sample 4	0.000	2.000	-0.386	-0.856
5	5	Sample 5	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 1/31/13

Survey Data Sheet

Tech / Date: 1/30/13 RSO / Date: 1/30/13

Survey No.:	7225.0002-073
Date:	25-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	ITSI Dock
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR298426	PR298426	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-12	4-Oct-12		
Bkgd (cpm)	1.15	204.7		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Northwest Corner	4	27	184	-211	N/A	N/A	N/A	N/A
2	Southeast Corner	2	8	182	-232	N/A	N/A	N/A	N/A
3	Southwest Corner	4	27	189	-160	N/A	N/A	N/A	N/A
4	Gangway Bottom	2	8	215	105	N/A	N/A	N/A	N/A
5	Gangway Top	2	8	257	534	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/30/2013 3:11:48 PM

Survey ID: 7225.0002-073

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	2.000	-0.386	-0.856
2	2	Sample 2	0.000	3.000	-0.386	0.856
3	3	Sample 3	0.000	6.000	-0.386	5.993
4	4	Sample 4	0.000	3.000	-0.386	0.856
5	5	Sample 5	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 1/30/13

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-074
Date:	25-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	3	25	170	307	0	-1	185	64
2	port side moon pool	5	46	164	219	1	0	155	-18
3	sample prep area	4	35	178	425	3	3	174	34
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/30/13 RSO / Date: 1/30/13

Survey No.:	7225.0002-075
Date:	25-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : SB245 SB238 and SB207-SB212
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SB245-1	(Gamma Bkg 1654)	N/A	N/A	1,918	264	N/A	N/A	N/A	N/A
2	SB245-2	(Gamma Bkg 1654)	N/A	N/A	1,896	242	N/A	N/A	N/A	N/A
3	SB245-3	(Gamma Bkg 1654)	N/A	N/A	1,823	169	N/A	N/A	N/A	N/A
4	SB245-4	(Gamma Bkg 1654)	N/A	N/A	1,766	112	N/A	N/A	N/A	N/A
5	SB238-1	(Gamma Bkg 1576)	N/A	N/A	1,719	143	N/A	N/A	N/A	N/A
6	SB238-2	(Gamma Bkg 1576)	N/A	N/A	1,764	188	N/A	N/A	N/A	N/A
7	SB238-3	(Gamma Bkg 1576)	N/A	N/A	1,707	131	N/A	N/A	N/A	N/A
8	SB238-4	(Gamma Bkg 1576)	N/A	N/A	1,653	77	N/A	N/A	N/A	N/A
9	SB207-1	(Gamma Bkg 1740)	N/A	N/A	1,834	94	N/A	N/A	N/A	N/A
10	SB207-2	(Gamma Bkg 1740)	N/A	N/A	1,944	204	N/A	N/A	N/A	N/A
11	SB207-3	(Gamma Bkg 1740)	N/A	N/A	1,916	176	N/A	N/A	N/A	N/A
	SB207-4	(Gamma Bkg 1740)	N/A	N/A	1,884	144	N/A	N/A	N/A	N/A
13	SB208-1	(Gamma Bkg 1193)	N/A	N/A	1,292	99	N/A	N/A	N/A	N/A
14	SB208-2	(Gamma Bkg 1193)	N/A	N/A	1,360	167	N/A	N/A	N/A	N/A
15	SB208-3	(Gamma Bkg 1193)	N/A	N/A	1,394	201	N/A	N/A	N/A	N/A
16	SB208-4	(Gamma Bkg 1193)	N/A	N/A	1,475	282	N/A	N/A	N/A	N/A
17	SB209-1	(Gamma Bkg 1113)	N/A	N/A	1,207	94	N/A	N/A	N/A	N/A
18	SB209-2	(Gamma Bkg 1113)	N/A	N/A	1,226	113	N/A	N/A	N/A	N/A
19	SB209-3	(Gamma Bkg 1113)	N/A	N/A	1,309	196	N/A	N/A	N/A	N/A
20	SB209-4	(Gamma Bkg 1113)	N/A	N/A	1,307	194	N/A	N/A	N/A	N/A
21	SB209-1 msmsd	(Gamma Bkg 1113)	N/A	N/A	1,272	159	N/A	N/A	N/A	N/A
22	SB210-1 1st Core	(Gamma Bkg 979)	N/A	N/A	1,237	258	N/A	N/A	N/A	N/A
23	SB210-2 1st Core	(Gamma Bkg 979)	N/A	N/A	1,212	233	N/A	N/A	N/A	N/A
24	SB210-3 1st Core	(Gamma Bkg 979)	N/A	N/A	1,211	232	N/A	N/A	N/A	N/A
25	SB210-4 1st Core	(Gamma Bkg 979)	N/A	N/A	1,256	277	N/A	N/A	N/A	N/A
26	SB210-1 2nd Core	(Gamma Bkg 979)	N/A	N/A	1,221	242	N/A	N/A	N/A	N/A
27	SB210-2 2nd Core	(Gamma Bkg 979)	N/A	N/A	1,190	211	N/A	N/A	N/A	N/A
28	SB210-3 2nd Core	(Gamma Bkg 979)	N/A	N/A	1,316	337	N/A	N/A	N/A	N/A
29	SB210-4 2nd Core	(Gamma Bkg 979)	N/A	N/A	1,253	274	N/A	N/A	N/A	N/A
30	SB211-1	(Gamma Bkg 932)	N/A	N/A	1,132	200	N/A	N/A	N/A	N/A
31	SB211-2	(Gamma Bkg 932)	N/A	N/A	1,218	286	N/A	N/A	N/A	N/A
32	SB211-3	(Gamma Bkg 932)	N/A	N/A	1,072	140	N/A	N/A	N/A	N/A
	SB211-4	(Gamma Bkg 932)	N/A	N/A	1,095	163	N/A	N/A	N/A	N/A
34	SB212-1	(Gamma Bkg 897)	N/A	N/A	1,084	187	N/A	N/A	N/A	N/A
35	SB212-2	(Gamma Bkg 897)	N/A	N/A	1,100	203	N/A	N/A	N/A	N/A
36	SB212-3	(Gamma Bkg 897)	N/A	N/A	1,175	278	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/30/13 RSO / Date: 1/31/13

Survey No.:	7225.0002-075
Date:	25-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s : SB245 SB238 and SB207-SB212
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	SB212-4	(Gamma Bkg 897)	N/A	N/A	1,142	245	N/A	N/A	N/A	N/A
38	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
39	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
1/30/2013 3:59:11 PM

Survey ID: 7225.0002-075

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SB245-1	(Gamma Bkg 1654)	0.000	2.000	-0.386	-0.856
2	2	SB245-2	(Gamma Bkg 1654)	0.000	5.000	-0.386	4.281
3	3	SB245-3	(Gamma Bkg 1654)	0.000	5.000	-0.386	4.281
4	4	SB245-4	(Gamma Bkg 1654)	0.000	1.000	-0.386	-2.568
5	5	SB238-1	(Gamma Bkg 1576)	0.000	5.000	-0.386	4.281
6	6	SB238-2	(Gamma Bkg 1576)	0.000	4.000	-0.386	2.568
7	7	SB238-3	(Gamma Bkg 1576)	0.000	3.000	-0.386	0.856
8	8	SB238-4	(Gamma Bkg 1576)	0.000	3.000	-0.386	0.856
9	9	SB207-1	(Gamma Bkg 1740)	0.000	2.000	-0.386	-0.856
10	10	SB207-2	(Gamma Bkg 1740)	0.000	7.000	-0.386	7.705
11	11	SB207-3	(Gamma Bkg 1740)	0.000	2.000	-0.386	-0.856
12	12	SB207-4	(Gamma Bkg 1740)	1.000	3.000	3.475	0.856
13	13	SB208-1	(Gamma Bkg 1193)	0.000	4.000	-0.386	2.568
14	14	SB208-2	(Gamma Bkg 1193)	0.000	2.000	-0.386	-0.856
15	15	SB208-3	(Gamma Bkg 1193)	0.000	1.000	-0.386	-2.568
16	16	SB208-4	(Gamma Bkg 1193)	0.000	1.000	-0.386	-2.568
17	17	SB209-1	(Gamma Bkg 1113)	0.000	2.000	-0.386	-0.856
18	18	SB209-2	(Gamma Bkg 1113)	0.000	3.000	-0.386	0.856
19	19	SB209-3	(Gamma Bkg 1113)	0.000	6.000	-0.386	5.993
20	20	SB209-4	(Gamma Bkg 1113)	1.000	0.000	3.475	-4.281
21	21	SB209-1 msmsd	(Gamma Bkg 1113)	0.000	2.000	-0.386	-0.856
22	22	SB210-1 1st Core	(Gamma Bkg 979)	0.000	2.000	-0.386	-0.856
23	23	SB210-2 1st Core	(Gamma Bkg 979)	0.000	2.000	-0.386	-0.856
24	24	SB210-3 1st Core	(Gamma Bkg 979)	0.000	2.000	-0.386	-0.856
25	25	SB210-4 1st Core	(Gamma Bkg 979)	0.000	2.000	-0.386	-0.856
26	26	SB210-1 2nd Core	(Gamma Bkg 979)	0.000	5.000	-0.386	4.281
27	27	SB210-2 2nd Core	(Gamma Bkg 979)	0.000	4.000	-0.386	2.568
28	28	SB210-3 2nd Core	(Gamma Bkg 979)	0.000	1.000	-0.386	-2.568
29	29	SB210-4 2nd Core	(Gamma Bkg 979)	1.000	8.000	3.475	9.418
30	30	SB211-1	(Gamma Bkg 932)	0.000	1.000	-0.386	-2.568
31	31	SB211-2	(Gamma Bkg 932)	0.000	6.000	-0.386	5.993
32	32	SB211-3	(Gamma Bkg 932)	0.000	3.000	-0.386	0.856
33	33	SB211-4	(Gamma Bkg 932)	0.000	1.000	-0.386	-2.568
34	34	SB212-1	(Gamma Bkg 897)	0.000	1.000	-0.386	-2.568
35	35	SB212-2	(Gamma Bkg 897)	0.000	1.000	-0.386	-2.568
36	36	SB212-3	(Gamma Bkg 897)	0.000	5.000	-0.386	4.281
37	37	SB212-4	(Gamma Bkg 897)	0.000	3.000	-0.386	0.856

Counted By: _____ Reviewed By: _____ Date: 1/30/13

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-076
Date:	25-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	158	131	1	0	181	53
2	port side moon pool	0	-6	164	219	1	0	148	-38
3	vibracore	2	15	164	219	0	-1	159	-7
4	instrument table	1	4	156	101	1	0	189	75
5	sample prep area	4	35	163	204	4	5	163	4
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/25/13 RSO / Date: 1/25/13

Survey No.:	7225.0002-077
Date:	25-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #004 and 014-017 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2012	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 004 inside	N/A	N/A	5	N/A	3	3	180	50
2	cooler # 004 outside	N/A	N/A	5	N/A	0	-1	160	-5
3	cooler # 014 inside	N/A	N/A	5	N/A	4	5	173	31
4	cooler # 014 outside	N/A	N/A	5	N/A	1	0	169	20
5	cooler # 015 inside	N/A	N/A	5	N/A	1	0	164	6
6	cooler # 015 outside	N/A	N/A	5	N/A	1	0	151	-29
7	cooler # 016 inside	N/A	N/A	5	N/A	1	0	181	53
8	cooler # 016 outside	N/A	N/A	5	N/A	1	0	167	15
9	cooler # 017 inside	N/A	N/A	5	N/A	1	0	165	9
10	cooler # 017 outside	N/A	N/A	5	N/A	0	-1	156	-16
11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/2/13 RSO / Date: 2/2/13

Survey No.:	7225.0002-0078
Date:	28-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #s: 027 and 028
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 027 I/S	1	-1	182	-229	N/A	N/A	N/A	N/A
2	Cooler - 027 O/S	0	-11	229	251	N/A	N/A	N/A	N/A
3	Cooler - 028 I/S	1	-1	201	-35	N/A	N/A	N/A	N/A
4	Cooler - 028 O/S	1	-1	215	108	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/2/2013 9:56:25 AM

Survey ID: 7225.0002-078

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 027 I/S	0.000	3.000	-0.386	0.856
2	2	Cooler - 027 O/S	0.000	1.000	-0.386	-2.568
3	3	Cooler - 028 I/S	0.000	0.000	-0.386	-4.281
4	4	Cooler - 028 O/S	0.000	4.000	-0.386	2.568

Counted By: _____ Reviewed By: _____ Date: 2/4/13

Survey Data Sheet

Tech / Date: 1/28/13 RSO / Date: 1/28/13

Survey No.:	7225.0002-079
Date:	28-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	142	-104	0	-1	177	42
2	port side moon pool	1	4	112	-546	1	0	187	69
3	sample prep area	2	15	123	-384	2	2	184	61
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1 2/2/13 RSO / Date: 2/2/13

Survey No.:	7225.0002-080
Date:	28-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Smp#s :SB213-SB218, SB108, and SB106
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SB213-2	(Gamma Bkg 935)	N/A	N/A	1,254	319	N/A	N/A	N/A	N/A
2	SB213-3	(Gamma Bkg 935)	N/A	N/A	1,206	271	N/A	N/A	N/A	N/A
3	SB213-4	(Gamma Bkg 935)	N/A	N/A	1,182	247	N/A	N/A	N/A	N/A
4	SB216-1	(Gamma Bkg 921)	N/A	N/A	1,013	92	N/A	N/A	N/A	N/A
5	SB216-2	(Gamma Bkg 921)	N/A	N/A	1,103	182	N/A	N/A	N/A	N/A
6	SB216-3	(Gamma Bkg 921)	N/A	N/A	1,053	132	N/A	N/A	N/A	N/A
7	SB216-4	(Gamma Bkg 921)	N/A	N/A	1,093	172	N/A	N/A	N/A	N/A
8	SB216-1 msmsd	(Gamma Bkg 921)	N/A	N/A	1,030	109	N/A	N/A	N/A	N/A
9	SB217-1	(Gamma Bkg 791)	N/A	N/A	961	170	N/A	N/A	N/A	N/A
10	SB217-2	(Gamma Bkg 791)	N/A	N/A	965	174	N/A	N/A	N/A	N/A
11	SB217-3	(Gamma Bkg 791)	N/A	N/A	1,001	210	N/A	N/A	N/A	N/A
12	SB217-4	(Gamma Bkg 791)	N/A	N/A	974	183	N/A	N/A	N/A	N/A
13	SB218-1	(Gamma Bkg 1010)	N/A	N/A	1,324	314	N/A	N/A	N/A	N/A
14	SB218-2	(Gamma Bkg 1010)	N/A	N/A	1,286	276	N/A	N/A	N/A	N/A
15	SB218-3	(Gamma Bkg 1010)	N/A	N/A	1,278	268	N/A	N/A	N/A	N/A
16	SB218-4	(Gamma Bkg 1010)	N/A	N/A	1,317	307	N/A	N/A	N/A	N/A
17	SB215-2	(Gamma Bkg 1069)	N/A	N/A	1,308	239	N/A	N/A	N/A	N/A
18	SB215-3	(Gamma Bkg 1069)	N/A	N/A	1,245	176	N/A	N/A	N/A	N/A
19	SB215-4	(Gamma Bkg 1069)	N/A	N/A	1,344	275	N/A	N/A	N/A	N/A
20	SB214-3	(Gamma Bkg 1070)	N/A	N/A	1,315	245	N/A	N/A	N/A	N/A
21	SB214-4	(Gamma Bkg 1070)	N/A	N/A	1,407	337	N/A	N/A	N/A	N/A
22	SB108-1	(Gamma Bkg 725)	N/A	N/A	951	226	N/A	N/A	N/A	N/A
23	SB108-2	(Gamma Bkg 725)	N/A	N/A	995	270	N/A	N/A	N/A	N/A
24	SB108-3	(Gamma Bkg 725)	N/A	N/A	894	169	N/A	N/A	N/A	N/A
25	SB108-4	(Gamma Bkg 725)	N/A	N/A	911	186	N/A	N/A	N/A	N/A
26	SB106-1	(Gamma Bkg 775)	N/A	N/A	918	143	N/A	N/A	N/A	N/A
27	SB106-2	(Gamma Bkg 775)	N/A	N/A	930	155	N/A	N/A	N/A	N/A
28	SB106-3	(Gamma Bkg 775)	N/A	N/A	903	128	N/A	N/A	N/A	N/A
29	SB106-4	(Gamma Bkg 775)	N/A	N/A	1,011	236	N/A	N/A	N/A	N/A
30	SB106-1 msmsd	(Gamma Bkg 775)	N/A	N/A	910	135	N/A	N/A	N/A	N/A
31	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
32	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/2/2013 10:55:25 AM

Survey ID: 7225.0002-080

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SB213-2	0.000	3.000	-0.386	0.856
2	2	SB213-3	0.000	2.000	-0.386	-0.856
3	3	SB213-4	0.000	2.000	-0.386	-0.856
4	4	SB216-1	0.000	0.000	-0.386	-4.281
5	5	SB216-2	0.000	1.000	-0.386	-2.568
6	6	SB216-3	0.000	3.000	-0.386	0.856
7	7	SB216-4	0.000	5.000	-0.386	4.281
8	8	SB216-1 msmsd	0.000	4.000	-0.386	2.568
9	9	SB217-1	0.000	1.000	-0.386	-2.568
10	10	SB217-2	2.000	1.000	7.336	-2.568
11	11	SB217-3	0.000	1.000	-0.386	-2.568
12	12	SB217-4	0.000	0.000	-0.386	-4.281
13	13	SB218-1	0.000	5.000	-0.386	4.281
14	14	SB218-2	0.000	3.000	-0.386	0.856
15	15	SB218-3	0.000	4.000	-0.386	2.568
16	16	SB218-4	1.000	1.000	3.475	-2.568
17	17	SB215-2	0.000	2.000	-0.386	-0.856
18	18	SB215-3	0.000	3.000	-0.386	0.856
19	19	SB215-4	0.000	1.000	-0.386	-2.568
20	20	SB214-3	1.000	4.000	3.475	2.568
21	21	SB214-4	0.000	2.000	-0.386	-0.856
22	22	SB108-1	0.000	0.000	-0.386	-4.281
23	23	SB108-2	0.000	0.000	-0.386	-4.281
24	24	SB108-3	0.000	1.000	-0.386	-2.568
25	25	SB108-4	0.000	4.000	-0.386	2.568
26	26	SB106-1	0.000	3.000	-0.386	0.856
27	27	SB106-2	0.000	2.000	-0.386	-0.856
28	28	SB106-3	1.000	4.000	3.475	2.568
29	29	SB106-4	0.000	1.000	-0.386	-2.568
30	30	SB106-1 msmsd	1.000	3.000	3.475	0.856

Counted By: _____ Reviewed By: _____ Date: 2/2/13

Survey Data Sheet

Tech / Date: 1/28/13 RSO / Date: 1/29/13

Survey No.:	7225.0002-081
Date:	28-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	2	15	132	-251	1	0	142	-54
2	port side moon pool	1	4	118	-457	0	-1	158	-10
3	vibracore	1	4	113	-531	0	-1	170	23
4	instrument table	2	15	101	-707	1	0	164	6
5	sample prep area	4	35	135	-207	1	0	178	45
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/28/13 RSO / Date: 1/28/13

Survey No.:	7225.0002-082
Date:	28-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #018 #020 #022 #026 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2013	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 018 inside	N/A	N/A	5	N/A	0	-1	152	-27
2	cooler # 018 outside	N/A	N/A	5	N/A	1	0	153	-24
3	cooler # 020 inside	N/A	N/A	5	N/A	0	-1	151	-29
4	cooler # 020 outside	N/A	N/A	5	N/A	1	0	171	25
5	cooler # 022 inside	N/A	N/A	5	N/A	2	2	156	-16
6	cooler # 022 outside	N/A	N/A	5	N/A	1	0	150	-32
7	cooler # 026 inside	N/A	N/A	5	N/A	0	-1	150	-32
8	cooler # 026 outside	N/A	N/A	5	N/A	3	3	158	-10
9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/2/13 RSO / Date: 2/2/13

Survey No.:	7225.0002-083
Date:	28-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #s: 029 030 and 031
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 029 I/S	2	8	238	343	N/A	N/A	N/A	N/A
2	Cooler - 029 O/S	4	27	225	210	N/A	N/A	N/A	N/A
3	Cooler - 030 I/S	1	-1	219	149	N/A	N/A	N/A	N/A
4	Cooler - 030 O/S	2	8	220	159	N/A	N/A	N/A	N/A
5	Cooler-031 I/S	1	-1	204	-4	N/A	N/A	N/A	N/A
6	Cooler-031 O/S	5	36	230	261	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/2/2013 11:24:32 AM

Survey ID: 7225.0002-083

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 029 I/S	0.000	3.000	-0.386	0.856
2	2	Cooler - 029 O/S	0.000	0.000	-0.386	-4.281
3	3	Cooler - 030 I/S	0.000	1.000	-0.386	-2.568
4	4	Cooler - 030 O/S	0.000	1.000	-0.386	-2.568
5	5	Cooler - 031 I/S	0.000	2.000	-0.386	-0.856
6	6	Cooler - 031 O/S	0.000	5.000	-0.386	4.281

Counted By: _____ Reviewed By: _____ Date: 2/4/13

Survey Data Sheet

Tech / Date: 1/24/13 RSO / Date: 1/29/13

Survey No.:	7225.0002-084
Date:	29-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	137	-178	1	0	181	53
2	port side moon pool	0	-6	161	175	1	0	156	-16
3	sample prep area	2	15	124	-369	0	-1	193	86
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/2/13 RSO / Date: 2/2/13

Survey No.:	7225.0002-085
Date:	29-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Sample #s: SA410-SA412
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SA411-1	(Gamma Bkg 791)	N/A	N/A	1,013	222	N/A	N/A	N/A	N/A
2	SA411-2	(Gamma Bkg 791)	N/A	N/A	1,037	246	N/A	N/A	N/A	N/A
3	SA411-3	(Gamma Bkg 791)	N/A	N/A	887	96	N/A	N/A	N/A	N/A
4	SA411-4	(Gamma Bkg 791)	N/A	N/A	953	162	N/A	N/A	N/A	N/A
5	SA412-1	(Gamma Bkg 982)	N/A	N/A	1,040	58	N/A	N/A	N/A	N/A
6	SA412-2	(Gamma Bkg 982)	N/A	N/A	1,068	86	N/A	N/A	N/A	N/A
7	SA412-3	(Gamma Bkg 982)	N/A	N/A	1,130	148	N/A	N/A	N/A	N/A
8	SA412-4	(Gamma Bkg 982)	N/A	N/A	1,137	155	N/A	N/A	N/A	N/A
9	SA410-1	(Gamma Bkg 999)	N/A	N/A	1,175	176	N/A	N/A	N/A	N/A
10	SA410-2	(Gamma Bkg 999)	N/A	N/A	1,178	179	N/A	N/A	N/A	N/A
11	SA410-3	(Gamma Bkg 999)	N/A	N/A	1,172	173	N/A	N/A	N/A	N/A
12	SA410-4	(Gamma Bkg 999)	N/A	N/A	1,111	112	N/A	N/A	N/A	N/A
13	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/2/2013 12:13:05 PM

Survey ID: 7225.0002-085

Alpha MDA 17 DPM

ALPHA BKGD = 0.10
ALPHA EFF. = 25.90%
ALPHA F = 1.00
Count Time = 1.00 min

Beta MDA = 18 DPM

BETA BKGD = 2.50
BETA EFF. = 58.40%
BETA F = 1.00
BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SA411-1	0.000	2.000	-0.386	-0.856
2	2	SA411-2	1.000	3.000	3.475	0.856
3	3	SA411-3	0.000	0.000	-0.386	-4.281
4	4	SA411-4	0.000	2.000	-0.386	-0.856
5	5	SA412-1	0.000	5.000	-0.386	4.281
6	6	SA412-2	0.000	1.000	-0.386	-2.568
7	7	SA412-3	1.000	0.000	3.475	-4.281
8	8	SA412-4	0.000	3.000	-0.386	0.856
9	9	SA410-1	0.000	1.000	-0.386	-2.568
10	10	SA410-2	0.000	3.000	-0.386	0.856
11	11	SA410-3	0.000	2.000	-0.386	-0.856
12	12	SA410-4	1.000	1.000	3.475	-2.568

Counted By: _____ Reviewed By: _____ Date: 2/3/13

Survey Data Sheet

Tech / Date: 1/29/13 RSO / Date: 1/29/13

Survey No.:	7225.0002-086
Date:	29-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	126	-340	0	-1	162	1
2	port side moon pool	0	-6	116	-487	0	-1	160	-5
3	vibracore top	0	-6	125	-354	1	0	154	-21
4	instrument table	0	-6	126	-340	0	-1	139	-62
5	sample prep area	2	15	148	-16	1	0	169	20
6	starboard side moon pool	1	4	121	-413	0	-1	131	-84
7	stern side moon pool	0	-6	115	-501	1	0	161	-2
8	moon pool cover	0	-6	126	-340	0	-1	160	-5
9	A frame post	1	4	100	-722	2	2	153	-24
10	vibracore bottom	2	15	78	-1,046	0	-1	154	-21
11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1/29/13 RSO / Date: 1/29/31

Survey No.:	7225.0002-087
Date:	29-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #027 #028 #029 #031 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2012	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 027 inside	N/A	N/A	5	N/A	1	0	143	-51
2	cooler # 027 outside	N/A	N/A	5	N/A	1	0	188	72
3	cooler # 028 inside	N/A	N/A	5	N/A	0	-1	165	9
4	cooler # 028 outside	N/A	N/A	5	N/A	0	-1	170	23
5	cooler # 029 inside	N/A	N/A	5	N/A	0	-1	154	-21
6	cooler # 029 outside	N/A	N/A	5	N/A	2	2	166	12
7	cooler # 031 inside	N/A	N/A	5	N/A	0	-1	149	-35
8	cooler # 031 outside	N/A	N/A	5	N/A	1	0	183	58
9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/2/13 RSO / Date: 2/2/13

Survey No.:	7225.0002-088
Date:	29-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #s: 007 024 025 032
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 007 I/S	1	-1	212	78	N/A	N/A	N/A	N/A
2	Cooler - 007 O/S	6	45	210	57	N/A	N/A	N/A	N/A
3	Cooler - 024 I/S	1	-1	195	-96	N/A	N/A	N/A	N/A
4	Cooler - 024 O/S	5	36	210	57	N/A	N/A	N/A	N/A
5	Cooler - 025 I/S	0	-11	218	139	N/A	N/A	N/A	N/A
6	Cooler - 025 O/S	1	-1	194	-106	N/A	N/A	N/A	N/A
7	Cooler - 032 I/S	1	-1	211	67	N/A	N/A	N/A	N/A
8	Cooler - 032 O/S	3	17	227	231	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/2/2013 12:43:19 PM

Survey ID: 7225.0002-088

Alpha MDA 17 DPM

ALPHA BKGD = 0.10
ALPHA EFF. = 25.90%
ALPHA F = 1.00
Count Time = 1.00 min

Beta MDA = 18 DPM

BETA BKGD = 2.50
BETA EFF. = 58.40%
BETA F = 1.00
BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 007 I/S	0.000	3.000	-0.386	0.856
2	2	Cooler - 007 O/S	0.000	1.000	-0.386	-2.568
3	3	Cooler - 024 I/S	0.000	2.000	-0.386	-0.856
4	4	Cooler - 024 O/S	0.000	4.000	-0.386	2.568
5	5	Cooler - 025 I/S	0.000	2.000	-0.386	-0.856
6	6	Cooler - 025 O/S	0.000	1.000	-0.386	-2.568
7	7	Cooler - 032 I/S	0.000	0.000	-0.386	-4.281
8	8	Cooler - 032 O/S	0.000	1.000	-0.386	-2.568

Counted By: _____ Reviewed By: _____ Date: 2/4/13

Survey Data Sheet

Tech / Date: 1/30/13 RSO / Date: 1/30/13

Survey No.:	7225.0002-089
Date:	30-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	3	25	170	307	1	0	171	25
2	port side moon pool	1	4	103	-678	0	-1	159	-7
3	sample prep area	0	-6	169	293	0	-1	155	-18
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 1 2/4/13 RSO / Date: 2/4/13

Survey No.:	7225.0002-090
Date:	30-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Sample #s: SA413-SA421 and SA426
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SA417-3	(Gamma Bkg 1341)	N/A	N/A	1,547	206	N/A	N/A	N/A	N/A
2	SA417-4	(Gamma Bkg 1341)	N/A	N/A	1,603	262	N/A	N/A	N/A	N/A
3	SA415-4	(Gamma Bkg 1520)	N/A	N/A	1,265	-255	N/A	N/A	N/A	N/A
4	SA414-1 1st Core	(Gamma Bkg 1064)	N/A	N/A	1,353	289	N/A	N/A	N/A	N/A
5	SA414-2 1st Core	(Gamma Bkg 1064)	N/A	N/A	1,289	225	N/A	N/A	N/A	N/A
6	SA414-3 1st Core	(Gamma Bkg 1064)	N/A	N/A	1,317	253	N/A	N/A	N/A	N/A
7	SA414-4 1st Core	(Gamma Bkg 1064)	N/A	N/A	1,350	286	N/A	N/A	N/A	N/A
8	SA414-1 1st Core msmsd	(Gamma Bkg 1064)	N/A	N/A	1,262	198	N/A	N/A	N/A	N/A
9	SA414-1 2nd Core	(Gamma Bkg 1064)	N/A	N/A	1,340	276	N/A	N/A	N/A	N/A
10	SA414-2 2nd Core	(Gamma Bkg 1064)	N/A	N/A	1,324	260	N/A	N/A	N/A	N/A
[illegible]	SA414-3 2nd Core	(Gamma Bkg 1064)	N/A	N/A	1,324	260	N/A	N/A	N/A	N/A
[illegible]	SA414-4 2nd Core	(Gamma Bkg 1064)	N/A	N/A	1,347	283	N/A	N/A	N/A	N/A
13	SA414-1 2nd Core	(Gamma Bkg 1064)	N/A	N/A	1,237	173	N/A	N/A	N/A	N/A
14	SA413-1	(Gamma Bkg 1124)	N/A	N/A	1,192	68	N/A	N/A	N/A	N/A
15	SA413-2	(Gamma Bkg 1124)	N/A	N/A	1,126	2	N/A	N/A	N/A	N/A
16	SA413-3	(Gamma Bkg 1124)	N/A	N/A	1,226	102	N/A	N/A	N/A	N/A
17	SA413-4	(Gamma Bkg 1124)	N/A	N/A	1,221	97	N/A	N/A	N/A	N/A
18	SA418-1	(Gamma Bkg 933)	N/A	N/A	1,175	242	N/A	N/A	N/A	N/A
19	SA418-2	(Gamma Bkg 933)	N/A	N/A	1,026	93	N/A	N/A	N/A	N/A
20	SA418-3	(Gamma Bkg 933)	N/A	N/A	1,040	107	N/A	N/A	N/A	N/A
21	SA418-4	(Gamma Bkg 933)	N/A	N/A	1,090	157	N/A	N/A	N/A	N/A
22	SA416-2	(Gamma Bkg 825)	N/A	N/A	1,003	178	N/A	N/A	N/A	N/A
23	SA416-3	(Gamma Bkg 825)	N/A	N/A	939	114	N/A	N/A	N/A	N/A
24	SA416-4	(Gamma Bkg 825)	N/A	N/A	1,008	183	N/A	N/A	N/A	N/A
25	SA419-2	(Gamma Bkg 817)	N/A	N/A	956	139	N/A	N/A	N/A	N/A
26	SA419-3	(Gamma Bkg 817)	N/A	N/A	961	144	N/A	N/A	N/A	N/A
27	SA419-4	(Gamma Bkg 817)	N/A	N/A	1,073	256	N/A	N/A	N/A	N/A
28	SA420-1	(Gamma Bkg 2666)	N/A	N/A	2,805	139	N/A	N/A	N/A	N/A
29	SA420-2	(Gamma Bkg 2666)	N/A	N/A	2,880	214	N/A	N/A	N/A	N/A
30	SA420-3	(Gamma Bkg 2666)	N/A	N/A	2,734	68	N/A	N/A	N/A	N/A
31	SA420-4	(Gamma Bkg 2666)	N/A	N/A	2,876	210	N/A	N/A	N/A	N/A
[illegible]	SA426-1	(Gamma Bkg 1500)	N/A	N/A	1,606	106	N/A	N/A	N/A	N/A
[illegible]	SA426-2	(Gamma Bkg 1500)	N/A	N/A	1,686	186	N/A	N/A	N/A	N/A
34	SA426-3	(Gamma Bkg 1500)	N/A	N/A	1,677	177	N/A	N/A	N/A	N/A
35	SA426-4	(Gamma Bkg 1500)	N/A	N/A	1,783	283	N/A	N/A	N/A	N/A
36	SA421-1	(Gamma Bkg 2497)	N/A	N/A	2,273	-224	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/4/13 RSO / Date: 2/4/13

Survey No.:	7225.0002-090
Date:	30-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Sample #s: SA413-SA421 and SA426
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	SA421-2	(Gamma Bkg 2497)	N/A	N/A	2,247	-250	N/A	N/A	N/A	N/A
38	SA421-3	(Gamma Bkg 2497)	N/A	N/A	2,310	-187	N/A	N/A	N/A	N/A
39	SA421-4	(Gamma Bkg 2497)	N/A	N/A	2,328	-169	N/A	N/A	N/A	N/A
40	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
41	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/4/2013 8:26:02 AM

Survey ID: 7225.0002-090

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SA417-3	0.000	2.000	-0.386	-0.856
2	2	SA417-4	0.000	0.000	-0.386	-4.281
3	3	SA415-4	0.000	3.000	-0.386	0.856
4	4	SA414-1 1st Core	0.000	1.000	-0.386	-2.568
5	5	SA414-2 1st Core	0.000	4.000	-0.386	2.568
6	6	SA414-3 1st Core	0.000	2.000	-0.386	-0.856
7	7	SA414-4 1st Core	0.000	3.000	-0.386	0.856
8	8	SA414-1 1st Core msmsd	0.000	3.000	-0.386	0.856
9	9	SA414-1 2nd Core	0.000	3.000	-0.386	0.856
10	10	SA414-2 2nd Core	1.000	3.000	3.475	0.856
11	11	SA414-3 2nd Core	0.000	2.000	-0.386	-0.856
12	12	SA414-4 2nd Core	0.000	0.000	-0.386	-4.281
13	13	SA414-1 2nd Core	1.000	0.000	3.475	-4.281
14	14	SA413-1	0.000	1.000	-0.386	-2.568
15	15	SA413-2	0.000	0.000	-0.386	-4.281
16	16	SA413-3	0.000	2.000	-0.386	-0.856
17	17	SA413-4	0.000	1.000	-0.386	-2.568
18	18	SA418-1	0.000	5.000	-0.386	4.281
19	19	SA418-2	0.000	2.000	-0.386	-0.856
20	20	SA418-3	0.000	6.000	-0.386	5.993
21	21	SA418-4	0.000	3.000	-0.386	0.856
22	22	SA416-2	0.000	1.000	-0.386	-2.568
23	23	SA416-3	0.000	1.000	-0.386	-2.568
24	24	SA416-4	1.000	1.000	3.475	-2.568
25	25	SA419-2	0.000	2.000	-0.386	-0.856
26	26	SA419-3	0.000	5.000	-0.386	4.281
27	27	SA419-4	0.000	3.000	-0.386	0.856
28	28	SA420-1	0.000	1.000	-0.386	-2.568
29	29	SA420-2	0.000	4.000	-0.386	2.568
30	30	SA420-3	1.000	2.000	3.475	-0.856
31	31	SA420-4	0.000	1.000	-0.386	-2.568
32	32	SA426-1	0.000	5.000	-0.386	4.281
33	33	SA426-2	0.000	2.000	-0.386	-0.856
34	34	SA426-3	0.000	1.000	-0.386	-2.568
35	35	SA426-4	0.000	0.000	-0.386	-4.281
36	36	SA421-1	2.000	1.000	7.336	-2.568
37	37	SA421-2	0.000	1.000	-0.386	-2.568
38	38	SA421-3	1.000	3.000	3.475	0.856
39	39	SA421-4	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 2/4/13

Survey Data Sheet

Tech / Date: 1/30/13 RSO / Date: 1/30/13

Survey No.:	7225.0002-091
Date:	30-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	0	-6	171	322	1	0	171	25
2	port side moon pool	0	-6	112	-546	0	-1	171	25
3	vibracore top	0	-6	128	-310	0	-1	101	-167
4	instrument table	0	-6	106	-634	0	-1	151	-29
5	sample prep area	2	15	159	146	0	-1	171	25
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/4/13 RSO / Date: 2/4/13

Survey No.:	7225.0002-092
Date:	30-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #s: 002 008-010 019 021 023 033
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 002 I/S	1	-1	207	27	N/A	N/A	N/A	N/A
2	Cooler - 002 O/S	2	8	203	-14	N/A	N/A	N/A	N/A
3	Cooler - 008 I/S	3	17	228	241	N/A	N/A	N/A	N/A
4	Cooler - 008 O/S	8	64	224	200	N/A	N/A	N/A	N/A
5	Cooler - 009 I/S	3	17	232	282	N/A	N/A	N/A	N/A
6	Cooler - 009 O/S	0	-11	237	333	N/A	N/A	N/A	N/A
7	Cooler - 010 I/S	1	-1	207	27	N/A	N/A	N/A	N/A
8	Cooler - 010 O/S	0	-11	202	-24	N/A	N/A	N/A	N/A
9	Cooler - 019 I/S	5	36	204	-4	N/A	N/A	N/A	N/A
10	Cooler - 019 O/S	1	-1	202	-24	N/A	N/A	N/A	N/A
11	Cooler - 021 I/S	4	27	200	-45	N/A	N/A	N/A	N/A
12	Cooler - 021 O/S	1	-1	207	27	N/A	N/A	N/A	N/A
13	Cooler - 023 I/S	1	-1	213	88	N/A	N/A	N/A	N/A
14	Cooler - 023 O/S	1	-1	192	-127	N/A	N/A	N/A	N/A
15	Cooler - 033 I/S	4	27	226	220	N/A	N/A	N/A	N/A
16	Cooler - 033 O/S	N/A	N/A	197	-76	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/4/2013 10:11:56 AM

Survey ID: 7225.0002-092

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 002 I/S	0.000	1.000	-0.386	-2.568
2	2	Cooler - 002 O/S	0.000	0.000	-0.386	-4.281
3	3	Cooler - 008 I/S	0.000	3.000	-0.386	0.856
4	4	Cooler - 008 O/S	0.000	2.000	-0.386	-0.856
5	5	Cooler - 009 I/S	0.000	1.000	-0.386	-2.568
6	6	Cooler - 009 O/S	0.000	2.000	-0.386	-0.856
7	7	Cooler - 010 I/S	0.000	3.000	-0.386	0.856
8	8	Cooler - 010 O/S	0.000	1.000	-0.386	-2.568
9	9	Cooler - 019 I/S	0.000	0.000	-0.386	-4.281
10	10	Cooler - 019 O/S	0.000	0.000	-0.386	-4.281
11	11	Cooler - 021 I/S	0.000	1.000	-0.386	-2.568
12	12	Cooler - 021 O/S	0.000	3.000	-0.386	0.856
13	13	Cooler - 023 I/S	0.000	2.000	-0.386	-0.856
14	14	Cooler - 023 O/S	0.000	1.000	-0.386	-2.568
15	15	Cooler - 033 I/S	0.000	4.000	-0.386	2.568
16	16	Cooler - 033 O/S	0.000	1.000	-0.386	-2.568

Counted By: _____ Reviewed By: _____ Date: 2/4/13

Survey Data Sheet

Tech / Date: 2/8/13 RSO / Date: 2/8/13

Survey No.:	7225.0002-093
Date:	31-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	Mobile Mini # AS40RYU0517
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-12	4-Oct-12		
Bkgd (cpm)	1.15	204.7		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Storage area floor	1	-1	230	258	N/A	N/A	N/A	N/A
2	Storage area floor	2	8	214	95	N/A	N/A	N/A	N/A
3	Office area floor	2	8	234	299	N/A	N/A	N/A	N/A
4	Office area floor	4	27	205	3	N/A	N/A	N/A	N/A
5	Instrument table	3	17	214	95	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/8/2013 12:22:11 PM

Survey ID: 7225.0002-093

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	3.000	-0.386	0.856
2	2	Sample 2	0.000	1.000	-0.386	-2.568
3	3	Sample 3	0.000	4.000	-0.386	2.568
4	4	Sample 4	0.000	2.000	-0.386	-0.856
5	5	Sample 5	1.000	1.000	3.475	-2.568

Counted By: _____ Reviewed By: _____ Date: 2/8/13

Survey Data Sheet

Tech / Date: 2/8/13 RSO / Date: 2/8/13

Survey No.:	7225.0002-094
Date:	31-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	ITSI Dock
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR298426	PR298426	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-12	4-Oct-12		
Bkgd (cpm)	1.15	204.7		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Northeast Corner Dock	3	17	158	-477	N/A	N/A	N/A	N/A
2	Southeast Corner Dock	3	17	138	-681	N/A	N/A	N/A	N/A
3	Southwest Corner Dock	1	-1	118	-885	N/A	N/A	N/A	N/A
4	Gangway Bottom	0	-11	147	-589	N/A	N/A	N/A	N/A
5	Gangway Top	0	-11	127	-793	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/8/2013 12:29:33 PM

Survey ID: 7225.0002-094

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	2.000	-0.386	-0.856
2	2	Sample 2	0.000	1.000	-0.386	-2.568
3	3	Sample 3	1.000	4.000	3.475	2.568
4	4	Sample 4	1.000	5.000	3.475	4.281
5	5	Sample 5	1.000	3.000	3.475	0.856

Counted By: _____ Reviewed By: _____ Date: 2/6/13

Survey Data Sheet

Tech / Date: 1/31/13 RSO / Date: 1/31/13

Survey No.:	7225.0002-095
Date:	31-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	0	-6	170	307	0	-1	150	-32
2	port side moon pool	0	-6	123	-384	0	-1	179	47
3	sample prep area	1	4	157	116	1	0	165	9
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/8/13 RSO / Date: 2/8/13

Survey No.:	7225.0002-096
Date:	31-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Item Surveyed:	Sample #s: SA419 BS103 SB104 SB105 SB107 SB219 SB101
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SA422-1 1st Core	(Gamma Bkg 2258)	N/A	N/A	2,467	209	N/A	N/A	N/A	N/A
2	SA422-2 1st Core	(Gamma Bkg 2258)	N/A	N/A	2,556	298	N/A	N/A	N/A	N/A
3	SA422-3 1st Core	(Gamma Bkg 2258)	N/A	N/A	2,617	359	N/A	N/A	N/A	N/A
4	SA422-4 1st Core	(Gamma Bkg 2258)	N/A	N/A	2,508	250	N/A	N/A	N/A	N/A
5	SA422-1 2nd Core	(Gamma Bkg 2258)	N/A	N/A	2,440	182	N/A	N/A	N/A	N/A
6	SA422-2 2nd Core	(Gamma Bkg 2258)	N/A	N/A	2,477	219	N/A	N/A	N/A	N/A
7	SA422-3 2nd Core	(Gamma Bkg 2258)	N/A	N/A	2,530	272	N/A	N/A	N/A	N/A
8	SA422-4 2nd Core	(Gamma Bkg 2258)	N/A	N/A	2,484	226	N/A	N/A	N/A	N/A
9	BS103-1	(Gamma Bkg 1388)	N/A	N/A	1,577	189	N/A	N/A	N/A	N/A
10	BS103-2	(Gamma Bkg 1388)	N/A	N/A	1,570	182	N/A	N/A	N/A	N/A
11	BS103-3	(Gamma Bkg 1388)	N/A	N/A	1,544	156	N/A	N/A	N/A	N/A
12	BS103-4	(Gamma Bkg 1388)	N/A	N/A	1,675	287	N/A	N/A	N/A	N/A
13	SB104-1	(Gamma Bkg 1326)	N/A	N/A	1,411	85	N/A	N/A	N/A	N/A
14	SB105-1	(Gamma Bkg 1231)	N/A	N/A	1,497	266	N/A	N/A	N/A	N/A
15	SB105-2	(Gamma Bkg 1231)	N/A	N/A	1,466	235	N/A	N/A	N/A	N/A
16	SB107-1 1st Core	(Gamma Bkg 1224)	N/A	N/A	1,426	202	N/A	N/A	N/A	N/A
17	SB107-2 1st Core	(Gamma Bkg 1224)	N/A	N/A	1,504	280	N/A	N/A	N/A	N/A
18	SB107-3 1st Core	(Gamma Bkg 1224)	N/A	N/A	1,577	353	N/A	N/A	N/A	N/A
19	SB107-4 1st Core	(Gamma Bkg 1224)	N/A	N/A	1,487	263	N/A	N/A	N/A	N/A
20	SB107-1 2nd Core	(Gamma Bkg 1224)	N/A	N/A	1,450	226	N/A	N/A	N/A	N/A
21	SB107-2 2nd Core	(Gamma Bkg 1224)	N/A	N/A	1,479	255	N/A	N/A	N/A	N/A
22	SB107-3 2nd Core	(Gamma Bkg 1224)	N/A	N/A	1,510	286	N/A	N/A	N/A	N/A
23	SB107-4 2nd Core	(Gamma Bkg 1224)	N/A	N/A	1,524	300	N/A	N/A	N/A	N/A
24	SB219--1	(Gamma Bkg 1581)	N/A	N/A	1,871	290	N/A	N/A	N/A	N/A
25	SB101-1	(Gamma Bkg 1405)	N/A	N/A	1,596	191	N/A	N/A	N/A	N/A
26	SB101-2	(Gamma Bkg 1405)	N/A	N/A	1,637	232	N/A	N/A	N/A	N/A
27	SB101-3	(Gamma Bkg 1405)	N/A	N/A	1,704	299	N/A	N/A	N/A	N/A
28	SB101-4	(Gamma Bkg 1405)	N/A	N/A	1,802	397	N/A	N/A	N/A	N/A
29	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/8/2013 1:22:33 PM

Survey ID: 7225.0002-096

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SA422-1 1st Core	(Gamma Bkg 2258)	0.000	3.000	-0.386	0.856
2	2	SA422-2 1st Core	(Gamma Bkg 2258)	1.000	2.000	3.475	-0.856
3	3	SA422-3 1st Core	(Gamma Bkg 2258)	0.000	3.000	-0.386	0.856
4	4	SA422-4 1st Core	(Gamma Bkg 2258)	0.000	1.000	-0.386	-2.568
5	5	SA422-1 2nd Core	(Gamma Bkg 2258)	0.000	4.000	-0.386	2.568
6	6	SA422-2 2nd Core	(Gamma Bkg 2258)	0.000	2.000	-0.386	-0.856
7	7	SA422-3 2nd Core	(Gamma Bkg 2258)	1.000	3.000	3.475	0.856
8	8	SA422-4 2nd Core	(Gamma Bkg 2258)	0.000	5.000	-0.386	4.281
9	9	BS103-1	(Gamma Bkg 1388)	1.000	1.000	3.475	-2.568
10	10	BS103-2	(Gamma Bkg 1388)	0.000	1.000	-0.386	-2.568
11	11	BS103-3	(Gamma Bkg 1388)	0.000	0.000	-0.386	-4.281
12	12	BS103-4	(Gamma Bkg 1388)	0.000	3.000	-0.386	0.856
13	13	SB104-1	(Gamma Bkg 1326)	0.000	2.000	-0.386	-0.856
14	14	SB105-1	(Gamma Bkg 1231)	0.000	0.000	-0.386	-4.281
15	15	SB105-2	(Gamma Bkg 1231)	1.000	2.000	3.475	-0.856
16	16	SB107-1 1st Core	(Gamma Bkg 1224)	0.000	3.000	-0.386	0.856
17	17	SB107-2 1st Core	(Gamma Bkg 1224)	0.000	1.000	-0.386	-2.568
18	18	SB107-3 1st Core	(Gamma Bkg 1224)	0.000	0.000	-0.386	-4.281
19	19	SB107-4 1st Core	(Gamma Bkg 1224)	0.000	3.000	-0.386	0.856
20	20	SB107-1 2nd Core	(Gamma Bkg 1224)	0.000	2.000	-0.386	-0.856
21	21	SB107-2 2nd Core	(Gamma Bkg 1224)	1.000	5.000	3.475	4.281
22	22	SB107-3 2nd Core	(Gamma Bkg 1224)	0.000	3.000	-0.386	0.856
23	23	SB107-4 2nd Core	(Gamma Bkg 1224)	0.000	2.000	-0.386	-0.856
24	24	SB219-1	(Gamma Bkg 1581)	2.000	4.000	7.336	2.568
25	25	SB101-1	(Gamma Bkg 1405)	0.000	1.000	-0.386	-2.568
26	26	SB101-2	(Gamma Bkg 1405)	0.000	3.000	-0.386	0.856
27	27	SB101-3	(Gamma Bkg 1405)	0.000	0.000	-0.386	-4.281
28	28	SB101-4	(Gamma Bkg 1405)	0.000	3.000	-0.386	0.856

Counted By: _____ Reviewed By: _____ Date: 2/8/13

Survey Data Sheet

Tech / Date: 1/31/13 RSO / Date: 1/31/13

Survey No.:	7225.0002-097
Date:	31-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	0	-6	92	-840	1	0	148	-38
2	port side moon pool	0	-6	92	-840	1	0	184	61
3	vibracore top	0	-6	104	-663	0	-1	172	28
4	instrument table	0	-6	118	-457	0	-1	164	6
5	sample prep area	1	4	153	57	0	-1	176	39
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: _____ RSO / Date: 2/8/13

Survey No.:	7225.0002-098
Date:	31-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Item Surveyed:	Sample coolers #: 034
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 034 I/S	1	-1	207	27	N/A	N/A	N/A	N/A
2	Cooler - 034 O/S	2	8	203	-14	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/8/2013 2:26:13 PM

Survey ID: 7225.0002-098

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 034 I/S	0.000	2.000	-0.386	-0.856
2	2	Cooler - 034 O/S	0.000	1.000	-0.386	-2.568

Counted By: _____ Reviewed By: _____ Date: 2/8/13

Survey Data Sheet

Tech / Date: 1/31/13 RSO / Date: 1/31/13

Survey No.:	7225.0002-099
Date:	31-Jan-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #019 #024 #025 #034 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2013	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 019 inside	N/A	N/A	5	N/A	0	-1	156	-16
2	cooler # 019 outside	N/A	N/A	5	N/A	2	2	174	34
3	cooler # 024 inside	N/A	N/A	5	N/A	0	-1	164	6
4	cooler # 024 outside	N/A	N/A	5	N/A	2	2	181	53
5	cooler # 025 inside	N/A	N/A	5	N/A	1	0	149	-35
6	cooler # 025 outside	N/A	N/A	5	N/A	2	2	156	-16
7	cooler # 034 inside	N/A	N/A	5	N/A	1	0	178	45
8	cooler # 034 outside	N/A	N/A	5	N/A	2	2	147	-40
9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/4/13 RSO / Date: 2/4/13

Survey No.:	7225.0002-100
Date:	04-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	161	175	0	-1	183	58
2	port side moon pool	0	-6	148	-16	1	0	197	97
3	sample prep area	2	15	175	381	1	0	181	53
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/4/13 RSO / Date: 2/4/13

Survey No.:	7225.0002-101
Date:	04-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Sample #s: SB232 SB234 SB103 BN201 BN202
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SB232-1	(Gamma Bkg 1718)	N/A	N/A	1,892	174	N/A	N/A	N/A	N/A
2	SB232-2	(Gamma Bkg 1718)	N/A	N/A	1,875	157	N/A	N/A	N/A	N/A
3	SB232-3	(Gamma Bkg 1718)	N/A	N/A	2,032	314	N/A	N/A	N/A	N/A
4	SB232-4	(Gamma Bkg 1718)	N/A	N/A	2,043	325	N/A	N/A	N/A	N/A
5	SB232-1 msmsd	(Gamma Bkg 1718)	N/A	N/A	2,084	366	N/A	N/A	N/A	N/A
6	SB234-1	(Gamma Bkg 1913)	N/A	N/A	1,922	9	N/A	N/A	N/A	N/A
7	SB234-2	(Gamma Bkg 1913)	N/A	N/A	2,243	330	N/A	N/A	N/A	N/A
8	SB234-3	(Gamma Bkg 1913)	N/A	N/A	1,912	-1	N/A	N/A	N/A	N/A
9	SB234-4	(Gamma Bkg 1913)	N/A	N/A	1,938	25	N/A	N/A	N/A	N/A
10	SB103-1	(Gamma Bkg 1512)	N/A	N/A	1,879	367	N/A	N/A	N/A	N/A
11	SB103-2	(Gamma Bkg 1512)	N/A	N/A	1,726	214	N/A	N/A	N/A	N/A
12	SB103-3	(Gamma Bkg 1512)	N/A	N/A	1,893	381	N/A	N/A	N/A	N/A
13	BN201-1 1st Core	(Gamma Bkg 1637)	N/A	N/A	1,963	326	N/A	N/A	N/A	N/A
14	BN201-2 1st Core	(Gamma Bkg 1637)	N/A	N/A	1,891	254	N/A	N/A	N/A	N/A
15	BN201-3 1st Core	(Gamma Bkg 1637)	N/A	N/A	1,883	246	N/A	N/A	N/A	N/A
16	BN201-4 1st Core	(Gamma Bkg 1637)	N/A	N/A	1,905	268	N/A	N/A	N/A	N/A
17	BN201-1 2nd Core	(Gamma Bkg 1637)	N/A	N/A	1,929	292	N/A	N/A	N/A	N/A
18	BN201-2 2nd Core	(Gamma Bkg 1637)	N/A	N/A	1,816	179	N/A	N/A	N/A	N/A
19	BN201-3 2nd Core	(Gamma Bkg 1637)	N/A	N/A	1,178	-459	N/A	N/A	N/A	N/A
20	BN201-4 2nd Core	(Gamma Bkg 1637)	N/A	N/A	1,766	129	N/A	N/A	N/A	N/A
21	BN202-1	(Gamma Bkg 2322)	N/A	N/A	2,721	399	N/A	N/A	N/A	N/A
22	BN202-2	(Gamma Bkg 2322)	N/A	N/A	2,514	192	N/A	N/A	N/A	N/A
23	BN202-3	(Gamma Bkg 2322)	N/A	N/A	2,463	141	N/A	N/A	N/A	N/A
24	BN202-4	(Gamma Bkg 2322)	N/A	N/A	2,587	265	N/A	N/A	N/A	N/A
25	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
26	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/18/2013 8:16:31 AM

Survey ID: 7225.0002-101

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SB232-1	(Gamma Bkg 1718)	0.000	3.000	-0.386	0.856
2	2	SB232-2	(Gamma Bkg 1718)	0.000	9.000	-0.386	11.130
3	3	SB232-3	(Gamma Bkg 1718)	0.000	1.000	-0.386	-2.568
4	4	SB232-4	(Gamma Bkg 1718)	0.000	1.000	-0.386	-2.568
5	5	SB232-1 msmsd	(Gamma Bkg 1718)	0.000	3.000	-0.386	0.856
6	6	SB234-1	(Gamma Bkg 1913)	0.000	2.000	-0.386	-0.856
7	7	SB234-2	(Gamma Bkg 1913)	0.000	5.000	-0.386	4.281
8	8	SB234-3	(Gamma Bkg 1913)	0.000	2.000	-0.386	-0.856
9	9	SB234-4	(Gamma Bkg 1913)	0.000	1.000	-0.386	-2.568
10	10	SB103-1	(Gamma Bkg 1512)	0.000	4.000	-0.386	2.568
11	11	SB103-2	(Gamma Bkg 1512)	0.000	0.000	-0.386	-4.281
12	12	SB103-3	(Gamma Bkg 1512)	0.000	3.000	-0.386	0.856
13	13	BN201-1 1st Core	(Gamma Bkg 1637)	1.000	2.000	3.475	-0.856
14	14	BN201-2 1st Core	(Gamma Bkg 1637)	0.000	4.000	-0.386	2.568
15	15	BN201-3 1st Core	(Gamma Bkg 1637)	0.000	2.000	-0.386	-0.856
16	16	BN201-4 1st Core	(Gamma Bkg 1637)	0.000	6.000	-0.386	5.993
17	17	BN201-1 2nd Core	(Gamma Bkg 1637)	0.000	3.000	-0.386	0.856
18	18	BN201-2 2nd Core	(Gamma Bkg 1637)	0.000	1.000	-0.386	-2.568
19	19	BN201-3 2nd Core	(Gamma Bkg 1637)	0.000	5.000	-0.386	4.281
20	20	BN201-4 2nd Core	(Gamma Bkg 1637)	0.000	2.000	-0.386	-0.856
21	21	BN202-1	(Gamma Bkg 2322)	1.000	4.000	3.475	2.568
22	22	BN202-2	(Gamma Bkg 2322)	0.000	5.000	-0.386	4.281
23	23	BN202-3	(Gamma Bkg 2322)	0.000	2.000	-0.386	-0.856
24	24	BN202-4	(Gamma Bkg 2322)	0.000	0.000	-0.386	-4.281

Counted By: _____ Reviewed By: _____ Date: 4/8/13

Survey Data Sheet

Tech / Date: 2/4/13 ✓ RSO / Date: 2/4/13

Survey No.:	7225.0002-102
Date:	04-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	157	116	0	-1	176	39
2	port side moon pool	0	-6	129	-296	1	0	176	39
3	vibracore top	2	15	132	-251	0	-1	157	-13
4	instrument table	1	4	129	-296	4	5	165	9
5	sample prep area	1	4	155	87	0	-1	163	4
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/4/13 RSO / Date: 2/4/13

Survey No.:	7225.0002-103
Date:	04-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #002 #008 #009 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2012	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 002 inside	N/A	N/A	5	N/A	4	5	143	-51
2	cooler # 002 outside	N/A	N/A	5	N/A	0	-1	181	53
3	cooler # 008 inside	N/A	N/A	5	N/A	0	-1	167	15
4	cooler # 008 outside	N/A	N/A	5	N/A	0	-1	157	-13
5	cooler # 009 inside	N/A	N/A	5	N/A	2	2	187	69
6	cooler # 009 outside	N/A	N/A	5	N/A	0	-1	180	50
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/5/13 RSO / Date: 2/5/13

Survey No.:	7225.0002-104
Date:	05-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	0	-6	144	-75	0	-1	182	56
2	port side moon pool	1	4	146	-46	1	0	187	69
3	sample prep area	0	-6	189	587	0	-1	143	-51
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/5/13 RSO / Date: 2/5/13

Survey No.:	7225.0002-105
Date:	05-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Sample #s SB233 SB246 SB102 SB02A BS109A BN11A
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG 1487
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta 1557

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SB233-1	(Gamma Bkg 1205)	N/A	N/A	1,538	333	N/A	N/A	N/A	N/A
2	SB233-2	(Gamma Bkg 1205)	N/A	N/A	1,460	255	N/A	N/A	N/A	N/A
3	SB233-3	(Gamma Bkg 1205)	N/A	N/A	1,487	282	N/A	N/A	N/A	N/A
4	SB233-4	(Gamma Bkg 1205)	N/A	N/A	1,557	352	N/A	N/A	N/A	N/A
5	SB246-1	(Gamma Bkg 1353)	N/A	N/A	1,648	295	N/A	N/A	N/A	N/A
6	SB246-2	(Gamma Bkg 1353)	N/A	N/A	1,543	190	N/A	N/A	N/A	N/A
7	SB246-3	(Gamma Bkg 1353)	N/A	N/A	1,643	290	N/A	N/A	N/A	N/A
8	SB246-4	(Gamma Bkg 1353)	N/A	N/A	1,578	225	N/A	N/A	N/A	N/A
9	SB246-1 msmsd	(Gamma Bkg 1353)	N/A	N/A	1,637	284	N/A	N/A	N/A	N/A
10	SB102-1	(Gamma Bkg 888)	N/A	N/A	1,175	287	N/A	N/A	N/A	N/A
11	SB102-2	(Gamma Bkg 888)	N/A	N/A	1,213	325	N/A	N/A	N/A	N/A
12	SB102-3	(Gamma Bkg 888)	N/A	N/A	1,201	313	N/A	N/A	N/A	N/A
13	SB102-4	(Gamma Bkg 888)	N/A	N/A	1,283	395	N/A	N/A	N/A	N/A
14	SB02A-1TS	(Gamma Bkg 645)	N/A	N/A	723	78	N/A	N/A	N/A	N/A
15	SB02A-2TS	(Gamma Bkg 645)	N/A	N/A	765	120	N/A	N/A	N/A	N/A
16	SB02A-3TS	(Gamma Bkg 645)	N/A	N/A	791	146	N/A	N/A	N/A	N/A
17	BS09A-3TS	(Gamma Bkg 1881)	N/A	N/A	1,791	-90	N/A	N/A	N/A	N/A
18	BS09A-1TS	(Gamma Bkg 1881)	N/A	N/A	1,694	-187	N/A	N/A	N/A	N/A
19	BS09A-2TS	(Gamma Bkg 1881)	N/A	N/A	1,778	-103	N/A	N/A	N/A	N/A
20	BN11A-1TS	(Gamma Bkg 1179)	N/A	N/A	1,279	100	N/A	N/A	N/A	N/A
21	BN11A-2TS	(Gamma Bkg 1179)	N/A	N/A	1,192	13	N/A	N/A	N/A	N/A
22	BN11A-3TS	(Gamma Bkg 1179)	N/A	N/A	1,142	-37	N/A	N/A	N/A	N/A
23	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/18/2013 9:31:39 AM

Survey ID: 7225.0002-105

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SB233-1	(Gamma Bkg 1205)	0.000	3.000	-0.386	0.856
2	2	SB233-2	(Gamma Bkg 1205)	0.000	2.000	-0.386	-0.856
3	3	SB233-3	(Gamma Bkg 1205)	0.000	3.000	-0.386	0.856
4	4	SB233-4	(Gamma Bkg 1205)	0.000	3.000	-0.386	0.856
5	5	SB246-1	(Gamma Bkg 1353)	0.000	2.000	-0.386	-0.856
6	6	SB246-2	(Gamma Bkg 1353)	0.000	1.000	-0.386	-2.568
7	7	SB246-3	(Gamma Bkg 1353)	1.000	0.000	3.475	-4.281
8	8	SB246-4	(Gamma Bkg 1353)	0.000	1.000	-0.386	-2.568
9	9	SB246-1 msmsd	(Gamma Bkg 1353)	0.000	1.000	-0.386	-2.568
10	10	SB102-1	(Gamma Bkg 888)	0.000	5.000	-0.386	4.281
11	11	SB102-2	(Gamma Bkg 888)	0.000	1.000	-0.386	-2.568
12	12	SB102-3	(Gamma Bkg 888)	0.000	7.000	-0.386	7.705
13	13	SB102-4	(Gamma Bkg 888)	0.000	2.000	-0.386	-0.856
14	14	SB02A-1TS	(Gamma Bkg 645)	0.000	5.000	-0.386	4.281
15	15	SB02A-2TS	(Gamma Bkg 645)	2.000	3.000	7.336	0.856
16	16	SB02A-3TS	(Gamma Bkg 645)	0.000	1.000	-0.386	-2.568
17	17	BS09A-3TS	(Gamma Bkg 1881)	0.000	6.000	-0.386	5.993
18	18	BS09A-1TS	(Gamma Bkg 1881)	0.000	0.000	-0.386	-4.281
19	19	BS09A-2TS	(Gamma Bkg 1881)	0.000	3.000	-0.386	0.856
20	20	BN11A-1TS	(Gamma Bkg 1179)	0.000	3.000	-0.386	0.856
21	21	BN11A-2TS	(Gamma Bkg 1179)	0.000	4.000	-0.386	2.568
22	22	BN11A-3TS	(Gamma Bkg 1179)	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 2/18/13

Survey Data Sheet

Tech / Date: 2/5/13 RSO / Date: 2/5/13

Survey No.:	7225.0002-106
Date:	05-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	TEG Relentless Equipment
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Grappling Hook	0	-6	93	-825	0	-1	163	4
2	Chain	0	-6	112	-546	1	0	185	64
3	Black Tub	0	-6	95	-796	0	-1	150	-32
4	Port side deck mat	0	-6	119	-443	0	-1	147	-40
5	Port side deck	0	-6	182	484	1	0	181	53
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/5/13 RSO / Date: 2/5/13

Survey No.:	7225.0002-107
Date:	05-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	1	4	142	-104	0	-1	176	39
2	stern side moon pool	0	-6	147	-31	0	-1	176	39
3	vibracore top	0	-6	123	-384	0	-1	157	-13
4	brass sieve	0	-6	116	-487	3	3	165	9
5	sample prep area	1	4	170	307	1	0	163	4
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/5/13 RSO / Date: 2/5/13

Survey No.:	7225.0002-108
Date:	05-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #033 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2012	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 033 inside	N/A	N/A	5	N/A	1	0	157	-13
2	cooler # 033 outside	N/A	N/A	5	N/A	1	0	159	-7
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/5/13 RSO / Date: 2/5/13

Survey No.:	7225.0002-109
Date:	05-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Incoming

Item Surveyed:	TEG Relentless Equipment
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Grappling Hook	2	15	100	-722	0	-1	159	-7
2	Black Tub	0	-6	120	-428	0	-1	158	-10
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/6/13 RSO / Date: 2/6/13

Survey No.:	7225.0002-110
Date:	06-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #021 #023 #032 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2012	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 021 inside	N/A	N/A	5	N/A	0	-1	165	9
2	cooler # 021 outside	N/A	N/A	5	N/A	0	-1	173	31
3	cooler # 023 inside	N/A	N/A	5	N/A	0	-1	174	34
4	cooler # 023 outside	N/A	N/A	5	N/A	1	0	179	47
5	cooler # 032 inside	N/A	N/A	5	N/A	2	2	165	9
6	cooler # 032 outside	N/A	N/A	5	N/A	1	0	183	58
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/6/13 RSO / Date: 2/6/13

Survey No.:	7225.0002-111
Date:	06-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	incoming

Item Surveyed:	Sample coolers #s: 016 020 022 028
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Cooler - 016 I/S	0	-11	226	220	N/A	N/A	N/A	N/A
2	Cooler - 016 O/S	1	-1	235	312	N/A	N/A	N/A	N/A
3	Cooler - 020 I/S	3	17	202	-24	N/A	N/A	N/A	N/A
4	Cooler - 020 O/S	0	-11	207	27	N/A	N/A	N/A	N/A
5	Cooler - 022 I/S	1	-1	174	-310	N/A	N/A	N/A	N/A
6	Cooler - 022 O/S	0	-11	212	78	N/A	N/A	N/A	N/A
7	Cooler - 028 I/S	0	-11	223	190	N/A	N/A	N/A	N/A
8	Cooler - 028 O/S	2	8	215	108	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/18/2013 10:26:01 AM

Survey ID: 7225.0002-111

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Cooler - 016 I/S	0.000	2.000	-0.386	-0.856
2	2	Cooler - 016 O/S	0.000	1.000	-0.386	-2.568
3	3	Cooler - 020 I/S	0.000	2.000	-0.386	-0.856
4	4	Cooler - 020 O/S	0.000	3.000	-0.386	0.856
5	5	Cooler - 022 I/S	0.000	0.000	-0.386	-4.281
6	6	Cooler - 022 O/S	0.000	0.000	-0.386	-4.281
7	7	Cooler - 028 I/S	0.000	1.000	-0.386	-2.568
8	8	Cooler - 028 O/S	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 2/18/13

Survey Data Sheet

Tech / Date: 2/6/13 RSO / Date: 2/6/13

Survey No.:	7225.0002-112
Date:	06-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	0	-6	156	101	1	1	170	23
2	port side moon pool	0	-6	149	-1	0	0	160	-5
3	sample prep area	2	15	143	-90	2	2	160	-5
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/4/13 RSO / Date: 2/4/13

Survey No.:	7225.0002-113
Date:	06-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Sample #s: SB07A SB05A
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SB07A-3TS	(Gamma Bkg 987)	N/A	N/A	957	-30	N/A	N/A	N/A	N/A
2	SB07A-1TS	(Gamma Bkg 987)	N/A	N/A	960	-27	N/A	N/A	N/A	N/A
3	SB07A-2TS	(Gamma Bkg 987)	N/A	N/A	906	-81	N/A	N/A	N/A	N/A
4	SB05A-3TS	(Gamma Bkg 1300)	N/A	N/A	1,424	124	N/A	N/A	N/A	N/A
5	SB05A-1TS	(Gamma Bkg 1300)	N/A	N/A	1,563	263	N/A	N/A	N/A	N/A
6	SB05A-2TS	(Gamma Bkg 1300)	N/A	N/A	1,468	168	N/A	N/A	N/A	N/A
7	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/18/2013 12:16:39 PM

Survey ID: 7225.0002-113

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SB07A-3TS	(Gamma Bkg 987)	0.000	3.000	-0.386	0.856
2	2	SB07A-1TS	(Gamma Bkg 987)	0.000	2.000	-0.386	-0.856
3	3	SB07A-2TS	(Gamma Bkg 987)	0.000	3.000	-0.386	0.856
4	4	SB05A-3TS	(Gamma Bkg 1300)	0.000	3.000	-0.386	0.856
5	5	SB05A-1TS	(Gamma Bkg 1300)	0.000	2.000	-0.386	-0.856
6	6	SB05A-2TS	(Gamma Bkg 1300)	0.000	1.000	-0.386	-2.568

Counted By: _____ Reviewed By: _____ Date: 2/18/13

Survey Data Sheet

Tech / Date: 2/6/13 RSO / Date: 2/6/13

Survey No.:	7225.0002-114
Date:	06-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	0	-6	152	43	1	0	169	20
2	port side moon pool	0	-6	133	-237	1	0	157	-13
3	starboard side moon pool	0	-6	151	28	1	0	172	28
4	instrument table	6	56	107	-619	1	0	159	-7
5	sample prep area	1	4	164	219	1	0	151	-29
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/6/13 RSO / Date: 2/6/13

Survey No.:	7225.0002-115
Date:	06-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	Pacific Eco Risk Equipment
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Plastic Scoop	2	15	109	-590	3	3	180	50
2	Brass Sieve	0	-6	133	-237	1	0	164	6
3	Rain Coat	3	25	95	-796	1	0	181	53
4	Overall	0	-6	139	-149	0	-1	147	-40
5	PFD	0	-6	126	-340	1	0	164	6
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/6/13 RSO / Date: 2/6/13

Survey No.:	7225.0002-116
Date:	06-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #007 #010 #016 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2012	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 007 inside	N/A	N/A	5	N/A	1	0	166	12
2	cooler # 007 outside	N/A	N/A	5	N/A	1	0	159	-7
3	cooler # 010 inside	N/A	N/A	5	N/A	2	2	171	25
4	cooler # 010 outside	N/A	N/A	5	N/A	2	2	165	9
5	cooler # 016 inside	N/A	N/A	5	N/A	1	0	192	83
6	cooler # 016 outside	N/A	N/A	5	N/A	1	0	151	-29
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/11/13 RSO / Date: 2/11/13

Survey No.:	7225.0002-117
Date:	11-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Incoming

Item Surveyed:	Sea Engineering Equipment
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1		
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Box Core	4	27	261	578	N/A	N/A	N/A	N/A
2	Post Driver	4	27	161	-443	N/A	N/A	N/A	N/A
3	Trash Can 1	2	8	224	200	N/A	N/A	N/A	N/A
4	Trash Can 2	3	17	219	149	N/A	N/A	N/A	N/A
5	Core Cantainer	3	17	227	231	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/18/2013 12:55:22 PM

Survey ID: 7225.0002-117

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Box Core	0.000	5.000	-0.386	4.281
2	2	Post Driver	2.000	2.000	7.336	-0.856
3	3	Trash Can 1	0.000	4.000	-0.386	2.568
4	4	Trash Can 2	1.000	1.000	3.475	-2.568
5	5	Core Cantainer	0.000	4.000	-0.386	2.568

Counted By: _____ Reviewed By: _____ Date: 4/19/13

Survey Data Sheet

Tech / Date: 2/11/13 RSO / Date: 4/11/13

Survey No.:	7225.0002-118
Date:	11-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	3	25	179	440	2	1	151	-29
2	port side moon pool	0	-6	180	454	2	0	163	4
3	sample prep area	4	35	192	631	1	2	169	20
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/11/13 RSO / Date: 2/11/13

Survey No.:	7225.0002-119
Date:	11-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Sample #s: BS04 BN312 BN316
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A		
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BS04 Sedflume	(Gamma Bkg 1276)	N/A	N/A	1,745	469	N/A	N/A	N/A	N/A
2	BS04 -1SF	(Gamma Bkg 1276)	N/A	N/A	1,429	153	N/A	N/A	N/A	N/A
3	BS04-2SF	(Gamma Bkg 1276)	N/A	N/A	1,485	209	N/A	N/A	N/A	N/A
4	BN312 Sedflume	(Gamma Bkg 1443)	N/A	N/A	1,972	529	N/A	N/A	N/A	N/A
5	BN312-1SF	(Gamma Bkg 1443)	N/A	N/A	1,731	288	N/A	N/A	N/A	N/A
6	BN312-2SF	(Gamma Bkg 1443)	N/A	N/A	1,607	164	N/A	N/A	N/A	N/A
7	BN316 Sedflume	(Gamma Bkg 1346)	N/A	N/A	1,691	345	N/A	N/A	N/A	N/A
8	BN316-1SF	(Gamma Bkg 1346)	N/A	N/A	1,466	120	N/A	N/A	N/A	N/A
9	BN316-2SF	(Gamma Bkg 1346)	N/A	N/A	1,374	28	N/A	N/A	N/A	N/A
10	BN316A Sedflume	(Gamma Bkg 1346)	N/A	N/A	1,622	276	N/A	N/A	N/A	N/A
-	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/18/2013 1:25:31 PM

Survey ID: 7225.0002-119

Alpha MDA 17 DPM

Beta MDA = 18 DPM

ALPHA BKGD = 0.10
ALPHA EFF. = 25.90%
ALPHA F = 1.00
Count Time = 1.00 min

BETA BKGD = 2.50
BETA EFF. = 58.40%
BETA F = 1.00
BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BS04 Sedflume	(Gamma Bkg 1276)	0.000	4.000	-0.386	2.568
2	2	BS04 -1SF	(Gamma Bkg 1276)	0.000	1.000	-0.386	-2.568
3	3	BS04-2SF	(Gamma Bkg 1276)	0.000	7.000	-0.386	7.705
4	4	BN312 Sedflume	(Gamma Bkg 1443)	2.000	3.000	7.336	0.856
5	5	BN312-1SF	(Gamma Bkg 1443)	0.000	8.000	-0.386	9.418
6	6	BN312-2SF	(Gamma Bkg 1443)	0.000	10.000	-0.386	12.842
7	7	BN316 Sedflume	(Gamma Bkg 1346)	0.000	3.000	-0.386	0.856
8	8	BN316-1SF	(Gamma Bkg 1346)	0.000	6.000	-0.386	5.993
9	9	BN316-2SF	(Gamma Bkg 1346)	3.000	5.000	11.197	4.281
10	10	BN316A Sedflume	(Gamma Bkg 1346)	1.000	9.000	3.475	11.130

Counted By: _____ Reviewed By: _____ Date: 2/18/13

Survey Data Sheet

Tech / Date: 2/11/13 RSO / Date: 2/11/13

Survey No.:	7225.0002-120
Date:	11-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	5	46	180	454	0	-1	154	-21
2	port side moon pool	0	-6	152	43	1	0	169	20
3	Vibracore	3	25	170	307	1	0	152	-27
4	instrument table	6	56	150	13	0	-1	170	23
5	sample prep area	1	4	175	381	1	0	147	-40
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/11/13 RSO / Date: 2/11/13

Survey No.:	7225.0002-121
Date:	11-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	Sea Engineering Equipment
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Box Core	0	-6	133	-237	1	0	161	-2
2	Rod	2	15	111	-560	0	-1	176	39
3	Coupling	1	4	92	-840	0	-1	164	6
4	Valve	1	4	100	-722	2	2	159	-7
5	Post Driver	1	4	144	-75	1	0	161	-2
6	Pelican Case	0	-6	104	-663	1	0	170	23
7	Nut Driver	1	4	145	-60	1	0	166	12
8	Bucket	1	4	90	-869	0	-1	148	-38
9	Core Container Inside	0	-6	77	-1,060	1	0	154	-21
10	Core Container Outside	0	-6	76	-1,075	0	-1	169	20
11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/11/13 RSO / Date: 2/11/13

Survey No.:	7225.0002-122
Date:	11-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #020 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2012	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 020 inside	N/A	N/A	5	N/A	1	0	149	-35
2	cooler # 020 outside	N/A	N/A	5	N/A	4	5	168	17
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/12/13 RSO / Date: 2/12/13

Survey No.:	7225.0002-123
Date:	12-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	0	-6	157	116	0	1	174	34
2	port side moon pool	0	-6	162	190	0	0	161	-2
3	sample prep area	0	-6	179	440	0	2	150	-32
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/12/13 RSO / Date: 2/12/13

Survey No.:	7225.0002-124
Date:	12-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	Sample #s: SB-USACE1
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A		
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	SB-USACE1 Jar 1	(Gamma Bkg 1424)	N/A	N/A	1,615	191	N/A	N/A	N/A	N/A
2	SB-USACE1 Jar 2	(Gamma Bkg 1424)	N/A	N/A	1,506	82	N/A	N/A	N/A	N/A
3	SB-USACE1 Jar 3	(Gamma Bkg 1424)	N/A	N/A	1,532	108	N/A	N/A	N/A	N/A
4	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/18/2013 2:11:44 PM

Survey ID: 7225.0002-124

Alpha MDA 17 DPM

Beta MDA = 18 DPM

ALPHA BKGD = 0.10
ALPHA EFF. = 25.90%
ALPHA F = 1.00
Count Time = 1.00 min

BETA BKGD = 2.50
BETA EFF. = 58.40%
BETA F = 1.00
BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	SB-USACE1 Jar 1	(Gamma Bkg 1424)	0.000	5.000	-0.386	4.281
2	2	SB-USACE1 Jar 2	(Gamma Bkg 1424)	0.000	3.000	-0.386	0.856
3	3	SB-USACE1 Jar 3	(Gamma Bkg 1424)	0.000	6.000	-0.386	5.993

Counted By: _____ Reviewed By: _____ Date: 2/19/13

Survey Data Sheet

Tech / Date: 2/12/13 RSO / Date: 2/12/13

Survey No.:	7225.0002-125
Date:	12-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	release

Item Surveyed:	TEG Equipment
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR157821	PR157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Vibracore Top	0	-6	120	-428	0	-1	181	58
2	Vibracore Bottom	0	-6	100	-722	1	0	142	-49
3	Vibracore Right side	0	-6	101	-707	1	0	149	-30
4	Vibracore Left side	1	4	90	-869	0	-1	163	8
5	Vibracore Collet	0	-6	79	-1,031	0	-1	154	-16
6	Vibracore Control Box	2	15	124	-369	1	0	157	-8
7	Vibracore Cable	0	-6	118	-457	1	0	145	-41
8	Vibracore Cable Bucket Inside	1	4	97	-766	1	0	147	-36
9	Vibracore Cable Bucket Outside	0	-6	89	-884	1	0	156	-11
10	Vibracore Cable Bucket Bottom	1	4	105	-649	1	0	175	41
11	Generator Top	0	-6	129	-296	1	0	149	-30
12	Generator Control Panel	0	-6	94	-810	1	0	174	38
13	Generator Motor	1	4	96	-781	2	2	144	-44
14	Generator Tray	4	35	113	-531	2	2	169	25
15	Generator Left Wheel	1	4	87	-913	0	-1	162	5
16	Table Top Right side	2	15	96	-781	0	-1	165	14
17	Table Top Left side	2	15	89	-884	0	-1	156	-11
18	Table Top Bottom	0	-6	100	-722	0	-1	150	-27
19	Left Leg	2	15	103	-678	1	0	159	-3
20	Right Leg	1	4	88	-899	1	0	178	49
21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/12/13 RSO / Date: 2/12/13

Survey No.:	7225.0002-126
Date:	12-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Contamination

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR299167	PR299167	PR 157821	PR 157821
Instrument / SN:	275772	275772	157320	157320
Inst. Set-Up Date:	11-Dec-12	11-Dec-12	11-Dec-12	11-Dec-12
Cal. Due Date:	4-Dec-13	4-Dec-13	1-Nov-13	1-Nov-13
Bkgd (cpm)	0.6	149.1	0.18	40
Efficiency:	0.096	0.068	0.172	0.091
MDA (dpm):	69	874	10	170
ACF:	1	1	1	1
Count Time (min):	1	1	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	bow side moon pool	2	15	140	-134	3	3	173	31
2	port side moon pool	1	4	144	-75	2	2	155	-18
3	instrument table	0	-6	172	337	1	0	147	-40
4	sample prep area	2	15	178	425	1	0	165	9
5	sample prep area	1	4	157	116	1	0	183	58
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/12/13 RSO / Date: 2/14/13

Survey No.:	7225.0002-127
Date:	12-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	SB-USACE Drums
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	***Total (Direct)***		***Removable***	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2012	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Drum 1	N/A	N/A	5	N/A	4	5	138	-65
2	Drum 2	N/A	N/A	5	N/A	3	3	139	-62
3	Drum 3	N/A	N/A	5	N/A	1	0	146	-43
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/12/13 RSO / Date: 2/12/13

Survey No.:	7225.0002-128
Date:	12-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	DOT Shipment

Item Surveyed:	Sample Coolers #022 Shipment to Lab
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2012	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 022 inside	N/A	N/A	5	N/A	1	0	149	-35
2	cooler # 022 outside	N/A	N/A	5	N/A	1	0	161	-2
3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/13/13 RSO / Date: 4/3/13

Survey No.:	7225.0002-129
Date:	13-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	TEG Equipment
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Pipe Dredge I/S	0	-11	108	-984	N/A	N/A	N/A	N/A
2	Pipe Dredge O/S	0	-11	154	-514	N/A	N/A	N/A	N/A
3	Tool Bucket	0	-11	138	-678	N/A	N/A	N/A	N/A
4	Mallet	0	-11	187	-178	N/A	N/A	N/A	N/A
5	Slide Hammer	1	-1	164	-412	N/A	N/A	N/A	N/A
6	Makita	0	-11	157	-484	N/A	N/A	N/A	N/A
7	Metal File	0	-11	168	-371	N/A	N/A	N/A	N/A
8	Fuel Can	1	-1	130	-759	N/A	N/A	N/A	N/A
9	Fire Extinguisher	1	-1	109	-973	N/A	N/A	N/A	N/A
10	Metal Scoop	0	-11	126	-800	N/A	N/A	N/A	N/A
11	Instrument Table Hood	2	8	129	-769	N/A	N/A	N/A	N/A
12	Instrument Table	0	-11	113	-933	N/A	N/A	N/A	N/A
13	Rubber Overall 1	0	-11	150	-555	N/A	N/A	N/A	N/A
14	Rubber Overall 2	0	-11	126	-800	N/A	N/A	N/A	N/A
15	Rubber Overall 3	0	-11	120	-861	N/A	N/A	N/A	N/A
16	PFD 1	0	-11	131	-749	N/A	N/A	N/A	N/A
17	PFD 2	0	-11	130	-759	N/A	N/A	N/A	N/A
18	PFD 3	1	-1	124	-820	N/A	N/A	N/A	N/A
19	Black Tub I/S	1	-1	139	-667	N/A	N/A	N/A	N/A
20	Black Tub O/S	0	-11	132	-739	N/A	N/A	N/A	N/A
21	GPS Unit	2	8	205	6	N/A	N/A	N/A	N/A
22	Black Tote I/S	0	-11	147	-586	N/A	N/A	N/A	N/A
23	Black Tote O/S	0	-11	149	-565	N/A	N/A	N/A	N/A
24	Small Tool Box I/S	0	-11	164	-412	N/A	N/A	N/A	N/A
25	Small Tool Box O/S	0	-11	141	-647	N/A	N/A	N/A	N/A
26	Clam Cage 1	0	-11	159	-463	N/A	N/A	N/A	N/A
27	Clam Cage 2	0	-11	108	-984	N/A	N/A	N/A	N/A
28	Clam Cage 3	0	-11	158	-473	N/A	N/A	N/A	N/A
29	Clam Cage 4	1	-1	169	-361	N/A	N/A	N/A	N/A
30	Clam Cage 5	1	-1	121	-851	N/A	N/A	N/A	N/A
31	Clam Cage 6	1	-1	172	-331	N/A	N/A	N/A	N/A
32	Clam Cage 7	0	-11	133	-729	N/A	N/A	N/A	N/A
33	Clam Cage 8	0	-11	129	-769	N/A	N/A	N/A	N/A
34	Clam Cage 9	0	-11	164	-412	N/A	N/A	N/A	N/A
35	Clam Cage 10	0	-11	159	-463	N/A	N/A	N/A	N/A
36	Clam Cage 11	0	-11	143	-627	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/25/2013 8:04:31 AM

Survey ID: 7225.0002-129

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Pipe Dredge I/S	0.000	3.000	-0.386	0.856
2	2	Pipe Dredge O/S	0.000	4.000	-0.386	2.568
3	3	Tool Bucket	0.000	1.000	-0.386	-2.568
4	4	Mallet	0.000	2.000	-0.386	-0.856
5	5	Slide Hammer	0.000	0.000	-0.386	-4.281
6	6	Makita	0.000	5.000	-0.386	4.281
7	7	Metal File	0.000	6.000	-0.386	5.993
8	8	Fuel Can	0.000	4.000	-0.386	2.568
9	9	Fire Extinguisher	0.000	2.000	-0.386	-0.856
10	10	Metal Scoop	0.000	0.000	-0.386	-4.281
11	11	Insturment Table Hood	0.000	2.000	-0.386	-0.856
12	12	Instrument Table	1.000	3.000	3.475	0.856
13	13	Rubber Overall 1	0.000	1.000	-0.386	-2.568
14	14	Rubber Overall 2	0.000	6.000	-0.386	5.993
15	15	Rubber Overall 3	0.000	3.000	-0.386	0.856
16	16	PFD 1	0.000	5.000	-0.386	4.281
17	17	PFD 2	2.000	3.000	7.336	0.856
18	18	PFD 3	0.000	1.000	-0.386	-2.568
19	19	Black Tub I/S	0.000	1.000	-0.386	-2.568
20	20	Black Tub O/S	0.000	1.000	-0.386	-2.568
21	21		0.000	1.000	-0.386	-2.568
22	22	Black Tote I/S	0.000	1.000	-0.386	-2.568
23	23	Black Tote O/S	0.000	1.000	-0.386	-2.568
24	24	Small Tool Box I/S	0.000	0.000	-0.386	-4.281
25	25	Small Tool Box O/S	0.000	5.000	-0.386	4.281
26	26	Clam Cage 1	0.000	2.000	-0.386	-0.856
27	27	Clam Cage 2	0.000	7.000	-0.386	7.705
28	28	Clam Cage 3	1.000	3.000	3.475	0.856
29	29	Clam Cage 4	0.000	1.000	-0.386	-2.568
30	30	Clam Cage 5	0.000	6.000	-0.386	5.993
31	31	Clam Cage 6	0.000	5.000	-0.386	4.281
32	32	Clam Cage 7	0.000	3.000	-0.386	0.856
33	33	Clam Cage 8	0.000	0.000	-0.386	-4.281
34	34	Clam Cage 9	0.000	0.000	-0.386	-4.281
35	35	Clam Cage 10	0.000	1.000	-0.386	-2.568
36	36	Clam Cage 11	0.000	2.000	-0.386	-0.856
37	37	Clam Cage 12	0.000	2.000	-0.386	-0.856
38	38	Clam Cage 13	0.000	2.000	-0.386	-0.856
39	39	Clam Cage 14	0.000	3.000	-0.386	0.856
40	40	Clam Cage 15	0.000	5.000	-0.386	4.281

Counted By: _____ Reviewed By: _____ Date: 2/25/13

Survey Data Sheet

Tech / Date: 2/13/13 RSO / Date: 2/13/13

Survey No.:	7225.0002-130
Date:	13-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	TEG Boat CF 1059 UB
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	See Attached	0	-11	110	-963	N/A	N/A	N/A	N/A
2	See Attached	5	36	122	-841	N/A	N/A	N/A	N/A
3	See Attached	2	8	120	-861	N/A	N/A	N/A	N/A
4	See Attached	0	-11	153	-524	N/A	N/A	N/A	N/A
5	See Attached	0	-11	129	-769	N/A	N/A	N/A	N/A
6	See Attached	0	-11	118	-882	N/A	N/A	N/A	N/A
7	See Attached	0	-11	103	-1,035	N/A	N/A	N/A	N/A
8	See Attached	0	-11	105	-1,014	N/A	N/A	N/A	N/A
9	See Attached	0	-11	123	-831	N/A	N/A	N/A	N/A
10	See Attached	0	-11	88	-1,188	N/A	N/A	N/A	N/A
11	See Attached	0	-11	136	-698	N/A	N/A	N/A	N/A
12	See Attached	1	-1	99	-1,076	N/A	N/A	N/A	N/A
13	See Attached	0	-11	101	-1,055	N/A	N/A	N/A	N/A
14	See Attached	4	27	100	-1,065	N/A	N/A	N/A	N/A
15	See Attached	1	-1	95	-1,116	N/A	N/A	N/A	N/A
16	See Attached	1	-1	108	-984	N/A	N/A	N/A	N/A
17	See Attached	1	-1	87	-1,198	N/A	N/A	N/A	N/A
18	See Attached	0	-11	85	-1,218	N/A	N/A	N/A	N/A
19	See Attached	1	-1	103	-1,035	N/A	N/A	N/A	N/A
20	See Attached	2	8	85	-1,218	N/A	N/A	N/A	N/A
21	See Attached	3	17	95	-1,116	N/A	N/A	N/A	N/A
22	See Attached	2	8	98	-1,086	N/A	N/A	N/A	N/A
23	See Attached	0	-11	104	-1,024	N/A	N/A	N/A	N/A
24	See Attached	3	17	98	-1,086	N/A	N/A	N/A	N/A
25	See Attached	1	-1	129	-769	N/A	N/A	N/A	N/A
26	See Attached	0	-11	103	-1,035	N/A	N/A	N/A	N/A
27	See Attached	2	8	123	-831	N/A	N/A	N/A	N/A
28	See Attached	2	8	82	-1,249	N/A	N/A	N/A	N/A
29	See Attached	1	-1	107	-994	N/A	N/A	N/A	N/A
30	See Attached	8	64	129	-769	N/A	N/A	N/A	N/A
31	See Attached	3	17	88	-1,188	N/A	N/A	N/A	N/A
32	See Attached	1	-1	92	-1,147	N/A	N/A	N/A	N/A
33	See Attached	2	8	99	-1,076	N/A	N/A	N/A	N/A
34	See Attached	7	55	85	-1,218	N/A	N/A	N/A	N/A
35	See Attached	1	-1	137	-688	N/A	N/A	N/A	N/A
36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/13/13 RSO / Date: 2/13/13

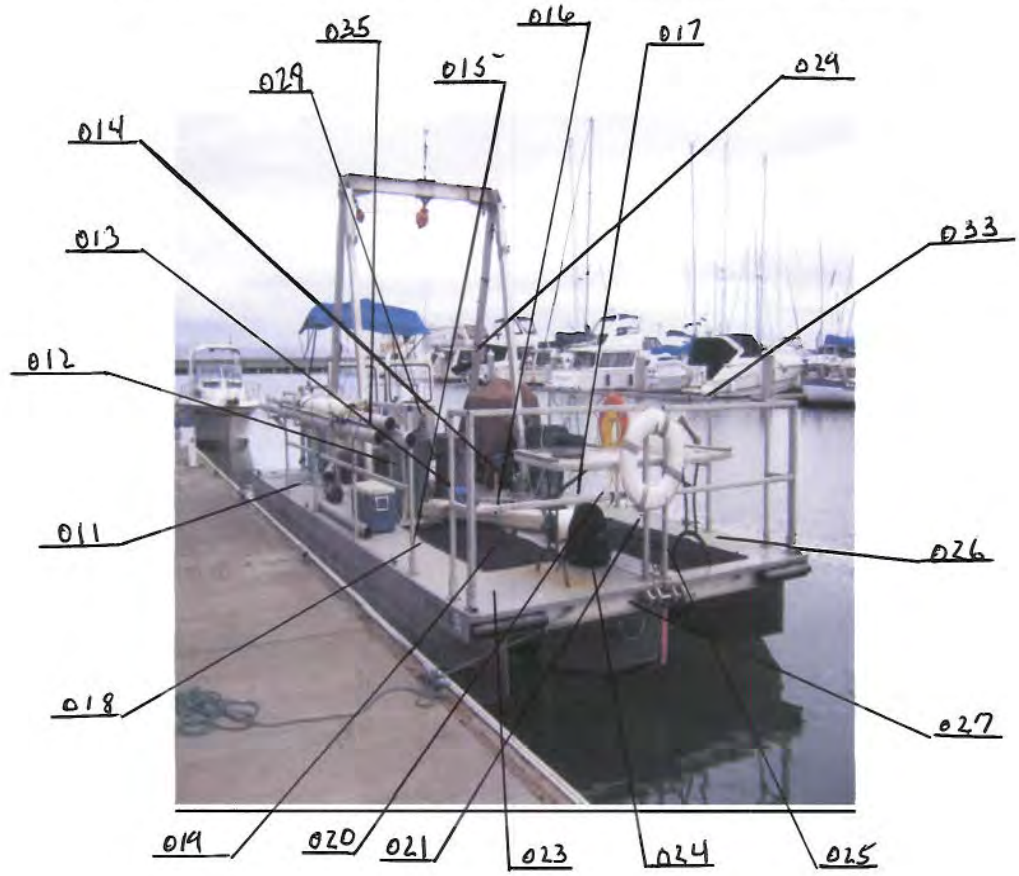
Survey No.:	7225.0002-130	**Item Surveyed:**	TEG Boat CF 1059 UB
Date:	13-Feb-13	**Contaminant/Limits:**	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Building Number:	N/A	**Comments:**	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta
Survey Tech.:	K.Gordon		
Count Rm. Tech.:	C.Bryson		
Survey Type:	Release		

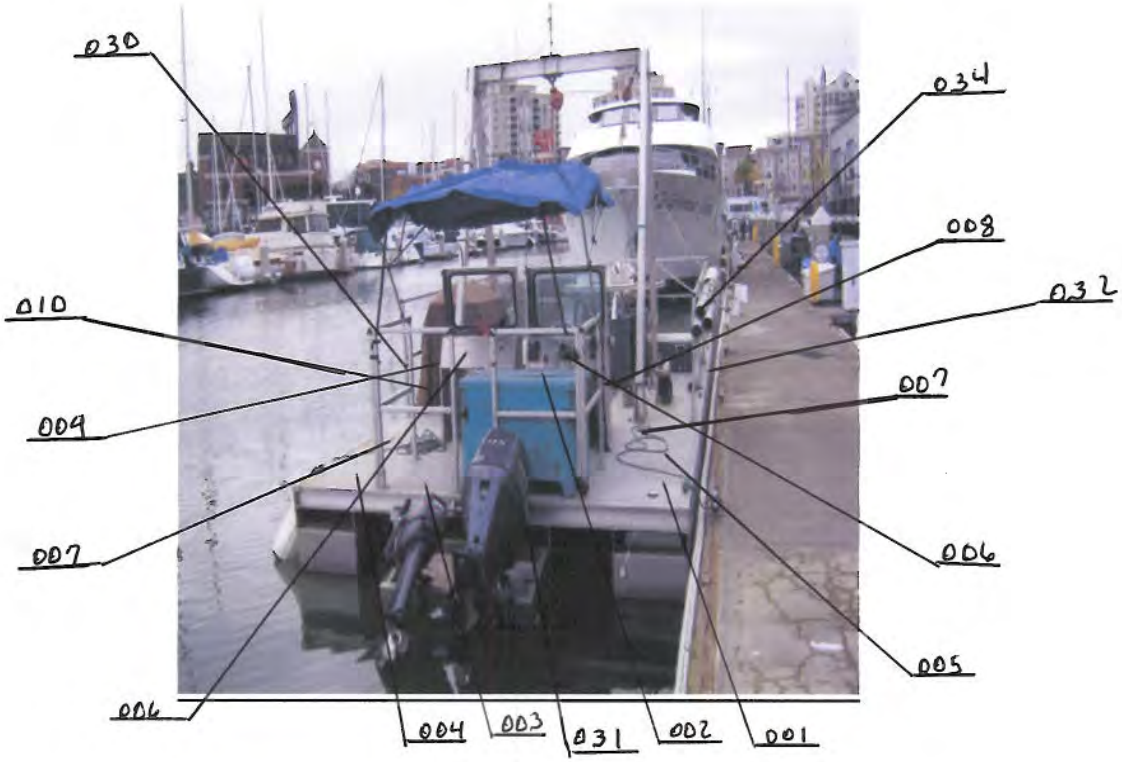
Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
37	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey 07225.0002-130 TEG Boat CF 1059 UB





PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/25/2013 9:16:22 AM

Survey ID: 7225.0002-130

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	3.000	-0.386	0.856
2	2	Sample 2	0.000	3.000	-0.386	0.856
3	3	Sample 3	0.000	3.000	-0.386	0.856
4	4	Sample 4	0.000	3.000	-0.386	0.856
5	5	Sample 5	0.000	3.000	-0.386	0.856
6	6	Sample 6	0.000	2.000	-0.386	-0.856
7	7	Sample 7	0.000	1.000	-0.386	-2.568
8	8	Sample 8	0.000	5.000	-0.386	4.281
9	9	Sample 9	3.000	6.000	11.197	5.993
10	10	Sample 10	0.000	2.000	-0.386	-0.856
11	11	Sample 11	0.000	0.000	-0.386	-4.281
12	12	Sample 12	0.000	1.000	-0.386	-2.568
13	13	Sample 13	0.000	0.000	-0.386	-4.281
14	14	Sample 14	0.000	1.000	-0.386	-2.568
15	15	Sample 15	0.000	3.000	-0.386	0.856
16	16	Sample 16	0.000	5.000	-0.386	4.281
17	17	Sample 17	0.000	2.000	-0.386	-0.856
18	18	Sample 18	0.000	4.000	-0.386	2.568
19	19	Sample 19	0.000	1.000	-0.386	-2.568
20	20	Sample 20	0.000	0.000	-0.386	-4.281
21	21	Sample 21	1.000	2.000	3.475	-0.856
22	22	Sample 22	1.000	3.000	3.475	0.856
23	23	Sample 23	1.000	6.000	3.475	5.993
24	24	Sample 24	0.000	1.000	-0.386	-2.568
25	25	Sample 25	0.000	5.000	-0.386	4.281
26	26	Sample 26	2.000	2.000	7.336	-0.856
27	27	Sample 27	0.000	6.000	-0.386	5.993
28	28	Sample 28	0.000	0.000	-0.386	-4.281
29	29	Sample 29	0.000	1.000	-0.386	-2.568
30	30	Sample 30	0.000	3.000	-0.386	0.856
31	31	Sample 31	0.000	6.000	-0.386	5.993
32	32	Sample 32	0.000	2.000	-0.386	-0.856
33	33	Sample 33	0.000	3.000	-0.386	0.856
34	34	Sample 34	0.000	4.000	-0.386	2.568
35	35	Sample 35	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 2/25/13

Survey Data Sheet

Tech / Date: 2/14/13 RSO / Date: 2/14/13

Survey No.:	7225.0002-131	**Item Surveyed:**	Sample #s: BS04
Date:	14-Feb-13	**Contaminant/Limits:**	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Building Number:	N/A	**Comments:**	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta
Survey Tech.:	K.Gordon		
Count Rm. Tech.:	C.Bryson		
Survey Type:	Release		

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BS04 - GC1	(Gamma Bkg 4109)	N/A	N/A	4,145	36	N/A	N/A	N/A	N/A
2	BS04 - 2-4	(Gamma Bkg 4109)	N/A	N/A	4,247	138	N/A	N/A	N/A	N/A
3	BS04 - 4-6	(Gamma Bkg 4109)	N/A	N/A	4,166	57	N/A	N/A	N/A	N/A
4	BS04 - 6-8	(Gamma Bkg 4109)	N/A	N/A	4,216	107	N/A	N/A	N/A	N/A
5	BS04 - GC2	(Gamma Bkg 4109)	N/A	N/A	4,172	263	N/A	N/A	N/A	N/A
6	BS04 - 10-12	(Gamma Bkg 4109)	N/A	N/A	4,120	11	N/A	N/A	N/A	N/A
7	BS04 - 12-14	(Gamma Bkg 4109)	N/A	N/A	4,167	58	N/A	N/A	N/A	N/A
8	BS04 - 14-16	(Gamma Bkg 4109)	N/A	N/A	4,162	53	N/A	N/A	N/A	N/A
9	BS04 - GC3	(Gamma Bkg 4109)	N/A	N/A	4,087	-22	N/A	N/A	N/A	N/A
10	BS04 - 18-20	(Gamma Bkg 4109)	N/A	N/A	4,066	-43	N/A	N/A	N/A	N/A
	BS04 - 20-22	(Gamma Bkg 4109)	N/A	N/A	4,122	-13	N/A	N/A	N/A	N/A
	BS04 - GC4	(Gamma Bkg 4109)	N/A	N/A	4,183	74	N/A	N/A	N/A	N/A
13	BS04 - 24-26	(Gamma Bkg 4109)	N/A	N/A	4,090	-19	N/A	N/A	N/A	N/A
14	BS04 - 26-28	(Gamma Bkg 4109)	N/A	N/A	4,092	-17	N/A	N/A	N/A	N/A
15	BS04 - GC5	(Gamma Bkg 4109)	N/A	N/A	4,144	35	N/A	N/A	N/A	N/A
16	BS04 - 30-32	(Gamma Bkg 4109)	N/A	N/A	4,250	141	N/A	N/A	N/A	N/A
17	BS04 - 32-34	(Gamma Bkg 4109)	N/A	N/A	4,176	67	N/A	N/A	N/A	N/A
18	BS04 - GC6	(Gamma Bkg 4109)	N/A	N/A	4,098	-11	N/A	N/A	N/A	N/A
19	BS04 - 36-38	(Gamma Bkg 4109)	N/A	N/A	3,985	-124	N/A	N/A	N/A	N/A
20	BS04 - 38-40	(Gamma Bkg 4109)	N/A	N/A	4,127	18	N/A	N/A	N/A	N/A
21	BS04 - GC7	(Gamma Bkg 4109)	N/A	N/A	4,179	70	N/A	N/A	N/A	N/A
22	BS04 - 42-44	(Gamma Bkg 4109)	N/A	N/A	4,246	137	N/A	N/A	N/A	N/A
23	BS04 - 44-46	(Gamma Bkg 4109)	N/A	N/A	4,116	7	N/A	N/A	N/A	N/A
24	BS04 - GC8	(Gamma Bkg 4109)	N/A	N/A	4,172	63	N/A	N/A	N/A	N/A
25	BS04 - 48-50	(Gamma Bkg 4109)	N/A	N/A	4,078	-31	N/A	N/A	N/A	N/A
26	BS04 - 50-52	(Gamma Bkg 4109)	N/A	N/A	4,180	71	N/A	N/A	N/A	N/A
27	BS04 - GC9	(Gamma Bkg 4109)	N/A	N/A	4,187	78	N/A	N/A	N/A	N/A
28	BS04 - 54-56	(Gamma Bkg 4109)	N/A	N/A	4,118	9	N/A	N/A	N/A	N/A
29	BS04 - 56-58	(Gamma Bkg 4109)	N/A	N/A	4,240	131	N/A	N/A	N/A	N/A
30	BS04 - GC10	(Gamma Bkg 4109)	N/A	N/A	4,048	-61	N/A	N/A	N/A	N/A
31	BS04 - 60-62	(Gamma Bkg 4109)	N/A	N/A	4,175	66	N/A	N/A	N/A	N/A
	BS04 - 62-64	(Gamma Bkg 4109)	N/A	N/A	4,173	64	N/A	N/A	N/A	N/A
33	BS04 - 64-66	(Gamma Bkg 4109)	N/A	N/A	4,222	113	N/A	N/A	N/A	N/A
34	BS04 - 66-68	(Gamma Bkg 4109)	N/A	N/A	4,138	29	N/A	N/A	N/A	N/A
35	BS04 - GC11	(Gamma Bkg 4109)	N/A	N/A	4,082	-27	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/14/13 RSO / Date: 2/14/13

Survey No.:	7225.0002-131
Date:	14-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	Sample #s: BS04
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) =
((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
36	BS04 - 70-72	(Gamma Bkg 4109)	N/A	N/A	4,210	101	N/A	N/A	N/A	N/A
37	BS04 - 72-74	(Gamma Bkg 4109)	N/A	N/A	4,202	93	N/A	N/A	N/A	N/A
38	BS04 - 74-76	(Gamma Bkg 4109)	N/A	N/A	4,213	104	N/A	N/A	N/A	N/A
39	BS04 - 76-78	(Gamma Bkg 4109)	N/A	N/A	4,108	-1	N/A	N/A	N/A	N/A
40	BS04 - 78-80	(Gamma Bkg 4109)	N/A	N/A	4,210	101	N/A	N/A	N/A	N/A
41	BS04 - GC12	(Gamma Bkg 4109)	N/A	N/A	4,293	184	N/A	N/A	N/A	N/A
42	BS04 - 82-84	(Gamma Bkg 4109)	N/A	N/A	4,183	74	N/A	N/A	N/A	N/A
43	BS04 - 84-86	(Gamma Bkg 4109)	N/A	N/A	4,283	174	N/A	N/A	N/A	N/A
44	BS04 - 86-88	(Gamma Bkg 4109)	N/A	N/A	4,286	177	N/A	N/A	N/A	N/A
45	BS04 - 88-90	(Gamma Bkg 4109)	N/A	N/A	4,319	210	N/A	N/A	N/A	N/A
	BS04 - 90-92	(Gamma Bkg 4109)	N/A	N/A	4,192	83	N/A	N/A	N/A	N/A
	BS04 - GC13	(Gamma Bkg 4109)	N/A	N/A	4,310	201	N/A	N/A	N/A	N/A
48	BS04 - 94-96	(Gamma Bkg 4109)	N/A	N/A	4,205	96	N/A	N/A	N/A	N/A
49	BS04 - 96-98	(Gamma Bkg 4109)	N/A	N/A	4,164	55	N/A	N/A	N/A	N/A
50	BS04 - 98-100	(Gamma Bkg 4109)	N/A	N/A	4,222	113	N/A	N/A	N/A	N/A
51	BS04 - 100-102	(Gamma Bkg 4109)	N/A	N/A	4,183	74	N/A	N/A	N/A	N/A
52	BS04 - 102-104	(Gamma Bkg 4109)	N/A	N/A	4,217	108	N/A	N/A	N/A	N/A
53	BS04 - GC14	(Gamma Bkg 4109)	N/A	N/A	4,158	49	N/A	N/A	N/A	N/A
54	BS04 - 106-108	(Gamma Bkg 4109)	N/A	N/A	4,276	167	N/A	N/A	N/A	N/A
55	BS04 - 108-110	(Gamma Bkg 4109)	N/A	N/A	4,270	81	N/A	N/A	N/A	N/A
56	BS04 - 110-112	(Gamma Bkg 4109)	N/A	N/A	4,177	68	N/A	N/A	N/A	N/A
57	BS04 - 112-114	(Gamma Bkg 4109)	N/A	N/A	4,229	120	N/A	N/A	N/A	N/A
58	BS04 - 114-116	(Gamma Bkg 4109)	N/A	N/A	4,239	50	N/A	N/A	N/A	N/A
59	BS04 - 116-118	(Gamma Bkg 4109)	N/A	N/A	4,192	83	N/A	N/A	N/A	N/A
60	BS04 - GC15	(Gamma Bkg 4109)	N/A	N/A	4,095	-14	N/A	N/A	N/A	N/A
61	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
62	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/25/2013 1:21:08 PM

Survey ID: 7225.0002-131

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BS04 - GC1	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
2	2	BS04 - 2-4	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
3	3	BS04 - 4-6	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
4	4	BS04 - 6-8	(Gamma Bkg 4109)	0.000	4.000	-0.386	2.568
5	5	BS04 - GC2	(Gamma Bkg 4109)	0.000	2.000	-0.386	-0.856
6	6	BS04 - 10-12	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
7	7	BS04 - 12-14	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
8	8	BS04 - 14-16	(Gamma Bkg 4109)	0.000	5.000	-0.386	4.281
9	9	BS04 - GC3	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
10	10	BS04 - 18-20	(Gamma Bkg 4109)	3.000	1.000	11.197	-2.568
11	11	BS04 - 20-22	(Gamma Bkg 4109)	0.000	4.000	-0.386	2.568
12	12	BS04 - GC4	(Gamma Bkg 4109)	0.000	2.000	-0.386	-0.856
13	13	BS04 - 24-26	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
14	14	BS04 - 26-28	(Gamma Bkg 4109)	0.000	5.000	-0.386	4.281
15	15	BS04 - GC5	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
16	16	BS04 - 30-32	(Gamma Bkg 4109)	1.000	2.000	3.475	-0.856
17	17	BS04 - 32-34	(Gamma Bkg 4109)	0.000	2.000	-0.386	-0.856
18	18	BS04 - GC6	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
19	19	BS04 - 36-38	(Gamma Bkg 4109)	0.000	4.000	-0.386	2.568
20	20	BS04 - 38-40	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
21	21	BS04 - GC7	(Gamma Bkg 4109)	2.000	4.000	7.336	2.568
22	22	BS04 - 42-44	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
23	23	BS04 - 44-46	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
24	24	BS04 - GC8	(Gamma Bkg 4109)	0.000	0.000	-0.386	-4.281
25	25	BS04 - 48-50	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
26	26	BS04 - 50-52	(Gamma Bkg 4109)	0.000	0.000	-0.386	-4.281
27	27	BS04 - GC9	(Gamma Bkg 4109)	0.000	2.000	-0.386	-0.856
28	28	BS04 - 54-56	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
29	29	BS04 - 56-58	(Gamma Bkg 4109)	0.000	4.000	-0.386	2.568
30	30	BS04 - GC10	(Gamma Bkg 4109)	1.000	2.000	3.475	-0.856
31	31	BS04 - 60-62	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
32	32	BS04 - 62-64	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
33	33	BS04 - 64-66	(Gamma Bkg 4109)	2.000	4.000	7.336	2.568
34	34	BS04 - 66-68	(Gamma Bkg 4109)	0.000	2.000	-0.386	-0.856
35	35	BS04 - GC11	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
36	36	BS04 - 70-72	(Gamma Bkg 4109)	0.000	6.000	-0.386	5.993
37	37	BS04 - 72-74	(Gamma Bkg 4109)	0.000	9.000	-0.386	11.130
38	38	BS04 - 74-76	(Gamma Bkg 4109)	0.000	2.000	-0.386	-0.856
39	39	BS04 - 76-78	(Gamma Bkg 4109)	2.000	5.000	7.336	4.281
40	40	BS04 - 78-80	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
41	41	BS04 - GC12	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
42	42	BS04 - 82-84	(Gamma Bkg 4109)	1.000	5.000	3.475	4.281
43	43	BS04 - 84-86	(Gamma Bkg 4109)	0.000	2.000	-0.386	-0.856
44	44	BS04 - 86-88	(Gamma Bkg 4109)	0.000	7.000	-0.386	7.705
45	45	BS04 - 88-90	(Gamma Bkg 4109)	0.000	0.000	-0.386	-4.281
46	46	BS04 - 90-92	(Gamma Bkg 4109)	0.000	0.000	-0.386	-4.281
47	47	BS04 - GC13	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
48	48	BS04 - 94-96	(Gamma Bkg 4109)	0.000	4.000	-0.386	2.568
49	49	BS04 - 96-98	(Gamma Bkg 4109)	0.000	6.000	-0.386	5.993
50	50	BS04 - 98-100	(Gamma Bkg 4109)	0.000	2.000	-0.386	-0.856

Counted By: _____ Reviewed By: _____ Date: 2/25/13

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/25/2013 1:25:31 PM

Survey ID: 7225.0002-131

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
51	51	BS04 - 100-102	(Gamma Bkg 4109)	0.000	6.000	-0.386	5.993
52	52	BS04 - 102-104	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
53	53	BS04 - GC14	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
54	54	BS04 - 106-108	(Gamma Bkg 4109)	0.000	5.000	-0.386	4.281
55	55	BS04 - 108-110	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
56	56	BS04 - 110-112	(Gamma Bkg 4109)	0.000	4.000	-0.386	2.568
57	57	BS04 - 112-114	(Gamma Bkg 4109)	0.000	1.000	-0.386	-2.568
58	58	BS04 - 114-116	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
59	59	BS04 - 116-118	(Gamma Bkg 4109)	0.000	3.000	-0.386	0.856
60	60	BS04 - GC15	(Gamma Bkg 4109)	1.000	2.000	3.475	-0.856

Counted By: _____ Reviewed By: _____ Date: 2/25/13

Survey Data Sheet

Tech / Date: 2/14/13 RSO / Date: 2/14/13

Survey No.:	7225.0002-132
Date:	14-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	Sample #s: BN312
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	BN312 - GC1	(Gamma Bkg 4095)	N/A	N/A	4,110	15	N/A	N/A	N/A	N/A
2	BN312 - 2-4	(Gamma Bkg 4095)	N/A	N/A	4,092	-3	N/A	N/A	N/A	N/A
3	BN312 - 4-6	(Gamma Bkg 4095)	N/A	N/A	4,124	29	N/A	N/A	N/A	N/A
4	BN312 - 6-8	(Gamma Bkg 4095)	N/A	N/A	4,136	41	N/A	N/A	N/A	N/A
5	BN312 - GC2	(Gamma Bkg 4095)	N/A	N/A	4,147	52	N/A	N/A	N/A	N/A
6	BN312 - 10-12	(Gamma Bkg 4095)	N/A	N/A	4,089	-6	N/A	N/A	N/A	N/A
7	BN312 - 12-14	(Gamma Bkg 4095)	N/A	N/A	4,160	65	N/A	N/A	N/A	N/A
8	BN312 - 14-16	(Gamma Bkg 4095)	N/A	N/A	4,079	-16	N/A	N/A	N/A	N/A
9	BN312 - GC3	(Gamma Bkg 4095)	N/A	N/A	4,063	-32	N/A	N/A	N/A	N/A
10	BN312 - 18-20	(Gamma Bkg 4095)	N/A	N/A	4,181	86	N/A	N/A	N/A	N/A
	BN312 - 20-22	(Gamma Bkg 4095)	N/A	N/A	4,131	36	N/A	N/A	N/A	N/A
	BN312 - GC4	(Gamma Bkg 4095)	N/A	N/A	4,197	102	N/A	N/A	N/A	N/A
13	BN312 - 24-26	(Gamma Bkg 4095)	N/A	N/A	4,142	47	N/A	N/A	N/A	N/A
14	BN312 - 26-28	(Gamma Bkg 4095)	N/A	N/A	4,178	83	N/A	N/A	N/A	N/A
15	BN312 - GC5	(Gamma Bkg 4095)	N/A	N/A	4,008	-87	N/A	N/A	N/A	N/A
16	BN312 - 30-32	(Gamma Bkg 4095)	N/A	N/A	4,145	50	N/A	N/A	N/A	N/A
17	BN312 - 32-34	(Gamma Bkg 4095)	N/A	N/A	4,263	168	N/A	N/A	N/A	N/A
18	BN312 - GC6	(Gamma Bkg 4095)	N/A	N/A	4,086	-9	N/A	N/A	N/A	N/A
19	BN312 - 36-38	(Gamma Bkg 4095)	N/A	N/A	4,101	6	N/A	N/A	N/A	N/A
20	BN312 - 38-40	(Gamma Bkg 4095)	N/A	N/A	4,079	-16	N/A	N/A	N/A	N/A
21	BN312 - GC7	(Gamma Bkg 4095)	N/A	N/A	4,132	37	N/A	N/A	N/A	N/A
22	BN312 - 42-44	(Gamma Bkg 4095)	N/A	N/A	4,001	-94	N/A	N/A	N/A	N/A
23	BN312 - 44-46	(Gamma Bkg 4095)	N/A	N/A	4,213	118	N/A	N/A	N/A	N/A
24	BN312 - GC8	(Gamma Bkg 4095)	N/A	N/A	3,961	-134	N/A	N/A	N/A	N/A
25	BN312 - 48-50	(Gamma Bkg 4095)	N/A	N/A	4,073	-22	N/A	N/A	N/A	N/A
26	BN312 - 50-52	(Gamma Bkg 4095)	N/A	N/A	4,210	115	N/A	N/A	N/A	N/A
27	BN312 - GC9	(Gamma Bkg 4095)	N/A	N/A	4,222	127	N/A	N/A	N/A	N/A
28	BN312 - 54-56	(Gamma Bkg 4095)	N/A	N/A	4,168	73	N/A	N/A	N/A	N/A
29	BN312 - 56-58	(Gamma Bkg 4095)	N/A	N/A	3,991	-104	N/A	N/A	N/A	N/A
30	BN312 - GC10	(Gamma Bkg 4095)	N/A	N/A	4,133	38	N/A	N/A	N/A	N/A
31	BN312 - 60-62	(Gamma Bkg 4095)	N/A	N/A	4,221	126	N/A	N/A	N/A	N/A
	BN312 - 62-64	(Gamma Bkg 4095)	N/A	N/A	4,169	74	N/A	N/A	N/A	N/A
33	BN312 - 64-66	(Gamma Bkg 4095)	N/A	N/A	4,102	7	N/A	N/A	N/A	N/A
34	BN312 - 66-68	(Gamma Bkg 4095)	N/A	N/A	4,014	-81	N/A	N/A	N/A	N/A
35	BN312 - GC11	(Gamma Bkg 4095)	N/A	N/A	4,155	60	N/A	N/A	N/A	N/A
36	BN312 - 70-72	(Gamma Bkg 4095)	N/A	N/A	4,226	131	N/A	N/A	N/A	N/A
37	BN312 - 72-74	(Gamma Bkg 4095)	N/A	N/A	4,139	44	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/14/13 RSO / Date: 2/14/13

Survey No.:	7225.0002-132
Date:	14-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	Sample #s: BN312
Contaminant/Limits:	Total 100 dpm/100cm2 Alpha 1000dpm/100cm2 Beta Gamma BKG +/- 50%
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	PR122188	Protean	Protean
Instrument / SN:	N/A	190171	See file	See file
Inst. Set-Up Date:	N/A	12/19/2012		
Cal. Due Date:	N/A	12/17/2013		
Bkgd (cpm)	N/A	N/A		
Efficiency:	N/A	N/A		
MDA (dpm):	N/A	N/A		
ACF:	N/A	N/A	N/A	N/A
Count Time (min):	N/A	1		

No.	*Descriptions*		*Gross cnt*	**dpm*	*Gross cnt*	*net cnt*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
38	BN312 - 74-76	(Gamma Bkg 4095)	N/A	N/A	4,173	78	N/A	N/A	N/A	N/A
39	BN312 - 76-78	(Gamma Bkg 4095)	N/A	N/A	4,137	42	N/A	N/A	N/A	N/A
40	BN312 - 78-80	(Gamma Bkg 4095)	N/A	N/A	3,994	-101	N/A	N/A	N/A	N/A
41	BN312 - GC12	(Gamma Bkg 4095)	N/A	N/A	4,115	20	N/A	N/A	N/A	N/A
42	BN312 - 82-84	(Gamma Bkg 4095)	N/A	N/A	4,238	143	N/A	N/A	N/A	N/A
43	BN312 - 84-86	(Gamma Bkg 4095)	N/A	N/A	4,165	70	N/A	N/A	N/A	N/A
44	BN312 - 86-88	(Gamma Bkg 4095)	N/A	N/A	4,093	-2	N/A	N/A	N/A	N/A
45	BN312 - 88-90	(Gamma Bkg 4095)	N/A	N/A	4,009	-86	N/A	N/A	N/A	N/A
46	BN312 - 90-92	(Gamma Bkg 4095)	N/A	N/A	4,045	-50	N/A	N/A	N/A	N/A
47	BN312 - GC13	(Gamma Bkg 4095)	N/A	N/A	4,097	2	N/A	N/A	N/A	N/A
	3N312 - 94-96	(Gamma Bkg 4095)	N/A	N/A	4,176	81	N/A	N/A	N/A	N/A
--	BN312 - 96-98	(Gamma Bkg 4095)	N/A	N/A	4,042	-53	N/A	N/A	N/A	N/A
50	BN312 - 98-100	(Gamma Bkg 4095)	N/A	N/A	4,089	-6	N/A	N/A	N/A	N/A
51	BN312 - 100-102	(Gamma Bkg 4095)	N/A	N/A	4,146	51	N/A	N/A	N/A	N/A
52	BN312 - 102-104	(Gamma Bkg 4095)	N/A	N/A	4,144	49	N/A	N/A	N/A	N/A
53	BN312 - GC14	(Gamma Bkg 4095)	N/A	N/A	4,033	-62	N/A	N/A	N/A	N/A
54	BN312 - 106-108	(Gamma Bkg 4095)	N/A	N/A	4,016	-79	N/A	N/A	N/A	N/A
55	BN312 - 108-110	(Gamma Bkg 4095)	N/A	N/A	4,134	39	N/A	N/A	N/A	N/A
56	BN312 - 110-112	(Gamma Bkg 4095)	N/A	N/A	4,167	72	N/A	N/A	N/A	N/A
57	BN312 - 112-114	(Gamma Bkg 4095)	N/A	N/A	4,053	-42	N/A	N/A	N/A	N/A
58	BN312 - 114-116	(Gamma Bkg 4095)	N/A	N/A	4,089	-6	N/A	N/A	N/A	N/A
59	BN312 - 116-118	(Gamma Bkg 4095)	N/A	N/A	3,938	-157	N/A	N/A	N/A	N/A
60	BN312 - GC15	(Gamma Bkg 4095)	N/A	N/A	4,010	-85	N/A	N/A	N/A	N/A
61	N/A		N/A	N/A	N/A		N/A	N/A	N/A	N/A
62	N/A		N/A	N/A	N/A		N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/25/2013 2:34:27 PM

Survey ID: 7225.0002-132

Alpha MDA 17 DPM

ALPHA BKGD = 0.10
ALPHA EFF. = 25.90%
ALPHA F = 1.00
Count Time = 1.00 min

Beta MDA = 18 DPM

BETA BKGD = 2.50
BETA EFF. = 58.40%
BETA F = 1.00
BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	BN312 - GC1	(Gamma Bkg 4095)	0.000	1.000	-0.386	-2.568
2	2	BN312 - 2-4	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
3	3	BN312 - 4-6	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856
4	4	BN312 - 6-8	(Gamma Bkg 4095)	0.000	6.000	-0.386	5.993
5	5	BN312 - GC2	(Gamma Bkg 4095)	0.000	2.000	-0.386	-0.856
6	6	BN312 - 10-12	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
7	7	BN312 - 12-14	(Gamma Bkg 4095)	0.000	6.000	-0.386	5.993
8	8	BN312 - 14-16	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856
9	9	BN312 - GC3	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
10	10	BN312 - 18-20	(Gamma Bkg 4095)	0.000	0.000	-0.386	-4.281
11	11	BN312 - 20-22	(Gamma Bkg 4095)	0.000	1.000	-0.386	-2.568
12	12	BN312 - GC4	(Gamma Bkg 4095)	0.000	2.000	-0.386	-0.856
13	13	BN312 - 24-26	(Gamma Bkg 4095)	0.000	7.000	-0.386	7.705
14	14	BN312 - 26-28	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856
15	15	BN312 - GC5	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
16	16	BN312 - 30-32	(Gamma Bkg 4095)	0.000	5.000	-0.386	4.281
17	17	BN312 - 32-34	(Gamma Bkg 4095)	0.000	6.000	-0.386	5.993
18	18	BN312 - GC6	(Gamma Bkg 4095)	0.000	2.000	-0.386	-0.856
19	19	BN312 - 36-38	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856
20	20	BN312 - 38-40	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
21	21	BN312 - GC7	(Gamma Bkg 4095)	0.000	7.000	-0.386	7.705
22	22	BN312 - 42-44	(Gamma Bkg 4095)	0.000	1.000	-0.386	-2.568
23	23	BN312 - 44-46	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856
24	24	BN312 - GC8	(Gamma Bkg 4095)	0.000	8.000	-0.386	9.418
25	25	BN312 - 48-50	(Gamma Bkg 4095)	0.000	5.000	-0.386	4.281
26	26	BN312 - 50-52	(Gamma Bkg 4095)	0.000	6.000	-0.386	5.993
27	27	BN312 - GC9	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
28	28	BN312 - 54-56	(Gamma Bkg 4095)	0.000	2.000	-0.386	-0.856
29	29	BN312 - 56-58	(Gamma Bkg 4095)	3.000	2.000	11.197	-0.856
30	30	BN312 - GC10	(Gamma Bkg 4095)	0.000	2.000	-0.386	-0.856
31	31	BN312 - 60-62	(Gamma Bkg 4095)	0.000	2.000	-0.386	-0.856
32	32	BN312 - 62-64	(Gamma Bkg 4095)	0.000	2.000	-0.386	-0.856
33	33	BN312 - 64-66	(Gamma Bkg 4095)	0.000	6.000	-0.386	5.993
34	34	BN312 - 66-68	(Gamma Bkg 4095)	0.000	1.000	-0.386	-2.568
35	35	BN312 - GC11	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
36	36	BN312 - 70-72	(Gamma Bkg 4095)	0.000	6.000	-0.386	5.993
37	37	BN312 - 72-74	(Gamma Bkg 4095)	1.000	3.000	3.475	0.856
38	38	BN312 - 74-76	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
39	39	BN312 - 76-78	(Gamma Bkg 4095)	0.000	2.000	-0.386	-0.856
40	40	BN312 - 78-80	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
41	41	BN312 - GC12	(Gamma Bkg 4095)	0.000	6.000	-0.386	5.993
42	42	BN312 - 82-84	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856
43	43	BN312 - 84-86	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
44	44	BN312 - 86-88	(Gamma Bkg 4095)	0.000	0.000	-0.386	-4.281
45	45	BN312 - 88-90	(Gamma Bkg 4095)	0.000	1.000	-0.386	-2.568
46	46	BN312 - 90-92	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856
47	47	BN312 - GC13	(Gamma Bkg 4095)	0.000	2.000	-0.386	-0.856
48	48	BN312 - 94-96	(Gamma Bkg 4095)	0.000	5.000	-0.386	4.281
49	49	BN312 - 96-98	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856
50	50	BN312 - 98-100	(Gamma Bkg 4095)	0.000	6.000	-0.386	5.993

Counted By: _____ Reviewed By: _____ Date: 2/25/13

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/25/2013 2:34:27 PM

Survey ID: 7225.0002-132

Alpha MDA 17 DPM

Beta MDA = 18 DPM

ALPHA BKGD = 0.10
ALPHA EFF. = 25.90%
ALPHA F = 1.00
Count Time = 1.00 min

BETA BKGD = 2.50
BETA EFF. = 58.40%
BETA F = 1.00
BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID		ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
51	51	BN312 - 100-102	(Gamma Bkg 4095)	0.000	7.000	-0.386	7.705
52	52	BN312 - 102-104	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856
53	53	BN312 - GC14	(Gamma Bkg 4095)	0.000	6.000	-0.386	5.993
54	54	BN312 - 106-108	(Gamma Bkg 4095)	0.000	2.000	-0.386	-0.856
55	55	BN312 - 108-110	(Gamma Bkg 4095)	0.000	1.000	-0.386	-2.568
56	56	BN312 - 110-112	(Gamma Bkg 4095)	2.000	0.000	7.336	-4.281
57	57	BN312 - 112-114	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856
58	58	BN312 - 114-116	(Gamma Bkg 4095)	0.000	4.000	-0.386	2.568
59	59	BN312 - 116-118	(Gamma Bkg 4095)	1.000	2.000	3.475	-0.856
60	60	BN312 - GC15	(Gamma Bkg 4095)	0.000	3.000	-0.386	0.856

Counted By: _____ Reviewed By: _____ Date: 2/25/13

Survey Data Sheet

Tech / Date: 2/14/13 RSO / Date: 2/14/13

Survey No.:	7225.0002-133
Date:	14-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	ITSI Equipment
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-13		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Plunger	2	8	137	-688	N/A	N/A	N/A	N/A
2	Table Top Left	0	-11	165	-402	N/A	N/A	N/A	N/A
3	Table Top Right	2	8	173	-320	N/A	N/A	N/A	N/A
4	Table Left Leg	1	-1	180	-249	N/A	N/A	N/A	N/A
5	Table Right Leg	0	-11	141	-647	N/A	N/A	N/A	N/A
6	PFD 1	0	-11	134	-718	N/A	N/A	N/A	N/A
7	PFD 2	0	-11	164	-412	N/A	N/A	N/A	N/A
8	PFD 3	0	-11	145	-606	N/A	N/A	N/A	N/A
9	PFD 4	0	-11	176	-290	N/A	N/A	N/A	N/A
10	Rubber Overall 1	0	-11	153	-524	N/A	N/A	N/A	N/A
	Rubber Overall 2	0	-11	146	-596	N/A	N/A	N/A	N/A
	TR Boot Left	1	-1	152	-535	N/A	N/A	N/A	N/A
13	TR Boot Right	1	-1	128	-780	N/A	N/A	N/A	N/A
14	TO Boot Left	0	-11	155	-504	N/A	N/A	N/A	N/A
15	TO Boot Right	0	-11	150	-555	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/25/2013 4:26:18 PM

Survey ID: 7225.0002-133

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Plunger	0.000	4.000	-0.386	2.568
2	2	Table Top Left	0.000	2.000	-0.386	-0.856
3	3	Table Top Right	0.000	6.000	-0.386	5.993
4	4	Table Left Leg	0.000	2.000	-0.386	-0.856
5	5	Table Right Leg	0.000	1.000	-0.386	-2.568
6	6	PFD 1	0.000	1.000	-0.386	-2.568
7	7	PFD 2	0.000	0.000	-0.386	-4.281
8	8	PFD 3	0.000	4.000	-0.386	2.568
9	9	PFD 4	0.000	6.000	-0.386	5.993
10	10	Rubber Overall 1	2.000	3.000	7.336	0.856
11	11	Rubber Overall 2	0.000	4.000	-0.386	2.568
12	12	TR Boot Left	0.000	2.000	-0.386	-0.856
13	13	TR Boot Right	0.000	5.000	-0.386	4.281
14	14	TO Boot Left	0.000	2.000	-0.386	-0.856
15	15	TO Boot Right	1.000	3.000	3.475	0.856

Counted By: _____ Reviewed By: _____ Date: 2/25/13

Survey Data Sheet

Tech / Date: 2/14/13 RSO / Date: 2/14/13

Survey No.:	7225.0002-134
Date:	14-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	Release

Item Surveyed:	mobile Mini #AS40RYU0517
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-12		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	See Attached	0	-11	153	-524	N/A	N/A	N/A	N/A
2	See Attached	0	-11	115	-912	N/A	N/A	N/A	N/A
3	See Attached	0	-11	165	-402	N/A	N/A	N/A	N/A
4	See Attached	0	-11	128	-780	N/A	N/A	N/A	N/A
5	See Attached	2	8	159	-463	N/A	N/A	N/A	N/A
6	See Attached	0	-11	167	-382	N/A	N/A	N/A	N/A
7	See Attached	0	-11	132	-739	N/A	N/A	N/A	N/A
8	See Attached	0	-11	149	-565	N/A	N/A	N/A	N/A
9	See Attached	1	-1	170	-351	N/A	N/A	N/A	N/A
10	See Attached	0	-11	177	-280	N/A	N/A	N/A	N/A
	See Attached	0	-11	149	-565	N/A	N/A	N/A	N/A
	See Attached	0	-11	158	-473	N/A	N/A	N/A	N/A
13	See Attached	1	-1	171	-341	N/A	N/A	N/A	N/A
14	See Attached	0	-11	183	-218	N/A	N/A	N/A	N/A
15	See Attached	1	-1	122	-841	N/A	N/A	N/A	N/A
16	See Attached	1	-1	129	-769	N/A	N/A	N/A	N/A
17	See Attached	1	-1	119	-871	N/A	N/A	N/A	N/A
18	See Attached	1	-1	128	-780	N/A	N/A	N/A	N/A
19	See Attached	0	-11	125	-810	N/A	N/A	N/A	N/A
20	See Attached	0	-11	116	-902	N/A	N/A	N/A	N/A
21	See Attached	1	-1	145	-606	N/A	N/A	N/A	N/A
22	See Attached	2	8	134	-718	N/A	N/A	N/A	N/A
23	See Attached	1	-1	128	-780	N/A	N/A	N/A	N/A
24	See Attached	1	-1	112	-943	N/A	N/A	N/A	N/A
25	See Attached	1	-1	128	-780	N/A	N/A	N/A	N/A
26	See Attached	0	-11	132	-739	N/A	N/A	N/A	N/A
27	See Attached	0	-11	123	-831	N/A	N/A	N/A	N/A
28	See Attached	0	-11	193	-116	N/A	N/A	N/A	N/A
29	See Attached	0	-11	141	-647	N/A	N/A	N/A	N/A
30	See Attached	1	-1	158	-473	N/A	N/A	N/A	N/A
31	See Attached	0	-11	120	-861	N/A	N/A	N/A	N/A
	See Attached	1	-1	141	-647	N/A	N/A	N/A	N/A
33	See Attached	0	-11	119	-871	N/A	N/A	N/A	N/A
34	See Attached	0	-11	115	-912	N/A	N/A	N/A	N/A
35	See Attached	1	-1	134	-718	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/14/13 RSO / Date: 2/14/13

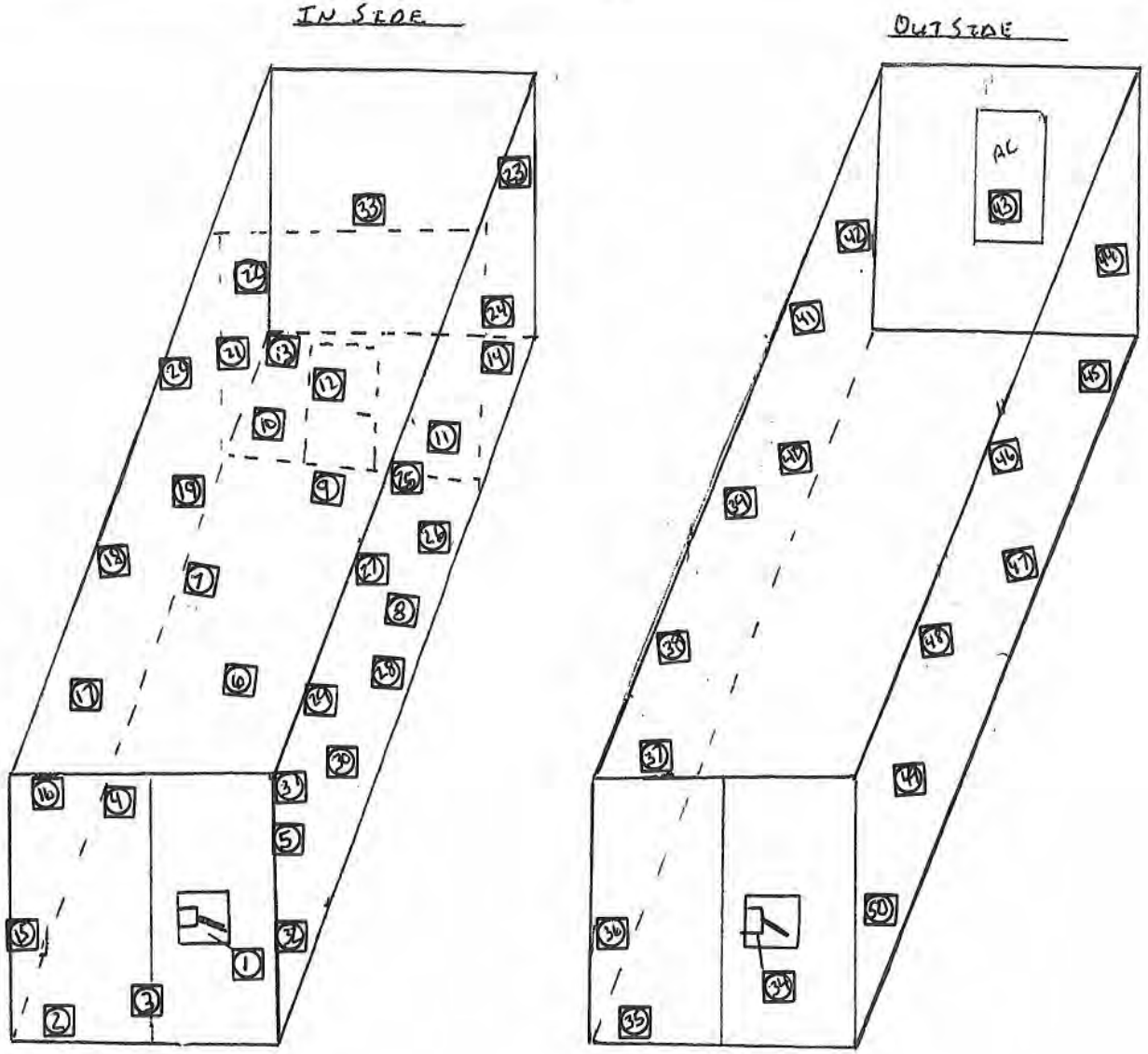
Survey No.:	7225.0002-134	**Item Surveyed:**	mobile Mini #AS40RYU0517
Date:	14-Feb-13	**Contaminant/Limits:**	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Building Number:	N/A	**Comments:**	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta
Survey Tech.:	K.Gordon		
Count Rm. Tech.:	C.Bryson		
Survey Type:	Release		

Notes:
Survey Types: Routine, Release, Informational, Receipt, FSS
ACF = Area Correction Factor
Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)
Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR179868	PR179868	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-13	4-Oct-12		
Bkgd (cpm)	1.15	204.4		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
36	See Attached	2	8	118	-882	N/A	N/A	N/A	N/A
37	See Attached	0	-11	114	-922	N/A	N/A	N/A	N/A
38	See Attached	1	-1	112	-943	N/A	N/A	N/A	N/A
39	See Attached	0	-11	144	-616	N/A	N/A	N/A	N/A
40	See Attached	0	-11	209	47	N/A	N/A	N/A	N/A
41	See Attached	3	17	116	-902	N/A	N/A	N/A	N/A
42	See Attached	2	8	140	-657	N/A	N/A	N/A	N/A
43	See Attached	1	-1	125	-810	N/A	N/A	N/A	N/A
44	See Attached	5	36	128	-780	N/A	N/A	N/A	N/A
45	See Attached	1	-1	113	-933	N/A	N/A	N/A	N/A
	See Attached	4	27	129	-769	N/A	N/A	N/A	N/A
	See Attached	0	-11	118	-882	N/A	N/A	N/A	N/A
48	See Attached	5	36	113	-933	N/A	N/A	N/A	N/A
49	See Attached	0	-11	130	-759	N/A	N/A	N/A	N/A
50	See Attached	1	-1	154	-514	N/A	N/A	N/A	N/A
51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
52	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey ɪrmation Sheet



Comments:

General Information

Survey No.: 7225.0002-134 **Building Number:** N/A

Date: 14-Feb-13 **Survey Tech.:** K.Gordon Page: 2 of 2

= Exposure Rate Reading (in µR/hr)

/ # / # = contact/ 1 ft / 3 ft readings (in µR/hr)

(#) = Smear Location

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/25/2013 4:48:22 PM

Survey ID: 7225.0002-134

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Sample 1	0.000	2.000	-0.386	-0.856
2	2	Sample 2	0.000	3.000	-0.386	0.856
3	3	Sample 3	0.000	4.000	-0.386	2.568
4	4	Sample 4	0.000	2.000	-0.386	-0.856
5	5	Sample 5	0.000	2.000	-0.386	-0.856
6	6	Sample 6	0.000	1.000	-0.386	-2.568
7	7	Sample 7	0.000	5.000	-0.386	4.281
8	8	Sample 8	0.000	4.000	-0.386	2.568
9	9	Sample 9	0.000	7.000	-0.386	7.705
10	10	Sample 10	1.000	3.000	3.475	0.856
11	11	Sample 11	0.000	8.000	-0.386	9.418
12	12	Sample 12	0.000	1.000	-0.386	-2.568
13	13	Sample 13	0.000	5.000	-0.386	4.281
14	14	Sample 14	0.000	6.000	-0.386	5.993
15	15	Sample 15	0.000	3.000	-0.386	0.856
16	16	Sample 16	0.000	4.000	-0.386	2.568
17	17	Sample 17	0.000	2.000	-0.386	-0.856
18	18	Sample 18	0.000	4.000	-0.386	2.568
19	19	Sample 19	0.000	2.000	-0.386	-0.856
20	20	Sample 20	2.000	1.000	7.336	-2.568
21	21	Sample 21	0.000	6.000	-0.386	5.993
22	22	Sample 22	0.000	5.000	-0.386	4.281
23	23	Sample 23	0.000	3.000	-0.386	0.856
24	24	Sample 24	0.000	1.000	-0.386	-2.568
25	25	Sample 25	0.000	0.000	-0.386	-4.281
26	26	Sample 26	0.000	0.000	-0.386	-4.281
27	27	Sample 27	0.000	4.000	-0.386	2.568
28	28	Sample 28	0.000	3.000	-0.386	0.856
29	29	Sample 29	0.000	3.000	-0.386	0.856
30	30	Sample 30	0.000	3.000	-0.386	0.856
31	31	Sample 31	1.000	3.000	3.475	0.856
32	32	Sample 32	1.000	3.000	3.475	0.856
33	33	Sample 33	1.000	6.000	3.475	5.993
34	34	Sample 34	0.000	1.000	-0.386	-2.568
35	35	Sample 35	0.000	6.000	-0.386	5.993
36	36	Sample 36	0.000	2.000	-0.386	-0.856
37	37	Sample 37	0.000	6.000	-0.386	5.993
38	38	Sample 38	0.000	4.000	-0.386	2.568
39	39	Sample 39	0.000	8.000	-0.386	9.418
40	40	Sample 40	0.000	3.000	-0.386	0.856
41	41	Sample 41	0.000	5.000	-0.386	4.281
42	42	Sample 42	0.000	2.000	-0.386	-0.856
43	43	Sample 43	0.000	4.000	-0.386	2.568
44	44	Sample 44	2.000	4.000	7.336	2.568
45	45	Sample 45	0.000	1.000	-0.386	-2.568
46	46	Sample 46	0.000	2.000	-0.386	-0.856
47	47	Sample 47	0.000	1.000	-0.386	-2.568
48	48	Sample 48	0.000	4.000	-0.386	2.568
49	49	Sample 49	2.000	2.000	7.336	-0.856
50	50	Sample 50	0.000	6.000	-0.386	5.993

Counted By: _____ Reviewed By: _____ Date: 2/25/13

Survey Data Sheet

Tech / Date: 2/14/13 RSO / Date: 2/14/13

Survey No.:	7225.0002-135	**Item Surveyed:**	Sample Coolers #028 030 Shipment to Lab
Date:	14-Feb-13	**Contaminant/Limits:**	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Building Number:	N/A	**Comments:**	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta
Survey Tech.:	K.Gordon		
Count Rm. Tech.:	C.Bryson		
Survey Type:	DOT Shipment		

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	N/A	Model 19	PR 157821	PR 157821
Instrument / SN:	N/A	111333	157320	157320
Inst. Set-Up Date:	N/A	12/5/2012	11-Dec-12	11-Dec-12
Cal. Due Date:	N/A	6/6/2013	1-Nov-13	1-Nov-13
Bkgd (uR/Hr)	N/A	5	0.18	40
Efficiency:	N/A	N/A	0.172	0.091
MDA (dpm):	N/A	N/A	10	170
ACF:	N/A	N/A	1	1
Count Time (min):	N/A	N/A	4	4

No.	*Descriptions*	*Gross cnt*	**dpm*	*uR/Hr*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	cooler # 028 inside	N/A	N/A	5	N/A	1	0	152	-27
2	cooler # 028 outside	N/A	N/A	5	N/A	7	9	206	122
3	cooler # 030 inside	N/A	N/A	5	N/A	1	0	184	61
4	cooler # 030 outside	N/A	N/A	5	N/A	1	0	181	53
5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Survey Data Sheet

Tech / Date: 2/14/13 RSO / Date: 2/14/13

Survey No.:	7225.0002-136
Date:	14-Feb-13
Building Number:	N/A
Survey Tech.:	K.Gordon
Count Rm. Tech.:	C.Bryson
Survey Type:	routine

Item Surveyed:	ITSI Dock
Contaminant/Limits:	Total 100 dpm/100cm^2 Alpha 1000dpm/100cm^2 Beta
Comments:	Loose 20dpm/100cm Alpha 200dpm/ 100cm Beta

Notes:

Survey Types: Routine, Release, Informational, Receipt, FSS

ACF = Area Correction Factor

Total/Direct Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Eff x ACF)

Removable Activity Calculation (dpm) = ((Gross Cnt/Cnt Time)-Bkgrd)/(Efficiency)

Instrument Parameter	*Total (Direct)*		*Removable*	
	Alpha	Beta-Gamma	Alpha	Beta-Gamma
Probe / SN:	PR298426	PR298426	Protean	Protean
Instrument / SN:	184930	184930	See file	See file
Inst. Set-Up Date:	3-Dec-12	3-Dec-12		
Cal. Due Date:	4-Oct-12	4-Oct-12		
Bkgd (cpm)	1.15	204.7		
Efficiency:	0.107	0.098		
MDA (dpm):	75	707		
ACF:	1	1	N/A	N/A
Count Time (min):	1	1		

No.	*Descriptions*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*	*Gross cnt*	**dpm*
1	Northeast Corner Dock	4	27	111	-956	N/A	N/A	N/A	N/A
2	Southeast Corner Dock	2	8	114	-926	N/A	N/A	N/A	N/A
3	Southwest Corner Dock	3	17	110	-966	N/A	N/A	N/A	N/A
4	Gangway Bottom	2	8	100	-1,068	N/A	N/A	N/A	N/A
5	Gangway Top	1	-1	198	-68	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

PROTEAN WPC9550 SN:09085100 CAL. DUE : 1/7/2014
2/25/2013 6:02:31 PM

Survey ID: 7225.0002-136

Alpha MDA 17 DPM Beta MDA = 18 DPM

ALPHA BKGD = 0.10 BETA BKGD = 2.50
ALPHA EFF. = 25.90% BETA EFF. = 58.40%
ALPHA F = 1.00 BETA F = 1.00
Count Time = 1.00 min BKGD Count Time = 1.00 min

SEQ. NUM.	SC#	ID	ALPHA CPM	BETA CPM	ALPHA DPM	BETA DPM
1	1	Northeast Corner Dock	0.000	4.000	-0.386	2.568
2	2	Southeast Corner Dock	0.000	3.000	-0.386	0.856
3	3	Southwest Corner Dock	0.000	2.000	-0.386	-0.856
4	4	Gangway Bottom	0.000	5.000	-0.386	4.281
5	5	Gangway Top	0.000	3.000	-0.386	0.856

Counted By: _____ Reviewed By: _____ Date: 2/25/13

IT - Gilbane

Instrument Daily **Th-230** **Source Check** 11,200 Corrected Activity (in dpm)

Instrument #:	2360/184930	Setup Date:	3-Dec-12	High Voltage:	825
Cal. Date:	October 4, 2013	Source ID:	4005-02	Total Efficiency:	10.69%
Probe #:	43-93/179868	Project/#:	ITSI Parcel f	MDA (in dpm):	74.72

Ranges Background: 0 counts to 3 counts using ± 2 Sigma Count Time (min): 1
Source: 4,705 counts to 4,878 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
12-04-12/0820	4,718	1	ok	ok	ok	Sat	pre	kg	
12-04-12/1420	4,775	1	ok	ok	ok	Sat	post	kg	
12-05-12/0820	4,846	3	ok	ok	ok	Sat	pre	kg	
12-05-12/1400	4,793	3	ok	ok	ok	Sat	post	kg	
12-11-12/0815	4,758	3	ok	ok	ok	Sat	pre	kg	
12-11-12/1500	4,781	1	ok	ok	ok	Sat	post	kg	
12-12-12/0800	4,877	2	ok	ok	ok	Sat	pre	kg	
12-12-12/1140	4,858	1	ok	ok	ok	Sat	post	kg	
12-13-12/0755	4,716	3	ok	ok	ok	Sat	pre	kg	
12-13-12/1445	4,807	1	ok	ok	ok	Sat	post	kg	
12-17-12/0745	4,876	2	ok	ok	ok	Sat	pre	kg	
12-17-12/1610	4,809	1	ok	ok	ok	Sat	post	kg	
12-18-12/0650	4,732	0	ok	ok	ok	Sat	pre	kg	
12-18-12/1515	4,726	2	ok	ok	ok	Sat	post	kg	
12-19-12/0640	4,870	0	ok	ok	ok	Sat	pre	kg	
12-19-12/1800	4,727	0	ok	ok	ok	Sat	post	kg	
12-20-12/0635	4,763	2	ok	ok	ok	Sat	pre	kg	
12-20-12/0845	4,778	3	ok	ok	ok	Sat	post	kg	
1-02-13/0640	4,754	0	ok	ok	ok	Sat	pre	kg	
1-02-13/1145	4,744	1	ok	ok	ok	Sat	post	kg	
1-03-13/0650	4,734	0	ok	ok	ok	Sat	pre	kg	
1-03-13/1640	4,773	1	ok	ok	ok	Sat	post	kg	
1-4-13/0630	4,854	3	ok	ok	ok	Sat	pre	kg	
1-4-13/1530	4,785	2	ok	ok	ok	Sat	post	kg	
1-7-13/0700	4,799	2	ok	ok	ok	Sat	pre	kg	
1-7-13/1550	4,871	0	ok	ok	ok	Sat	post	kg	
1-8-13/0645	4,742	2	ok	ok	ok	Sat	pre	kg	
1-8-13/1620	4,867	1	ok	ok	ok	Sat	post	kg	
1-9-13/0715	4,752	0	ok	ok	ok	Sat	pre	kg	
1-9-13/1700	4,793	3	ok	ok	ok	Sat	post	kg	
1-10-13/0700	4,825	0	ok	ok	ok	Sat	pre	kg	

Completed By: KYLE GORDON Date 1/10/13
Reviewed By: Date 1/10/13

IT - Gilbane

Instrument Daily **Th-230** **Source Check** 11,200 Corrected Activity (in dpm)

Instrument #:	2360/184930	Setup Date:	3-Dec-12	High Voltage:	825
Cal. Date:	October 4, 2013	Source ID:	4005-02	Total Efficiency:	10.69%
Probe #:	43-93/179868	Project/#:	ITSI Parcel f	MDA (in dpm):	74.72

Ranges Background: 0 counts to 3 counts using ± 2 Sigma Count Time (min): 1
Source: 4,705 counts to 4,878 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
1-10-13/1610	4,787	1	ok	ok	ok	Sat	post	kg	
1-14-13/0640	4,734	1	ok	ok	ok	Sat	pre	kg	
1-14-13/1635	4,705	1	ok	ok	ok	Sat	post	kg	
1-15-13/0645	4,760	0	ok	ok	ok	Sat	pre	kg	
1-15-13/1630	4,730	1	ok	ok	ok	Sat	post	kg	
1-16-13/0635	4,773	0	ok	ok	ok	Sat	pre	kg	
1-16-13/1610	4,708	1	ok	ok	ok	Sat	post	kg	
1-17-13/0630	4,749	2	ok	ok	ok	Sat	pre	kg	
1-17-13/1600	4,814	0	ok	ok	ok	Sat	post	kg	
1-22-13/0630	4,737	2	ok	ok	ok	Sat	pre	kg	
1-22-13/1700	4,785	3	ok	ok	ok	Sat	post	kg	
1-23-13/0610	4,841	3	ok	ok	ok	Sat	pre	kg	
1-23-13/1610	4,770	0	ok	ok	ok	Sat	post	kg	
1-24-13/0635	4,794	0	ok	ok	ok	Sat	pre	kg	
1-24-13/1630	4,820	2	ok	ok	ok	Sat	post	kg	
1-25-13/0635	4,732	1	ok	ok	ok	Sat	pre	kg	
1-25-13/1520	4,840	0	ok	ok	ok	Sat	post	kg	
1-28-13/0620	4,768	1	ok	ok	ok	Sat	pre	kg	
1-28-13/1550	4,835	2	ok	ok	ok	Sat	post	kg	
1-29-13/0625	4,714	0	ok	ok	ok	Sat	pre	kg	
1-29-13/1525	4,740	1	ok	ok	ok	Sat	post	kg	
1-30-13/0630	4,810	1	ok	ok	ok	Sat	pre	kg	
1-30-13/1700	4,782	1	ok	ok	ok	Sat	post	kg	
1-31-13/0615	4,823	1	ok	ok	ok	Sat	pre	kg	
1-31-13/1600	4,832	1	ok	ok	ok	Sat	post	kg	
2-4-13/0635	4,785	1	ok	ok	ok	Sat	pre	kg	
2-4-13/1600	4,800	1	ok	ok	ok	Sat	post	kg	
2-5-13/0610	4,791	0	ok	ok	ok	Sat	pre	kg	
2-5-13/1725	4,833	2	ok	ok	ok	Sat	post	kg	
2-6-13/0600	4,729	2	ok	ok	ok	Sat	pre	kg	
2-6-13/1230	4,777	1	ok	ok	ok	Sat	post	kg	

Completed By: KYLE GORDON Date 2/6/13
Reviewed By: Date 2/6/13

IT - Gilbane

Instrument Daily **Th-230** **Source Check** 11,200 Corrected Activity (in dpm)

Instrument #:	2360/184930	Setup Date:	3-Dec-12	High Voltage:	825
Cal. Date:	October 4, 2013	Source ID:	4005-02	Total Efficiency:	10.69%
Probe #:	43-93/179868	Project/#:	ITSI Parcel f	MDA (in dpm):	74.72

Ranges Background: 0 counts to 3 counts using ± 2 Sigma Count Time (min): 1
Source: 4,705 counts to 4,878 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
2-11-13/0650	4,795	2	ok	ok	ok	Sat	post	kg	
2-11-13/1445	4,798	2	ok	ok	ok	Sat	post	kg	
2-12-13/0640	4,735	0	ok	ok	ok	Sat	pre	kg	
2-12-13/1415	4,818	0	ok	ok	ok	Sat	post	kg	
2-13-13/0645	4,830	2	ok	ok	ok	Sat	pre	kg	
2-13-13/1555	4,768	1	ok	ok	ok	Sat	post	kg	
2-14-13/0705	4,739	0	ok	ok	ok	Sat	pre	kg	
2-14-13/1600	4,796	1	ok	ok	ok	Sat	post	kg	

Completed By: KYLE GORDON Date 2/14/13
Reviewed By: Date 2/14/13

SCALER INITIAL SETUP SHEET | **Alpha** | *{Blue cells for input}*

Project Name / No: ITSI Parcel f
Instrument / SN: 2360/184930 **Cal. Due:** 15-Nov-13
Probe Type / SN: 43-93/179868 **Cal. Due:** 15-Nov-13
Technician: Kyle Gordon
Location: Hunters Point

Setup Date: 03-Dec-12
Source Cert. Date: 24-Mar-10
Source SN: 4005-02
Surface Emission Rate: 11,200 particles/min
Source Type: Th-230
HV Check/Setting" 825

Background Count Time: 1 minutes
Source/Sample Count Time: 1 minutes

1. Total Background Counts observed:

Chi-squared Calculations

1	1	-0.15	0.02
2	2	0.85	0.72
3	0	-1.15	1.32
4	0	-1.15	1.32
5	1	-0.15	0.02
6	4	2.85	8.12
7	1	-0.15	0.02
8	1	-0.15	0.02
9	1	-0.15	0.02
10	3	1.85	3.42
11	0	-1.15	1.32
12	2	0.85	0.72
13	0	-1.15	1.32
14	0	-1.15	1.32
15	1	-0.15	0.02
16	2	0.85	0.72
17	1	-0.15	0.02
18	2	0.85	0.72
19	0	-1.15	1.32
20	1	-0.15	0.02
		0	

Average Counts = 1.15 counts
Average Count Rate = 1.15 cpm
Standard Deviation = 1.09 counts
Sum of Squares = 22.55
Area Correction Factor= 1.00 $100cm^2$

2. Total Source Counts observed:

Chi-squared Calculations

1	4,802	-5	21
2	4,744	-63	3,919
3	4,865	58	3,411
4	4,992	185	34,373
5	4,772	-35	1,197
6	4,761	-46	2,079
7	4,822	15	237
8	4,826	19	376
9	4,788	-19	346
10	4,754	-53	2,767
11	4,776	-31	936
12	4,759	-48	2,266
13	4,806	-1	0
14	4,839	32	1,050
15	4,813	6	41
16	4,850	43	1,884
17	4,810	3	12
18	4,772	-35	1,197
19	4,741	-66	4,303
20	4,840	33	1,116
		0	

Average Counts = 4,807 counts
Average Count Rate = 4,807 cpm
Standard Deviation = 57 counts
Sum of the Squares = 61,531
Chi-Squared Statistic = 12.80

Acceptable Ranges for Chi-x^2
10.12 to 30.14

Instrument Efficiency = 0.429 cpm/dpm
Surface Efficiency = 0.250 cpm/dpm
Total Efficiency = 0.107 cpm/dpm

Net source cts = 4,805 counts
Std. Dev. Net = 57 counts
Net Ct. Rate = 4,805 cpm

Conv.Factor= 2.33 dpm/cpm
MDCR 95% 11.46 counts

MDA Scan= 76 dpm/100 cm^2
MDA Static= 74 dpm/100 cm^2

Reliability Factor 1

Bkg count range 0 to 3 (2 sigma)
Source count range 4,693 to 4,920 (2 sigma)

Technical Reviewer

12/03/12
Date

Source Activity Correction Worksheet

Isotope	Th-230		
ID #	4005-02	Equation:	$Act_f = Act_o \times e^{-((.693/t)T)}$
Initial Activity (dpm)	11,200		
Ref. Date	24-Mar-10		
Half-life (years)	2.13E+05	7.77E+07 days (Half-life)	
Current Date	3-Dec-12	985.00 days (t)	

Corrected Surface Emission Rate = **11,200 *particles/min***

Equations

Chi-squared Calculations $\chi 2=\Sigma(n-n)^2 = n$

si= 0.19

Minimum Detectable Count Rate (MDCR) MDCR = si * 60

si=di*bi^0.5

Minimum Detectable Activity Scan (MDA) MDA = MDCR/(Eff x Count Time x Area Corr. Factor)

Minimum Dectectable Activity Static (MDA)

$$MDC = \frac{3 + 3.29(R_b t_s[1 + t_s/t_b])^{1/2}}{(t_s)(E)(A)}$$

di= 1.38 from MARSSIM Table 6.5 (field Measurement and Instrumentation)
bi = Average Count rate background

Review:

12/3/12

Technical Reviewer Date

IT -Gilbane

Instrument Daily **Tc-99** **Source Check** 11,599 Corrected Activity (in dpm)

Instrument #:	2360/184930	Setup Date:	3-Dec-12	High Voltage:	725
Cal. Date:	October 4, 2012	Source ID:	5445-05	Total Efficiency:	9.84%
Probe #:	43-93/298426	Project/#:	ITSI Parcel F	MDA (in dpm):	706.96

Ranges 3ackground: 176 counts to 234 counts using ± 2 Sigma Count Time (min): 1
Source: 2,365 counts to 2,610 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
12-04-12/0820	2,441	186	ok	ok	ok	Sat	pre	kg	
12-04-12/1420	2,490	181	ok	ok	ok	Sat	post	kg	
12-05-12/0820	2,492	192	ok	ok	ok	Sat	pre	kg	
12-05-12/1400	2,511	195	ok	ok	ok	Sat	post	kg	
12-11-12/0815	2,494	211	ok	ok	ok	Sat	pre	kg	
12-11-12/1500	2,453	202	ok	ok	ok	Sat	post	kg	
12-12-12/0800	2,554	202	ok	ok	ok	Sat	pre	kg	
12-12-12/1140	2,568	212	ok	ok	ok	Sat	post	kg	
12-13-12/0755	2,535	222	ok	ok	ok	Sat	pre	kg	
12-13-12/1445	2,439	189	ok	ok	ok	Sat	post	kg	
12-17-12/0745	2,476	205	ok	ok	ok	Sat	pre	kg	
12-17-12/1610	2,448	199	ok	ok	ok	Sat	post	kg	
12-18-12/0650	2,384	204	ok	ok	ok	Sat	pre	kg	
12-18-12/1515	2,468	211	ok	ok	ok	Sat	post	kg	
12-19-12/0640	2,460	180	ok	ok	ok	Sat	pre	kg	
12-19-13/1800	2,451	192	ok	ok	ok	Sat	post	kg	
12-20-13/0635	2,397	195	ok	ok	ok	Sat	pre	kg	
12-20-13/0845	2,607	203	ok	ok	ok	Sat	post	kg	
1-02-13/0640	2,491	213	ok	ok	ok	Sat	pre	kg	
1-02-13/1145	2,412	192	ok	ok	ok	Sat	post	kg	
1-03-13/0650	2,442	227	ok	ok	ok	Sat	pre	kg	
1-03-13/1640	2,455	199	ok	ok	ok	Sat	post	kg	
1-04-13/0630	2,555	223	ok	ok	ok	Sat	pre	kg	
1-04-13/1530	2,485	193	ok	ok	ok	Sat	post	kg	
1-07-13/0700	2,480	196	ok	ok	ok	Sat	pre	kg	
1-07-13/1550	2,478	192	ok	ok	ok	Sat	post	kg	
1-08-13/0645	2,481	202	ok	ok	ok	Sat	pre	kg	
1-08-13/1620	2,387	187	ok	ok	ok	Sat	post	kg	
1-09-13/0715	2,523	199	ok	ok	ok	Sat	pre	kg	
1-09-13/1700	2,368	205	ok	ok	ok	Sat	post	kg	
1-10-13/0700	2,479	191	ok	ok	ok	Sat	pre	kg	

Completed By: KYLE GORDON Date 1/10/13
Reviewed By: Date

IT -Gilbane

Instrument Daily **Tc-99** **Source Check** 11,599 Corrected Activity (in dpm)

Instrument #:	2360/184930	Setup Date:	3-Dec-12	High Voltage:	725
Cal. Date:	October 4, 2012	Source ID:	5445-05	Total Efficiency:	9.84%
Probe #:	43-93/298426	Project/#:	ITSI Parcel F	MDA (in dpm):	706.96

Ranges Background: 176 counts to 234 counts using ± 2 Sigma Count Time (min): 1
Source: 2,365 counts to 2,610 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
1-10-13/1610	2,437	216	ok	ok	ok	Sat	post	kg	
1-14-13/0640	2,518	213	ok	ok	ok	Sat	pre	kg	
1-14-13/1635	2,609	211	ok	ok	ok	Sat	post	kg	
1-15-13/0645	2,601	221	ok	ok	ok	Sat	pre	kg	
1-15-13/1630	2,543	200	ok	ok	ok	Sat	post	kg	
1-16-13/0635	2,502	180	ok	ok	ok	Sat	pre	kg	
1-16-13/1610	2,393	208	ok	ok	ok	Sat	post	kg	
1-17-13/0630	2,589	195	ok	ok	ok	Sat	pre	kg	
1-17-13/1600	2,559	193	ok	ok	ok	Sat	post	kg	
1-22-13/0630	2,435	220	ok	ok	ok	Sat	pre	kg	
1-22-13/1700	2,526	217	ok	ok	ok	Sat	post	kg	
1-23-13/0610	2,533	192	ok	ok	ok	Sat	pre	kg	
1-23-13/1610	2,539	204	ok	ok	ok	Sat	post	kg	
1-24-13/0635	2,541	218	ok	ok	ok	Sat	pre	kg	
1-24-13/1630	2,430	195	ok	ok	ok	Sat	post	kg	
1-25-13/0635	2,498	233	ok	ok	ok	Sat	pre	kg	
1-25-13/1520	2,481	196	ok	ok	ok	Sat	post	kg	
1-28-13/0620	2,529	187	ok	ok	ok	Sat	pre	kg	
1-28-13/1550	2,542	192	ok	ok	ok	Sat	post	kg	
1-29-13/0625	2,482	230	ok	ok	ok	Sat	pre	kg	
1-29-13/1525	2,527	196	ok	ok	ok	Sat	post	kg	
1-30-13/0630	2,517	180	ok	ok	ok	Sat	pre	kg	
1-30-13/1700	2,410	228	ok	ok	ok	Sat	post	kg	
1-31-13/0615	2,606	217	ok	ok	ok	Sat	pre	kg	
1-31-13/1600	2,421	222	ok	ok	ok	Sat	post	kg	
2-4-13/0635	2,523	190	ok	ok	ok	Sat	pre	kg	
2-4-13/1600	2,479	202	ok	ok	ok	Sat	post	kg	
2-5-13/0610	2,531	203	ok	ok	ok	Sat	pre	kg	
2-5-13/1725	2,557	214	ok	ok	ok	Sat	post	kg	
2-6-13/0600	2,477	213	ok	ok	ok	Sat	pre	kg	
2-6-13/1230	2,559	215	ok	ok	ok	Sat	post	kg	

Completed By: KYLE GORDON Date 2/6/13
Reviewed By: Date

IT ·Gilbane

Instrument Daily **Tc-99** **Source Check** 11,599 Corrected Activity (in dpm)

Instrument #:	2360/184930	Setup Date:	3-Dec-12	High Voltage:	725
Cal. Date:	October 4, 2012	Source ID:	5445-05	Total Efficiency:	9.84%
Probe #:	43-93/298426	Project/#:	ITSI Parcel F	MDA (in dpm):	706.96

Ranges Background: 176 counts to 234 counts using ± 2 Sigma Count Time (min): 1
Source: 2,365 counts to 2,610 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
2-11-13/0620	2,571	203	ok	ok	ok	Sat	post	kg	
2-11-13/1445	2,467	222	ok	ok	ok	Sat	pre	kg	
2-12-13/0640	2,504	217	ok	ok	ok	Sat	post	kg	
2-12-13/1415	2,479	184	ok	ok	ok	Sat	pre	kg	
2-13-13/0645	2,607	196	ok	ok	ok	Sat	post	kg	
2-13-13/1555	2,427	197	ok	ok	ok	Sat	pre	kg	
2-14-13/0715	2,450	207	ok	ok	ok	Sat	post	kg	
2-14-13/1600	2,484	207	ok	ok	ok	Sat	pre	kg	
						N			
								A	

Completed By: KYLE GORDON Date 2/14/13
Reviewed By: Date

SCALER INITIAL SETUP SHEET — **Beta** — *{Blue cells for input}*

Project Name / No: ITSI Parcel F
Instrument / SN: 2360/184930 — **Cal. Due:** 15-Nov-13
Probe Type / SN: 43-93/298426 — **Cal. Due:** 15-Nov-13
Technician: Kyle Gordon
Location: Hunter's Point

Setup Date: 03-Dec-12
Source Cert. Date: 28-Mar-05
Source SN: 5445-05
Surface Emission Rate: 7,270 particles/min
Source Type: Tc-99
HV Check/Setting" 725

Background Count Time: 1 minutes
Source/Sample Count Time: 1 minutes

1. Total Background Counts observed:

		Chi-squared Calculations	
1	180	-24.70	610.09
2	204	-0.70	0.49
3	212	7.30	53.29
4	218	13.30	176.89
5	192	-12.70	161.29
6	211	6.30	39.69
7	215	10.30	106.09
8	208	3.30	10.89
9	196	-8.70	75.69
10	220	15.30	234.09
11	211	6.30	39.69
12	189	-15.70	246.49
13	197	-7.70	59.29
14	223	18.30	334.89
15	215	10.30	106.09
16	233	28.30	800.89
17	195	-9.70	94.09
18	193	-11.70	136.89
19	204	-0.70	0.49
20	178	-26.70	712.89
		0	

Average Counts = 204.70 counts
Average Count Rate = 204.70 cpm
Standard Deviation = 14.51 counts
Sum of Squares = 4,000.20
Area Correction Factor= 1.00 $100cm^2$

2. Total Source Counts observed:

		Chi-squared Calculations	
1	2,539	51	2,647
2	2,563	75	5,693
3	2,551	63	4,026
4	2,529	41	1,718
5	2,548	60	3,654
6	2,437	-51	2,555
7	2,564	76	5,845
8	2,410	-78	6,014
9	2,433	-55	2,976
10	2,535	47	2,252
11	2,460	-28	759
12	2,541	53	2,857
13	2,531	43	1,888
14	2,417	-71	4,977
15	2,358	-130	16,783
16	2,460	-28	759
17	2,500	12	155
18	2,467	-21	422
19	2,418	-70	4,837
20	2,490	2	6
		0	

Average Counts = 2,488 counts
Average Count Rate = 2,488 cpm
Standard Deviation = 61 counts
Sum of the Squares = 70,823
Chi-Squared Statistic = **28.47**

Acceptable Ranges for Chi-x^2
10.12 to 30.14

Instrument Efficiency = 0.197 cpm/dpm
Surface Efficiency = 0.500 cpm/dpm
Total Efficiency = 0.098 cpm/dpm

Net source cts = 2,283 counts
Std. Dev. Net = 63 counts
Net Ct. Rate = 2,283 cpm

Conv.Factor= 5.08 dpm/cpm
MDCR 95% 152.94 counts

MDA Scan= 2,198 dpm/100 cm^2
MDA Static= 707 dpm/100 cm^2

Reliability Factor 1

Bkg count range 176 to 234 (2 sigma)
Source count range 2,365 to 2,610 (2 sigma)

Technical Reviewer — Date 12/03/12

Source Activity Correction Worksheet

Isotope	Tc-99		
ID #	5445-05	Equation:	$Act_r = Act_o \times e^{-((.693/t)T)}$
Initial Activity (dpm)	11,600		
Ref. Date	28-Mar-05		
Half-life (years)	7.50E+04	2.74E+07 days (Half-life)	
Current Date	3-Dec-12	2807.00 days (t)	

Corrected Surface Emission Rate = **11,599** ***particles/min***

Equations

Chi-squared Calculations $\chi 2 = \Sigma(n-n)^2 / n$ si= 2.55

Minimum Detectable Count Rate (MDCR) MDCR = si * 60 si=di*bi^0.5

Minimum Detectable Activity Scan (MDA) MDA = MDCR/(Eff x Count Time x Area Corr. Factor)

Minimum Dectectable Activity Static (MDA)

$$MDC = \frac{3 + 3.29(R_b t_s[1 + t_s/t_b])^{1/2}}{(t_s)(E)(A)}$$

di= 1.38 from MARSSIM Table 6.5 (field Measurement and Instrumentation)
bi = Average Count rate background

Review:

Technical Reviewer 12/03/12 Date

IT _Gilbane

Instrument Daily **Th-230** **Source Check** 11,200 Corrected Activity (in dpm)

Instrument #: 2360/275772 Setup Date: 11-Dec-12 High Voltage: 725
Cal. Date: December 4, 2013 Source ID: 4005-02 Total Efficiency: 9.61%
Probe #: 43-93/PR299677 Project/#: ITSI Parcel f MDA (in dpm): 68.69

Ranges Background: 0 counts to 2 counts using ± 2 Sigma Count Time (min): 1
Source: 4,166 counts to 4,449 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
12-12-12/0800	4,438	0	ok	ok	ok	Sat	pre	kg	
12--12-12/1145	4,398	1	ok	ok	ok	Sat	post	kg	
12-13-12/0755	4,198	0	ok	ok	ok	Sat	pre	kg	
12-13-12/1450	4,444	0	ok	ok	ok	Sat	post	kg	
12-17-12//0745	4,341	2	ok	ok	ok	Sat	pre	kg	
12-17-12/1600	4,167	1	ok	ok	ok	Sat	post	kg	
12-18-12/0610	4,289	0	ok	ok	ok	Sat	pre	kg	
12-18-12/1515	4,271	0	ok	ok	ok	Sat	post	kg	
12-19-12/0640	4,391	0	ok	ok	ok	Sat	pre	kg	
12-19-12/1800	4,180	0	ok	ok	ok	Sat	post	kg	
12-20-12/0635	4,409	0	ok	ok	ok	Sat	pre	kg	
12-20-12/0845	4,385	0	ok	ok	ok	Sat	post	kg	
1-02-13/0640	4,250	0	ok	ok	ok	Sat	pre	kg	
1-02-13/1145	4,348	0	ok	ok	ok	Sat	post	kg	
1-03-13/0650	4,201	1	ok	ok	ok	Sat	pre	kg	
1-03-13/1640	4,321	0	ok	ok	ok	Sat	post	kg	
1-04-13/0630	4,382	0	ok	ok	ok	Sat	pre	kg	
1-04-13/1530	4,289	0	ok	ok	ok	Sat	post	kg	
1-07-13/0700	4,329	0	ok	ok	ok	Sat	pre	kg	
1-07-13/1550	4,435	0	ok	ok	ok	Sat	post	kg	
1-08-13/0645	4,314	0	ok	ok	ok	Sat	pre	kg	
1-08-13/1620	4,403	0	ok	ok	ok	Sat	post	kg	
1-09-13/0715	4,420	0	ok	ok	ok	Sat	pre	kg	
1-09-13/1645	4,359	0	ok	ok	ok	Sat	post	kg	
1-10-13/0700	4,350	0	ok	ok	ok	Sat	pre	kg	
1-10-13/1550	4,279	0	ok	ok	ok	Sat	post	kg	
1-14-13/0640	4,189	1	ok	ok	ok	Sat	pre	kg	
1-14-13/1710	4,168	0	ok	ok	ok	Sat	post	kg	
1-15-13/0645	4,239	0	ok	ok	ok	Sat	pre	kg	
1-15-13/1630	4,310	0	ok	ok	ok	Sat	post	kg	
1-16-13/0635	4,253	1	ok	ok	ok	Sat	pre	kg	

Completed By: KYLE GORDON Date 1/16/13
Reviewed By: Date

IT_ Gilbane

Instrument Daily **Th-230** **Source Check** 11,200 Corrected Activity (in dpm)

Instrument #:	2360/275772	Setup Date:	11-Dec-12	High Voltage:	725
Cal. Date:	December 4, 2013	Source ID:	4005-02	Total Efficiency:	9.61%
Probe #:	43-93/PR299677	Project/#:	ITSI Parcel f	MDA (in dpm):	68.69

Ranges Background: 0 counts to 2 counts using ± 2 Sigma Count Time (min): 1
Source: 4,166 counts to 4,449 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
1/16/13/1620	4,305	0	ok	ok	ok	Sat	post	kg	
1-17-13/0630	4,277	0	ok	ok	ok	Sat	pre	kg	
1-17-13/1700	4,380	0	ok	ok	ok	Sat	post	kg	
1-22-13/0630	4,328	2	ok	ok	ok	Sat	pre	kg	
1-22-13/1620	4,274	1	ok	ok	ok	Sat	post	kg	
1-23-13/0610	4,424	0	ok	ok	ok	Sat	pre	kg	
1-23-13/1630	4,426	0	ok	ok	ok	Sat	post	kg	
1-24-13/0635	4,341	0	ok	ok	ok	Sat	pre	kg	
1-24-13/1630	4,311	1	ok	ok	ok	Sat	post	kg	
1-25-13/0635	4,279	0	ok	ok	ok	Sat	pre	kg	
1-25-13/1520	4,191	1	ok	ok	ok	Sat	post	kg	
1-28-13/0620	4,348	0	ok	ok	ok	Sat	pre	kg	
1-28-13/1610	4,356	1	ok	ok	ok	Sat	post	kg	
1-29-13/0625	4,429	0	ok	ok	ok	Sat	pre	kg	
1-29-13/1505	4,420	1	ok	ok	ok	Sat	post	kg	
1-30-13/0630	4,266	0	ok	ok	ok	Sat	pre	kg	
1-30-13/1615	4,369	0	ok	ok	ok	Sat	post	kg	
1-31-13/0615	4,185	1	ok	ok	ok	Sat	pre	kg	
1-31-13/1610	4,350	1	ok	ok	ok	Sat	post	kg	
2-4-13/0635	4,275	0	ok	ok	ok	Sat	pre	kg	
2-4-13/1540	4,197	0	ok	ok	ok	Sat	post	kg	
2-5-13/0610	4,221	0	ok	ok	ok	Sat	pre	kg	
2-5-13/1740	4,369	1	ok	ok	ok	Sat	post	kg	
2-6-13/0600	4,248	0	ok	ok	ok	Sat	pre	kg	
2-6-13/1235	4,257	0	ok	ok	ok	Sat	post	kg	
2-11-13/0650	4,303	0	ok	ok	ok	Sat	pre	kg	
2-11-13/1445	4,426	0	ok	ok	ok	Sat	post	kg	
2-12-13/0640	4,328	0	ok	ok	ok	Sat	pre	kg	
2-12-13/1410	4,441	0	ok	ok	ok	Sat	post	kg	
2-13-13/0645	4,347	0	ok	ok	ok	Sat	pre	kg	
2-13-13/1615	4,404	0	ok	ok	ok	Sat	post	kg	

Completed By: Kyle Gordon Date 2/13/13
Reviewed By: Date

IT _Gilbane

Instrument Daily **Th-230** **Source Check** 11,200 Corrected Activity (in dpm)

Instrument #:	2360/275772	Setup Date:	11-Dec-12	High Voltage:	725
Cal. Date:	December 4, 2013	Source ID:	4005-02	Total Efficiency:	9.61%
Probe #:	43-93/PR299677	Project/#:	ITSI Parcel f	MDA (in dpm):	68.69

Ranges Background: 0 counts to 2 counts using ± 2 Sigma Count Time (min): 1
Source: 4,166 counts to 4,449 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
2-14-13/0715	4,442	0	ok	ok	ok	Sat	pre	kg	
2-14-13/1600	4,404	0	ok	ok	ok	Sat	post	kg	
						N			
								A	

Completed By: KYLE GORDON Date 2/14/13
Reviewed By: Date

SCALER INITIAL SETUP SHEET — Alpha — *{Blue cells for input}*

Project Name / No: ITSI Parcel f
Instrument / SN: 2360/275772 — **Cal. Due:** 04-Dec-13
Probe Type / SN: 43-93/PR299677 — **Cal. Due:** 04-Dec-13
Technician: Kyle Gordon
Location: Hunters Point

Setup Date: 11-Dec-12
Source Cert. Date: 24-Mar-10
Source SN: 4005-02
Surface Emission Rate: 11,200 particles/min
Source Type: Th-230
HV Check/Setting" 725

Background Count Time: 1 minutes
Source/Sample Count Time: 1 minutes

1. Total Background Counts observed:

		Chi-squared Calculations	
1	0	-0.60	0.36
2	0	-0.60	0.36
3	0	-0.60	0.36
4	1	0.40	0.16
5	0	-0.60	0.36
6	1	0.40	0.16
7	1	0.40	0.16
8	0	-0.60	0.36
9	2	1.40	1.96
10	1	0.40	0.16
11	2	1.40	1.96
12	2	1.40	1.96
13	0	-0.60	0.36
14	1	0.40	0.16
15	0	-0.60	0.36
16	0	-0.60	0.36
17	0	-0.60	0.36
18	0	-0.60	0.36
19	1	0.40	0.16
20	0	-0.60	0.36
		0	

Average Counts = 0.60 counts
Average Count Rate = 0.60 cpm
Standard Deviation = 0.75 counts
Sum of Squares = 10.80
Area Correction Factor= 1.00 100cm^2

2. Total Source Counts observed:

		Chi-squared Calculations	
1	4,244	-64	4,051
2	4,330	22	500
3	4,289	-19	348
4	4,297	-11	113
5	4,287	-21	426
6	4,345	37	1,395
7	4,247	-61	3,678
8	4,314	6	40
9	4,443	135	18,320
10	4,194	-114	12,916
11	4,368	60	3,642
12	4,390	82	6,782
13	4,245	-63	3,925
14	4,306	-2	3
15	4,251	-57	3,209
16	4,267	-41	1,652
17	4,361	53	2,846
18	4,213	-95	8,959
19	4,456	148	22,008
20	4,306	-2	3
		0	

Average Counts = 4,308 counts
Average Count Rate = 4,308 cpm
Standard Deviation = 71 counts
Sum of the Squares = 94,817
Chi-Squared Statistic = **22.01**

Acceptable Ranges for Chi-x^2
10.12 to 30.14

Instrument Efficiency = 0.385 cpm/dpm
Surface Efficiency = 0.250 cpm/dpm
Total Efficiency = 0.096 cpm/dpm

Net source cts = 4,307 counts
Std. Dev. Net = 71 counts
Net Ct. Rate = 4,307 cpm

Conv.Factor= 2.60 dpm/cpm
MDCR 95% 8.28 counts

MDA Scan= 61 dpm/100 cm^2
MDA Static= 69 dpm/100 cm^2

Reliability Factor 1

Bkg count range 0 to 2 (2 sigma)
Source count range 4,166 to 4,449 (2 sigma)

Technical Reviewer — Date 12/11/12

Source Activity Correction Worksheet

Isotope	Th-230		
ID #	4005-02	Equation:	$Act_f = Act_o \times e\text{-}((.693/t)T)$
Initial Activity (dpm)	11,200		
Ref. Date	24-Mar-10		
Half-life (years)	2.13E+05	7.77E+07 days (Half-life)	
Current Date	3-Dec-12	985.00 days (t)	

Corrected Surface Emission Rate = **11,200** ***particles/min***

Equations

Chi-squared Calculations $\chi 2 = \frac{\Sigma(n-n)^2}{n} =$ si= 0.14

Minimum Detectable Count Rate (MDCR) MDCR = si * 60 si=di*bi^0.5

Minimum Detectable Activity Scan (MDA) MDA = MDCR/(Eff x Count Time x Area Corr. Factor)

Minimum Dectectable Activity Static (MDA)

$$MDC = \frac{3 + 3.29(R_b t_s[1 + t_s/t_b])^{1/2}}{(t_s)(E)(A)}$$

di= 1.38 from MARSSIM Table 6.5 (field Measurement and Instrumentation)
bi = Average Count rate background

Review:

Technical Reviewer Date 12/11/12

IT -Gilbane

Instrument Daily **Tc-99** **Source Check** 11,600 Corrected Activity (in dpm)

Instrument #:	2360/275772	Setup Date:	11-Dec-12	High Voltage:	725
Cal. Date:	December 4, 2013	Source ID:	5445-05	Total Efficiency:	6.84%
Probe #:	43-93/PR299677	Project/#:	ITSI Parcel F	MDA (in dpm):	874.15

Ranges Background: 126 counts to 172 counts using ± 2 Sigma Count Time (min): 1
Source: 1,667 counts to 1,806 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
12-12-12/0800	1,717	133	ok	ok	ok	Sat	pre	kg	
12-12-12/1145	1,687	151	ok	ok	ok	Sat	post	kg	
12-13-12/0755	1,724	142	ok	ok	ok	Sat	pre	kg	
12-13-12/1450	1,728	162	ok	ok	ok	Sat	post	kg	
12-17-12/0745	1,794	166	ok	ok	ok	Sat	pre	kg	
12-17-12/1610	1,686	168	ok	ok	ok	Sat	post	kg	
12-18-13/0650	1,757	155	ok	ok	ok	Sat	pre	kg	
12-18-13/1515	1,740	132	ok	ok	ok	Sat	post	kg	
12-19-12/0640	1,695	129	ok	ok	ok	Sat	pre	kg	
12-19-12/1800	1,775	157	ok	ok	ok	Sat	post	kg	
12-20-12/0635	1,781	139	ok	ok	ok	Sat	pre	kg	
12-20-12/0845	1,692	148	ok	ok	ok	Sat	post	kg	
1-02-13/0640	1,699	171	ok	ok	ok	Sat	pre	kg	
1-02-13/1145	1,730	142	ok	ok	ok	Sat	post	kg	
1-03-13/0650	1,758	146	ok	ok	ok	Sat	pre	kg	
1-03-13/1640	1,700	136	ok	ok	ok	Sat	post	kg	
1-04-13/0630	1,680	131	ok	ok	ok	Sat	pre	kg	
1-04-13/1530	1,727	141	ok	ok	ok	Sat	post	kg	
1-07-13/0700	1,781	141	ok	ok	ok	Sat	pre	kg	
1-07-13/1550	1,704	135	ok	ok	ok	Sat	post	kg	
1-08-13/0645	1,718	138	ok	ok	ok	Sat	pre	kg	
1-08-13/1620	1,725	139	ok	ok	ok	Sat	post	kg	
1-09-13/0715	1,706	161	ok	ok	ok	Sat	pre	kg	
1-09-13/1645	1,675	127	ok	ok	ok	Sat	post	kg	
1-10-13/0700	1,779	146	ok	ok	ok	Sat	pre	kg	
1-10-13/1550	1,700	141	ok	ok	ok	Sat	post	kg	
1-14-13/0640	1,804	145	ok	ok	ok	Sat	pre	kg	
1-14-13/1710	1,707	150	ok	ok	ok	Sat	post	kg	
1-15-13/0645	1,801	159	ok	ok	ok	Sat	pre	kg	
1-15-13/1630	1,748	154	ok	ok	ok	Sat	post	kg	
1-16-13/0630	1,731	145	ok	ok	ok	Sat	pre	kg	

Completed By: KYLE GORDON Date 1/16/13
Reviewed By: Date

IT -Gilbane

Instrument Daily **Tc-99** **Source Check** 11,600 Corrected Activity (in dpm)

Instrument #:	2360/275772	Setup Date:	11-Dec-12	High Voltage:	725
Cal. Date:	December 4, 2013	Source ID:	5445-05	Total Efficiency:	6.84%
Probe #:	43-93/PR299677	Project/#:	ITSI Parcel F	MDA (in dpm):	874.15

Ranges Background: 126 counts to 172 counts using ± 2 Sigma Count Time (min): 1
Source: 1,667 counts to 1,806 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
1-16-13/1620	1,709	149	ok	ok	ok	Sat	post	kg	
1-17-13/0630	1,739	142	ok	ok	ok	Sat	pre	kg	
1-17-13/1700	1,668	150	ok	ok	ok	Sat	post	kg	
1-22-13/0630	1,736	159	ok	ok	ok	Sat	pre	kg	
1-22-13/1620	1,709	132	ok	ok	ok	Sat	post	kg	
1-23-13/0610	1,675	146	ok	ok	ok	Sat	pre	kg	
1-23-13/1620	1,805	168	ok	ok	ok	Sat	post	kg	
1-24-13/0635	1,681	147	ok	ok	ok	Sat	pre	kg	
1-24-13/1630	1,678	158	ok	ok	ok	Sat	post	kg	
1-25-13/0635	1,708	141	ok	ok	ok	Sat	pre	kg	
1-25-13/1520	1,788	149	ok	ok	ok	Sat	post	kg	
1-28-13/0620	1,716	140	ok	ok	ok	Sat	pre	kg	
1-28-13/1610	1,787	170	ok	ok	ok	Sat	post	kg	
1-29-13/0625	1,730	129	ok	ok	ok	Sat	pre	kg	
1-29-13/1505	1,805	163	ok	ok	ok	Sat	post	kg	
1-30-13/0630	1,720	165	ok	ok	ok	Sat	pre	kg	
1-30-13/1615	1,801	158	ok	ok	ok	Sat	post	kg	
1-31-13/0615	1,791	149	ok	ok	ok	Sat	pre	kg	
1-31-13/1610	1,792	168	ok	ok	ok	Sat	post	kg	
2-4-13/0625	1,677	170	ok	ok	ok	Sat	pre	kg	
2-4-13/1540	1,741	134	ok	ok	ok	Sat	post	kg	
2-5-13/0610	1,776	164	ok	ok	ok	Sat	pre	kg	
2-5-13/1740	1,769	151	ok	ok	ok	Sat	post	kg	
2-6-13/0600	1,708	158	ok	ok	ok	Sat	pre	kg	
2-6-13/1235	1,750	155	ok	ok	ok	Sat	post	kg	
2-11-13/0650	1,801	164	ok	ok	ok	Sat	pre	kg	
2-11-13/1445	1,725	161	ok	ok	ok	Sat	post	kg	
2-12-13/0640	1,744	164	ok	ok	ok	Sat	pre	kg	
2-12-13/1410	1,797	170	ok	ok	ok	Sat	post	kg	
2-13-13/0645	1,749	167	ok	ok	ok	Sat	pre	kg	
2-13-13/1615	1,671	129	ok	ok	ok	Sat	post	kg	

Completed By: KYLE GORDON Date 2/13/13
Reviewed By: Date

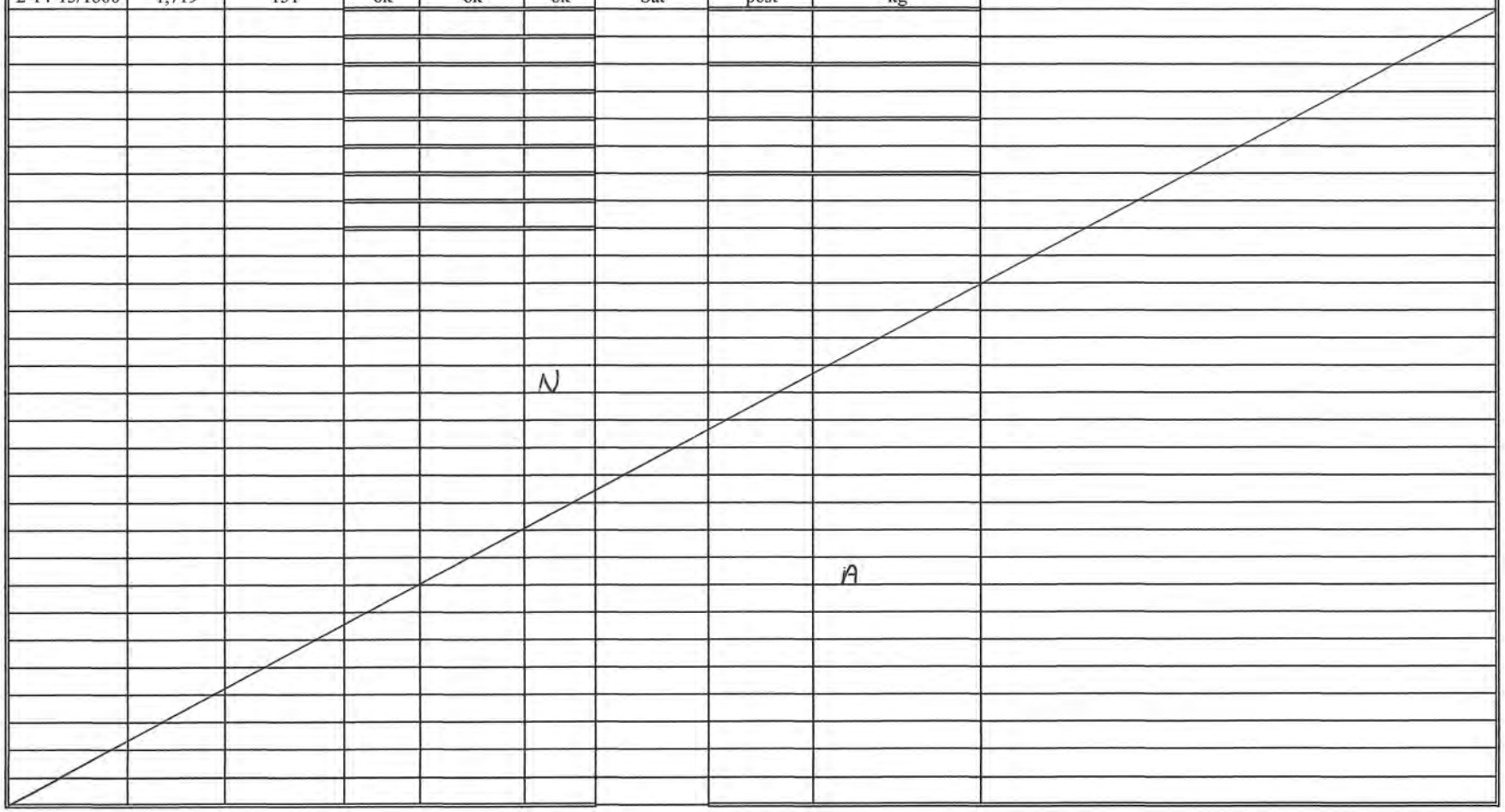
IT -Gilbane

Instrument Daily **Tc-99** **Source Check** 11,600 Corrected Activity (in dpm)

Instrument #:	2360/275772	Setup Date:	11-Dec-12	High Voltage:	725
Cal. Date:	December 4, 2013	Source ID:	5445-05	Total Efficiency:	6.84%
Probe #:	43-93/PR299677	Project/#:	ITSI Parcel F	MDA (in dpm):	874.15

Ranges Background: 126 counts to 172 counts using ± 2 Sigma Count Time (min): 1
Source: 1,667 counts to 1,806 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
2-14-13/0725	1,705	130	ok	ok	ok	Sat	pre	kg	
2-14-13/1600	1,719	151	ok	ok	ok	Sat	post	kg	



Completed By: KYLE GORDON
Reviewed By:

Date 2/14/14
Date

SCALER INITIAL SETUP SHEET | **Beta** | ***{Blue cells for input}***

Project Name / No: ITSI Parcel F
Instrument / SN: 2360/275772 **Cal. Due:** 04-Dec-13
Probe Type / SN: 43-93/PR299677 **Cal. Due:** 04-Dec-13
Technician: Kyle Gordon
Location: Hunter's Point

Setup Date: 11-Dec-12
Source Cert. Date: 28-Mar-05
Source SN: 5445-05
Surface Emission Rate: 7,270 particles/min
Source Type: Tc-99
HV Check/Setting" 725

Background Count Time: 1 minutes
Source/Sample Count Time: 1 minutes

1. Total Background Counts observed:

		Chi-squared Calculations	
1	160	10.90	118.81
2	167	17.90	320.41
3	145	-4.10	16.81
4	163	13.90	193.21
5	133	-16.10	259.21
6	158	8.90	79.21
7	154	4.90	24.01
8	135	-14.10	198.81
9	164	14.90	222.01
10	145	-4.10	16.81
11	158	8.90	79.21
12	139	-10.10	102.01
13	152	2.90	8.41
14	162	12.90	166.41
15	136	-13.10	171.61
16	153	3.90	15.21
17	132	-17.10	292.41
18	143	-6.10	37.21
19	145	-4.10	16.81
20	138	-11.10	123.21
		0	

Average Counts = 149.10 counts
Average Count Rate = 149.10 cpm
Standard Deviation = 11.38 counts
Sum of Squares = 2,461.80
Area Correction Factor= 1.00 $100cm^2$

2. Total Source Counts observed:

		Chi-squared Calculations	
1	1,704	-33	1,056
2	1,735	-2	2
3	1,746	10	90
4	1,725	-12	132
5	1,778	42	1,722
6	1,701	-36	1,260
7	1,746	10	90
8	1,717	-20	380
9	1,716	-21	420
10	1,776	40	1,560
11	1,756	20	380
12	1,768	32	992
13	1,668	-69	4,692
14	1,748	12	132
15	1,742	6	30
16	1,725	-12	132
17	1,815	79	6,162
18	1,686	-51	2,550
19	1,763	27	702
20	1,715	-22	462
		0	

Average Counts = 1,737 counts
Average Count Rate = 1,737 cpm
Standard Deviation = 35 counts
Sum of the Squares = 22,951
Chi-Squared Statistic = **13.22**

Acceptable Ranges for Chi-x^2
10.12 to 30.14

Instrument Efficiency = 0.137 cpm/dpm
Surface Efficiency = 0.500 cpm/dpm
Total Efficiency = 0.068 cpm/dpm

Net source cts = 1,587 counts
Std. Dev. Net = 37 counts
Net Ct. Rate = 1,587 cpm

Conv.Factor= 7.31 dpm/cpm
MDCR 95% 130.52 counts

MDA Scan= 2,698 dpm/100 cm^2
MDA Static= 874 dpm/100 cm^2

Reliability Factor 1

Bkg count range 126 to 172 (2 sigma)
Source count range 1,667 to 1,806 (2 sigma)

Technical Reviewer — Date 12/11/12

Source Activity Correction Worksheet

Isotope	Tc-99		
ID #	5445-05	Equation:	$Act_r = Act_o \times e^{-((.693/t)T)}$
Initial Activity (dpm)	11,600		
Ref. Date	28-Mar-05		
Half-life (years)	2.13E+05	7.77E+07 days (Half-life)	
Current Date	3-Dec-12	2807.00 days (t)	

Corrected Surface Emission Rate = **11,600** ***particles/min***

Equations

Chi-squared Calculations $\chi 2 = \Sigma(n-n)^2 / n$ si= 2.18

Minimum Detectable Count Rate (MDCR) MDCR = si * 60 si=di*bi^0.5

Minimum Detectable Activity Scan (MDA) MDA = MDCR/(Eff x Count Time x Area Corr. Factor)

Minimum Dectectable Activity Static (MDA)

$$MDC = \frac{3 + 3.29(R_B t_s[1 + t_s/t_B])^{1/2}}{(t_s)(E)(A)}$$

di= 1.38 from MARSSIM Table 6.5 (field Measurement and Instrumentation)
bi = Average Count rate background

Review:

Technical Reviewer 12/11/12 Date

IT -Gilbane

Instrument Daily **Th-230** **Source Check** 11,200 Corrected Activity (in dpm)

Instrument #:	2929/157320	Setup Date:	11-Dec-12	High Voltage:	800
Cal. Date:	November 1, 2013	Source ID:	4005-02	Total Efficiency:	17.19%
Probe #:	43-10-1/PR157821	Project/#:	ITSI Parcel f	MDA (in dpm):	10.02

Ranges Background: 0 counts to 2 counts using ± 2 Sigma Count Time (min): 4
Source: 30,520 counts to 31,096 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
12-13-12/0800	30,598	0	ok	ok	ok	Sat	pre	kg	
12-13-12/1440	30,773	0	ok	ok	ok	Sat	post	kg	
12-17-12/0750	30,599	1	ok	ok	ok	Sat	pre	kg	
12-17-12/1615	30,814	2	ok	ok	ok	Sat	post	kg	
12-18-12/0700	30,618	0	ok	ok	ok	Sat	pre	kg	
12-18-12/1520	30,800	1	ok	ok	ok	Sat	post	kg	
12-19-12/0640	30,609	0	ok	ok	ok	Sat	pre	kg	
12-19-12/1420	30,720	0	ok	ok	ok	Sat	post	kg	
12-20-12/0645	30,897	0	ok	ok	ok	Sat	pre	kg	
12-20-12/0850	30,837	2	ok	ok	ok	Sat	post	kg	
1-02-13/0640	30,655	2	ok	ok	ok	Sat	pre	kg	
1-02-13/1145	30,711	1	ok	ok	ok	Sat	post	kg	
1-03-13/0730	30,605	0	ok	ok	ok	Sat	pre	kg	
1-03-13/1655	31,096	0	ok	ok	ok	Unsat	post	kg	
1-04-13/0640	30,765	0	ok	ok	ok	Sat	pre	kg	
1-04-13/1600	30,602	0	ok	ok	ok	Sat	post	kg	
1-07-13/0705	30,558	1	ok	ok	ok	Sat	pre	kg	
1-07-13/1600	31,093	0	ok	ok	ok	Sat	post	kg	
1-08-13/0650	30,593	1	ok	ok	ok	Sat	pre	kg	
1-08-13/1630	30,598	0	ok	ok	ok	Sat	post	kg	
1-09-13/0720	30,817	1	ok	ok	ok	Sat	pre	kg	
1-09-13/1640	30,531	1	ok	ok	ok	Sat	post	kg	
1-10-13/0635	31,043	0	ok	ok	ok	Sat	pre	kg	
1-10-13/1600	31,012	2	ok	ok	ok	Sat	post	kg	
1-14-13/0645	31,028	1	ok	ok	ok	Sat	pre	kg	
1-14-13/1730	30,905	1	ok	ok	ok	Sat	post	kg	
1-15-13/0650	31,034	1	ok	ok	ok	Sat	pre	kg	
1-15-13/1645	30,567	1	ok	ok	ok	Sat	post	kg	
1-16-13/0640	30,591	1	ok	ok	ok	Sat	pre	kg	
1-16-13/1630	30,838	1	ok	ok	ok	Sat	post	kg	
1-17-13/0635	30,728	0	ok	ok	ok	Sat	pre	kg	

Completed By: KYLE GORDON Date 1/17/13
Reviewed By: Date

IT -Gilbane

Instrument Daily **Th-230** **Source Check** 11,200 Corrected Activity (in dpm)

Instrument #: 2929/157320 Setup Date: 11-Dec-12 High Voltage: 800
Cal. Date: November 1, 2013 Source ID: 4005-02 Total Efficiency: 17.19%
Probe #: 43-10-1/PR157821 Project/#: ITSI Parcel f MDA (in dpm): 10.02

Ranges Background: 0 counts to 2 counts using ± 2 Sigma Count Time (min): 4
Source: 30,520 counts to 31,096 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
1-07-13/1640	30,961	2	ok	ok	ok	Sat	post	kg	
1-22-13/0640	30,530	1	ok	ok	ok	Sat	pre	kg	
1-22-13/1730	30,753	1	ok	ok	ok	Sat	post	kg	
1-23-13/0615	30,900	0	ok	ok	ok	Sat	pre	kg	
1-23-13/1700	30,799	0	ok	ok	ok	Sat	post	kg	
1-24-13/0640	30,676	2	ok	ok	ok	Sat	pre	kg	
1-24-13/1700	30,988	1	ok	ok	ok	Sat	post	kg	
1-25-13/0640	30,734	0	ok	ok	ok	Sat	pre	kg	
1-25-13/1630	31,034	0	ok	ok	ok	Sat	post	kg	
1-28-13/0625	30,589	0	ok	ok	ok	Sat	pre	kg	
1-28-13/1615	30,623	0	ok	ok	ok	Sat	post	kg	
1-29-13/0630	31,048	1	ok	ok	ok	Sat	pre	kg	
1-29-13/1500	30,824	1	ok	ok	ok	Sat	post	kg	
1-30-13/0635	30,655	1	ok	ok	ok	Sat	pre	kg	
1-30-13/1630	31,032	0	ok	ok	ok	Sat	post	kg	
1-31-13/0620	31,088	0	ok	ok	ok	Sat	pre	kg	
1-31-13/1615	31,018	1	ok	ok	ok	Sat	post	kg	
2-4-13/0640	31,073	1	ok	ok	ok	Sat	pre	kg	
2-4-13/1630	30,996	0	ok	ok	ok	Sat	post	kg	
2-5-13/0615	30,908	0	ok	ok	ok	Sat	pre	kg	
2-5-13/1730	30,588	1	ok	ok	ok	Sat	post	kg	
2-6-13/0605	30,972	0	ok	ok	ok	Sat	pre	kg	
2-6-13/1225	30,940	1	ok	ok	ok	Sat	post	kg	
2-11-13/0700	31,024	0	ok	ok	ok	Sat	pre	kg	
2-11-13/1500	31,011	1	ok	ok	ok	Sat	post	kg	
2-12-13/0645	30,921	1	ok	ok	ok	Sat	pre	kg	
2-12-13/1405	31,006	0	ok	ok	ok	Sat	post	kg	
2-13-13/0610	31,074	1	ok	ok	ok	Sat	pre	kg	
2-13-13/1605	31,064	1	ok	ok	ok	Sat	post	kg	
2-14-13/0700	31,076	0	ok	ok	ok	Sat	pre	kg	
2-14-13/1615	31,019	1	ok	ok	ok	Sat	post	kg	

Completed By: Kyle Gordon Date 2/14/13
Reviewed By: Date

SCALER INITIAL SETUP SHEET — **Alpha** — *{Blue cells for input}*

Project Name / No: ITSI Parcel f
Instrument / SN: 2929/157320 — **Cal. Due:** 01-Nov-13
Probe Type / SN: 43-10-1/PR157821 — **Cal. Due:** 01-Nov-13
Technician: Kyle Gordon
Location: Hunters Point

Setup Date: 11-Dec-12
Source Cert. Date: 24-Mar-10
Source SN: 4005-02
Surface Emission Rate: 11,200 particles/min
Source Type: Th-230
HV Check/Setting" 800

1. Total Background Counts observed:

Background Count Time: 4 minutes
Source/Sample Count Time: 4 minutes

		Chi-squared Calculations	
1	0	-0.70	0.49
2	1	0.30	0.09
3	0	-0.70	0.49
4	0	-0.70	0.49
5	1	0.30	0.09
6	1	0.30	0.09
7	0	-0.70	0.49
8	1	0.30	0.09
9	1	0.30	0.09
10	2	1.30	1.69
11	0	-0.70	0.49
12	0	-0.70	0.49
13	0	-0.70	0.49
14	1	0.30	0.09
15	1	0.30	0.09
16	1	0.30	0.09
17	1	0.30	0.09
18	2	1.30	1.69
19	0	-0.70	0.49
20	1	0.30	0.09
		0	

Average Counts = 0.70 counts
Average Count Rate = 0.18 cpm
Standard Deviation = 0.66 counts
Sum of Squares = 8.20
Area Correction Factor= 1.00 $100cm^2$

2. Total Source Counts observed:

		Chi-squared Calculations	
1	30,805	-3	9
2	30,812	4	16
3	31,004	196	38,396
4	30,861	53	2,804
5	30,640	-168	28,241
6	30,932	124	15,364
7	30,727	-81	6,569
8	30,706	-102	10,414
9	30,679	-129	16,654
10	30,909	101	10,191
11	30,656	-152	23,119
12	30,598	-210	44,121
13	31,064	256	65,510
14	30,903	95	9,016
15	30,919	111	12,310
16	30,983	175	30,608
17	30,619	-189	35,740
18	30,916	108	11,653
19	30,799	-9	82
20	30,629	-179	32,059
		0	

Average Counts = 30,808 counts
Average Count Rate = 7,702 cpm
Standard Deviation = 144 counts
Sum of the Squares = 392,875
Chi-Squared Statistic = **12.75**

Acceptable Ranges for Chi-x^2
10.12 to 30.14

Net source cts = 30,807 counts
Std. Dev. Net = 144 counts
Net Ct. Rate = 7,702 cpm

Instrument Efficiency = 0.688 cpm/dpm
Surface Efficiency = 0.250 cpm/dpm
Total Efficiency = 0.172 cpm/dpm

Conv.Factor= 1.45 dpm/cpm
MDCR 95% 8.94 counts

MDA Scan= 37 dpm/100 cm^2
MDA Static= 10 dpm/100 cm^2

Reliability Factor 2

Bkg count range 0 to 2 (2 sigma)
Source count range 30,520 to 31,096 (2 sigma)

Technical Reviewer — Date 12/11/12

Source Activity Correction Worksheet

Isotope	Th-230		
ID #	4005-02	Equation:	$Act_f = Act_o \times e^{-((.693/t)T)}$
Initial Activity (dpm)	11,200		
Ref. Date	24-Mar-10		
Half-life (years)	3.12E+05	1.14E+08 days (Half-life)	
Current Date	4-Dec-12	986.00 days (t)	

Corrected Surface Emission Rate = **11,200 *particles/min***

Equations

Chi-squared Calculations $\chi 2 = \Sigma(n-n)^2 / n$

si= 0.15

Minimum Detectable Count Rate (MDCR) MDCR = si * 60

si=di*bi^0.5

Minimum Detectable Activity Scan (MDA) MDA = MDCR/(Eff x Count Time x Area Corr. Factor)

Minimum Dectectable Activity Static (MDA)

$$MDC = \frac{3 + 3.29(R_b t_s [1 + t_s/t_b])^{1/2}}{(t_s)(E)(A)}$$

di= 1.38 from MARSSIM Table 6.5 (field Measurement and Instrumentation)
bi = Average Count rate background

Review:

12/11/12

Technical Reviewer Date

IT -Gilbane

Instrument Daily **Tc-99** **Source Check** 11,599 Corrected Activity (in dpm)

Instrument #: 2929/157320 Setup Date: 11-Dec-12 High Voltage: 800
Cal. Date: November 1, 2013 Source ID: 5445-05 Total Efficiency: 9.15%
Probe #: 43-10-1/PR157821 Project/#: ITSI Parcel F MDA (in dpm): 169.92

Ranges Background: 140 counts to 183 counts using ± 2 Sigma Count Time (min): 4
Source: 8,436 counts to 8,861 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
12-13-12/0800	8,840	153	ok	ok	ok	Sat	pre	kg	
12-13-12/1440	8,821	166	ok	ok	ok	Sat	post	kg	
12-17-12/0750	8,520	173	ok	ok	ok	Sat	pre	kg	
12-17-12/1605	8,625	173	ok	ok	ok	Sat	post	kg	
12-18-12/0700	8,751	162	ok	ok	ok	Sat	pre	kg	
12-18-12/1700	8,545	170	ok	ok	ok	Sat	post	kg	
12-19-12/0640	8,788	183	ok	ok	ok	Sat	pre	kg	
12-19-12/1800	8,660	159	ok	ok	ok	Sat	post	kg	
12-20-12/0645	8,555	162	ok	ok	ok	Sat	pre	kg	
12-20-12/0850	8,497	156	ok	ok	ok	Sat	post	kg	
1-02-13/0640	8,675	160	ok	ok	ok	Sat	pre	kg	
1-02-13/1145	8,484	161	ok	ok	ok	Sat	post	kg	
1-03-13/0730	8,752	168	ok	ok	ok	Sat	pre	kg	
1-03-13/1655	8,641	142	ok	ok	ok	Sat	post	kg	
1-04-13/0640	8,813	170	ok	ok	ok	Sat	pre	kg	
1-04-13/1600	8,639	181	ok	ok	ok	Sat	post	kg	
1-07-13/0705	8,597	161	ok	ok	ok	Sat	pre	kg	
1-07-13/1600	8,502	149	ok	ok	ok	Sat	post	kg	
1-08-13/0650	8,628	151	ok	ok	ok	Sat	pre	kg	
1-08-13/1630	8,538	177	ok	ok	ok	Sat	post	kg	
1-09-13/0720	8,674	166	ok	ok	ok	Sat	pre	kg	
1-09-13/1640	8,760	174	ok	ok	ok	Sat	post	kg	
1-10-13/0655	8,856	161	ok	ok	ok	Sat	pre	kg	
1-10-13/1600	8,816	166	ok	ok	ok	Sat	post	kg	
1-14-13-0648	8,824	149	ok	ok	ok	Sat	pre	kg	
1-14-13/1730	8,789	154	ok	ok	ok	Sat	post	kg	
1-15-13/0650	8,851	161	ok	ok	ok	Sat	pre	kg	
1-15-13/1645	8,559	154	ok	ok	ok	Sat	post	kg	
1-16-13/0640	8,723	141	ok	ok	ok	Sat	pre	kg	
1-16-13/1630	8,437	154	ok	ok	ok	Sat	post	kg	
1-17-13/0630	8,848	168	ok	ok	ok	Sat	pre	kg	

Completed By: KYLE GORDON Date 1/17/13
Reviewed By: Date

IT -Gilbane

Instrument Daily **Tc-99** **Source Check** 11,599 Corrected Activity (in dpm)

Instrument #: 2929/157320 Setup Date: 11-Dec-12 High Voltage: 800
Cal. Date: November 1, 2013 Source ID: 5445-05 Total Efficiency: 9.15%
Probe #: 43-10-1/PR157821 Project/#: ITSI Parcel F MDA (in dpm): 169.92

Ranges Background: 140 counts to 183 counts using ± 2 Sigma Count Time (min): 4
Source: 8,436 counts to 8,861 counts using ± 2 Sigma

Date/ Time	Source Counts	Background Counts	HV	BAT	SPKR	Sat/ Unsat	Pre and Post checks	Technician Initials	Additional Comments
1-17-13/1640	8,659	144	ok	ok	ok	Sat	post	kg	
1-22-13/0640	8,810	167	ok	ok	ok	Sat	pre	kg	
1-22-13/1730	8,565	172	ok	ok	ok	Sat	post	kg	
1-23-13/0615	8,743	173	ok	ok	ok	Sat	pre	kg	
1-23-13/1700	8,861	177	ok	ok	ok	Sat	post	kg	
1-24-13/0640	8,832	155	ok	ok	ok	Sat	pre	kg	
1-24-13/1700	8,847	141	ok	ok	ok	Sat	post	kg	
1-25-13/0640	8,622	160	ok	ok	ok	Sat	pre	kg	
1-25-13/1630	8,525	143	ok	ok	ok	Sat	post	kg	
1-28-13/0625	8,860	181	ok	ok	ok	Sat	pre	kg	
1-28-13/1650	8,736	156	ok	ok	ok	Sat	post	kg	
1-29-13/0630	8,856	182	ok	ok	ok	Sat	pre	kg	
1-29-13/1500	8,552	183	ok	ok	ok	Sat	post	kg	
1-30-13/0635	8,818	144	ok	ok	ok	Sat	pre	kg	
1-30-13/1630	8,707	171	ok	ok	ok	Sat	post	kg	
1-31-13/0620	8,855	150	ok	ok	ok	Sat	pre	kg	
1-31-13/1615	8,860	182	ok	ok	ok	Sat	post	kg	
2-4-13/0640	8,855	159	ok	ok	ok	Sat	pre	kg	
2-4-13/1630	8,834	166	ok	ok	ok	Sat	post	kg	
2-5-13/0615	8,792	146	ok	ok	ok	Sat	pre	kg	
2-5-13/1730	8,510	141	ok	ok	ok	Sat	post	kg	
2-6-13/0605	8,799	149	ok	ok	ok	Sat	pre	kg	
2-6-13/1225	8,674	165	ok	ok	ok	Sat	post	kg	
2-11-13/0700	8,821	150	ok	ok	ok	Sat	pre	kg	
2-11-13/1500	8,470	161	ok	ok	ok	Sat	post	kg	
2-12-13/0645	8,719	160	ok	ok	ok	Sat	pre	kg	
2-12-13/1405	8,668	165	ok	ok	ok	Sat	post	kg	
2-13-13/0630	8,731	151	ok	ok	ok	Sat	pre	kg	
2-13-13/1605	8,830	164	ok	ok	ok	Sat	post	kg	
2-14-13/0700	8,832	177	ok	ok	ok	Sat	pre	kg	
2-14-13/1615	8,552	154	ok	ok	ok	Sat	post	kg	

Completed By: KYLE GORDON Date 2/14/13
Reviewed By: Date

SCALER INITIAL SETUP SHEET | **Beta** | ***{Blue cells for input}***

Project Name / No: ITSI Parcel F
Instrument / SN: 2929/157320 **Cal. Due:** 01-Nov-13
Probe Type / SN: 43-10-1/PR157821 **Cal. Due:** 01-Nov-13
Technician: Kyle Gordon
Location: Hunter's Point

Setup Date: 11-Dec-12
Source Cert. Date: 28-Mar-05
Source SN: 5445-05
Surface Emission Rate: 7,270 particles/min
Source Type: Tc-99
HV Check/Setting" 800

1. Total Background Counts observed:

Background Count Time: 4 minutes
Source/Sample Count Time: 4 minutes

	Chi-squared Calculations		
1	179	17.30	299.29
2	155	-6.70	44.89
3	159	-2.70	7.29
4	175	13.30	176.89
5	156	-5.70	32.49
6	176	14.30	204.49
7	147	-14.70	216.09
8	167	5.30	28.09
9	153	-8.70	75.69
10	154	-7.70	59.29
11	163	1.30	1.69
12	148	-13.70	187.69
13	150	-11.70	136.89
14	160	-1.70	2.89
15	181	19.30	372.49
16	168	6.30	39.69
17	165	3.30	10.89
18	173	11.30	127.69
19	154	-7.70	59.29
20	151	-10.70	114.49
		0	

Average Counts = 161.70 counts
Average Count Rate = 40.43 cpm
Standard Deviation = 10.76 counts
Sum of Squares = 2,198.20
Area Correction Factor= 1.00 $100cm^2$

2. Total Source Counts observed:

	Chi-squared Calculations		
1	8,744	95	9,054
2	8,694	45	2,039
3	8,720	71	5,062
4	8,552	-97	9,380
5	8,573	-76	5,753
6	8,772	123	15,166
7	8,734	85	7,251
8	8,790	141	19,923
9	8,593	-56	3,119
10	8,457	-192	36,806
11	8,789	140	19,642
12	8,584	-65	4,206
13	8,532	-117	13,654
14	8,654	5	27
15	8,651	2	5
16	8,607	-42	1,751
17	8,822	173	29,981
18	8,652	3	10
19	8,567	-82	6,699
20	8,490	-159	25,233
		0	

Average Counts = 8,649 counts
Average Count Rate = 2,162 cpm
Standard Deviation = 106 counts
Sum of the Squares = 214,761
Chi-Squared Statistic = 24.83

Acceptable Ranges for Chi-x^2
10.12 to 30.14

Instrument Efficiency = 0.183 cpm/dpm
Surface Efficiency = 0.500 cpm/dpm
Total Efficiency = 0.091 cpm/dpm

Net source cts = 8,487 counts
Std. Dev. Net = 107 counts
Net Ct. Rate = 2,122 cpm

Conv.Factor= 5.47 dpm/cpm
MDCR 95% 135.93 counts

MDA Scan= 2,102 dpm/100 cm^2
MDA Static= 170 dpm/100 cm^2

Reliability Factor 2

Bkg count range 140 to 183 (2 sigma)
Source count range 8,436 to 8,861 (2 sigma)

Technical Reviewer — Date 12/11/12

Source Activity Correction Worksheet

Isotope	Tc-99		
ID #	5445-05	Equation:	$Act_r = Act_n \times e^{-((.693/t)T)}$
Initial Activity (dpm)	11,600		
Ref. Date	28-Mar-05		
Half-life (years)	7.50E+04	2.74E+07 days (Half-life)	
Current Date	4-Dec-12	2808.00 days (t)	

Corrected Surface Emission Rate = **11,599** ***particles/min***

Equations

Chi-squared Calculations $\chi 2 = \Sigma(n-n)^2 / n$ si= 2.27

Minimum Detectable Count Rate (MDCR) MDCR = si * 60 si=di*bi^0.5

Minimum Detectable Activity Scan (MDA) MDA = MDCR/(Eff x Count Time x Area Corr. Factor)

Minimum Dectectable Activity Static (MDA)

$$MDC = \frac{3 + 3.29(R_b t_s[1 + t_s/t_b])^{1/2}}{(t_s)(E)(A)}$$

di= 1.38 from MARSSIM Table 6.5 (field Measurement and Instrumentation)
bi = Average Count rate background

Review:

12/11/12

Technical Reviewer Date

DAILY FIELD SOURCE CHECK LOG / EXPOSURE RATE INSTRUMENTS

Project Name / Number: Parcel F RAD DGI 07225.0002 **Set Up Date:** 12/5/2012

Instrument: Model 19 S/N: 111333 Cal. Date: 6/6/2012 Cal. Due: 6/6/2013

Source: CS-137 S/N: 1698-03 Activity: 5.00E-06

Date	Response		Batt.	Spkr.	Disp.	Performed By
	Bkg	Source				
12-11-12/0815	4	1500	ok	ok	ok	kg
12-11-12/1450	4	1500	ok	ok	ok	kg
12-12-12/0800	4	1400	ok	ok	ok	kg
12-12-12/1500	4	1500	ok	ok	ok	kg
12-13-12/0800	4	1400	ok	ok	ok	kg
12-13-12/1455	4	1400	ok	ok	ok	kg
12-17-12/0705	4	1400	ok	ok	ok	kg
12-17-12/1620	4	1400	ok	ok	ok	kg
12-18-13/0705	4	1400	ok	ok	ok	kg
12-18-12/1525	4	1400	ok	ok	ok	kg
12-19-12/0650	4	1400	ok	ok	ok	kg
12-19-12/1825	4	1400	ok	ok	ok	kg
12-20-12/0650	4	1400	ok	ok	ok	kg
12-20-12/0855	4	1400	ok	ok	ok	kg
1-02-13/0645	4	1400	ok	ok	ok	kg
1-02-13/1150	4	1400	ok	ok	ok	kg
1-03-13/0645	4	1400	ok	ok	ok	kg
1-03-13/1630	4	1400	ok	ok	ok	kg
1-04-13/0645	4	1400	ok	ok	ok	kg
1-04-13/1545	4	1400	ok	ok	ok	kg
1-07-13/0710	4	1400	ok	ok	ok	kg
1-07-13/1540	4	1400	ok	ok	ok	kg
1-08-13/0655	4	1400	ok	ok	ok	kg
1-08-13/1610	4	1500	ok	ok	ok	kg
1-09-13/0730	4	1400	ok	ok	ok	kg
1-09-13/1615	4	1400	ok	ok	ok	kg
1-10-13/0700	4	1400	ok	ok	ok	kg
1-10-13/1620	4	1400	ok	ok	ok	kg
1-14-13/0700	4.5	1400	ok	ok	ok	kg
1-14-13/1645	4.5	1500	ok	ok	ok	kg
1-15-13/0655	4	1400	ok	ok	ok	kg
1-15-13/1620	4	1500	ok	ok	ok	kg
1-16-13/0640	4.5	1500	ok	ok	ok	kg
1-16-13/1600	4.5	1500	ok	ok	ok	kg
1-17-13/0645	4.5	1500	ok	ok	ok	kg
1-17-13/1710	4.5	1500	ok	ok	ok	kg
1-22-13/0645	4.5	1600	ok	ok	ok	kg
1-22-13/1630	4	1500	ok	ok	ok	kg
1-23-13/0620	4	1600	ok	ok	ok	kg
1-23-13/1630	4.5	1600	ok	ok	ok	kg
1-24-13/0640	4	1500	ok	ok	ok	kg
1-24-13/1700	4.5	1600	ok	ok	ok	kg
1-25-13/0645	4.5	1600	ok	ok	ok	kg
1-25-13/1525	4.5	1600	ok	ok	ok	kg

± 20% of Calibrated Value - Contact

Background Low 3.2 uR/hr High 4.8 uR/hr

Source Low 1120 uR/hr High 1680 uR/hr

REVIEWED BY:

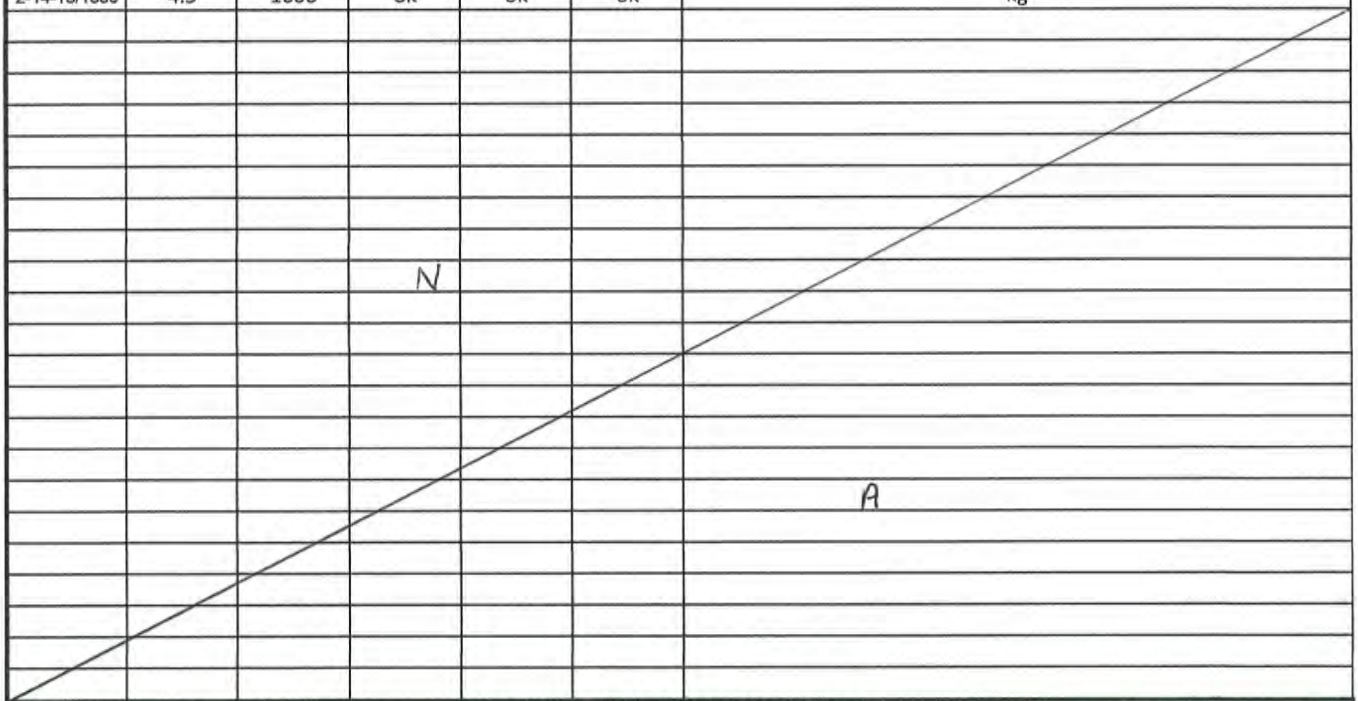
DAILY FIELD SOURCE CHECK LOG / EXPOSURE RATE INSTRUMENTS

Project Name / Number: Parcel F RAD DGI 07225.0002 **Set Up Date:** 12/5/2012

Instrument: Model 19 S/N: 111333 Cal. Date: 6/6/2012 Cal. Due: 6/6/2013

Source: CS-137 S/N: 1698-03 Activity: 5.00E-06

Date	Response		Batt.	Spkr.	Disp.	Performed By
	Bkg	Source				
1-28-13/0640	4	1600	ok	ok	ok	kg
1-28-13/1645	4.5	1600	ok	ok	ok	kg
1-29-13/0640	4	1600	ok	ok	ok	kg
1-29-13/1530	4	1600	ok	ok	ok	kg
1-30-13/0640	4	1600	ok	ok	ok	kg
1-30-13/1625	4.5	1600	ok	ok	ok	kg
1-31-13/0630	4	1600	ok	ok	ok	kg
1-31-13/1635	4.5	1600	ok	ok	ok	kg
2-4-13/0650	4.5	1600	ok	ok	ok	kg
2-4-13/1635	4.5	1600	ok	ok	ok	kg
2-5-13/0635	4	1600	ok	ok	ok	kg
2-5-13/1750	4.5	1600	ok	ok	ok	kg
2-6-13/0615	4	1600	ok	ok	ok	kg
2-6-13/1240	4	1600	ok	ok	ok	kg
2-11-13/0710	4.5	1600	ok	ok	ok	kg
2-11-13/1440	4.5	1600	ok	ok	ok	kg
2-12-13/0650	4.5	1600	ok	ok	ok	kg
2-12-13/1420	4.5	1600	ok	ok	ok	kg
2-13-13/0700	4.5	1600	ok	ok	ok	kg
2-13-13/1610	4.5	1600	ok	ok	ok	kg
2-14-13/0650	4	1600	ok	ok	ok	kg
2-14-13/1600	4.5	1600	ok	ok	ok	kg



± 20% of Calibrated Value - Contact

Background Low 3.2 uR/hr High 4.8 uR/hr

Source Low 1120 uR/hr High 1680 uR/hr

REVIEWED BY:

DAILY FIELD SOURCE CHECK LOG / EXPOSURE RATE INSTRUMENTS

Project Name / Number: Parcel F RAD DGI 07225.0002 **Set Up Date:** 12/19/2013

Instrument: Model 2221 S/N: 190171 Cal. Date: 12/17/2012 Cal. Due: 12/17/2013

Source: CS-137 S/N: 1698-03 Activity: 5.00E-06

Date/Time	Response		Batt.	Spkr.	Disp.	Performed By
	Bkg	Source				
12/20/12/0700	3692	864945	ok	ok	ok	
12/20/12/0850	3715	858284	ok	ok	ok	
1/2/13/0650	3713	867728	ok	ok	ok	
1/2/13/0650	3693	874328	ok	ok	ok	
1/3/13/0640	3855	871929	ok	ok	ok	
1/3/13/1645	3693	869673	ok	ok	ok	
1/4/13/0650	3778	867878	ok	ok	ok	
1/4/13/1535	3711	877837	ok	ok	ok	
1/7/13/0715	3842	871556	ok	ok	ok	
1/7/13/1515	3951	849682	ok	ok	ok	
1/8/13/0700	4007	874233	ok	ok	ok	
1/8/13/1610	3807	874151	ok	ok	ok	
1/9/13/0725	4111	852143	ok	ok	ok	
1/9/13/1615	3655	871339	ok	ok	ok	
1/10/13/0650	3622	871735	ok	ok	ok	
1/10/13/1610	3812	859478	ok	ok	ok	
1/14/13/0700	3567	864849	ok	ok	ok	
1/14/13/1650	3608	875229	ok	ok	ok	
1/15/13/0700	3772	868718	ok	ok	ok	
1/15/13/1620	3720	874989	ok	ok	ok	
1/16/13/0650	3785	873750	ok	ok	ok	
1/16/13/1615	3625	882171	ok	ok	ok	
1/17/13/0640	3802	862625	ok	ok	ok	
1/17/13/1630	3750	875612	ok	ok	ok	
1/22/13/0650	3841	871521	ok	ok	ok	
1/22/13/1650	3929	873324	ok	ok	ok	
1/23/13/0630	3801	868799	ok	ok	ok	
1/23/13/1600	3686	875733	ok	ok	ok	
1/24/13/0655	3748	860426	ok	ok	ok	
1/24/13/1635	3834	862865	ok	ok	ok	
1/25/13/0650	3653	882447	ok	ok	ok	
1/25/13/1510	3601	875099	ok	ok	ok	
1/28/13/0635	3320	860081	ok	ok	ok	
1/28/13/1635	3391	877681	ok	ok	ok	
1/29/13/0645	3514	875576	ok	ok	ok	
1/29/13/1530	3695	877052	ok	ok	ok	
1/30/13/0645	3719	876047	ok	ok	ok	
1/30/13/1625	3617	874690	ok	ok	ok	
1/31/13/0635	3508	860386	ok	ok	ok	
1/31/13/1620	4175	866269	ok	ok	ok	
2/4/13/0645	3585	874045	ok	ok	ok	
2/4/13/1615	3666	865898	ok	ok	ok	
2/5/13/0620	3433	875347	ok	ok	ok	
2/5/13/1615	4119	866569	ok	ok	ok	

± 20% of Calibrated Value - Contact

Background Low 2900 cpm High 4350 cpm

Source Low 688,112 cpm High 1,032,168 cpm

REVIEWED BY:

DAILY FIELD SOURCE CHECK LOG / EXPOSURE RATE INSTRUMENTS

Project Name / Number: Parcel F RAD DGI 07225.0002 **Set Up Date:** 12/19/2013

Instrument: Model 2221 S/N: 190171 Cal. Date: 12/17/2012 Cal. Due: 12/17/2013
Source: CS-137 S/N: 1698-03 Activity: 5.00E-06

Date/Time	Response		Batt.	Spkr.	Disp.	Performed By
	Bkg	Source				
2/6/13/0620	4070	876566	ok	ok	ok	
2/6/13/1200	3462	831646	ok	ok	ok	
2/11/13/0715	3604	832221	ok	ok	ok	
2/11/13/1455	3402	876177	ok	ok	ok	
2/12/13/650	3536	873403	ok	ok	ok	
2/12/13/1429	3641	830348	ok	ok	ok	
2/13/13/0705	3893	840283	ok	ok	ok	
2/13/13/1610	3839	872967	ok	ok	ok	
2/14/13/0655	3704	881709	ok	ok	ok	
2/14/13/1550	4010	881439	ok	ok	ok	

± 20% of Calibrated Value - Contact

Background Low 2900 cpm High 4350 cpm
Source Low 688,112 cpm High 1,032,168 cpm

REVIEWED BY:

Environmental Restoration Group, Inc.
8809 Washington NE, Ste. 150
Albuquerque, NM 87113

ph: 505.298.4224
fax: 505.797-1404
web: www.ERGOffice.com

EQUIPMENT PACKING SLIP

Company Name: ITSI - CA
Contact Name:
Contact Telephone: 865-684-6995

Order Number: 2368
P.O. or Reference Number: 07225.0002/PO7117

Date Ordered: 11/26/2012
Date Shipped: 11/26/2012
Date of Delivery: 11/27/2012

Shipping Method: FedEx Priority Overnight
Shipping Number: ERG FedEx Number

Ship To Information:

ITSI - CA
2730 Shadelands Drive
Ste 100
Walnut Creek, CA 94598
865-684-6995

Billing Address:

ITSI
Jason Van Pelt
2730 Shadelands Drive
Suite 100
Walnut Creek, CA 94598

Equipment Enclosed:

Instrument	*Serial Number*
Ludlum 19	111333
Ludlum 2360	184930
Ludlum 2360	276949
Ludlum 43-93	PR179868
Ludlum 43-93	PR298426
Eberline Cs-137	1698-03
Eberline Tc-99	5445-05
Eberline Th-230	4005-02

Special Instructions:

(2) 43-93 mylars, (1) c-cable

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
501 Oak Street
325-235-5494
Sweetwater, TX 79556, U.S.A.

☐ 231 Sam Rayburn Parkway
865-270-8062
Lenoir City, TN 37771, U.S.A.

CUSTOMER ERG

Mfg. Ludlum Measurements, Inc. Model 19 ORDER NO. 20201167/378800

Mfg. Model Serial No. 111333

Cal. Date 6-Jun-12 Cal Due Date 6-Jun-13 Cal. Interval 1 Year Meterface 202-016

Check mark (✓) applies to applicable instr. and/or detector IAW mfg. spec. T 75 °F RH 41 % Alt 694.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☐ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC
☐ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 500 V Input Sens. 33 mV Det. Oper. ____ V at ____ mV Threshold Dial Ratio ____ = ____ mV

☐ HV Readout (2 points) Ref./Inst. ____ / ____ V Ref./Inst. ____ / ____ V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
5000	4000 µR/hr	4000	4000
5000	1000 µR/hr	1000	1000
500	400 µR/hr= 71,200 cpm	400	400
500	100 µR/hr	100	100
250	200 µR/hr= 37,200 cpm	200	200
250	100 µR/hr	100	100
50	2120 cpm	40	40
50	1793 cpm	10	10
25	3220 cpm	20	20
25	930 cpm	5	5

*Uncertainty within ± 10% C.F. within ± 20%

50,25 **Range(s) Calibrated Electronically**

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout			

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Log Scale			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978

State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources: ☐ 059 ☐ 280 ☐ 720 ☐ 734 ☐ 781 ☐ 1131 ☐ 1616 ☐ 1696 ☐ 5105 ☐ 5719CO ☐ 60646 ☐ 70897
☐ 73410 ☐ E551 ☐ E552 ☐ G112 ☑ M565 ☐ S-394 ☐ S-1054 ☐ T-304 ☐ T879 ☐ T10081 ☐ T10082 ☐ Y982

☐ Alpha S/N ____ ☐ Beta S/N ____ ☐ Other ____

☑ m 500 S/N 189506 ☐ Oscilloscope S/N ____ ☑ Multimeter S/N 94000441

ed By: William Tinsley Date 6-June-2012

eviewed By: Donnie Miekos Date 7-Jun-12

is certificate shall not be reproduced except in full without the written approval of Ludlum Measurements, Inc.

AC ns: ____ = Passed Dielectric HiPot and Continuity Test:
DC ____ = Failed ____

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER ERG (ENV RESTORATION GRP) ORDER NO 20207579/382624

Ludlum Measurements, Inc. Model 2360 Serial No. 184930

Mfg. Ludlum Measurements, Inc. Model 43-93 Serial No. PR179868

Cal Date 4-Oct-12 Cal Due Date 4-Oct-13 Cal. Interval 1 Year Meterface 202-855

Check mark applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 36 % Alt 700.8 mm Hg

☐ New Instrument Instrument Received ☐ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☑ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☐ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☐ Geotropism
☑ Audio ck. ☑ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC ☐ RS-232 Port OK
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 825 V

☑ HV Readout (2 points) Ref./Inst. 500 / 502 V Ref./Inst. 2000 / 2002 V

Firmware Version: 39010N29
Alpha Threshold: 120 mv
Beta Threshold: 3.5 mv
Beta Window: 30 mv
Overload SET TO SIMULATE LIGHT LEAK.
Instrument calibrated with a 39" cable.
High voltage set with detector NOT CONNECTED.

(EEPROM Settings)
User Time: 1.0
Alpha Alarm: 999999
Beta Alarm: 999999
A/B Alarm: 999999
Model 2360 Date: 10/4/2012
Calibration Date Due: 10/4/2013

COMMENTS:

a Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x1000	400k cpm	400	400
x1000	100k cpm	100	100
x100	40k cpm	400	400
x100	10k cpm	100	100
x10	4k cpm	400	400
x10	1k cpm	100	100
x1	400 cpm	400	400
x1	100 cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20%

ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400kcpm	39986(0)	39986(0)
	40kcpm	3998	3998
	4kcpm	400	400
	400cpm	40	40
	40cpm	4	4

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Log Scale			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978

State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources: ☐ 73410 ☐ 1131 ☐ 781 ☐ 059 ☐ 280 ☐ 60646 ☐ 70897 ☐ Ra-226 S/N Y982
Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1006 ☐ T879 ☐ E552 ☐ E551 ☐ 720 ☐ 734 ☐ 1616 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Pu239 SN:7053 ☑ Beta S/N Tc99 SN:5280, SrY90 ☐ Other

☑ m 500 S/N 190566 ☐ Oscilloscope S/N ☑ Multimeter S/N 86250390

Calibrated By: Date 4-OCT-12

Reviewed By: Date 4 Oct 12

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.

AC Inst Only ☐ Passed Dielectric (Hi-Pot) and Continuity Test ☐ Failed:

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-93 Serial No. PR 179868 Order #. 20207579/382624

Customer ERG (ENV RESTORATION GRP)

Counter 2360 Serial No. 184930

Count Time 1Minute

Other

Alpha Input Sensitivity 120 mV

Beta Input Sensitivity 3.5 mV

Beta Window 30 mV

Distance Source to Detector Surface

High Voltage	Background		Isotope Pu239 Size 24900dpm		Isotope Tc99 Size 93200dpm		Isotope SrY90 Size 98550dpm	
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
775	0	115	5758	288	27	14730	2	29357
800	0	159	5747	307	32	18016	0	34355
825	0	207	5938	406	31	20435	3	36395
850	0	266	5931	546	30	23509	19	36653
875	1	316	6190	641	30	25753	66	35300

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature

Date 4-OCT-12

EBERLINE SERVICES

CERTIFICATE OF CALIBRATION

Electroplated Beta Standard

S.O.# 6233
P.O.# 1093

Description of Standard:

Model No. DNS-12 Serial No. 5445-05 Isotope Tc-99

Electroplated on polished SS disc, 0.79 mm thick.

Total diameter of 4.77 cm and an active diameter of 4.45 cm.

The radioactive material is permanently fixed to the disc by heat treatment without any covering over the active surface.

Measurement Method:

The 2pi beta emission rate was measured using an internal gas flow proportional chamber. Absolute counting of beta particles emitted in the hemisphere above the active surface was verified by counting above, below, and at the operative voltage. The calibration is traceable to NIST by reference to an NIST calibrated beta source S/N 4002-02.

Measurement Result:

The observed beta count rate from the surface of the disc per minute (cpm) on the calibration date was:

7,270 ± 363

The total disintegration rate (dpm) assuming 25 % backscatter of beta particles from the surface of the disc, was:

11,600 ± 581 (0.00524 μCi)

The uncertainty of the measurement is 5 %, which is the sum of random counting error at the 99% confidence level, and the estimated upper limit of systematic error in this measurement.

Calibrated by: ART REUST Reviewed by:

Calibration Technician: Art Reust Q.A. Representative:

Calibration Date: 3-28-2005 Reviewed Date: 032805

Analytical Services
7021 Pan American Freeway NE
Albuquerque, New Mexico 87109-4238
(505) 345-3461 Fax (505) 761-5416
Toll Free (866) RAD-LABS (723-5227)
www.eberlineservices.com

EBERLINE SERVICES

CERTIFICATE OF CALIBRATION

Electroplated Alpha Standard

S.O.# 6984
P.O.# N/A

Description of Standard:

Model No. DNS-11 Serial No. 4005-02 Isotope Th-230

Electroplated on polished SS disc, 0.79 mm thick.

Total diameter of 4.77 cm and an active diameter of 4.45 cm.

The radioactive material is permanently fixed to the disc by heat treatment without any covering over the active surface.

Measurement Method:

The 2pi alpha emission rate was measured using an internal gas flow proportional chamber. Absolute counting of alpha particles emitted in the hemisphere above the active surface was verified by counting above, below, and at the operative voltage. The calibration is traceable to NIST by reference to an NIST calibrated alpha source S/N 75322-201

Measurement Result:

The observed alpha particles emitted from the surface of the disc per minute (cpm) on the calibration date was:

11,200 ± 335

The total disintegration rate (dpm) assuming 1.5% backscatter of alpha particles from the surface of the disc, was:

22,000 ± 660 (0.01 μCi)

The uncertainty of the measurement is 3 %, which is the sum of random counting error at the 99% confidence level, and the estimated upper limit of systematic error in this measurement.

Calibrated by: ART REUST Reviewed by:

Calibration Technician: Art Reust Q.A. Manager: Charlotte McCulloch

Calibration Date: 3-24-2010 Reviewed Date: 3.24.10

Source Manufacturing Lab
7021 Pan American Freeway NE
Albuquerque, New Mexico 87109-4238
(505) 761-5413 Fax (505) 761-5416
areust@eberlineservices.com

Environmental Restoration Group, Inc.
8809 Washington NE, Ste. 150
Albuquerque, NM 87113

ph: 505.298.4224
fax: 505.797-1404
web: www.ERGOffice.com

EQUIPMENT PACKING SLIP

Company Name: ITSI - CA
Contact Name:
Contact Telephone: 865-684-6995

Order Number: 2372
P.O. or Reference Number: 07225.0002/PO7117

Date Ordered: 11/30/2012
Date Shipped: 12/2/2012
Date of Delivery: 12/3/2012

Shipping Method:
Shipping Number: ERG FedEx Number

Ship To Information:

ITSI - CA
2730 Shadelands Drive
Ste 100
Walnut Creek, CA 94598
865-684-6995

Billing Address:

ITSI
Jason Van Pelt
2730 Shadelands Drive
Suite 100
Walnut Creek, CA 94598

Equipment Enclosed:

Instrument	*Serial Number*
Ludlum 2929 & 43-10-1	157320 & PR157821
MSA Escort ELF Lapel Air Sampler	A3-48592
MSA Escort ELF Lapel Air Sampler	A2-32568

Special Instructions:

(2) boxes of smears, (1) box of 37mm filters, (10) cassettes.

Certificate of Calibration

Calibration and Voltage Plateau

Environmental Restoration Group, Inc.
8809 Washington St NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224
www.ERGoffice.com

Meter/Detector: Manufacturer: Ludlum Model Number: 2929 & 43-10-1 Serial Number: 157320 & PR157821

☑ Mechanical Check ☐ Geotropism ☑ THR/WIN Operation ☑ Audio Check ☐ Battery Check (Min 4.4 VDC)
☐ F/S Response Check ☐ Meter Zeroed ☐ Reset Check HV Check (+/- 2.5%): ☑ 500 V ☑ 1000 V ☑ 1500 V
Source Distance: ☐ Contact ☐ 6 inches ☑ Other: In Planchet Cable Length: ☑ 39-inch ☐ 72-inch ☐ Other:
Source Geometry: ☐ Side ☐ Below ☑ Other: In Planchet Temperature: 73 °F Relative Humidity 20 %
Alpha Threshold: 170 mV Beta Threshold: 4 mV Barometric Pressure: 24.66 inches Hg
Beta Window: 46 mV Instrument found within tolerance: ☑ Yes ☐ No

Range/Multiplier	Reference Setting	Integrated 1-Min. Count "As Found" α	Integrated 1-Min. Count "As Found" β	Integrated 1-Min. Count "Reading" α	Integrated 1-Min. Count "Reading" β
x 1000	400 Kcpm	399193	399198	399193	399198
x 100	40 Kcpm	39905	39921	39905	39921
x 10	4 Kcpm	3990	3991	3990	3991
x 1	400 cpm	399	399	399	399

High Voltage	Pot. Setting	Alpha Source α	Alpha Source β	Beta Source α	Beta Source β	Background α	Background β
700	3.9	4171	275	5	1967	1	33
750	4.1	4544	303	2	2761	0	60
800	4.3	4789	440	7	3535	0	61
850	4.5	4766	594	2	4292	0	83

Comments: HV Plateau Scaler Count Time = 1-min. Recommended HV = 800, Pot. setting = 4.30

Reference Instruments and/or Sources:

Ludlum pulser serial number: ☐ 97743 ☑ 201932

☑ Alpha Source: Th-230 @ 12,800 dpm (1/4/12) sn: 4098-03
☑ Beta Source: Tc-99 @ 17,700 dpm (1/4/12) sn: 4099-03

Fluke multimeter serial numbe ☐ 8749012
☐ Gamma Source Cs-137 @ 5.2 uCi (1/4/12) sn: 4097-03
☐ Other Source:

Calibrated By:

Calibration Date 11-1-12 Calibration Due 11-1-13

Reviewed By:

Date: 11/1/12

Certificate of Calibration

MSA Lapel Air Sampler Calibration Form

Environmental Restoration Group, Inc.
8809 Washington NE Suite 150
Albuquerque, NM 87113
(505) 298-4224

Sampler Model Number: MSA ELF Portable Pump (Lapel) Serial Number: A2-32568

Air Flow Calibrator: ☑ MSA DIGICAL Calibrator sn: 020158

☐ A.P. Buck mini-BUCK Calibrator sn: 053058

Temperature: 70 °F - Rel Humidity: 20 % - Bar. Press: 24.69 in. Hg

Single point calibration at three different flow rates. Average of six test for each flow rate is actual flow rate. Sampler flow rate adjusted to match average.

Digital Flow Run Number	Test 1 (2000 cc/min)	Test 2 (3000 cc/min)
#1	2019	2890
#2	1876	2852
#3	2041	3064
#4	1873	2946
#5	2022	3058
#6	2052	3015
Avg.:	1981	2971

Adjustment Set: Yes ☑ Yes ☐

Flow Fault Check: Yes ☐ No ☐

Final Flow Setting: 2.5 LPM

Calibrated By: [signature] Calibration Date: 11-30-12

Reviewed By: [signature] Date: 11/30/12

Certificate of Calibration

MSA Lapel Air Sampler Calibration Form

Environmental Restoration Group, Inc.
8809 Washington NE Suite 150
Albuquerque, NM 87113
(505) 298-4224

Sampler Model Number: MSA ELF Portable Pump (Lapel) Serial Number: A3-48592

Air Flow Calibrator: ☑ MSA DIGICAL Calibrator sn: 020158

☐ A.P. Buck mini-BUCK Calibrator sn: 053058

Temperature: 70 °F - Rel Humidity: 20 % - Bar. Press: 24.69 in. Hg

Single point calibration at three different flow rates. Average of six test for each flow rate is actual flow rate. Sampler flow rate adjusted to match average.

Digital Flow Run Number	Test 1 (2000 cc/min)	Test 2 (3000 cc/min)
#1	1975	2951
#2	1967	2940
#3	2003	2946
#4	1940	2918
#5	1942	3152
#6	1950	2918
Avg.:	1963	2971

Adjustment Set: Yes ☑ Yes ☑

Flow Fault Check: Yes ☑ No ☐

Final Flow Setting: 2.5 LPM

Calibrated By: [signature] Calibration Date: 11-30-12

Reviewed By: [signature] Date: 11/30/12

Environmental Restoration Group, Inc.
8809 Washington NE, Ste. 150
Albuquerque, NM 87113

ph: 505.298.4224
fax: 505.797-1404
web: www.ERGOffice.com

EQUIPMENT PACKING SLIP

Company Name: ITSI - CA
Contact Name:
Contact Telephone: 865-684-6995

Order Number: 2379
P.O. or Reference Number: 07225.0002/PO7117

Date Ordered: 12/5/2012
Date Shipped: 12/5/2012
Date of Delivery: 12/6/2012

Shipping Method:
Shipping Number: ERG FedEx Number

Ship To Information:

ITSI - CA
2730 Shadelands Drive
Ste 100
Walnut Creek, CA 94598
865-684-6995

Billing Address:

ITSI
Jason Van Pelt
2730 Shadelands Drive
Suite 100
Walnut Creek, CA 94598

Equipment Enclosed:

Instrument	*Serial Number*
Ludlum 2360	275772
Ludlum 43-93	PR299677

Special Instructions:

None

Certificate of Calibration

Calibration and Voltage Plateau

Environmental Restoration Group, Inc.
8809 Washington St NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224
www.ERGoffice.com

Meter: Manufacturer: Ludlum Model Number: 2360 Serial Number: 275772

Detector: Manufacturer: Ludlum Model Number: 43-93 Serial Number: PR299677

☑ Mechanical Check ☑ Geotropism ☑ THR/WIN Operation ☑ Audio Check ☑ Battery Check (Min 4.4 VDC)

☐ F/S Response Check ☑ Meter Zeroed ☑ Reset Check HV Check (+/- 2.5%): ☑ 500 V ☑ 1000 V ☑ 1500 V

Source Distance: ☑ Contact ☐ 6 inches ☐ Other: Cable Length: ☑ 39-inch ☐ 72-inch ☐ Other:

Source Geometry: ☐ Side ☑ Below ☐ Other: Temperature: 78 °F Relative Humidity 20 %

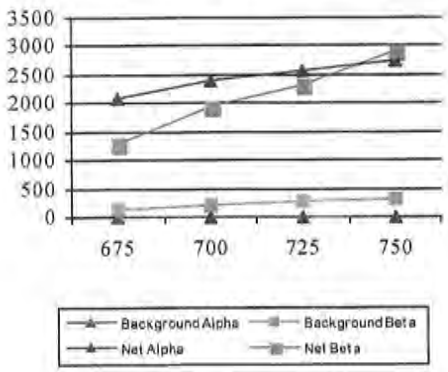
Alpha Threshold: 120 mV Beta Threshold: 4 Barometric Pressure: 24.83 inches Hg

Beta Window: 30 mV Instrument found within tolerance: ☑ Yes ☐ No

Range/Multiplier	Reference Setting	"As Found Reading"		Meter Reading		Integrated 1-Min. Count α	Integrated 1-Min. Count β
x 1000	400	400	kcpm	400	kcpm	398905	398847
x 1000	100	100	kcpm	100	kcpm		
x 100	400	400	kcpm	400	kcpm	39862	39885
x 100	100	100	kcpm	100	kcpm		
x 10	400	400	kcpm	400	kcpm	3987	3983
x 10	100	100	kcpm	100	kcpm		
x 1	400	400	cpm	400	cpm	398	398
x 1	100	100	cpm	100	cpm		

High Voltage	Alpha Source α	Alpha Source β	Beta Source α	Beta Source β	Background α	Background β
675	2098	332	4	1433	2	149
700	2412	379	16	2127	4	198
725	2569	456	15	2601	4	268
750	2749	549	14	3241	3	327

Voltage Plateau



Comments: HV Plateau Scaler Count Time = 1-min. Recommended HV =725

Reference Instruments and/or Sources:

Ludlum pulser serial number: ☑ 97743 ☐ 201932

Fluke multimeter serial number ☑ 8749012

☑ Alpha Source: Th-230 @ 12,800 dpm (1/4/12) sn: 4098-03

☑ Beta Source: Tc-99 @ 17,700 dpm (1/4/12) sn: 4099-03

☐ Gamma Source Cs-137 @ 5.2 uCi (1/4/12) sn: 4097-03

☐ Other Source:

Calibrated By: _____ Calibration Date: 12-4-12 Calibration Due: 12-4-13

Reviewed By: _____ Date: 12/4/12

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.
NMRCB Registration No. 921-3 * Calibration of Radiation Detection Instrument Devices

Environmental Restoration Group, Inc.
8809 Washington NE, Ste. 150
Albuquerque, NM 87113

ph: 505.298.4224
fax: 505.797-1404
web: www.ERGOffice.com

EQUIPMENT PACKING SLIP

Company Name: ITSI - CA
Contact Name:
Contact Telephone: 865-684-6995

Order Number: 2382
P.O. or Reference Number: 07225.0002/PO7117

Date Ordered: 12/17/2012
Date Shipped: 12/17/2012
Date of Delivery: 12/18/2012

Shipping Method: FedEx Priority Overnight
Shipping Number: ERG FedEx Number

Ship To Information:

ITSI - CA
2730 Shadelands Drive
Ste 100
Walnut Creek, CA 94598
865-684-6995

Billing Address:

ITSI
Jason Van Pelt
2730 Shadelands Drive
Suite 100
Walnut Creek, CA 94598

Equipment Enclosed:

Instrument	*Serial Number*
Ludlum 2221r	190171
Ludlum 44-10	PR122188

Special Instructions:

None

Certificate of Calibration

Calibration and Voltage Plateau

Environmental Restoration Group, Inc.
8809 Washington St NE, Suite 150
Albuquerque, NM 87113
(505) 298-4224
www.ERGoffice.com

Meter: Manufacturer: Ludlum Model Number: 2221r Serial Number: 190171

Detector: Manufacturer: Ludlum Model Number: 44-10 Serial Number: PR122188

☑ Mechanical Check ☑ Geotropism ☑ THR/WIN Operation ☑ Audio Check ☑ Battery Check (Min 4.4 VDC)

☑ F/S Response Check ☑ Meter Zeroed ☑ Reset Check HV Check (+/- 2.5%): ☑ 500 V ☑ 1000 V ☑ 1500 V

Source Distance: ☐ Contact ☑ 6 inches ☐ Other: Cable Length: ☐ 39-inch ☑ 72-inch ☐ Other:

Source Geometry: ☑ Side ☐ Below ☐ Other: Temperature: 73 °F Relative Humidity 20 %

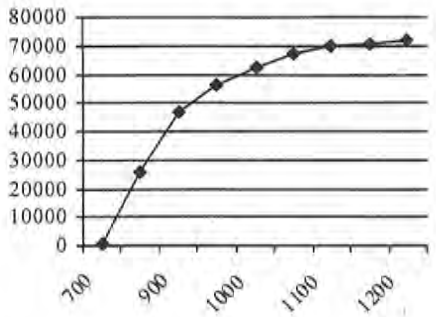
Threshold: 10 mV Window: Barometric Pressure: 24.54 inches Hg

Instrument found within tolerance: ☑ Yes ☐ No

Range/Multiplier	Reference Setting	"As Found Reading"		Meter Reading		Integrated 1-Min. Count	Log Scale Count	
x 1000	400	400	kcpm	400	kcpm	400061	400	kcpm
x 1000	100	100	kcpm	100	kcpm		100	kcpm
x 100	400	400	kcpm	400	kcpm	39996	400	kcpm
x 100	100	100	kcpm	100	kcpm		100	kcpm
x 10	400	400	kcpm	400	kcpm	3999	400	kcpm
x 10	100	100	kcpm	100	kcpm		100	kcpm
x 1	400	400	cpm	400	cpm	400	400	cpm
x 1	100	100	cpm	100	cpm		100	cpm

High Voltage	Source Counts	Background
700	608	
800	26084	
900	46785	
950	55971	
1000	62620	
1050	66931	
1100	69641	
1150	70819	11151
1200	72106	

Voltage Plateau



Comments: HV Plateau Scaler Count Time = 1-min. Recommended HV =1150

Reference Instruments and/or Sources:

Ludlum pulser serial number: ☐ 97743 ☑ 201932 Fluke multimeter serial number: ☐ 8749012

☐ Alpha Source: Th-230 @ 12,800 dpm (1/4/12) sn: 4098-03 ☑ Gamma Source Cs-137 @ 5.2 uCi (1/4/12) sn: 4097-03

☐ Beta Source: Tc-99 @ 17,700 dpm (1/4/12) sn: 4099-03 ☐ Other Source:

Calibrated By: Calibration Date: 12-17-12 Calibration Due: 12-17-13

Reviewed By: Review Date: 12/17/12

This calibration conforms to the requirements and acceptable calibration conditions of ANSI N323A - 1997.

Environmental Restoration Group, Inc.
8809 Washington NE, Ste. 150
Albuquerque, NM 87113

ph: 505.298.4224
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web: www.ERGOffice.com

EQUIPMENT PACKING SLIP

Company Name: ITSI - CA
Contact Name:
Contact Telephone: 865-684-6995

Order Number: 2395
P.O. or Reference Number: 07225.0002/PO7117

Date Ordered: 1/10/2013
Date Shipped: 1/10/2013
Date of Delivery: 1/11/2013

Shipping Method:
Shipping Number: ERG FedEx Number

Ship To Information:

ITSI - CA
2730 Shadelands Drive
Ste 100
Walnut Creek, CA 94598
865-684-6995

Billing Address:

ITSI
Jason Van Pelt
2730 Shadelands Drive
Suite 100
Walnut Creek, CA 94598

Equipment Enclosed:

Instrument	*Serial Number*
MSA Escort ELF 5-Unit Charger	ERG-1001
MSA Escort ELF Lapel Air Sampler	A2-32556
MSA Escort ELF Lapel Air Sampler	A2-29304
MSA Escort ELF Lapel Air Sampler	A3-48593

Special Instructions:

None

Certificate of Calibration

MSA Lapel Air Sampler Calibration Form

Environmental Restoration Group, Inc.
8809 Washington NE Suite 150
Albuquerque, NM 87113
(505) 298-4224

Sampler Model Number: MSA ELF Portable Pump (Lapel) Serial Number: A2-29304

Air Flow Calibrator: ☑ MSA DIGICAL Calibrator sn: 020158

☐ A.P. Buck mini-BUCK Calibrator sn: 053058

Temperature: 68 °F - Rel Humidity: 20 % - Bar. Press: 24.45 in. Hg

Single point calibration at three different flow rates. Average of six test for each flow rate is actual flow rate. Sampler flow rate adjusted to match average.

Digital Flow Run Number	Test 1 (2000 cc/min)	Test 2 (3000 cc/min)
#1	2041	2929
#2	2027	2946
#3	2022	2940
#4	2025	2946
#5	2006	2963
#6	2014	2951

Avg.:	2023	2946
Adjustment Set:	Yes ☐	Yes ☑
Flow Fault Check:	Yes ☑	No ☐

Final Flow Setting: 2.5 LPM

Calibrated By: [signature] Calibration Date: 1/10/13

Reviewed By: [signature] Date: 1/10/13

Certificate of Calibration

MSA Lapel Air Sampler Calibration Form

ERG

Environmental Restoration Group, Inc.
8809 Washington NE Suite 150
Albuquerque, NM 87113
(505) 298-4224

Sampler Model Number: MSA ELF Portable Pump (Lapel) Serial Number: A2-32556

Air Flow Calibrator: ☑ MSA DIGICAL Calibrator sn: 020158

☐ A.P. Buck mini-BUCK Calibrator sn: 053058

Temperature: 68 °F - Rel Humidity: 20 % - Bar. Press: 24.45 in. Hg

Single point calibration at three different flow rates. Average of six test for each flow rate is actual flow rate. Sampler flow rate adjusted to match average.

Digital Flow Run Number	Test 1 (2000 cc/min)	Test 2 (3000 cc/min)
#1	2022	2923
#2	2063	2918
#3	2038	2923
#4	2060	2940
#5	2044	2912
#6	2069	2906
Avg.:	2049	2920

Adjustment Set: Yes ☑ Yes ☐

Flow Fault Check: Yes ☑ No ☐

Final Flow Setting: 2.5 LPM

Calibrated By: [signature] Calibration Date: 1/10/13

Reviewed By: [signature] Date: 1/10/13

Certificate of Calibration

MSA Lapel Air Sampler Calibration Form

Environmental Restoration Group, Inc.
8809 Washington NE Suite 150
Albuquerque, NM 87113
(505) 298-4224

Sampler Model Number: MSA ELF Portable Pump (Lapel) Serial Number: A3-48593

Air Flow Calibrator: ☑ MSA DIGICAL Calibrator sn: 020158

☐ A.P. Buck mini-BUCK Calibrator sn: 053058

Temperature: 68 °F - Rel Humidity: 20 % - Bar. Press: 24.45 in. Hg

Single point calibration at three different flow rates. Average of six test for each flow rate is actual flow rate. Sampler flow rate adjusted to match average.

Digital Flow Run Number	Test 1 (2000 cc/min)	Test 2 (3000 cc/min)
#1	2022	2940
#2	2025	2946
#3	2001	2951
#4	2120	2992
#5	2019	2946
#6	2025	2946

Avg.:	2035	2954

Adjustment Set: Yes ☑ Yes ☑

Flow Fault Check: Yes ☑ No ☐

Final Flow Setting: 2.5 LPM

Calibrated By: _____ Calibration Date: 1/10/13

Reviewed By: _____ Date: 1/10/13

Environmental Restoration Group, Inc.
8809 Washington NE, Ste. 150
Albuquerque, NM 87113

ph: 505.298.4224
fax: 505.797-1404
web: www.ERGOffice.com

EQUIPMENT PACKING SLIP

Company Name: ITSI - CA
Contact Name:
Contact Telephone: 865-684-6995

Order Number: 2409
P.O. or Reference Number: 07225.0002/PO7117

Date Ordered: 1/28/2013
Date Shipped: 1/28/2013
Date of Delivery: 1/29/2013

Shipping Method:
Shipping Number: ERG FedEx Number

Ship To Information:

ITSI - CA
2730 Shadelands Drive
Ste 100
Walnut Creek, CA 94598
865-684-6995

Billing Address:

ITSI
Jason Van Pelt
2730 Shadelands Drive
Suite 100
Walnut Creek, CA 94598

Equipment Enclosed:

Special Instructions:

(2) boxes of smears

Appendix B
RADIONUCLIDE DATA

APPENDIX B – RADIONUCLIDE DATA

IS AVAILABLE ELECTRONICALLY

FOR ADDITIONAL INFORMATION, CONTACT:

DIANE C. SILVA
COMMAND RECORDS MANAGER, CODE EV33
NAVAL FACILITIES ENGINEERING COMMAND, SOUTHWEST
1220 PACIFIC HIGHWAY (NBSD BLDG. 3519)
SAN DIEGO, CA 92132

TELEPHONE: (619) 556-1280
E-MAIL: diane.silva@navy.mil

Appendix C
DATA ANALYSIS

Appendix C1
STATISTICAL ANALYSES REPORT

Statistical Results
Hunters Point Naval Shipyard (HPNS) – May 10, 2013

Objective

The objective of this statistical analysis was to assess the radionuclide activity levels of the sediments in Hunters Point Naval Shipyard (HPNS) Parcel F, located in San Francisco, California, as compared to background radiological activity levels in the San Francisco Bay. Specifically, Phase 2b Parcel F sediment data were compared to Phase 2a reference sediment data from six reference areas to determine if the radionuclide activity levels in Parcel F are greater than the radionuclide activity levels in the reference area by more than the project action limits (PALs).

Approach

All data used in this analysis were collected during the Phase 2a (reference) and Phase 2b (Parcel F) Data Gaps Investigations (DGI). The six radionuclides of concern (ROCs) for this investigation were cesium-137, cobalt-60, plutonium-239/240, radium-226, strontium-90, and uranium-235.

Background ROC levels were determined during Phase 2a by analyzing sediment samples from six reference locations in San Francisco Bay (Alameda Buoy, Alcatraz, Bay Farm, Oyster Point, Paradise Cove, and Red Rock). Each reference area had three sediment core stations and each core was sub-sampled at four 1-foot intervals (except for Alcatraz which had three stations with one station sampled at four 1-foot intervals, one station sampled at three 1-foot intervals, and one station sampled at two 1-foot intervals). A total of 69 reference area samples were analyzed for each ROC.

A total of 141 analytical sediment cores were collected for ROC analysis during the Phase 2b sampling effort. The 141 analytical cores collected during the Phase 2b investigation generated 504 discrete sediment samples for ROC analysis. This total included 178 samples from the Berths North Area, 134 samples from the Berths South Area, 143 samples from the South Basin Area, and 49 samples from the Submarine Area. The Phase 2b Parcel F dataset also included re-analysis results of eleven Phase 1 samples that previously were found to have elevated Ra-226 levels. All Phase 2b sediment samples were classified into one of two mutually exclusive conceptual site model (CSM) groups: intertidal and subtidal.

In order to fully understand the properties of the Phase 2a reference and Phase 2b Parcel F sediment datasets, ROC summary statistics were first calculated. For these statistics, reference area data were pooled by all locations and depths combined, and then separated by depths with locations combined. Phase 2b Parcel F data were also pooled by all locations and depths combined, and then separated by depths and by CSM grouping.

To determine if the radionuclide activity levels of the sediments in Parcel F are greater than the radionuclide activity levels of the sediments in the background by more than the PAL, the Wilcoxon Rank Sum (WRS) Test was conducted for each CSM following MARSSIM guidance, specifically Chapter 8, "8.4 Contaminant Present in Background." The WRS Test (also known as the Mann-Whitney Test) is a two-sample, non-parametric statistical hypothesis test that assesses whether one dataset (e.g., Phase 2b) tends to have larger values than another dataset (e.g., reference area). The WRS test also can be used to assess whether the values of one dataset are greater than the values of another dataset by more than a given constant (e.g., PAL). In order to complete these assessments, the WRS test takes both the original dataset and the comparative dataset and combines the values into a single list. This list is then sorted least to greatest and each value is assigned a rank. The sum of the rankings for the original dataset then is calculated and compared to a test statistic. Finally, a p-value is calculated from this test statistic and that

value is used to complete hypothesis testing for the median of the two datasets. The WRS test has greater efficiency than a standard two sample t-test on non-parametric distributions.

Separate WRS tests were performed for each ROC for the intertidal and subtidal exposure scenarios. Phase 2b Parcel F data (including the re-analysis of the 2009 Phase 1 samples) were pooled across location, station, and depth but separated by intertidal versus subtidal CSM classification. Phase 2a reference data were pooled across location, station, and depth. Depending on the exposure scenario being evaluated, the intertidal or subtidal PAL for a given ROC was then added to the ROC concentration for each of the reference samples. As described in Section 3.2 of the Phase 2b Technical Memorandum, the MDL was substituted for all reported non-detect results in both the Phase 2b and Phase 2a reference datasets before any WRS calculations were performed.

The two Phase 2b Parcel F datasets for each ROC (intertidal and subtidal) were compared to the applicable reference dataset (background + intertidal PAL or background + subtidal PAL, respectively) using the WRS test as described above. The hypotheses evaluated by these tests were as follows:

Null Hypothesis:
H_0: The median radionuclide concentration in Parcel F exceeds the background by more than the PAL.
***Alternative Hypothesis*:**
H_1: The median radionuclide concentration in Parcel F exceeds the background by less than the PAL or does not exceed the background.

All WRS tests on the Phase 2b data were performed at a predetermined significance level of 0.05 for both Type 1 and Type 2 errors.

Results

Of the 3,266 total data points utilized in the statistical analyses (69 samples from Phase 2a reference areas and 479 samples from Phase 2b Parcel F analyzed for six ROCs each, not including 22 rejected results), 46% analytical concentrations were reported as non-detect (i.e., assigned a "U" or "UJ" qualifier). Upon recommendation by the Navy, the laboratory method detection limit (MDL) was substituted for all non-detect results for the statistical calculations. This conservative approach has been used previously at HPNS studies and is a commonly accepted practice for the statistical analysis of measurement data. It is acknowledged that this approach will slightly raise the average (mean) of radionuclide concentrations within HPNS samples and reference samples where data include non-detect results. All rejected data (i.e., assigned an "R" qualifier) were considered unusable and were removed from the statistical dataset. All other qualified data were used as reported in the statistical dataset. Validated data qualifiers for the Phase 2b and Phase 2a analytical results were defined as follows:

- U = not detected
- J = estimated value
- UJ = not-detected at estimated reporting limit
- R = rejected data

Statistical summaries for each ROC dataset (intertidal and subtidal) and associated WRS test results are presented in Table C-1. All WRS tests had a p-value <0.0001, thus indicating with a high level of statistical significance that the measured Phase 2b results would be highly unlikely under the null hypothesis. As a result, the alternative hypothesis (i.e., that the median radionuclide concentration in Parcel F exceeds the median background concentration by *less* than the PAL) should be accepted. This

result also includes the possibility that the median Parcel F concentration is equal to or less than the reference area median concentration. Every WRS test for both the intertidal and subtidal datasets had the smallest possible p-values because all of the Phase 2b Parcel F data had the lowest possible ranks and all of the reference + PAL data had the highest possible ranks.

Box plots comparing the Phase 2b intertidal and subtidal datasets to the Phase 2a reference dataset for each ROC are provided in Figures C-1 to C-6. For these plots, the PALs were *not* added to the reference dataset concentrations as described above for the WRS testing. Instead, the PALs are listed above the boxes in each figure. Comparison of the intertidal and subtidal datasets to the PAL can be accomplished visually by comparing the upper limits of the box on the y-axis to the listed PAL. The box plots indicate that the median values of both the Phase 2b intertidal and subtidal datasets (represented by the horizontal line in the middle of the blue and red boxes, respectively) were less than the median value for the reference dataset for Co-60, Ra-226, Sr-90 and U-235. The median value of only the Phase 2b intertidal dataset was less than the median value for the reference dataset for Cs-137 and Pu-239/240. The median values for both the Phase 2b intertidal and subtidal datasets were substantially lower than the listed PALs. These combined results indicate that Parcel F radionuclide levels are not attributable to site-specific conditions and are not expected to be toxic under the defined exposure scenarios.

Limitations

In order to evaluate the limitations of the statistical analysis described herein, tests as to whether or not it was acceptable for the reference data to be pooled across areas were conducted; these tests were completed as part of the Phase 2a data analysis. Mixed effects models of the reference area data for a given ROC were analyzed (random effects for location and station, fixed effect for depth). Some models were not significant, thus indicating that pooling the data was reasonable, while others showed at least one significant factor. It was deemed by subject matter experts that the models and factors that were statistically significant were not practically significant. This conclusion resulted in pooling of all reference area samples for a given ROC for statistical analysis.

Similar mixed effects models were also conducted during the Phase 2a data analysis for a given ROC for a given CSM area (random effects for location and station, fixed effects for depth and phase). Some models were not significant, indicating that pooling the data was reasonable, while others showed at least one significant factor. Again, it was deemed by subject matter experts that the models and factors that were statistically significant were not practically significant. This conclusion resulted in pooling of all Phase 2a Parcel F data for a given ROC for a given CSM area. As this approach was executed for the Phase 2a data, it was also applied to the Phase 2b data for consistency.

The WRS test assumptions also were investigated to evaluate potential uncertainties in the test results. The two assumptions underlying the WRS test were as follows:

1. Samples from the reference areas and Parcel F are independent, identically distributed random samples; and
2. Each measurement is independent of every other measurement, regardless of the set of samples from which it came.

Due to the nature of the sampling, particularly the depth aspect, it is plausible that some samples are correlated with each other, potentially violating the independence assumption within a sample. Adjustments to the WRS test to account for correlated data were beyond the scope of this task. However, a "worst case" WRS test was conducted for each ROC for each CSM area based on selecting only one of the depths sampled at a given station. Selecting only one sampled depth at a given station eliminated any

dependence depth in the original dataset. A "worst case" dataset for a given ROC was created by selecting the sample with the lowest background result at a given station and selecting the sample with the highest Parcel F result at a given station. This essentially reduced the dataset to 25% of its original size, as most stations sampled four depths. Each of these "worst case" WRS tests was significant at the 0.05 level, resulting in the same conclusions as previously stated: for each ROC and CSM area, the median radionuclide concentration in HPNS Parcel F exceeds that in the background by *less* than the PAL.

Appendix C2
STATISTICAL SUMMARY TABLES

Table C-1. Phase 2b Summary Statistics and Wilcoxon Test Results

											Wilcoxon Test	
Dataset	Phase	N	N Detected	Min	25th Percentile	Median	Mean	SD	75th Percentile	Max	PAL	Sum of Ranks	P-Value
	CS-137												
Reference	2a	69	31	0.0214	0.0331	0.0507	0.0747	0.0572	0.0890	0.2130			
Intertidal CSM	2b	143	77	0.0111	0.0202	0.0297	0.0558	0.0451	0.0841	0.2410	1.28	10296	<0.0001
Subtidal CSM	2b	336	18	0.0128	0.0953	0.1145	0.1127	0.0307	0.1300	0.1960	425	56616	<0.0001
	Co-60												
Reference	2a	69	4	0.0081	0.0332	0.0404	0.0426	0.0155	0.0485	0.1030			
Intertidal CSM	2b	143	5	0.0093	0.0176	0.0211	0.0224	0.0066	0.0268	0.0494	0.364	10296	<0.0001
Subtidal CSM	2b	336	330	0.007	0.0177	0.0207	0.0222	0.0066	0.0260	0.0576	99.9	56616	<0.0001
	Pu-239/240												
Reference	2a	69	15	0.0089	0.0127	0.0176	0.0187	0.0080	0.0226	0.0527			
Intertidal CSM	2b	143	12	0.0086	0.0111	0.0134	0.0203	0.0160	0.0227	0.1030	67.8	10296	<0.0001
Subtidal CSM	2b	336	89	0.0085	0.0128	0.0199	0.0212	0.0104	0.0259	0.0861	68.2	56616	<0.0001
	Ra-226												
Reference	2a	69	69	0.2120	0.4780	0.6240	0.6039	0.1601	0.7240	0.9940			
Intertidal CSM	2b	143	143	0.3300	0.5110	0.5570	0.5564	0.0754	0.5990	0.7830	1	10296	<0.0001
Subtidal CSM	2b	336	336	0.2440	0.4940	0.5350	0.5345	0.0688	0.5755	0.7850	22.4	56616	<0.0001
	Sr-90												
Reference	2a	69	12	0.1080	0.1480	0.1730	0.1747	0.0391	0.1880	0.2990			
Intertidal CSM	2b	136	24	0.0655	0.1258	0.1440	0.1800	0.0967	0.1910	0.7540	9.37	9316	<0.0001

												Wilcoxon Test	
Dataset	Phase	N	N Detected	Min	25th Percentile	Median	Mean	SD	75th Percentile	Max	PAL	Sum of Ranks	P-Value
Subtidal CSM	2b	321	49	0.0981	0.1290	0.1430	0.1683	0.0762	0.1760	0.8170	9.93	51681	<0.0001
	U-235												
Reference	2a	69	22	0.1050	0.1750	0.2010	0.2342	0.1102	0.2470	0.6220			
Intertidal CSM	2b	143	87	0.0548	0.1100	0.1220	0.1384	0.0494	0.1580	0.3520	4.22	10296	<0.0001
Subtidal CSM	2b	336	179	0.0676	0.1050	0.1195	0.1330	0.0448	0.1505	0.3270	101	56616	<0.0001

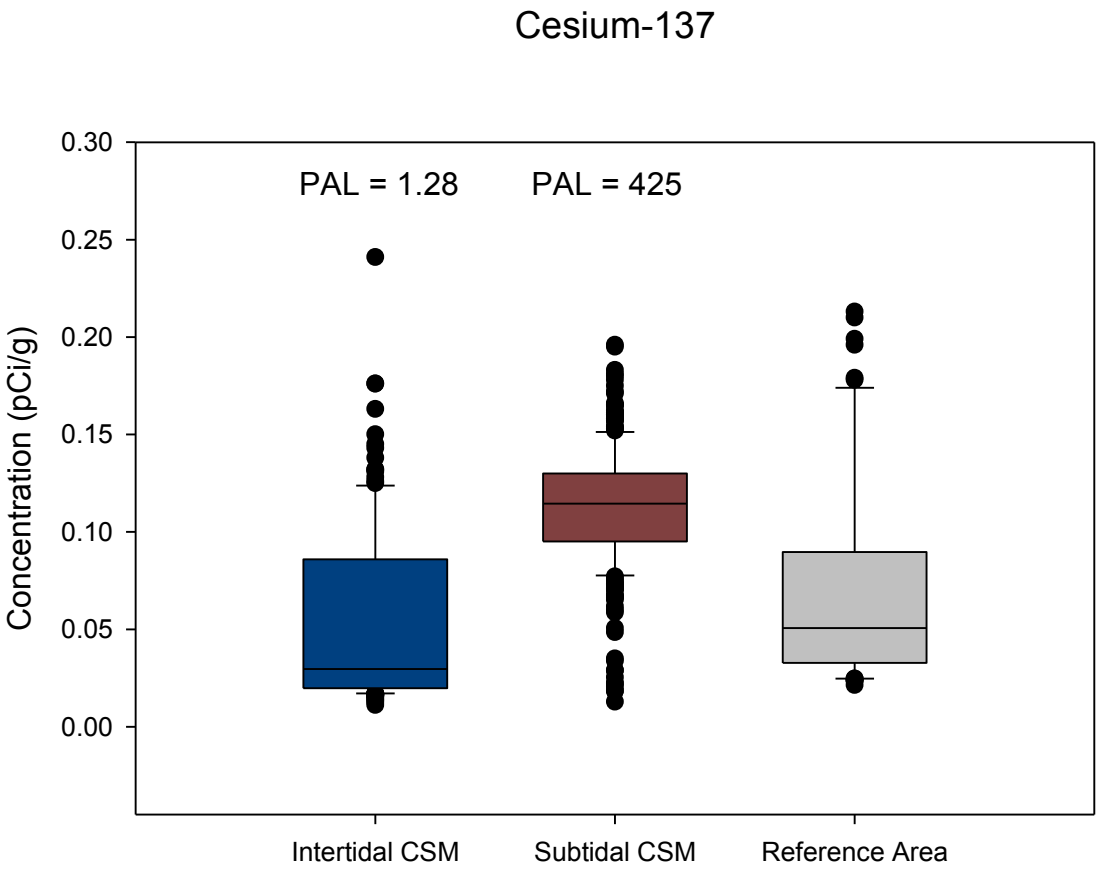

Figure C-1. Phase 2b Box Plots by CSM and Reference Area for Cs-137

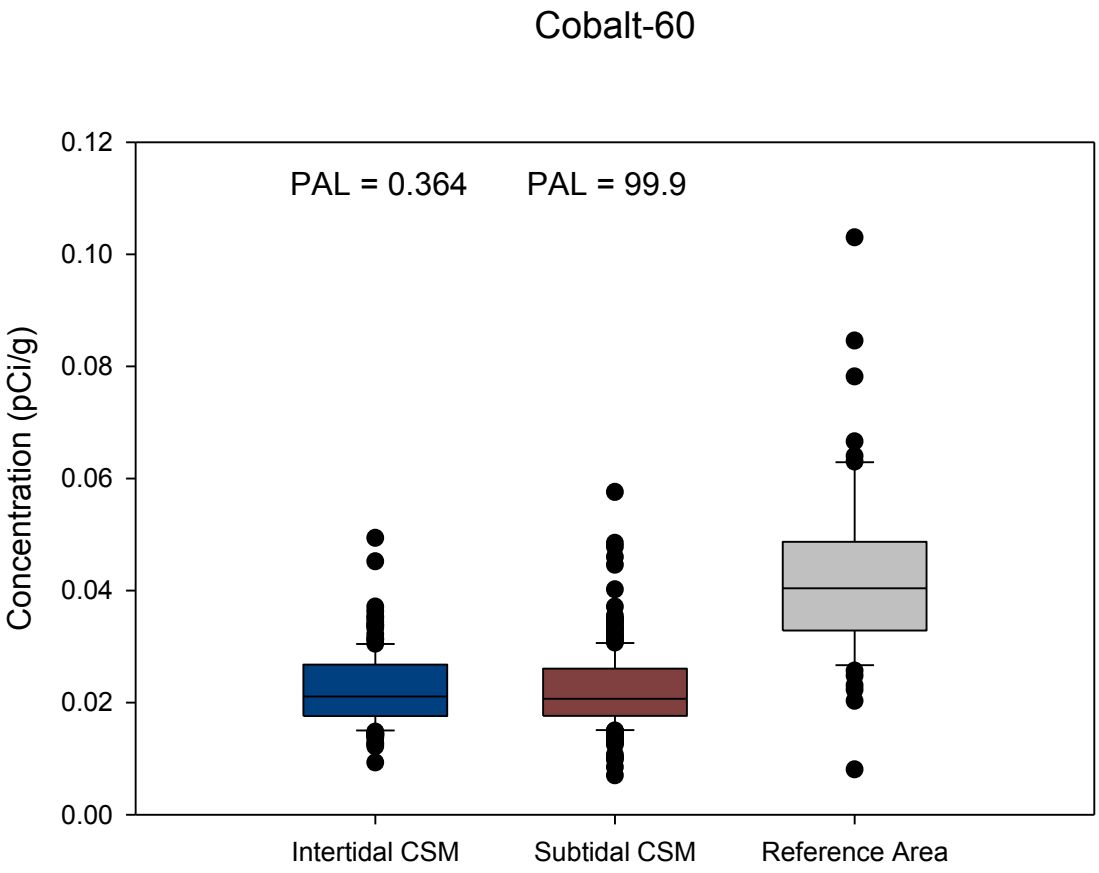

Figure C-2. Phase 2b Box Plots by CSM and Reference Area for Co-60

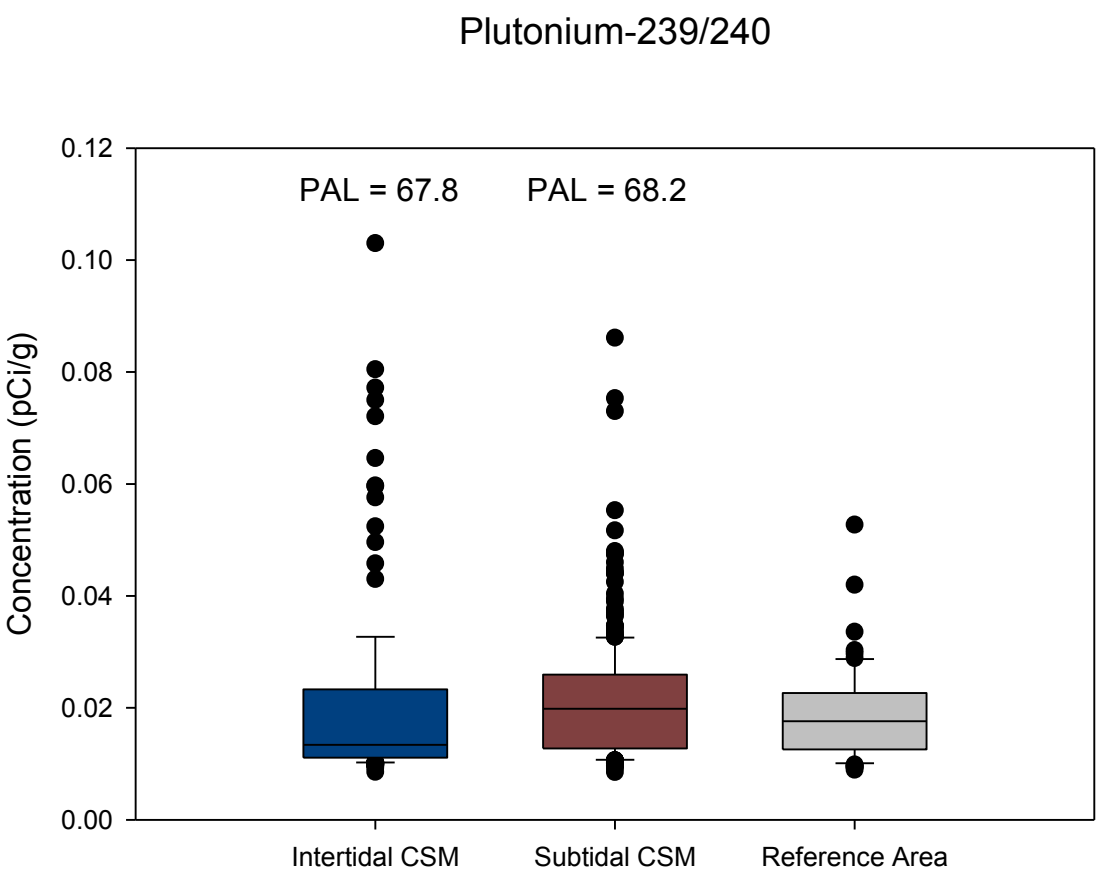

Figure C-3. Phase 2b Box Plots by CSM and Reference Area for Pu-239/240

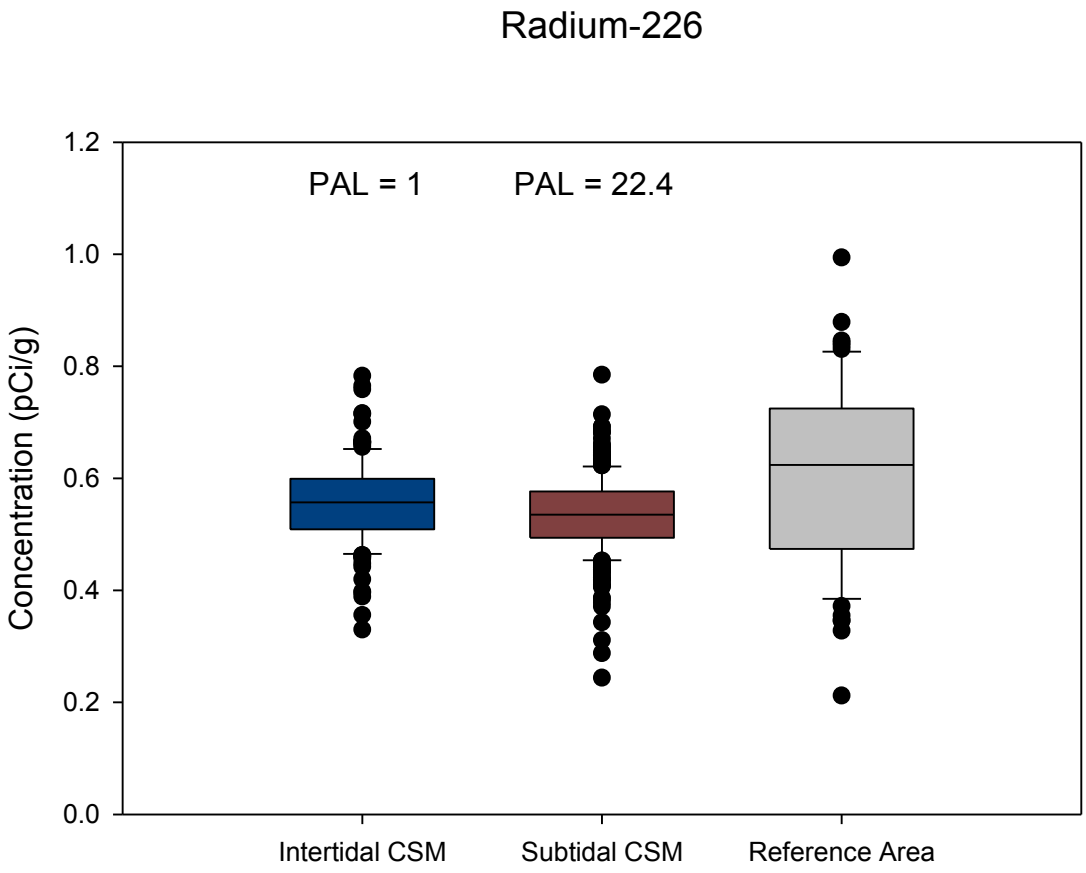

Figure C-4. Phase 2b Box Plots by CSM and Reference Area for Ra-226

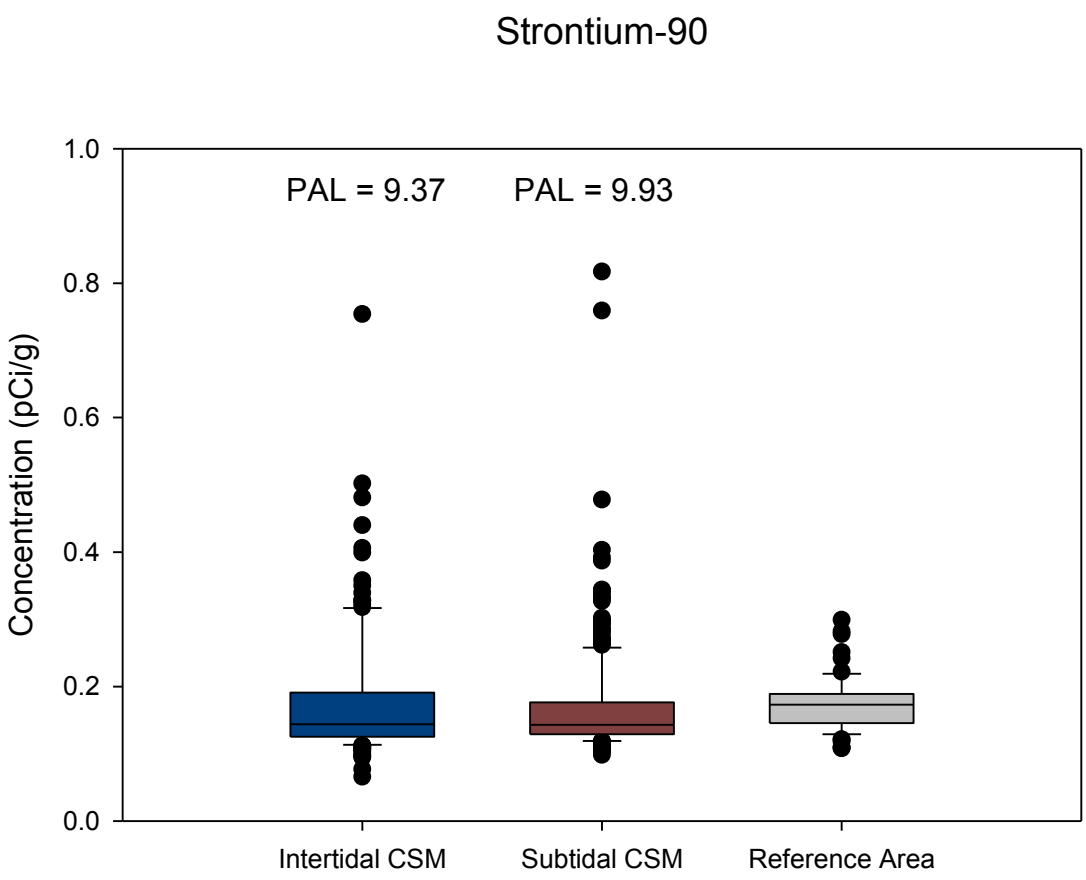

Figure C-5. Phase 2b Box Plots by CSM and Reference Area for Sr-90

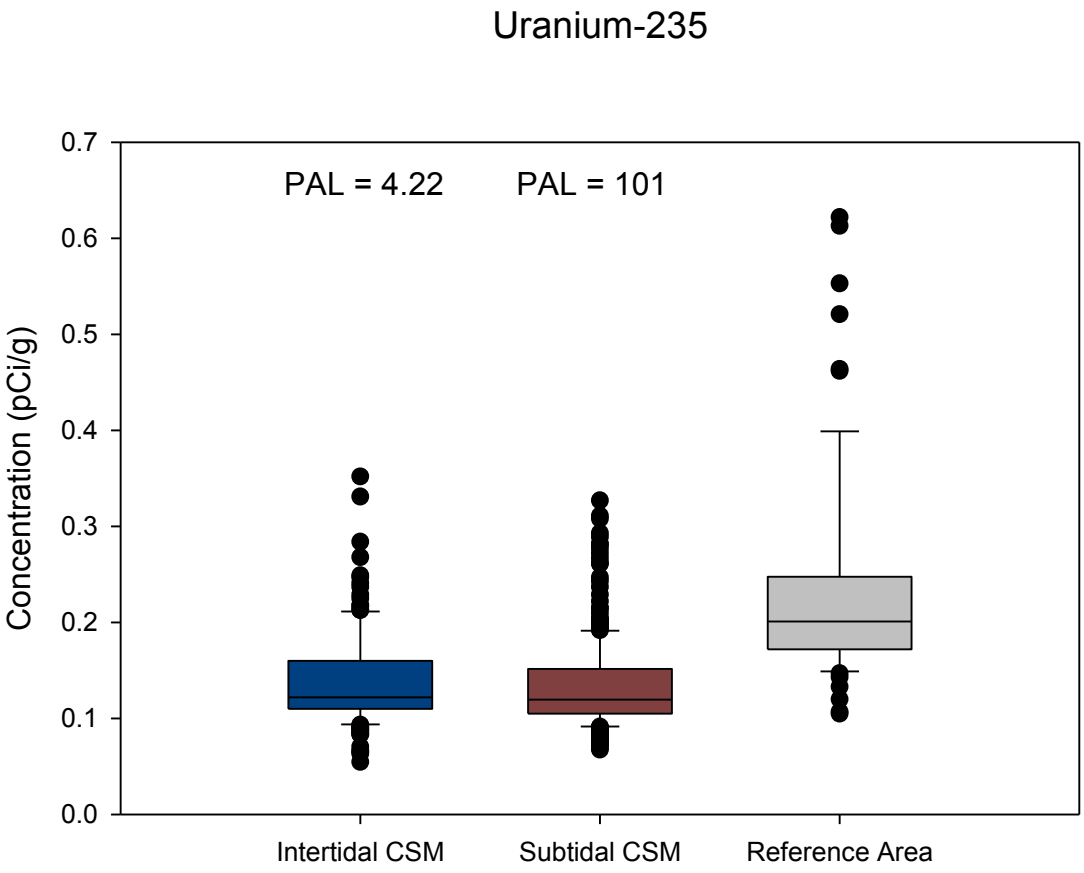

Figure C-6. Phase 2b Box Plots by CSM and Reference Area for U-235

Appendix D
SEDIMENT STABILITY DATA

Appendix D1
SEDFLUME REPORT

Sedflume Analysis
For
Parcel F Radiological Data Gap Investigation Phase 2B
Hunters Point Naval Shipyard
San Francisco, California
May 2013

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ITSI-Gilbane

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Executive Summary

Morphological bed changes in any aquatic system are dictated by complex and dynamically linked relationships between biological activity, hydrodynamic forcing, and sediment characteristics. When analyzing the sediment transport occurring within a system, numerous variables must be considered; one key aspect is the erosional properties and stability of a site's sediments. Sea Engineering, Inc. (SEI) conducted a Sedflume analysis on two sediment cores obtained from Hunters Point Naval Shipyard (HPNS), San Francisco, California. Three cores were initially collected but one was discarded (BN316) due to radiological analytes above HPNS release criteria. The primary goal of this work was to characterize the erosion properties and physical characteristics of the sites sediments. The Sedflume analysis determined sediment erosion rates, critical shear stresses, particle sizes and bulk densities at specific down-core depth intervals.

Critical shear stress is a difficult parameter to quantify; for Sedflume analysis it is typically defined as the shear stress required to erode a sediment sample at a rate of 10^{-4} centimeter per second (cm/s) (Roberts et al. 1998). To reduce uncertainty, critical shear stresses were estimated by combining a power law regression analysis with critical shear stress thresholds based on direct erosion rate measurements.

In general, BN312 and BS04 exhibited characteristics expected of consolidated cohesive sediments. Erosion rates decreased with depth, likely the result of sediment compaction due to self-weight. The critical shear stress of the top interval of both sediment cores was near 0.3 pascal (Pa). With the exception of the first interval, erosion was often initiated by applying shear stresses above 0.4 Pa.

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Section 1
Introduction to Sedflume

1.1 Introduction

Morphological bed changes in any aquatic system are dictated by complex and dynamically linked relationships between biological activity, hydrodynamic forcing, and sediment characteristics. When analyzing the sediment transport occurring within a system, numerous variables must be considered; one key aspect is the erosional properties and stability of a site's sediments. Sea Engineering, Inc. (SEI) conducted a Sedflume analysis on two sediment cores obtained from Hunters Point Naval Shipyard (HPNS) in San Francisco, California (three cores were initially collected but one was discarded (BN316); see section 1.2.2). The cores were collected in water depths ranging between 3.96 to 6.25 meter (m). The primary goal of this work was to characterize the erosion rates and physical properties of the sediments within the study area. The cores were eroded during a Sedflume analysis to determine erosion rates as a function of shear stress and depth. In addition, each core was sub-sampled to determine sediment bulk density and particle size distribution at specific depths within the core. Critical shear stresses were also deduced for five vertical intervals in each core. The following report outlines the procedures used in the Sedflume analysis, presents the measured data, and provides a description and analysis of the results.

1.2 Experimental Procedures

A detailed description of Sedflume analysis and its application are given in McNeil et al (1996) and Roberts et al (1998). This section provides a general description of the Sedflume analysis conducted in this study.

1.2.1 Description of Sedflume Setup

A Sedflume is essentially a straight flume with an open bottom through which a rectangular cross-section core tube containing sediment can be inserted (Figure 1). The main components of the flume are the core tube and sediment, the test section, the inlet section for uniform, fully-developed, turbulent flow, the flow exit section, the water storage tank, and the pump (which forces water through the system). The coring tube, test section, inlet section, and exit section are made of clear acrylic so the sediment-water interactions can be observed. The coring barrel has a rectangular cross-section, 10 centimeter (cm) by 15 cm, and can be up to 1 m in length.

Water is pumped through the system from a 300-gallon storage tank, through a 5 cm diameter pipe, and then through a flow converter into the rectangular duct shown in Figure 1. This duct is 2 cm in height, 10 cm in width, and 120 cm in length; it connects to the test section, which has the same cross-sectional area and is 15 cm long. The flow converter changes the shape of the cross-section from circular to rectangular while maintaining a constant cross-sectional area. A ball valve regulates the flow so that the flow into the duct can be carefully controlled. There is also a small valve in the duct

immediately downstream from the test section that is opened at higher flow rates to keep the pressure in the duct and over the test section at atmospheric conditions.

At the start of each test, a core tube and the sediment it contains are readied and inserted into the bottom of the test section. An operator moves the sediment upward using a piston

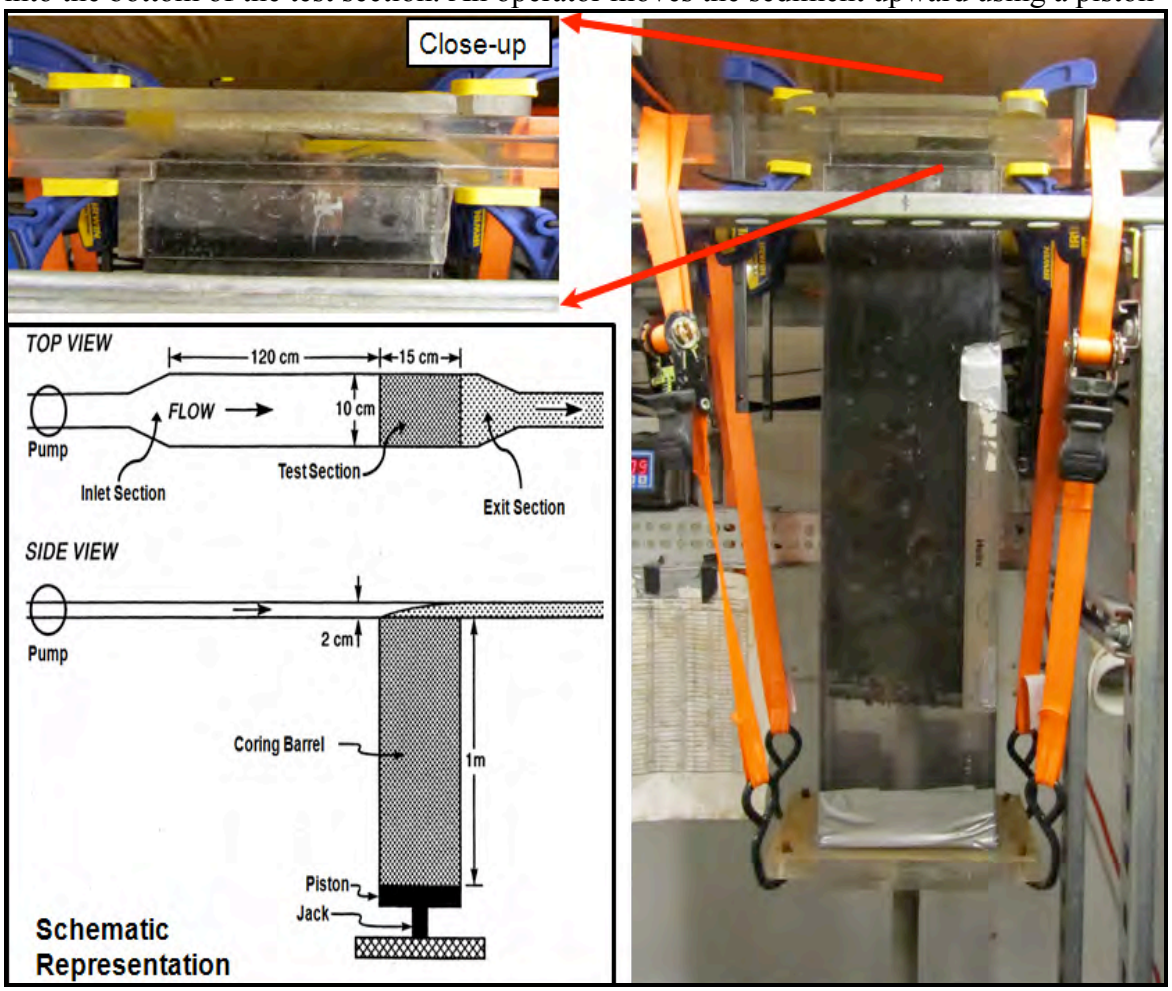

Figure 1. Photograph and schematic representation (bottom left) of a Sedflume and its components.

that is inside the core and is controlled by a hydraulic jack with a 1 m drive stroke. The jack is driven by the release of pressure that is regulated with a switch and valve system. By this means, the sediments can be raised and made level with the bottom of the test section. The speed of the hydraulic jack movement can be controlled for measurable depth increments as small as 0.5 millimeter (mm).

Water is forced through the duct and test section over the surface of the sediments. The shear produced by this flow causes the sediments to erode. As the sediments in the core erode, they are slowly moved upward so that the sediment-water interface remains level with the bottom of the test and inlet sections. The erosion rate is recorded as the upward movement of the sediments in the coring tube over time.

1.2.2 Core Collection

The sediment cores were collected from HPNS by SEI personnel on February 11, 2013. At each of the three coring locations, a differential global positioning system (DGPS) was used to position a vessel (vessel operated by TEG) at pre-determined fixed sampling stations. A pole was attached with clamps to the 10 cm by 15 cm rectangular core. The core tube was then lowered into the water and positioned perpendicular to the sediment bed. Pressure was applied by hand until at least 30 cm (approximately) and no more than 60 cm of the core tube penetrated into the sediment bed. A valve affixed to the top of the core tube was temporally closed to provide suction when the core was pulled out of the sediment bed. The predefined sampling location for BS04 ($37^0$43.1283, $122^0$21.5694) was in a water depth too deep for push coring (greater than 10 m), so ITSI-Gilbane personnel chose a replacement location south west of the original station.

After cores reached the water surface, they were immediately scanned for radioactivity by a radiation health and safety specialist. Once cleared, the cores were visually inspected for length and quality. Undisturbed surface sediments were present in each core based on visual inspection. The cores were capped and secured to minimize sediment disturbance from sloshing water and vessel/vehicle motion. Cores were transferred to an onsite facility occupied by ITSI-Gilbane, where they were held in an ice bath until a full ROC analysis was conducted on them. BN316 had radiological analytes slightly above HPNS release criteria and was therefore disposed of through the Navy's on-site disposal contractor (Terranear PMC, LLC). The two remaining cores were released to SEI personnel on May 2, 2013, where they were transported by vehicle to SEI's Sedflume laboratory in Santa Cruz, California. Upon arrival, the cores were again visually inspected to ensure sediment structure and surface had been preserved. Cores were then placed in an ambient water bath for preservation until processing. Both cores were processed on May 7, 2013.

1.2.3 Measurements of Sediment Erosion Rates

The sediment core was inserted into the Sedflume test section using the hydraulic jack until the sediment surface was even with the bottom of the Sedflume channel. A measurement was made of the core length. The flume was then run at a specific flow rate corresponding to a particular shear stress (McNeil et al., 1996). Erosion rates are obtained by measuring the core length at different time intervals, taking the difference between each successive measurement and dividing by the time interval as shown in Equation 1:

$$E = \frac{\Delta z}{T} \qquad (1)$$

E = Erosion rate
Δz = Amount of sediment eroded
T = Time

To measure erosion rates at several different shear stresses using only one core, the following procedure was used. Starting at a low shear stress, the flume was run

sequentially at higher shear stresses with each succeeding shear stress being twice the previous one. Generally, a flow rate was applied until 10 minutes had expired or 2 cm of sediment had eroded. The shear stress cycle was halted if the next increase in shear stress would erode more than 2 cm in 20 seconds (for this analysis, measurements less than 20 seconds in duration are not considered to hold a high degree of accuracy). The time interval was recorded for each run with a stopwatch.

The cycle was repeated until all of the sediment had eroded from the core. If, after three cycles, a particular shear stress showed a rate of erosion less than 10^{-4} centimeter per second (cm/s) (i.e. very limited erosion occurring at that shear stress), it was dropped from the cycle; higher shear stresses were then added as appropriate. If the composition of the material changed at a sediment interface, resulting in an observable change of erosion properties, the cycle was stopped and a new cycle started at the lowest shear stress.

1.2.4 Determination of Critical Shear Stress

The critical shear stress of a sediment bed, τ_{cr}, is defined quantitatively as the shear stress at which a very small, but accurately measurable, rate of erosion occurs. For Sedflume studies, this rate of erosion has been operationally defined as 10^{-4} cm/s. This represents 1 mm of erosion in approximately 15 minutes. Since it is difficult to measure τ_{cr} exactly, erosion was instead measured over a range of shear stresses designed to bracket the initiation of erosion, and then empirically fit to back-out the applied shear required for 10^{-4} cm/s of erosion. The highest applied shear stress where erosion *did not occur* was defined as τ_0; and lowest applied shear stress where erosion *did occur* was defined as τ_1.

Using the measured erosion rate data in each depth interval, a power law regression analysis was employed to determine the shear stress (τ_{power}) required to cause 10^{-4} cm/s of erosion. Assimilating the bracketed shear stress values (τ_0 and τ_1) and τ_{power}, the critical shear stress of each interval was then chosen according to the set of criteria described below:

- If $\tau_0 \leq \tau_{power} \leq \tau_1$, then τ_{power} was the selected critical shear stress, τ_{cr}, for the interval
- If $\tau_0 \geq \tau_{power}$, then τ_0 was the selected critical shear stress for the interval
- If $\tau_{power} \geq \tau_1$, then τ_1 was the selected critical shear stress for the interval

where τ_0 and τ_1 are determined directly from the Sedflume measurements. These selection criteria allowed for accurate predictions of critical shear stress by using power law provided values where the regression analysis was in agreement with measured erosion rate data, and reduced errors where power law fits deviated from measurement based expectations.

1.2.5 Measurement of Sediment Bulk Properties

In addition to measuring erosion rates during the analysis, sediment sub-samples were periodically collected at depth to determine the water content (for wet bulk density),

particle size distribution, and loss on ignition of the sediments in each core. Sub-samples were collected from the undisturbed core surface (prior to analysis) as well as the sediment surface at the beginning of each subsequent depth interval.

Bulk density was determined in the SEI Sedflume laboratory by water content analysis using methods outlined in Hakanson and Jansson (2002). This was accomplished by measuring the wet and dry weight of the collected sample to determine the water content, W, from Equation 2.

$$W = \frac{M_w - M_d}{M_w} \quad (2)$$

W = water content
M_w = wet weight of sample
M_d = dry weight of sample

Once the water content was calculated, the bulk density, ρ_b, was determined from Equation 3.

$$\rho_b = \frac{\rho_w \rho_s}{\rho_w + (\rho_s - \rho_w)W} \quad (3)$$

ρ_w = density of water (1 g/cm^3)
ρ_s = density of sediment particle (2.65 g/cm^3)

Particle size distributions were determined using laser diffraction analysis, also in the SEI laboratory in Santa Cruz, California. From each sample collected from the cores at beginning of each interval, representative subsamples were analyzed for Particle Size Distribution using a Beckman Coulter LS 13 320 laser particle sizer. Each sample was analyzed in three 1-minute intervals and the results of the three analyses were averaged.

Loss on ignition was determined following ASTM D2974 Version C. Samples were first dried in the SEI Laboratory oven to remove moisture (following ASTM 2216-05 recommendations). Then, the samples were placed in a furnace and ignited at 440 degrees centigrade (°C) until the mass remained constant (typically 24 hours). The change in mass before and after indicates the fraction of combustible substances within each sub-sample, and can be used qualitatively to evaluate the organic versus inorganic fraction within each:

$$LOI = \frac{M_d - M_{d,combustion}}{M_d} \quad (4)$$

M_d = dry weight of sample
$M_{d,\,combustion}$ = dry weight of sample after combustion.

The relationships used to determine sediment bulk properties are summarized in Table 1.

Table 1. Parameters measured and computed during the Sedflume analysis.

Measurement	Definition	Units	Detection Limit	Internal Consistency
Water Content	$W = \frac{M_w - M_d}{M_w}$	unit-less	0.001 gram (g) in sample weight ranging from 1 to 50 g	0 < W < 1
Bulk Density	$\rho_b = \frac{\rho_w \rho_s}{\rho_w + (\rho_s - \rho_w)W}$	g/cm^3	Same as water content	$\rho_w < \rho_b < 2.6\rho_w$
Particle Size Distribution Below 2000 micrometer (μm)	Distribution of particle sizes by volume percentage using laser diffraction	μm	Method Specific	1μm<Grain Size<2000μm
Loss on Ignition	$LOI = \frac{M_d - M_{d,combustion}}{M_d}$	unit-less	Same as water content	Wet and dry mass of sample

1.2.6 Erosion Rate Fitting

A useful method of analyzing sediment characteristics at a specific site is to compare the inter-core and intra-core erosion rates. This method provides a means to quantify the erosion rates within each core as well as the general erosion rates of the coring site. In this analysis, each core has been sub-sampled into approximately five separate depth intervals (shear cycles). Following the methods of Roberts et al (1998), the erosion rate for each interval can be approximated by:

$$E = A\tau^n \rho^m \quad (5)$$

E = erosion rate (cm/s)
τ = bed shear stress (Pa)
ρ = sediment bulk density (g/cm^3)
A, n and m = constants that depend on the sediment characteristics

The equation used in this analysis is an abbreviated variation of Equation 5:

$$E = A\tau^n \quad (6)$$

where the sediment bulk density parameter is a function of the constant A. The variation of erosion rate with density typically cannot be determined for field sediments due to natural variation in other sediment properties (e.g. mineralogy and particle size). Therefore, the density term for a particular interval of approximately constant density is lumped into the constant A. For each depth interval, the measured erosion rates (E) and applied shear stresses (τ) were used to determine the A and n constants that provide a best fit power law curve to the data for that interval. With good fits (i.e. $r^2 > 0.8$), these

parameters can be used to predict erosion rates for the core interval of interest. A correlation of 0.8 was used as a criteria threshold for acceptance in this analysis.

From this process a depth-averaged erosion rate for a particular core can also be determined, and the erosion rate at each depth interval can be directly compared to this depth-average. The result is an erosion rate *ratio* which provides an estimation of the erosion rates of each depth interval relative to the core average. This procedure highlights the depths of the core that will erode more rapidly, and those that will tend to resist erosion, relative to the other intervals in the core. Intervals for which the r^2 is less than 0.8 are omitted from this comparison.

Section 2
Results

A map of HPNS is presented in Figure 2. Core extraction locations are marked by red circles. The yellow circle was the original target location for BS04, but the location was moved to the west due to push core water depth restrictions (water depth has to be less than 10 m). The extraction coordinates, extraction dates and water depths are summarized in

Table 2. This section of the report discusses the findings for each core; Appendix A contains grain sizes statistics and plots from the grain size analysis.

Figure 2. Site Map of HPNS with the Sedflume coring locations marked by red circles. The yellow circle was the original proposed extraction location of BS04.

Table 2. Sedflume core extraction coordinates, time and date, and water depth.

Core ID	Lat (°N)	Long (°W)	Coring Date	Time (EST)	Depth (m)*
BS04	37°43.1179	122°21.6316	2/11/2013	09:30	6.25
BN312	37°43.7652	122°21.5226	2/11/2013	10:35	3.96
BN316	37°43.4111	122°21.7209	2/11/2013	11:30	6.19

* Water Depths are as recorded during core extractions and are not referenced to any datum.

2.1 Core BS04

Core BS04 was collected in 6.25 m of water. The core was comprised of gray fine to medium grain silt, overlain by a 2 mm lighter gray colored low-density flocculation layer. The lighter color of the surface sediments likely indicated oxic conditions. Patchy darker colored areas were observed along the sides of the core sediment (likely anoxic sediment). The core contained two small voids at depths of roughly 19 cm and 35 cm. Relict worm casts were encountered within two of the interior intervals. With the exception of the low density surface layer, the sediments were considerably resistant to erosion, with only discontinuous winnowing of fine material up to specific threshold sheer forces which dissociated the sediments in small-to-medium (0.5-4 mm) chunks. At higher applied shear stresses (above 1.6 pascal [Pa]) the core would erode rapidly and entirely in large chunks.

A photograph of core BS04 aligned vertically with the corresponding erosion rate data is presented in Figure 3. An erosion rate of 10^{-5} cm/s is considered incapable of mobilizing sediment (this holds in all erosion rate plots). The sediment surface (depth = 0) is plotted at the top of all graphs, with depth into the sediments increasing down the Y-axis. Shear stresses ranging between 0.1 and 6.4 Pa were applied to the core. Vertical profiles of bulk density and median particle size (d_{50}) are presented in Figure 4.

Erosion rates slightly decreased with depth in core BS04 (Figure 3), with a relatively stiff horizon around 20 cm. In the initial (surface) interval, the low density surface layer quickly mobilized in small flocculations, but immediately below this layer, the sediment was more cohesive and only began to erode around 0.8 Pa. At this shear stress, only finer material was observed to winnow out with shallow pitting to depths up to 1 cm. This trend continued for larger applied shear stresses, but the amount of material mobilizing increased. While processing the fourth interval, a large layer (roughly 1 cm) of sediment lifted from the test section so the interval was stopped. A six interval was added to the analysis because of the processing interruption. The average critical shear stress of the core was 0.5 Pa.

The median particle sizes remained relatively constant with depth, varying between 6.49 and 11.42 μm, vertically-averaging to 8.56 μm (fine silt; Figure 4). Bulk densities increased from 1.22 g/cm^3 at the surface to 1.34 g/cm^3 at a depth of 25.00 cm (Table 4).

Erosion rate ratios of tested intervals in BS04 with r^2 values above 0.8 are shown in Figure 5. The numbers plotted on the y-axis of all erosion rates plots represent interval

(shear stress cycles) starting depths. The vertical dashed line denotes an erosion rate ratio of 1.0. Ratios to the right of the line indicate intervals that are more susceptible to erosion than ratios to the left, relative to the vertically averaged erosion rate of the entire core. Six shear stress cycles were tested in BS04, and the erosion ratios are presented in Figure 5.

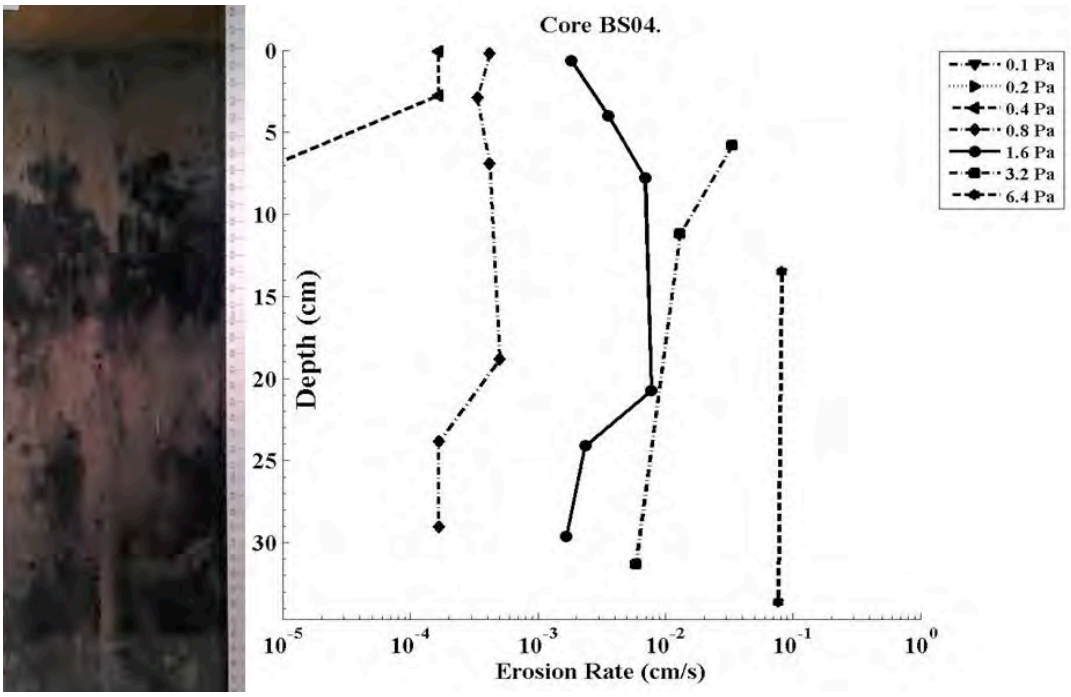

Figure 3. Photo of core BS04 aligned vertically with the corresponding erosion rates.

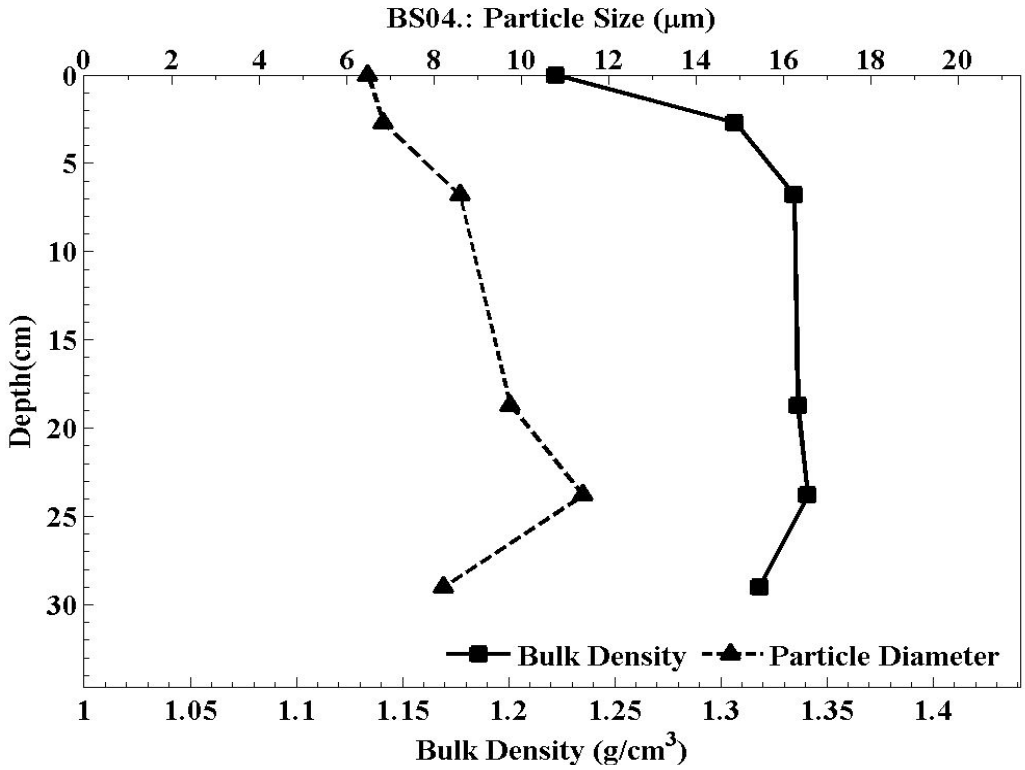

Figure 4. **Bulk density and median particle size (d_{50}) with depth for core BS04.**

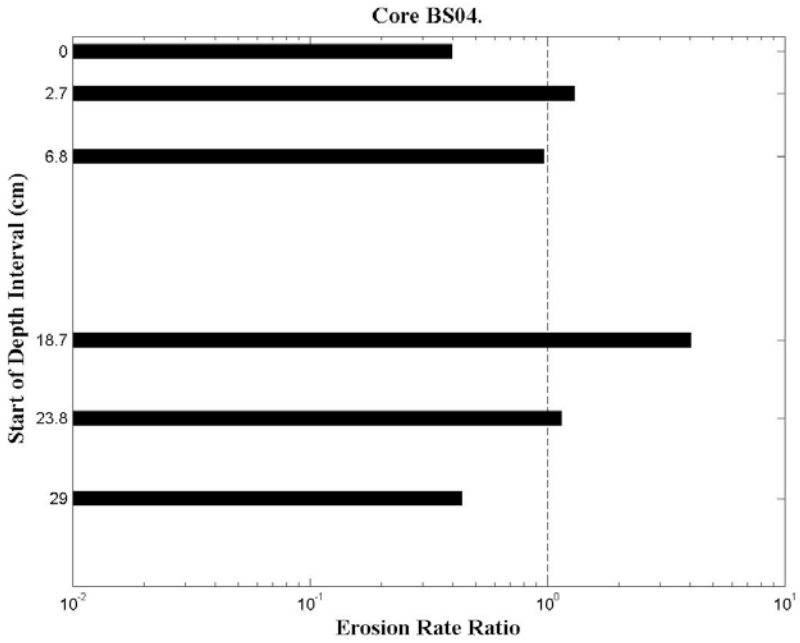

Figure 5. Intra-core erosion rate ratios for core BS04. The dashed line indicates conditions for the core's average erosion rate (i.e. erosion rate ratio equals 1).

Table 3 Power law best-fit variables for specified depth intervals in core BS04

Interval	Depth Start (cm)	Depth Finish (cm)	A	n	r^2
1	0	0.625	0.000739	1.7	0.98
2	2.7	5.8	0.001158	2.6	0.96
3	6.8	13.5	0.001069	2.4	0.94
4	18.7	20.75	0.00121	4.0	1.00
5	23.8	24.1	0.00039	3.8	1.00
6	29	33.65	0.00033	2.8	0.98

Table 4. Median particle size, bulk density, loss on ignition, and critical shear stress with depth for core BS04.

Depth (cm)	d_{50} (µm)	ρ_b (g/cm^3)	*LOI*	Power Law τ_{cr} (Pa)	τ_{no} (Pa)	τ_{first} (Pa)	τ_{crit} (Pa)
0.0	6.49	1.22	0.92	0.31	0.2	0.4	0.31
2.7	6.85	1.31	0.92	0.39	0.2	0.4	0.39
6.8	8.6	1.33	0.93	0.37	0.4	0.8	0.4
18.7	9.76	1.34	0.93	0.53	0.4	0.8	0.53
23.8	11.42	1.34	0.93	0.7	0.4	0.8	0.7
29	8.22	1.32	0.93	0.66	0.4	0.8	0.66
Mean	**8.56**	**1.31**	**0.93**	**0.49**	**0.33**	**0.67**	**0.5**

2.2 Core BN312

Core BN312 was collected in 3.96 m of water. The first 6 cm of the core comprised of mottled light and dark gray silt (roughly 1 to 3 cm in diameter patches) overlain by a low density tan-orange liquid/flocculation layer. Below 6 cm, the sediment was uniform and dark grey in color. Erosion was uneven and clumpy throughout most of the core.

A photograph of core BN312 is shown aligned vertically with the corresponding erosion rate data, presented in Figure 6. Shear stresses ranging between 0.1 and 6.4 Pa were applied to the core. The erosion rate data indicate that the core became slightly less erodible with depth (Figure 6). Erosion was often initiated at 0.8 Pa, characterized by slow, slight winnowing of particles less than 1 mm. Only at shear stresses of 3.2 Pa or greater, was enough sediment mobilized to erode more than a few millimeters (with exception of the first interval). The core consistently dissociated into large (>5mm) chunks at and applied shear stress of 6.4 Pa.

Median particle sizes remained relatively constant with depth, varying between 7.97 and 11.13 µm (fine silt) (Figure 7 and Table 6). Bulk density increased from 1.19 g/cm^3 at the surface to 1.36 g/cm^3 at 15.5 cm. It then decreased to 1.31 g/cm^3 at 18.6 cm, resulting in an overall bulk density of 1.30 g/cm^3. Predicted critical shear stresses increased throughout the core, averaging to 0.79 Pa.

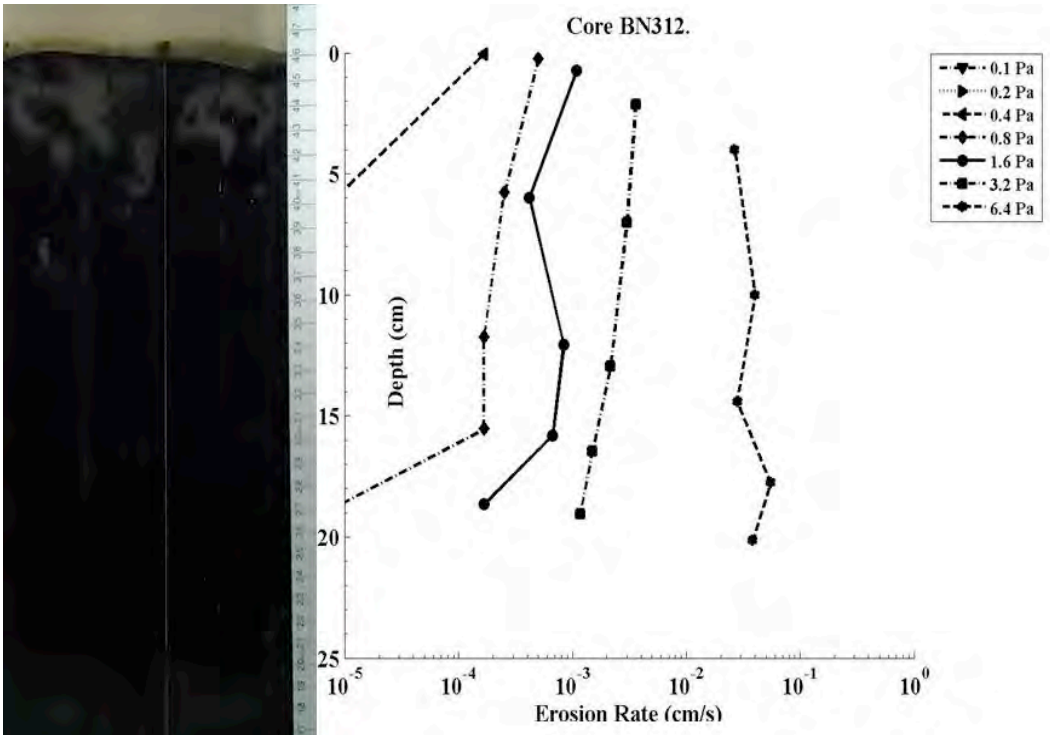

Figure 6 Photo of core BN312 aligned vertically with the corresponding erosion rates.

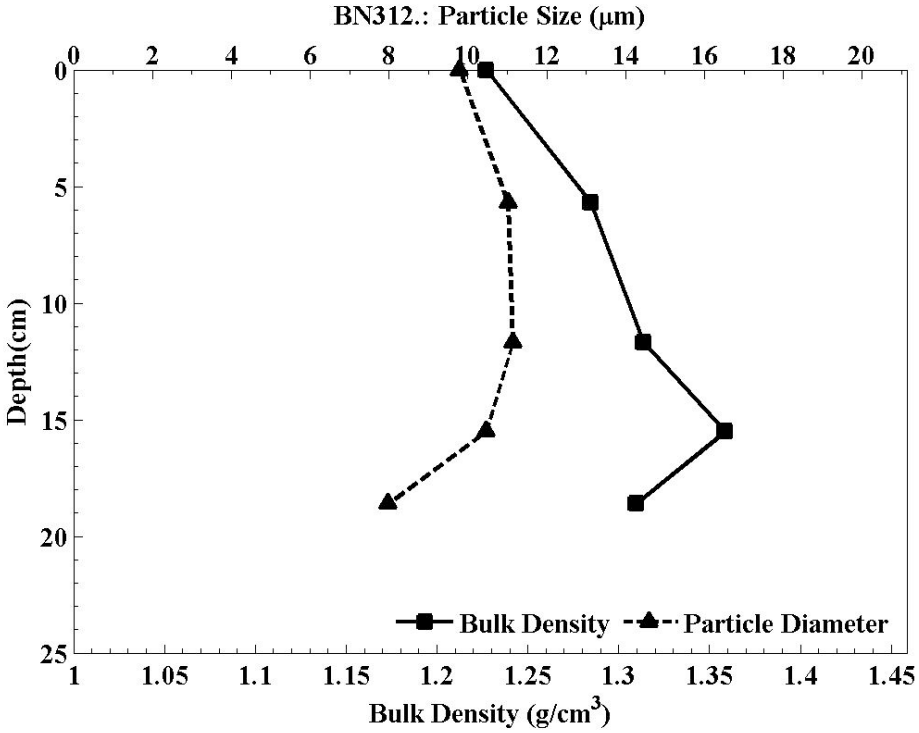

Figure 7. Bulk density and median particle size (d_{50}) with depth for core BN312.

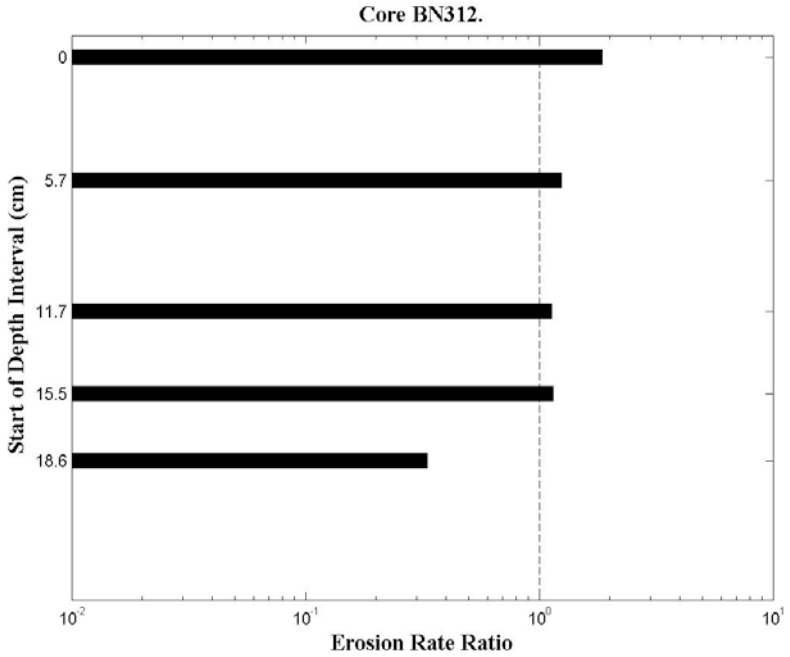

Figure 8. Intra-core erosion rate ratios for core BN312. The dashed line indicates conditions for the core's average erosion rate (i.e. erosion rate ratio equals 1).

Table 5 Power law best-fit variables for specified depth intervals in core BN312.

Interval	Depth Start (cm)	Depth Finish (cm)	A	n	r^2
1	0	4	0.000676	1.75	0.968
2	5.7	10	0.000248	2.48	0.930
3	11.7	14.4	0.000249	2.36	0.965
4	15.5	17.75	0.000204	2.63	0.902
5	18.6	20.15	2.03E-05	3.93	0.974

Table 6 Median particle size, bulk density, loss on ignition, and critical shear stress with depth for core BN312.

Depth (cm)	d_{50} (µm)	ρ_b (g/cm^3)	*LOI*	Power Law τ_{cr} (Pa)	τ_{no} (Pa)	τ_{first} (Pa)	τ_{crit} (Pa)
0	9.79	1.23	0.92	0.34	0.2	0.4	0.34
5.7	11.02	1.28	0.94	0.69	0.4	0.8	0.69
11.7	11.13	1.31	0.93	0.68	0.4	0.8	0.68
15.5	10.45	1.36	0.93	0.76	0.4	0.8	0.76
18.6	7.98	1.31	0.93	1.50	0.8	1.6	1.50
Mean	**10.07**	**1.30**	**0.93**	**0.79**	**0.44**	**0.88**	**0.79**

2.3 Core BN316

Core BN316 was collected in 6.19 m of water. As mentioned, BN316 had radiological analytes slightly above HPNS release criteria and was therefore disposed of through the Navy's on-site disposal contractor (Terranear PMC, LLC). The core contained dark gray silt with traces of sand. The sediment appeared soft on the surface. Because the core was discarded prior to Sedflume processing, no erosion rate or bulk density data was collected.

Section 3
Summary

Sea Engineering, Inc. conducted a Sedflume analysis on two sediment cores collected from HPNS, California. A third core (BN316) was initially collected but discarded due to slightly above HPNS radiological release criteria. The cores were collected in water depths ranging 3.96 and 6.25 m. The primary goal of this work was to characterize the erosion properties and physical characteristics of the site sediments. The cores were eroded to determine erosion rates as a function of shear stress and depth into core. In addition, cores were sub-sampled during the analysis to determine sediment bulk density, loss on ignition fraction and particle size distributions at specific depths within the core. Critical shear stresses were determined for five or six depth intervals in each core.

In general, the two cores exhibited characteristics expected of consolidated cohesive sediment. Erosion rates decreased with depth, likely the result of sediment compaction due to self-weight. The critical shear stress of the top interval of both BN312 and BS04 was near 0.3 Pa. With the exception of the first interval, erosion was often initiated by applying shear stresses above 0.4 Pa.

To better visualize the relative erodibility of the sediment at the location where cores were recovered, the ratio of the mean erosion rate of each core (core vertically averaged erosion rate) to the average mean erosion rate of both cores was calculated and plotted (Figure 9). The dashed line in Figure 9 denotes a site-wide average erosion rate ratio of 1.0. A ratio above this line generally means the core is more susceptible to erosion than those below. It is important to note that this does not take into account the hydrodynamic forces or sediment coarsening processes that are responsible for net in-situ transport. The erosion ratios presented in Figure 9 indicate the erosion potential of core BN312 is very similar to that of BS04. However, Sedflume results must be analyzed in conjunction with other system characteristics, such as hydrodynamic forcing, to assess overall site stability and sediment transport trends.

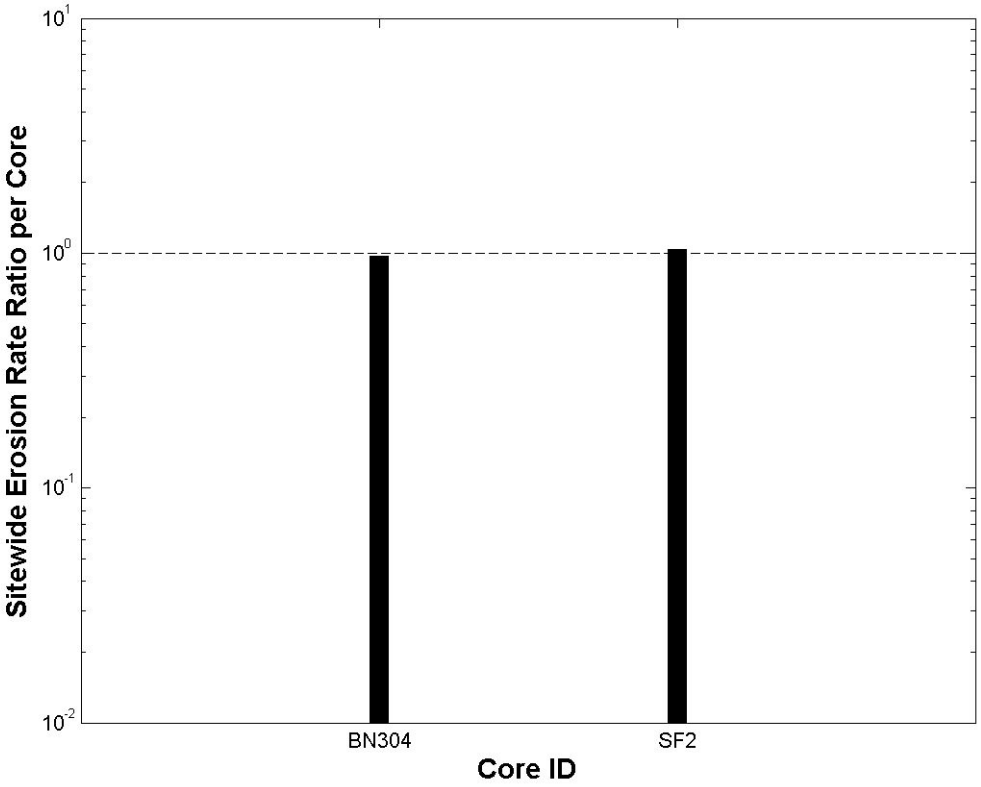

Figure 9. Inter-core erosion rate ratios. Depth-averaged core erosion rates compared to the site-wide average erosion rate.

Section 4
References

ASTM Standard, 2007, Annual Book of ASTM Standards. ASTM International, West Conshohocken, Pennsylvania, USA. Vol. 04.08 Soil and Rock (I): D 420 - D5611: 314-315

Hakanson, L., and M. Jansson, 2002, Principles of Lake Sedimentology. Blackburn Press, Caldwell, New Jersey, USA.

Jepsen, R., J. Roberts, and W. Lick, 1997, Effects of bulk density on sediment erosion rates, Water, Air and Soil Pollution, 99:21-31.

McNeil, J., C. Taylor, and W. Lick, 1996, Measurements of erosion of undisturbed bottom sediments with depth, J. Hydr. Engr., 122(6):316-324.

Roberts, J., R. Jepsen, D. Gotthard, and W. Lick, 1998, Effects of particle size and bulk density on erosion of quartz particles, J. Hydr. Engr., 124(12):1261 1267.

Appendix A – Particle Size Distributions

Beckman Coulter LS Particle Size Analyzer

15 May 2013

Hunters Point Sedflume

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	Sf1_2.$av
File ID:	SF1_2
Operator:	Niven
Comment 1:	Hunter's Point
Comment 2:	mixing, blending
Optical model:	garnet.rf780z
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Pump speed:	66
Fluid:	water

Average of 5 files:
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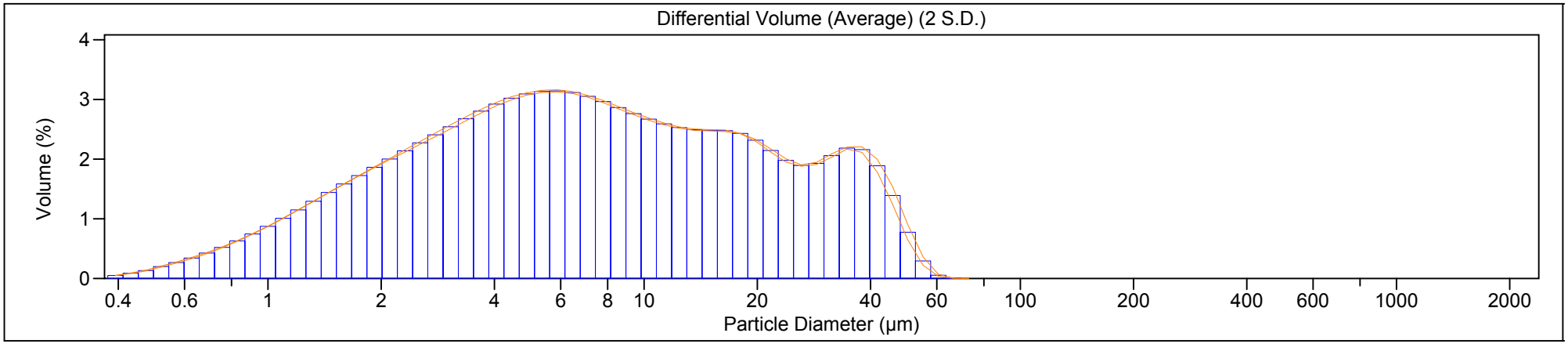
C:\LS13320\Projects\HuntersPoint_May2013\SF1_2__50.$ls
C:\LS13320\Projects\HuntersPoint_May2013\SF1_2__51.$ls

Volume Statistics (Arithmetic) Sf1_2.$av

Calculations from 0.375 µm to 2000 µm

Volume:	100%		
Mean:	11.70 µm	S.D.:	11.92 µm
Median:	6.845 µm	Variance:	142.1 µm^2
Mean/Median ratio:	1.709	C.V.:	102%
Mode:	5.878 µm	Skewness:	1.489 Right skewed
		Kurtosis:	1.498 Leptokurtic

<10%	<25%	<50%	<75%	<90%
1.598 µm	3.127 µm	6.845 µm	16.26 µm	31.23 µm



Beckman Coulter LS Particle Size Analyzer

15 May 2013

Hunters Point Sedflume

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Sf1_3.$av
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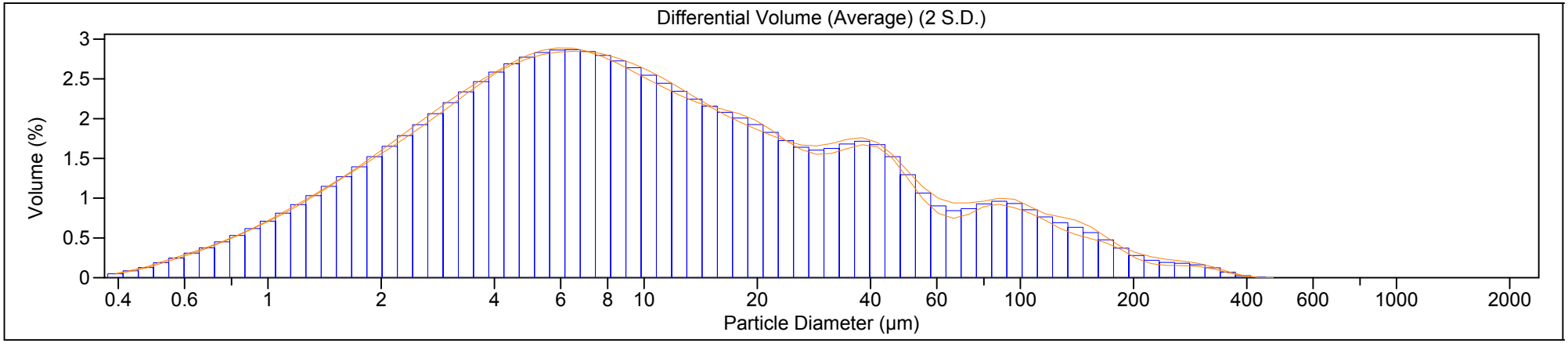
C:\LS13320\Projects\HuntersPoint_May2013\SF1_3__39.$ls

Volume Statistics (Arithmetic) Sf1_3.$av

Calculations from 0.375 µm to 2000 µm

Volume:	100%		
Mean:	24.37 µm	S.D.:	41.70 µm
Median:	8.597 µm	Variance:	1739 µm^2
Mean/Median ratio:	2.835	C.V.:	171%
Mode:	6.453 µm	Skewness:	3.637 Right skewed
		Kurtosis:	16.97 Leptokurtic

<10%	<25%	<50%	<75%	<90%
1.801 µm	3.694 µm	8.597 µm	24.79 µm	64.52 µm



Beckman Coulter LS Particle Size Analyzer

15 May 2013

Hunters Point Sedflume

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Sf1_4.$av
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Comment 1: Hunter's Point
Comment 2: mixing, blending
Optical model: garnet.rf780z
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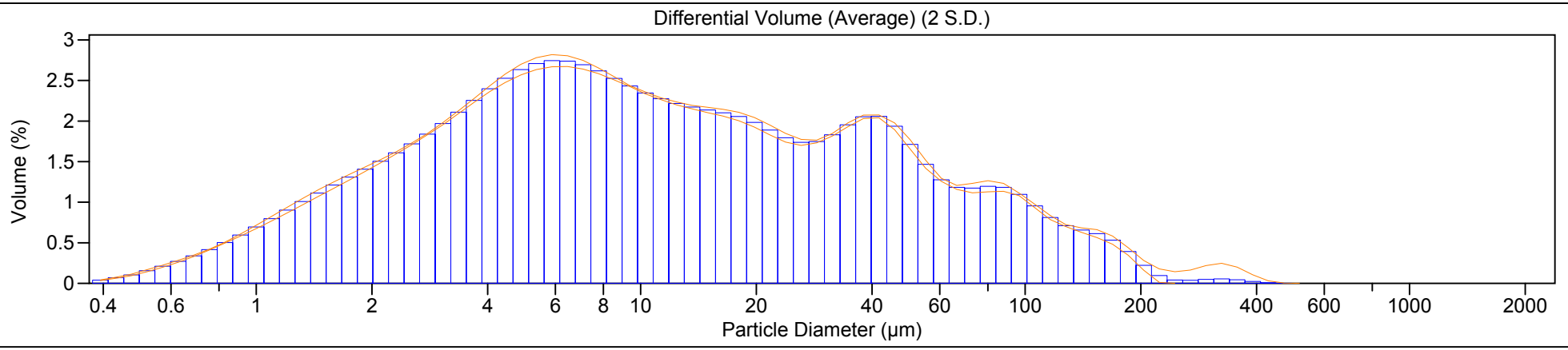
Volume Statistics (Arithmetic) Sf1_4.$av

Calculations from 0.375 µm to 2000 µm

Volume:	100%		
Mean:	25.22 µm	S.D.:	37.70 µm
Median:	9.757 µm	Variance:	1422 µm^2
Mean/Median ratio:	2.585	C.V.:	150%
Mode:	5.878 µm	Skewness:	3.155 Right skewed
		Kurtosis:	14.44 Leptokurtic

<10%	<25%	<50%	<75%	<90%
1.865 µm	3.997 µm	9.757 µm	30.66 µm	69.10 µm



Beckman Coulter LS Particle Size Analyzer

15 May 2013

Hunters Point Sedflume

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Sf1_5.$av
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Operator: Niven
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Comment 2: mixing, blending
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LS 13 320 SW Aqueous Liquid Module
Run length: 60 seconds
Pump speed: 66
Fluid: water
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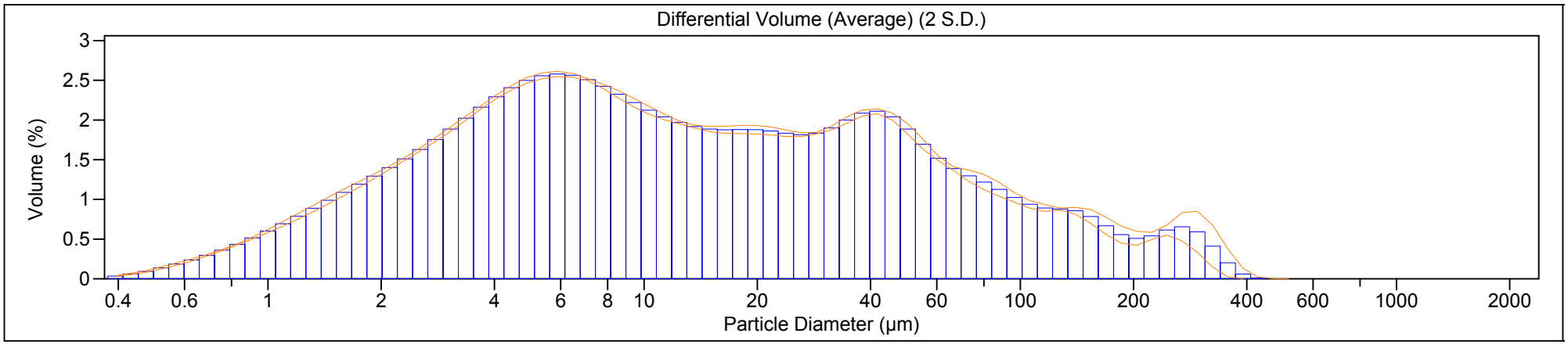
Volume Statistics (Arithmetic) Sf1_5.$av

Calculations from 0.375 µm to 2000 µm

Volume:	100%		
Mean:	34.96 µm	S.D.:	57.54 µm
Median:	11.42 µm	Variance:	3311 µm^2
Mean/Median ratio:	3.060	C.V.:	165%
Mode:	5.878 µm	Skewness:	2.995 Right skewed
		Kurtosis:	9.935 Leptokurtic

<10%	<25%	<50%	<75%	<90%
2.027 µm	4.320 µm	11.42 µm	38.88 µm	93.77 µm



Beckman Coulter LS Particle Size Analyzer

15 May 2013

Hunters Point Sedflume

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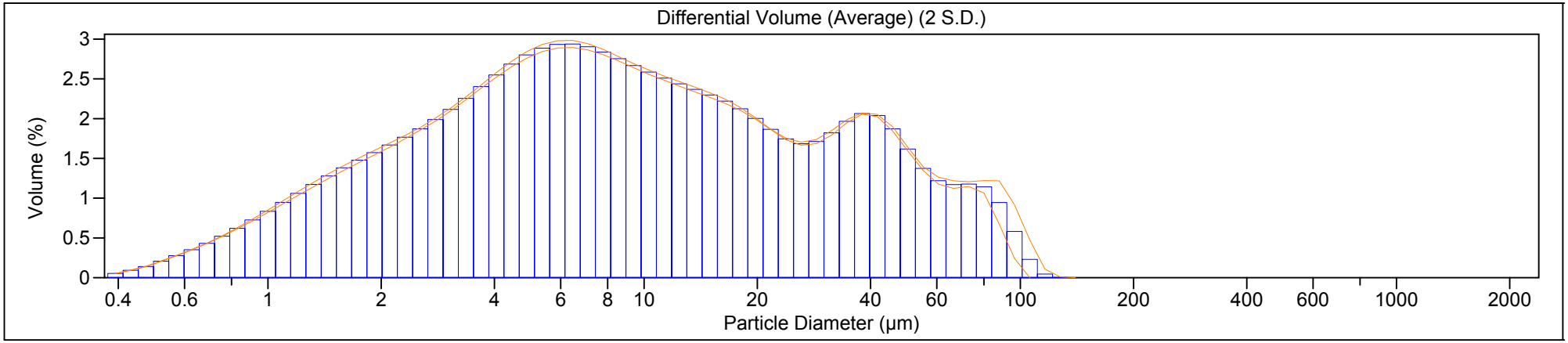
Volume Statistics (Arithmetic) Sf1_6.$av

Calculations from 0.375 µm to 2000 µm

Volume:	100%		
Mean:	17.07 µm	S.D.:	20.66 µm
Median:	8.217 µm	Variance:	426.9 µm^2
Mean/Median ratio:	2.077	C.V.:	121%
Mode:	6.453 µm	Skewness:	1.914 Right skewed
		Kurtosis:	3.385 Leptokurtic

<10%	<25%	<50%	<75%	<90%
1.658 µm	3.546 µm	8.217 µm	22.09 µm	46.82 µm



Beckman Coulter LS Particle Size Analyzer

15 May 2013

Hunters Point Sedflume

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Comment 2: mixing, blending
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Pump speed: 66
Fluid: water
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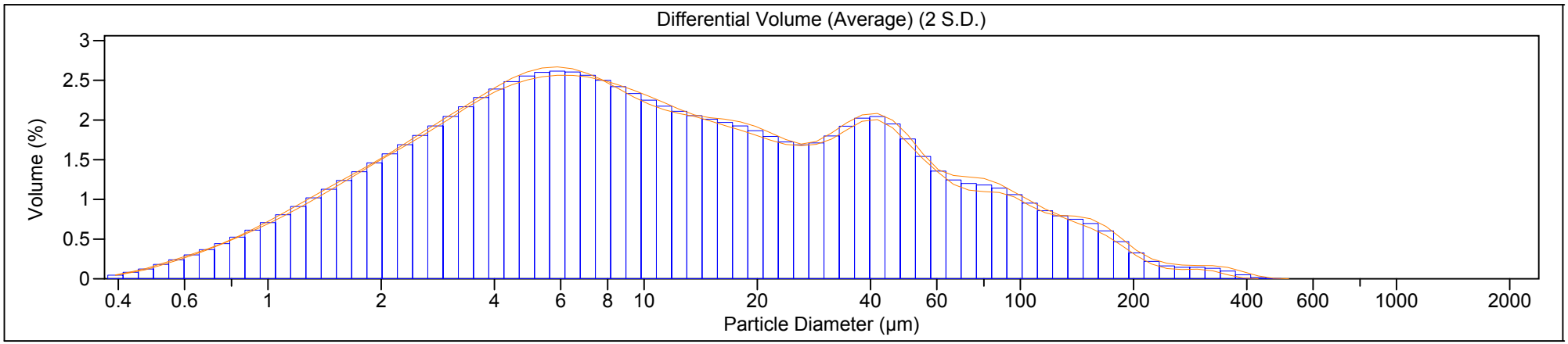
Volume Statistics (Arithmetic) Sf2_1.$av

Calculations from 0.375 µm to 2000 µm

Volume:	100%		
Mean:	27.65 µm	S.D.:	44.06 µm
Median:	9.787 µm	Variance:	1941 µm^2
Mean/Median ratio:	2.825	C.V.:	159%
Mode:	5.878 µm	Skewness:	3.356 Right skewed
		Kurtosis:	15.19 Leptokurtic

<10%	<25%	<50%	<75%	<90%
1.823 µm	3.860 µm	9.787 µm	32.75 µm	75.29 µm



Beckman Coulter LS Particle Size Analyzer

15 May 2013

Hunters Point Sedflume

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Comment 2: mixing, blending
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Pump speed: 66
Fluid: water
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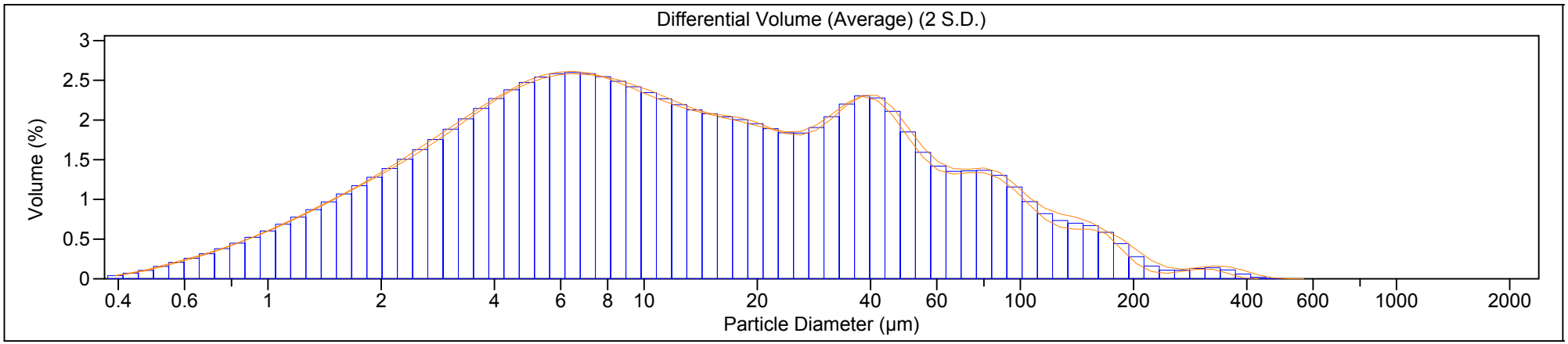
Volume Statistics (Arithmetic) Sf2_2.$av

Calculations from 0.375 µm to 2000 µm

Volume:	100%		
Mean:	28.31 µm	S.D.:	43.18 µm
Median:	11.02 µm	Variance:	1865 µm^2
Mean/Median ratio:	2.569	C.V.:	153%
Mode:	6.453 µm	Skewness:	3.421 Right skewed
		Kurtosis:	16.55 Leptokurtic

<10%	<25%	<50%	<75%	<90%
2.020 µm	4.324 µm	11.02 µm	34.97 µm	75.77 µm



Beckman Coulter LS Particle Size Analyzer

15 May 2013

Hunters Point Sedflume

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File ID:	SF2_3
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Comment 2:	mixing, blending
Optical model:	garnet.rf780z
LS 13 320 SW	Aqueous Liquid Module
Run length:	60 seconds
Pump speed:	66
Fluid:	water

Average of 3 files:
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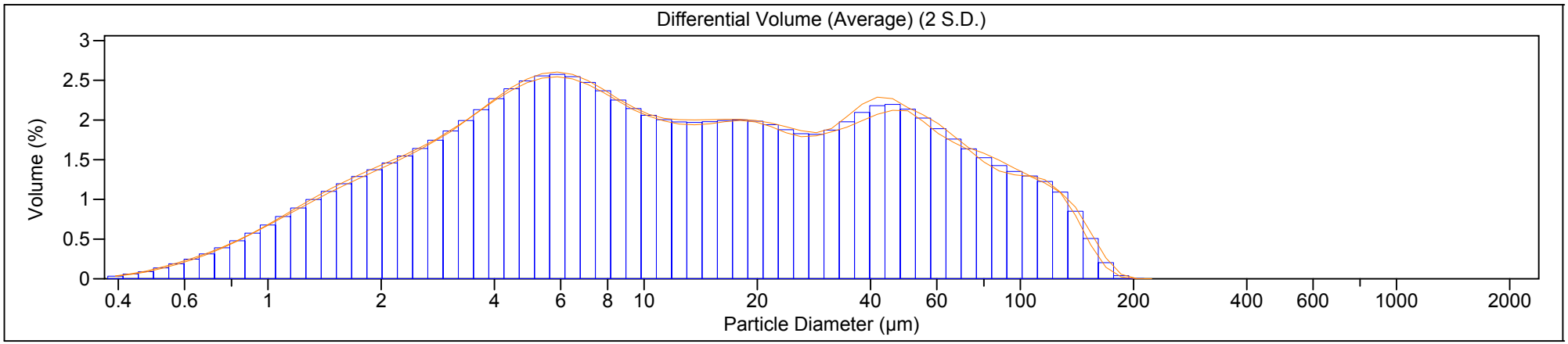
Volume Statistics (Arithmetic) Sf2_3.$av

Calculations from 0.375 µm to 2000 µm

Volume:	100%		
Mean:	26.27 µm	S.D.:	33.06 µm
Median:	11.13 µm	Variance:	1093 µm^2
Mean/Median ratio:	2.360	C.V.:	126%
Mode:	5.878 µm	Skewness:	1.858 Right skewed
		Kurtosis:	3.145 Leptokurtic

<10%	<25%	<50%	<75%	<90%
1.903 µm	4.162 µm	11.13 µm	36.98 µm	74.43 µm



Beckman Coulter LS Particle Size Analyzer

15 May 2013

Hunters Point Sedflume

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Sf2_4.$av
File ID: SF2_4
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Comment 2: mixing, blending, sonicate
Optical model: garnet.rf780z
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Fluid: water
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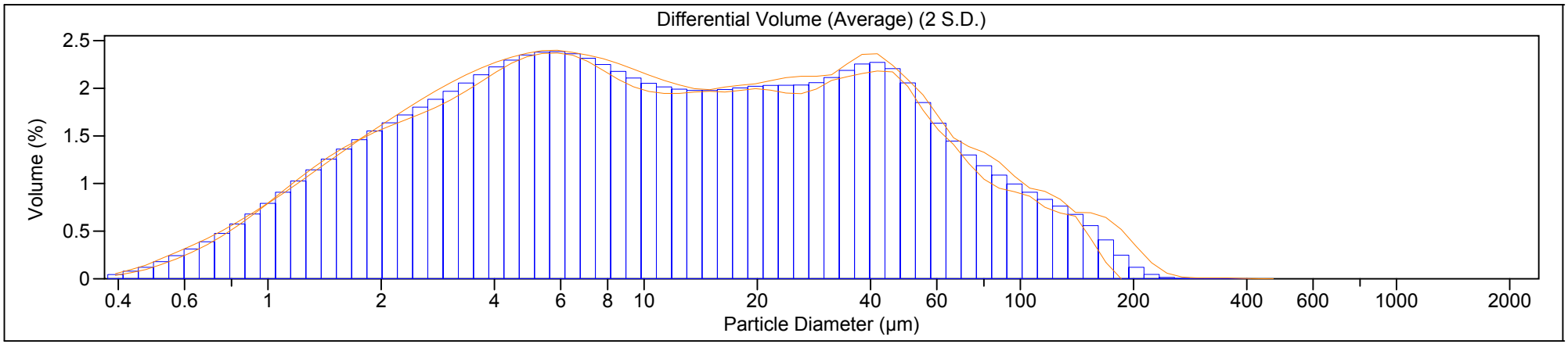
C:\LS13320\Projects\HuntersPoint\SF2_4__12.$ls

Volume Statistics (Arithmetic) Sf2_4.$av

Calculations from 0.375 µm to 2000 µm

Volume:	100%		
Mean:	24.70 µm	S.D.:	33.24 µm
Median:	10.45 µm	Variance:	1105 µm^2
Mean/Median ratio:	2.364	C.V.:	135%
Mode:	5.878 µm	Skewness:	2.386 Right skewed
		Kurtosis:	6.815 Leptokurtic

<10%	<25%	<50%	<75%	<90%
1.715 µm	3.733 µm	10.45 µm	33.10 µm	66.00 µm



Beckman Coulter LS Particle Size Analyzer

15 May 2013

Hunters Point Sedflume

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Sf2_5.$av
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Comment 2: mixing, blending
Optical model: garnet.rf780z
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Pump speed: 66
Fluid: water
Average of 3 files:
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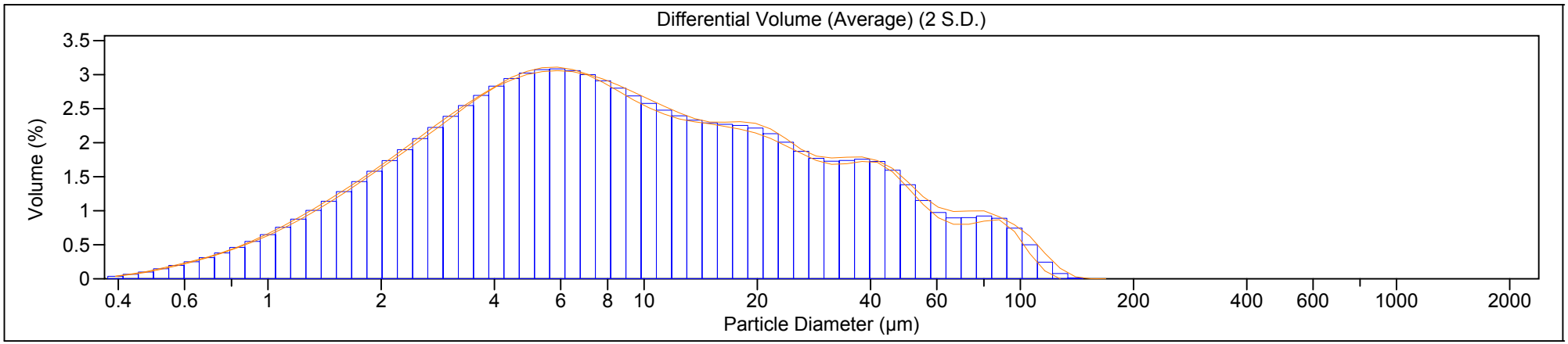
C:\LS13320\Projects\HuntersPoint_May2013\SF2_5__32.$ls
C:\LS13320\Projects\HuntersPoint_May2013\SF2_5__33.$ls

Volume Statistics (Arithmetic) Sf2_5.$av

Calculations from 0.375 µm to 2000 µm

Volume:	100%		
Mean:	16.72 µm	S.D.:	21.11 µm
Median:	7.978 µm	Variance:	445.6 µm^2
Mean/Median ratio:	2.096	C.V.:	126%
Mode:	5.878 µm	Skewness:	2.248 Right skewed
		Kurtosis:	5.298 Leptokurtic

<10%	<25%	<50%	<75%	<90%
1.873 µm	3.639 µm	7.978 µm	20.73 µm	44.44 µm



Appendix D2
AGE DATING REPORT

Age Dating Report for Radiological Data Gap Investigation Phase 2b at Parcel F, Hunters Point Naval Shipyard, San Francisco, California

Prepared by:

SAIC

221 Third Street
Newport, RI 02840

1. INTRODUCTION

Geochronology cores for sediment age dating were collected from two locations in Parcel F during the Phase 2b investigation (BN312-GC and BS04-GC). Radiological analysis was performed on the age dating samples only for lead-210 (Pb-210) and cesium-137 (Cs-137), because these isotopes are relatively common in San Francisco Bay sediments and exhibit half-lives that can be used to determine sediment age over years or decades. The Phase 2b geochronology cores from locations BN312-GC and BS04-GC were each approximately 120 cm long, and were segmented into 15, 2-centimeter increments for subsampling. As a result, 30 total age dating sediment samples were sent to TestAmerica, Inc., for radiological and bulk density analysis. The analytical radiological results then were sent to Core Scientific, Inc., for age dating analysis. Core Scientific provided preliminary age dating results to ITSI Gilbane and SAIC. SAIC then evaluated these results to develop the Phase 2b age dating report provided herein.

The locations of the two Phase 2b geochronology cores are shown on Figure 1 below. The two geochronology cores evaluated for Parcel F during the Phase 2a investigation (Battelle and Sea Engineering, Inc., 2013) also are shown on Figure 1. This age dating report only discusses the results of the Phase 2b samples.

Figure 1. Parcel F Geochronology Core Locations

2. BACKGROUND

Age dating results presented in the Parcel F Feasibility Study indicated the core depth to reach sediments deposited prior to 1945 would be less than 3 feet in the South Basin and adjacent to Point Avisadero. Therefore, geochronology cores were collected to a minimum depth of 3.5 feet in the Berths North and Berths South areas.

3. METHODS

The Phase 2b sediment age dating analysis was performed in accordance with the *Final Work Plan for Radiological Data Gap Investigation at Parcel F, Hunters Point Naval Shipyard, San Francisco Bay, California* (Battelle et al., 2011). Sediment dating normally is conducted using Pb-210 and augmented by Cs-137, isotopes relatively common in sediments that can be used to determine age over years or decades. This type of dating relies on two simplifying assumptions to support the requirement of a constant Pb-210 flux into the sediments: (1) that the sediments have a relatively uniform grain size distribution with depth, and (2) that the sediments have a relatively constant historical deposition rate. To the extent possible, these conditions are confirmed visually during the initial inspection of the sediment cores and through examination of particle size distribution, moisture content, and Pb-210 vertical concentration profiles in

the cores. The depth and degree of vertical mixing of surface and subsurface sediments through physical and biological processes is further characterized using radioisotope profile data generated from the test samples and existing information on the composition and abundance of benthic fauna. If the two sediment flux conditions are met and the sediments have no compaction or bioturbation, the Pb-210 concentrations at different depths and accumulation obey the following equation:

$$A = A_o e^{-\lambda x/S}$$

where

A is the activity of excess Pb-210 at depth x,
Ao is the activity at the sediment-water interface,
λ is the decay constant for Pb-210 (0.0311 y-1) and
S is the sediment accumulation rate in centimeters per year (cm/y).

4. RESULTS

Core segments were analyzed for age dating using the elements Pb-210 and Cs-137 as well as bulk density. The original lab data for the age dating samples are shown in Table 1.

Table 1. Phase 2b Sediment Age Dating Sample Analytical Results

Sample ID	Upper Depth (cm)	Lower Depth (cm)	Cs-137 (dpm/g)	Uncertainty	Pb-210 (dpm/g)	Uncertainty	Bulk Density (g/cc)
BN312-GC1	0	2	0.241	+-0.090	3.22	+-0.66	0.702
BN312-GC2	8	10	0.222	+-0.077	3.24	+-0.70	0.633
BN312-GC3	16	18	0.984	+-0.16	3.89	+-0.76	0.646
BN312-GC4	22	24	0.201	+-0.087	2.81	+-0.68	0.693
BN312-GC5	28	30	0.284	+-0.080	3.64	+-0.68	0.727
BN312-GC6	34	36	1.10	+-0.17	2.94	+-0.67	0.669
BN312-GC7	40	42	0.218	+-0.072	2.64	+-0.66	0.697
BN312-GC8	46	48	0.266	+-0.076	3.34	+-0.78	0.703
BN312-GC9	52	54	0.244	+-0.079	2.94	+-0.64	0.741
BN312-GC10	58	60	0.270	+-0.085	3.04	+-0.67	0.704
BN312-GC11	68	70	0.235	+-0.076	3.58	+-0.63	0.638
BN312-GC12	80	82	0.249	+-0.090	3.91	+-0.77	0.643
BN312-GC13	92	94	0.169	+-0.073	2.87	+-0.62	0.687
BN312-GC14	104	106	0.312	+-0.093	3.18	+-0.68	0.602
BN312-GC15	118	120	0.267	+-0.076	3.66	+-0.74	0.638
BS04-GC1	0	2	0.202	+- 0.062	2.87	+-0.68	0.880
BS04-GC2	8	10	0.0976	+-0.074	2.80	+-0.59	0.650
BS04-GC3	16	18	2.41	+-0.34	3.68	+-0.70	0.568
BS04-GC4	22	24	0.186	+-0.068	2.67	+-0.67	0.884
BS04-GC5	28	30	0.126	+-0.049	2.72	+-0.63	0.988
BS04-GC6	34	36	0.169	+-0.065	2.07	+-0.61	0.687
BS04-GC7	40	42	0.152	+-0.12	1.67	+-0.55	0.669

Sample ID	Upper Depth (cm)	Lower Depth (cm)	Cs-137 (dpm/g)	Uncertainty	Pb-210 (dpm/g)	Uncertainty	Bulk Density (g/cc)
BS04-GC8	46	48	2.97	+-0.38	2.91	+-0.63	0.639
BS04-GC9	52	54	2.20	+-0.30	2.93	+-0.65	0.576
BS04-GC10	58	60	0.285	+-0.089	2.84	+-0.66	0.691
BS04-GC11	68	70	1.10	+-0.16	2.57	+-0.66	0.623
BS04-GC12	80	82	0.352	+-0.094	3.82	+-0.79	0.554
BS04-GC13	92	94	0.271	+-0.085	1.58	+-0.54	1.21
BS04-GC14	104	106	0.251	+-0.077	1.76	+-0.59	1.41
BS04-GC15	118	120	0.266	+-0.090	1.71	+-0.57	0.732

Notes:
cm = centimeter
dpm/g = disintegrations per minute per gram
g/cc = grams per cubic centimeter

5. DISCUSSION

Observations. The Pb-210 and Cs-137 measurement data for the Phase 2b age dating samples are plotted with depth on Figure 2 and Figure 3, respectively.

The plot of Pb-210 concentrations with depth (Figure 2) indicates that for core BN312-GC there is no exponential drop in Pb-210 activity as a function of depth. Trend analysis for this plot did not exhibit an R^2 value approaching 1.0, which would have indicated a strong relationship between the sampling results and sampling depth. As a result, core BN312-GC was considered unsuitable for age dating analysis using regression.

In contrast, the plot for core BS04-GC shows two apparent Pb-210 peaks, each with an approximately exponential drop in Pb-210 activity as a function of depth. When three exponential curves are plotted to represent hypothetical sediment accumulation rates of 5, 2, and 1.1 cm/y, the short 1.1 cm/y curve fits one peak in the BS04 profile identified from 18 to 40 cm depth.

The plot of Cs-137 concentrations with depth (Figure 3) indicates that there are three peaks for the core BS04-GC core and two for core BN312-GC, thus suggesting different sediment sources.

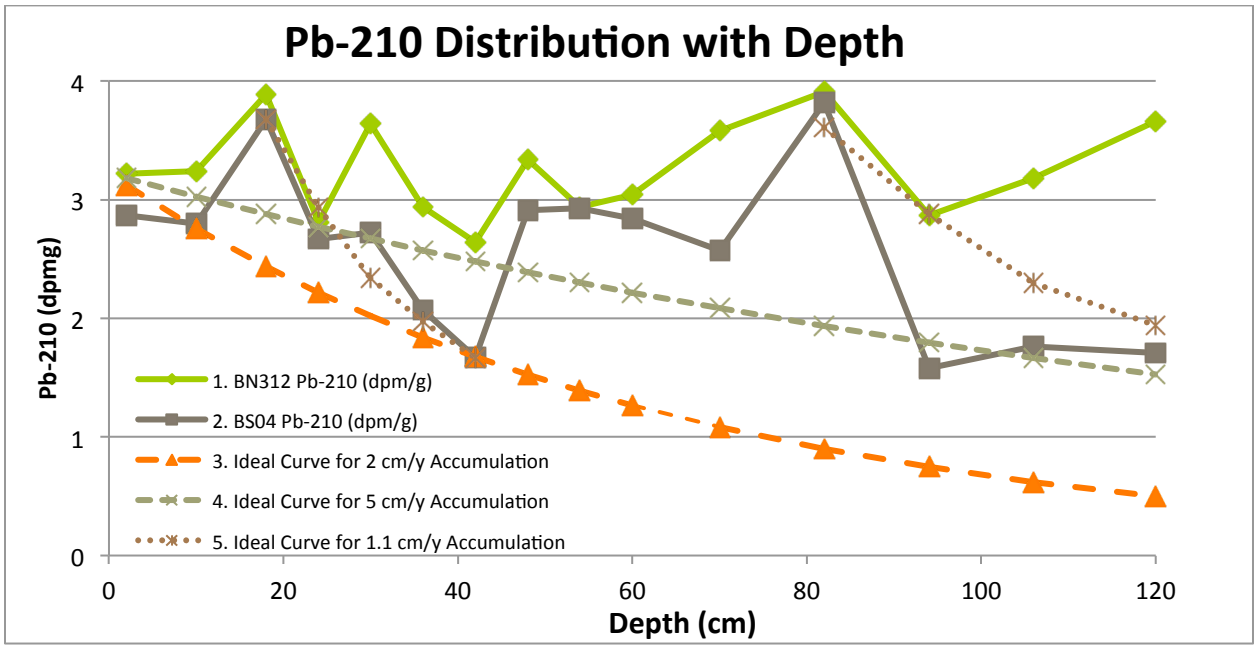


Figure 2. Pb-210 Results Versus Depth for the Phase 2b Age Dating Samples

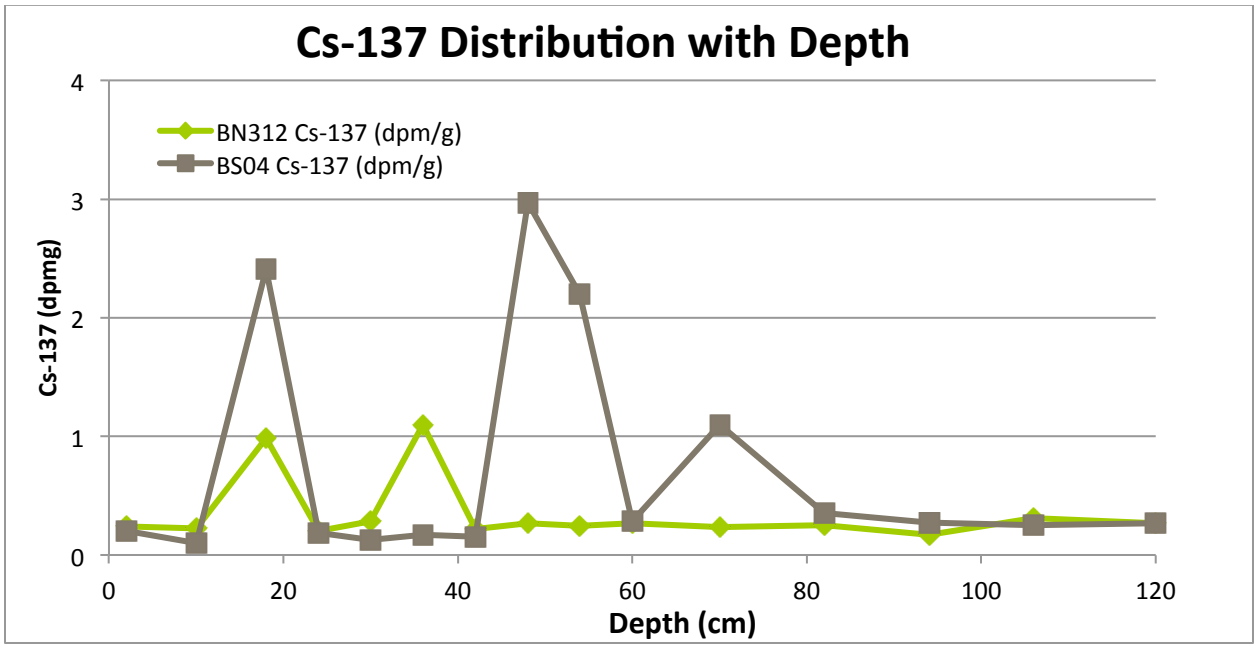


Figure 3. Cs-137 Results Versus Depth for the Phase 2b Age Dating Samples

Analysis. Concentrations of Pb-210 in core BN312-GC were found to be essentially constant over the entire 120-cm depth (i.e., there was no indication of a decreasing trend with depth). This relatively constant profile could have been caused by mixing of the surface sediment or removal of a previous surface layer by a process such as dredging or scour. Consequently, no quantitative chronology interpretation could be made for core BN312-GC

The presence of two Pb-210 peaks in core BS04-GC also suggests similar mixing or removal of sediments, but since these peaks decrease with depth, a quantitative chronology interpretation could be made for each peak in core BS04-GC. The double Pb-210 peaks in core BS04-GC prevented quantitative age dating for the whole column using standard regression. However, quantitative interpretation was possible using the associated Cs-137 data. Cs-137 is present in fallout from historic atmospheric nuclear tests and first appeared in sediment cores around 1952. In an undisturbed sediment core, Cs-137 concentration levels will reflect Cs-137 production during the period of atmospheric nuclear testing, with an initial appearance (i.e., horizon) in approximately 1952, peaks in the early 1960s, and a decrease in the early 1970s after atmospheric testing was halted (USGS, 1998). Since all samples in core BS04-GC contain Cs-137, all the sediments appear to have been deposited after 1952, which gives a lower bound accumulation rate of 120/(2013-1952) or about 2 cm/y.

6. CONCLUSION

The relatively constant Pb-210 profile in core BN312-GC and double peaks in core BS04-GC made the sediment samples not suitable for age dating using a typical regression. However, since all samples contain Cs-137, all the sediments should have been deposited after 1952 or have mixed with sediments after that year, which means the sediment accumulation rate is at least 2 cm/year. Extensive mixing and dredging that may have occurred at Parcel F are both capable of producing the results observed in the Phase 2b radiation profiles for the age dating cores.

7. REFERENCES

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Appendix E
QUALITY CONTROL SUMMARY REPORT

PARCEL F PHASE 2B DATA GAP INVESTIGATION
HUNTERS POINT NAVAL SHIPYARD

Quality Control Summary Report

Contract No. N62473-11-D-2227

Task Order No. 0002

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May 2013

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LIST OF ATTACHMENTS

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LIST OF ACRONYMS AND ABBREVIATIONS

ALS	ALS Environmental (formerly Columbia Analytical Services)
CCV	continuing calibration verification
COC	chain of custody
DAR	Daily Activity Report
DER	differential error ratio
DGI	Data Gap Investigation
DoD	Department of Defense
DOE	Department of Energy
DQI	data quality indicator
DVR	data validation report
eDMS	electronic data management system
EMAC	Environmental Multiple Award Contract
EPA	U.S. Environmental Protection Agency
HPNS	Hunters Point Naval Shipyard
ICV	initial calibration verification
ITSI Gilbane	ITSI Gilbane Company
LCS/LCSD	laboratory control sample/laboratory control sample duplicate
LIMS	laboratory information management system
MDA	minimum detectable activity
MDL	method detection limit
mL	milliliter
MS/MSD	matrix spike/matrix spike duplicate
NAVFAC	Naval Facilities Engineering Command
PARCC	precision, accuracy, representativeness, completeness, comparability
QA	quality assurance
QC	quality control
QCSR	Quality Control Summary Report
RER	relative error ratio
RPD	relative percent difference
RL	reporting limit
ROC	radionuclide of concern
SAP	Sampling and Analysis Plan
SDG	sample delivery group
Validata	Validata Chemical Services

1.0 INTRODUCTION

ITSI Gilbane Company (ITSI Gilbane) has prepared this Quality Control Summary Report (QCSR) for sampling activities conducted during the Phase 2b Data Gap Investigation (DGI) to address the data gaps that exist for quantifying the nature and extent of radioactive contamination within offshore sediments at Parcel F, Hunters Point Naval Shipyard, San Francisco, California. The Phase 2b DGI was performed under the Naval Facilities Engineering Command (NAVFAC) Southwest Indefinite Delivery/Indefinite Quantity, Environmental Multiple Award Contract (EMAC) N62473-11-D-2227, Task Order 0002, in support of radiological investigations at Parcel F.

This QCSR is provided to document the overall quality of the data used for project decisions. Sampling procedures and overall quality assurance and quality control (QA/QC) protocols for the project are presented in the *Final Amendment to Revised Final Sampling and Analysis Plan for Radiological Data Gap Investigation, Hunters Point Naval Shipyard, San Francisco, California* (ITSI Gilbane, 2012). Data usability is established and documented for the collection efforts of the Phase 2b DGI sampling event.

2.0 ANALYTICAL PROGRAM

TestAmerica St. Louis of Earth City, Missouri, was selected as the primary analytical laboratory. ALS Environmental (formerly Columbia Analytical Services) analyzed the total organic carbon, under subcontract to TestAmerica St Louis. TestAmerica Richland of Richland, Washington, analyzed the tissue and geochronology samples. Table 2-1 presents a list of samples, the parameters for which they were tested, and the laboratories that tested them. All three laboratories hold a current U.S. Department of Defense (DoD) Environmental Laboratory Accreditation Certification and a California National Environmental Laboratory Accreditation Certification to perform the listed analyses.

Sample analyses were conducted in accordance with the requirements specified in the following guidance documents.

- *Prescribed Procedures for Measurement of Radioactivity in Drinking Water*, EPA-600/4-80-032 (EPA, 2008).
- *HASL-300, Environmental Measurements Laboratory Procedures Manual*, 28th Edition (Department of Energy, 1997).
- *Final Amendment to Revised Final Sampling and Analysis Plan for Radiological Data Gap Investigation, Hunters Point Naval Shipyard, San Francisco, California* (SAP; ITSI Gilbane, 2012).

An independent third-party validation company, Validata Chemical Services (Validata) of Duluth, Georgia, performed a manual U.S. Environmental Protection Agency (EPA) Level III review on approximately 80 percent of the Phase 2b DGI data, and an EPA Level IV data validation on the remaining 20 percent of the results, according to the procedures specified in the SAP. To prepare for Validata's review, the ITSI Gilbane Project Chemist entered work order information into the ITSI Gilbane electronic data management system (eDMS). Upon completion, the laboratory electronic data deliverables were uploaded directly by TestAmerica St. Louis to eDMS. The eDMS is configured to perform a consistency check between the laboratory data and the requested work order information. Any discrepancies (e.g., non-matching sample identifiers) were resolved prior to approval of the work order or sample delivery group (SDG). Table 2-1 provides a list of SDGs and the level at which they were validated. Validata applied the qualifiers resulting from the reviews directly to the results in the

database. A summary of qualifiers and reason codes for the project is provided at the end of Table 2-2.

Data quality indicators (DQIs) and validation procedures are specified on Worksheets 35 through 37 of the SAP. The following analytical QC summaries were evaluated and used as the basis for qualifying data.

- Sample receipt, preparation, and holding times.
- Initial calibration verification (ICV).
- Continuing calibration verification (CCV).
- Method blank contamination.
- Background levels.
- Field blank contamination.
- Laboratory control sample (LCS) recovery.
- Matrix spike/matrix spike duplicate (MS/MSD) accuracy and precision.
- Instrument performance – Level IV.
- Tracer/carrier recovery.
- Sample duplicate precision.
- Analyte identification and quantitation.
- Calculation/transcription verification – Level IV.

A Level III data validation report (DVR) was produced for 20 of 27 of the SDG data packages received from the laboratory for environmental samples. A Level IV DVR was produced for the balance (7 of 27) of the SDG data packages. This represents 119 of the 590 total samples collected, or 20.2 percent receiving Level IV validation, satisfying the project requirement of 20 percent. DVRs are included in Attachment A. Laboratory reports are included in Attachment B.

2.1 QUALIFIED RESULTS

The final electronic data deliverable contains the following validation data qualifiers (with descriptors as appropriate) applied as appropriate to the data for the Phase 2b DGI:

- "J" indicates that the analyte/isotope was positively identified; the quantitation is an estimate.

- For chemical data, "U" indicates that the analyte was not detected above the reporting limit (RL). For radiological data, "U" indicates that the isotope was not considered detected. The associated number is the reported concentration.
- For chemical data, "UJ" indicates that the compound was not detected; the quantitation limit is an estimate. For radiological data, "UJ" indicates that the isotope is considered not detected. The associated number is the reported concentration, which may be inaccurate or imprecise.
- "R" indicates that the result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.

A qualifier or descriptor may be applied to a result for more than one reason. For example, a result from an analysis that exceeded the allowed holding time and is qualified as "J" may also be qualified due to an identified problem with the instrument calibration. A summary of qualified results and associated reason codes is presented in Table 2-2. The following subsections discuss the quality of the data and reasons for qualification.

2.1.1 Estimated Results

Out of 11,774 total results (from primary samples and equipment blanks) reported for the investigation, 432 results were qualified by the validator for specific reasons and 21 results were qualified for multiple reasons. Twelve results were qualified due to accuracy anomalies associated with low or high matrix spike, lab control spike, or carrier recoveries. Seventy results were qualified due to precision anomalies associated with laboratory replicate recoveries. Sixty-nine results were qualified due to blank anomalies.

2.1.2 Rejected Results

Out of 11,774 total results reported for the investigation, 23 strontium-90 results were rejected due to laboratory anomalies. The isotope activities in the samples were negative by an absolute value greater than three times the total propagated uncertainty, indicating a severe negative bias. Due to the short half-life of the carrier used in the analysis (yttrium-90), no recount was possible and the laboratory reported the data with narration. The data that were rejected are summarized in Table 2-3.

2.2 SAMPLE RECEIPT, PREPARATION, AND HOLDING TIMES

All samples were analyzed within the specified holding times. All gamma results (34) for sample BN229-1 and SB218-4 were qualified as estimated (J or UJ) due to insufficient volume being supplied to fill the laboratory tuna can geometry. The lab used a 100-milliliter (mL) geometry container with a standard density of 1. Due to the density difference of the standard and the sample, the results are potentially biased low.

2.3 CALIBRATION

The initial and continuing calibration summaries were evaluated. There were no qualifications due to calibration anomalies.

2.4 LABORATORY BLANK CONTAMINATION

Method and calibration blanks were analyzed for each method as applicable to measure laboratory contamination. Four primary radionuclides of concern (ROCs) were analyzed by the laboratory for gamma spectroscopy and were assigned SAP RLs. These isotopes included cobalt-60, cesium-137, radium-226, and uranium-235. Method detection limits and blank criteria were evaluated by the validator using SAP-specified RLs. In addition, the SAP required analyses of 13 secondary radionuclides: actinium-228, americium-241, bismuth-212, bismuth-214, europium-152, europium-154, potassium-40, protactinium-234, lead-210, lead-212, lead-214, thallium-208, and thorium-234. The SAP did not assign RLs to the 13 secondary radionuclides. Sample method detection limits were evaluated by the validator using professional judgment. Method blanks were evaluated statistically (using Z-BLANK and Z-DER [differential error ratio] scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results. Sixty-nine results were qualified as estimated (J or UJ) due to method blank activity exceeding the SAP RLs or exceeding the Z-BLANK score and less than the Z-DER score. The identified low-level blank contamination is not sufficient to affect the data usability.

Twenty results were qualified as estimated (J or UJ) due to a strontium-90 activity that was negative by an absolute value between two and three times the total propagated uncertainty, indicating a potential low bias to associated sample results. All other blank criteria were met, and the samples collected appear representative of the project site.

2.5 INSTRUMENT BACKGROUND (RADIOCHEMISTRY ONLY)

Instrument background count rate is determined for each detector for each region of interest and subtracted from the sample count rate. The frequency of background checks was evaluated. Daily background checks were evaluated against laboratory control limits. Out of 11,774 total sample results, no results were qualified due to background level anomalies.

2.6 LABORATORY CONTROL SAMPLE

LCSs are synthetic samples spiked with the compounds of concern and prepared and analyzed in the same procedure as primary project samples. LCSs are analyzed at the frequency specified in the methods. LCSs are used to further monitor the analytical process and provide a measurement of accuracy. LCSs were reported for each method, with the exception of particle size and bulk density. Out of 11,774 total sample results, 6 non-detect results for radium-226 and one non-detect result for total strontium were qualified due to LCS recovery anomalies.

2.7 LABORATORY SAMPLE DUPLICATES

Laboratory sample duplicates are project samples prepared and analyzed twice with the same procedure as primary project samples. Laboratory sample duplicates are used to monitor precision. In the absence of an MSD, the sample duplicate is prepared at a frequency of one in 20 primary project samples, representing a 5 percent frequency. Out of 11,774 total sample results, 70 results were qualified due to sample duplicate precision anomalies. The qualified results are presented in Table 2-2.

2.8 MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

MS/MSDs are project samples spiked with the compounds of concern and prepared and analyzed in the same procedure as primary project samples to monitor the analytical process. Twenty-five project MS/MSD pairs were reported for the 537 Phase 2b DGI primary project samples to which MS/MSDs apply (4.7%). (MS/MSDs do not apply to analyses such as bulk density or particle size). The SAP goal of one project MS/MSD pair for 20 primary project samples represents a 5 percent frequency. Historical samples without sufficient volume for MS/MSDs were added to the overall sample count; this contributed to the low percentage achieved.

Out of a total of 11,774 total results reported for the Phase 2b DGI, 2 plutonium-239 results were qualified as estimated (J) for MS/MSD anomalies.

2.9 INSTRUMENT PERFORMANCE

Instrument performance criteria were reviewed. Due to a laboratory information management system (LIMS) failure, as described in the case narrative for SDG 160-1293-1, electronic uploads of sample weights for strontium-90 were lost for batch number 31940. Samples were analyzed by the laboratory at a sample aliquot estimate of 1 gram. Typically, sample sizes have varied approximately 1% higher than the nominal 1 gram, based on other aliquots from the site analyzed by the laboratory. Nineteen sample results were qualified as estimated (J or UJ) due to the loss of exact information on sample size. These results are usable as qualified.

2.10 TRACERS AND CARRIERS

Tracers and carriers are control compounds used to monitor the analytical process as specified in EPA and Department of Energy (DOE) methodology. Tracers and carriers were reported for all methods as applicable. Out of 11,774 total results reported, three strontium-90 results were qualified for carrier anomalies. No results were qualified for tracer issues. No data were rejected based on carrier or tracer recoveries.

2.11 ANALYTE IDENTIFICATION AND QUANTITATION

The radionuclides of concern (ROCs) for the Parcel F Phase 2b DGI are radium-226, cesium-137, cobalt-60, uranium-235, strontium-90, and plutonium-239. There were 224 results for which the RL was above SAP Project MDLs/MDAs. These results were qualified as estimated (J or UJ). Since the Intertidal and Subtidal Project Action Limits for the ROCs are above the Project MDAs, there is no effect on data usability.

Samples with isotope activities that were negative by an absolute value between two and three times the total propagated uncertainty, indicating a negative bias, were qualified as estimated (UJ). Six strontium-90 results were qualified for this issue. The data are useable as qualified. Samples with isotope activities that were negative by an absolute value greater than three times the total propagated uncertainty, indicating a severe negative bias, were rejected, as previously discussed in Section 2.1.2. Twenty-three strontium-90 results were rejected for this issue. Rejected data are not useable for project decisions.

3.0 FIELD PROCEDURES

Samples were collected from December 18, 2012, through February 13, 2013. A Daily Activity Report (DAR) was prepared daily to document field activities. The DARs have been provided in the Phase 2b DGI Technical Memorandum, to which this QCSR is an appendix.

3.1 SAMPLE SHIPMENT AND STORAGE

As samples were collected in the field they were placed in coolers. Coolers were scanned for radiological release before being relinquished to FedEx for shipment to the laboratory under proper chain of custody (COC). Tissue and geochronology samples were sent directly to TestAmerica Richland. All other samples were sent to TestAmerica St. Louis. The first set of samples was received by the laboratory on December 19, 2012, and the last set on February 14, 2013.

Cooling of radiological and geophysical samples is not required. Upon receipt by the laboratory, samples were entered into the laboratory's data system. No results were qualified due to improper sample shipment or storage for this sampling event.

3.2 FIELD DUPLICATES

Field duplicates were not collected for this event due to the inherent variability of solid matrices.

3.3 EQUIPMENT BLANKS

Equipment blanks were collected at a frequency of one per day for sediments. Sample results were evaluated against analytes present in equipment blanks to determine potential impacts on sample results. ROCs were evaluated against the RLs provided in the SAP, and secondary isotopes were evaluated using a statistical analysis based on Z-BLANK and Z-DER scores. Table 3-1 presents a summary of the detections in the equipment blanks and affected samples. No sample results were adversely affected by equipment blank detections.

3.4 SOURCE BLANKS

One source blank was collected to evaluate water used for decontamination of the equipment. The source blank did not contain radionuclides at concentrations greater than the RLs.

3.5 FIELD DEVIATIONS OR CORRECTIVE ACTIONS

The scope of work for field activities detailed three step-out samples centered on each of ten locations sampled during the Parcel F Phase 1 DGI at which the on-site laboratory results indicated exceedances. At the Base Closure Team's request, these ten primary samples were to be retrieved from archive and reanalyzed by TestAmerica St. Louis to confirm the exceedances before step-out samples were collected. Eight samples had enough volume for reanalysis and were analyzed for gamma spectroscopy by EPA 901.1, for strontium-90 by EPA 905.0, and for U-235 by HASL-300. The results for the samples were below project action limits; therefore, the following step-out samples were cancelled and are designated as "NS*" in Table 2-1:

- Step-outs for SA01 – SA423, SA424, SA425
- Step-outs for BN01 – BN319, BN320, BN321
- Step-outs for BS12 – BS131, BS132, BS133
- Step-outs for SB04 – SB220, SB221, SB222
- Step-outs for SB05 – SB223, SB224, SB225
- Step-outs for SB06 – SB226, SB227, SB228
- Step-outs for SB07 – SB229, SB230, SB231
- Step-outs for SB10 – SB235, SB236, SB237

The step-outs for the two samples for which there was insufficient volume for reanalysis of historical samples were collected as planned.

The following locations in Berths North were not sampled due to the presence of concrete at the bottom of Dry Dock 4: BN221, BN222, BN223, BN224, BN225, BN226, BN227, BN228, BN229, and BN230. The planned samples corresponding to each location are designated as "NS[1]" in the Lab Sample ID column of Table 2-1. Samples designated as "NS" in Table 2-1 generally were not sampled due to drilling refusal.

The SAP states that Core Scientific International (Core Scientific) will analyze the geochronology samples. However, Core Scientific is not properly licensed to handle the samples. In addition, the SAP requires only lead-210 and cesium-137 determinations for the samples, but dry weight bulk density data is required for interpretation with modeling and plotting. The samples were analyzed by TestAmerica Richland using the SAP parameters with the addition of bulk density by ASTM D2937M (a SAP analysis). The results were directed to Core Scientific for interpretation with modeling and plotting. This change to the SAP was documented in Field Change Request 07225.0002.0002 (ITSI Gilbane, 2013), presented in Attachment C.

There were no corrective actions for this project.

4.0 CONCLUSIONS AND DATA USABILITY

The analytical methods used for this project were selected to provide quality data sufficient to meet DQIs and project sensitivity requirements. DQIs were reviewed in terms of the PARCC parameters: precision, accuracy, representativeness, completeness, and comparability. The PARCC parameters are discussed in the subsection below.

4.1 QUALITY CONTROL SAMPLES

Field QC samples for this project included 21 equipment blanks and one source blank sample. The equipment blanks were collected at a frequency of one per day of sediment sample collection. Laboratory QC included precision and accuracy in the form of MS/MSD pairs, LCSs, sample duplicates, tracers, and carriers analyzed at the frequencies outlined in the methods listed in Table 2-1.

Precision: Precision is a measure of the repeatability of a single measurement. The precision of the dataset was assessed by the relative percent difference (RPD) or the relative error ratio (RER) between duplicate samples (e.g., spike duplicate samples, or sample duplicates). Out of 430 results qualified as estimated (J, UJ), 70 were qualified due to laboratory sample RPD or RER values exceeding quality control criteria. The estimated results remain useable with qualification.

Accuracy: Accuracy is a measure of recovery of the actual concentration of a compound. The accuracy of the dataset was assessed by the tracer, carrier, ICV, CCV, MS/MSD, and LCS percent recoveries. Out of 430 results qualified as estimated (J, UJ), 12 results were qualified due to accuracy anomalies in LCS, MS, and carrier recoveries.

Representativeness: Representativeness expresses the degree to which sample data accurately and precisely represent the characteristics of a population, variations in a parameter at a sampling point, or an environmental condition that they are intended to represent. Representativeness is assessed qualitatively by evaluating whether the procedures described in the SAP were followed (Section 3.5). Representativeness is ensured through consistent application of the appropriate established field and laboratory procedures. Holding time, sample preparation, preservation, and

blank results affect the representativeness of a sample. Thirty-four gamma spectroscopy results were qualified due to sample preparation issues. Sixty-nine results were qualified for blank anomalies.

Comparability: The analytical methods used for analysis affect the comparability of the dataset. The methods used in the project are all standard, peer-reviewed methods as determined by the SAP. The specific methods are presented in Table 2-1. The analytical methods used provided units of measure and detection limits similar to past Parcel F Radiological DGI data.

Completeness: The completeness of the dataset is determined by the amount of acceptable results after data review. The results from the primary project samples were used in the calculation to determine the completeness of the data. Out of 11,394 primary sample results, 430 (3.7 percent) were qualified as estimated or not detected and can be used with qualification. Out of 11,394 primary results, 23 results were rejected due to field or laboratory anomalies. Therefore, the completeness of this data set is 99.8 percent, which meets the SAP goal of 95 percent for this project.

4.2 FINAL CONCLUSION

The data generated in support of the project meet the project DQIs. Overall, as shown in the attached validation reports, there were minor quality control deficiencies affecting the data. The data that were qualified as estimated or not detected are of acceptable quality, and should be considered usable for their intended purposes. The rejected data, while not useable, are a very small percentage of the total data and thus are of minimal impact to the project.

5.0 REFERENCES

DOE, 1997. *HASL-300, Environmental Measurements Laboratory Procedures Manual*, 28th Edition.

EPA, 2008. *Prescribed Procedures for Measurement of Radioactivity in Drinking Water,* EPA-600/4-80-032.

ITSI Gilbane, 2012. *Final Amendment to Revised Final Sampling and Analysis Plan for Radiological Data Gap Investigation, Hunters Point Naval Shipyard, San Francisco, California.* December.

TABLES

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*						
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*						
							Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Sample Delivery Group/ Lab Sample ID*	EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu	Validation Level	Comments
							TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR		
SA410	SA410-1	ROC Core (Former Piers Area)	1/29/13	1140	7305	160-1358-38	1	1	1														3	
SA410	SA410-2	ROC Core (Former Piers Area)	1/29/13	1141	7305	160-1358-39	1	1	1														3	
SA410	SA410-3	ROC Core (Former Piers Area)	1/29/13	1142	7306	160-1358-40	1	1	1														3	
SA410	SA410-4	ROC Core (Former Piers Area)	1/29/13	1143	7306	160-1358-41	1	1	1														3	
SA411	SA411-1	ROC Core (Former Piers Area)	1/29/13	853	7305	160-1358-30	1	1	1														3	
SA411	SA411-2	ROC Core (Former Piers Area)	1/29/13	854	7305	160-1358-31	1	1	1														3	
SA411	SA411-3	ROC Core (Former Piers Area)	1/29/13	855	7305	160-1358-32	1	1	1														3	
SA411	SA411-4	ROC Core (Former Piers Area)	1/29/13	856	7305	160-1358-33	1	1	1														3	
SA412	SA412-1	ROC Core (Former Piers Area)	1/29/13	930	7305	160-1358-34	1	1	1														3	
SA412	SA412-2	ROC Core (Former Piers Area)	1/29/13	931	7305	160-1358-35	1	1	1														3	
SA412	SA412-3	ROC Core (Former Piers Area)	1/29/13	932	7305	160-1358-36	1	1	1														3	
SA412	SA412-4	ROC Core (Former Piers Area)	1/29/13	933	7305	160-1358-37	1	1	1														3	
SA413	SA413-1	ROC Core (Former Piers Area)	1/30/13	1100	7265	160-1378-8	1	1	1														3	
SA413	SA413-2	ROC Core (Former Piers Area)	1/30/13	1101	7265	160-1378-9	1	1	1														3	
SA413	SA413-3	ROC Core (Former Piers Area)	1/30/13	1102	7266	160-1378-10	1	1	1														3	
SA413	SA413-4	ROC Core (Former Piers Area)	1/30/13	1103	7266	160-1378-11	1	1	1														3	
SA414	SA414-1	ROC Core (Former Piers Area)	1/30/13	945	7265	160-1378-4	1	1	1	1	1	1											3	MS/MSD (TOC & Geochron & ROC)
SA414	SA414-2	ROC Core (Former Piers Area)	1/30/13	946	7265	160-1378-5	1	1	1	1	1	1											3	
SA414	SA414-3	ROC Core (Former Piers Area)	1/30/13	947	7265	160-1378-6	1	1	1	1	1	1											3	
SA414	SA414-4	ROC Core (Former Piers Area)	1/30/13	948	7265	160-1378-7	1	1	1	1	1	1											3	
SA415	SA415-1	ROC Core (Former Piers Area)				NS	1	1	1															
SA415	SA415-2	ROC Core (Former Piers Area)				NS	1	1	1															
SA415	SA415-3	ROC Core (Former Piers Area)				NS	1	1	1															
SA415	SA415-4	ROC Core (Former Piers Area)	1/30/13	920	7265	160-1378-3	1	1	1														3	
SA416	SA416-1	ROC Core (Former Piers Area)				NS	1	1	1															
SA416	SA416-2	ROC Core (Former Piers Area)	1/30/13	1155	7266	160-1378-16	1	1	1														3	
SA416	SA416-3	ROC Core (Former Piers Area)	1/30/13	1156	7266	160-1378-17	1	1	1														3	
SA416	SA416-4	ROC Core (Former Piers Area)	1/30/13	1157	7266	160-1378-18	1	1	1														3	
SA417	SA417-1	ROC Core (Former Piers Area)				NS	1	1	1															
SA417	SA417-2	ROC Core (Former Piers Area)				NS	1	1	1															
SA417	SA417-3	ROC Core (Former Piers Area)	1/30/13	842	7265	160-1378-1	1	1	1														3	
SA417	SA417-4	ROC Core (Former Piers Area)	1/30/13	843	7265	160-1378-2	1	1	1														3	
SA418	SA418-1	ROC Core (Former Piers Area)	1/30/13	1141	7266	160-1378-12	1	1	1														3	
SA418	SA418-2	ROC Core (Former Piers Area)	1/30/13	1142	7266	160-1378-13	1	1	1														3	
SA418	SA418-3	ROC Core (Former Piers Area)	1/30/13	1143	7266	160-1378-14	1	1	1														3	
SA418	SA418-4	ROC Core (Former Piers Area)	1/30/13	1144	7266	160-1378-15	1	1	1														3	
SA419	SA419-1	ROC Core (Former Piers Area)				NS	1	1	1															
SA419	SA419-2	ROC Core (Former Piers Area)	1/30/13	1300	7266	160-1378-19	1	1	1														3	
SA419	SA419-3	ROC Core (Former Piers Area)	1/30/13	1301	7267	160-1378-20	1	1	1														3	
SA419	SA419-4	ROC Core (Former Piers Area)	1/30/13	1302	7267	160-1378-21	1	1	1														3	
SA420	SA420-1	ROC Core (Step-out centered on SA05)	1/30/13	1345	7267	160-1378-22	1	1	1														3	
SA420	SA420-2	ROC Core (Step-out centered on SA05)	1/30/13	1346	7267	160-1378-23	1	1	1														3	
SA420	SA420-3	ROC Core (Step-out centered on SA05)	1/30/13	1347	7267	160-1378-24	1	1	1														3	
SA420	SA420-4	ROC Core (Step-out centered on SA05)	1/30/13	1348	7267	160-1378-25	1	1	1														3	
SA421	SA421-1	ROC Core (Step-out centered on SA05)	1/30/13	1450	7268	160-1378-30	1	1	1														3	
SA421	SA421-2	ROC Core (Step-out centered on SA05)	1/30/13	1451	7268	160-1378-31	1	1	1														3	
SA421	SA421-3	ROC Core (Step-out centered on SA05)	1/30/13	1452	7268	160-1378-32	1	1	1														3	
SA421	SA421-4	ROC Core (Step-out centered on SA05)	1/30/13	1453	7268	160-1378-33	1	1	1														3	
SA422	SA422-1	ROC Core (Step-out centered on SA05)	1/31/13	850	7270	160-1423-1	1	1	1	1	1	1											4	
SA422	SA422-2	ROC Core (Step-out centered on SA05)	1/31/13	851	7270	160-1423-2	1	1	1	1	1	1											4	
SA422	SA422-3	ROC Core (Step-out centered on SA05)	1/31/13	852	7270	160-1423-3	1	1	1	1	1	1											4	
SA422	SA422-4	ROC Core (Step-out centered on SA05)	1/31/13	853	7270	160-1423-4	1	1	1	1	1	1											4	
SA423	SA423-1	ROC Core (Step-out centered on SA01)				NS*	1	1	1															
SA423	SA423-2	ROC Core (Step-out centered on SA01)				NS*	1	1	1															
SA423	SA423-3	ROC Core (Step-out centered on SA01)				NS*	1	1	1															
SA423	SA423-4	ROC Core (Step-out centered on SA01)				NS*	1	1	1															
SA424	SA424-1	ROC Core (Step-out centered on SA01)				NS*	1	1	1															
SA424	SA424-2	ROC Core (Step-out centered on SA01)				NS*	1	1	1															
SA424	SA424-3	ROC Core (Step-out centered on SA01)				NS*	1	1	1															
SA424	SA424-4	ROC Core (Step-out centered on SA01)				NS*	1	1	1															
SA425	SA425-1	ROC Core (Step-out centered on SA01)				NS*	1	1	1	1	1	1												
SA425	SA425-2	ROC Core (Step-out centered on SA01)				NS*	1	1	1	1	1	1												
SA425	SA425-3	ROC Core (Step-out centered on SA01)				NS*	1	1	1	1	1	1												
SA425	SA425-4	ROC Core (Step-out centered on SA01)				NS*	1	1	1	1	1	1												
SA426	SA426-1		1/30/13	1423	7267	160-1378-26	1	1	1														3	
SA426	SA426-2		1/30/13	1424	7267	160-1378-27	1	1	1														3	
SA426	SA426-3		1/30/13	1425	7267	160-1378-28	1	1	1														3	
SA426	SA426-4		1/30/13	1426	7267	160-1378-29	1	1	1														3	
BN11A	BN11A-1TS	*Macoma nasuta*	2/5/13	1505	7307	160-1496-7																	3	Lab to composite
BN11A	BN11A-2TS	*Macoma nasuta*	2/5/13	1520	7307	160-1496-8												1	1	1	1	1	3	Lab to composite
BN11A	BN11A-3TS	*Macoma nasuta*	2/5/13	1540	7307	160-1496-9																	3	Lab to composite
BN11A	BN11A-VV	*Macoma nasuta - sediment (van veen)*	1/3/13	1425	7208	160-1231-7	1	1	1														3	
BN101	BN101-1	ROC Core (Confirmatory)	1/16/13	1012	7228	160-1293-9	1	1	1														3	
BN101	BN101-2	ROC Core (Confirmatory)	1/16/13	1013	7228	160-1293-10	1	1	1														3	
BN101	BN101-3	ROC Core (Confirmatory)	1/16/13	1014	7229	160-1293-11	1	1	1														3	
BN101	BN101-4	ROC Core (Confirmatory)	1/16/13	1015	7229	160-1293-12	1	1	1														3	MS/MSD
BN102	BN102-1	ROC Core (Confirmatory)	1/15/13	1432	7227	160-1284-22	1	1	1														3	
BN102	BN102-2	ROC Core (Confirmatory)	1/15/13	1433	7227	160-1284-23	1	1	1														3	
BN102	BN102-3	ROC Core (Confirmatory)	1/15/13	1434	7227	160-1284-24	1	1	1														3	
BN102	BN102-4	ROC Core (Confirmatory)	1/15/13	1435	7227	160-1284-25	1	1	1														3	

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*							
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*							
						Sample Delivery Group/	Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Lab Sample ID*	EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu	Validation Level	Comments
							TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR		
BN103	BN103-1	ROC Core (Confirmatory)				NS	1	1	1															
BN103	BN103-2	ROC Core (Confirmatory)				NS	1	1	1															
BN103	BN103-3	ROC Core (Confirmatory)	1/15/13	1253	7226	160-1284-20	1	1	1														3	
BN103	BN103-4	ROC Core (Confirmatory)	1/15/13	1340	7227	160-1284-21	1	1	1														3	
BN104	BN104-1	ROC Core (Confirmatory)	1/10/13	900	7219	160-1267-1	1	1	1														4	
BN104	BN104-2	ROC Core (Confirmatory)	1/10/13	901	7219	160-1267-2	1	1	1														4	
BN104	BN104-3	ROC Core (Confirmatory)	1/10/13	902	7219	160-1267-3	1	1	1														4	
BN104	BN104-4	ROC Core (Confirmatory)	1/10/13	903	7219	160-1267-4	1	1	1														4	
BN105	BN105-1	ROC Core (Confirmatory)	1/10/13	953	7219	160-1267-5	1	1	1														4	MS/MSD
BN105	BN105-2	ROC Core (Confirmatory)	1/10/13	954	7219	160-1267-6	1	1	1														4	
BN105	BN105-3	ROC Core (Confirmatory)	1/10/13	955	7219	160-1267-7	1	1	1														4	
BN105	BN105-4	ROC Core (Confirmatory)	1/10/13	956	7219	160-1267-8	1	1	1														4	
BN106	BN106-1	ROC Core (Confirmatory)				NS	1	1	1	1	1	1												
BN106	BN106-2	ROC Core (Confirmatory)	1/10/13	1030		160-1267-9	1	1	1	1	1	1											4	
BN106	BN106-3	ROC Core (Confirmatory)	1/10/13	1031		160-1267-10	1	1	1	1	1	1											4	
BN106	BN106-4	ROC Core (Confirmatory)	1/10/13	1032		160-1267-11	1	1	1	1	1	1											4	
BN107	BN107-1	ROC Core (Confirmatory)	1/15/13	903	7225	160-1284-1	1	1	1														3	
BN107	BN107-2	ROC Core (Confirmatory)	1/15/13	904	7225	160-1284-2	1	1	1														3	
BN107	BN107-3	ROC Core (Confirmatory)	1/15/13	905	7225	160-1284-3	1	1	1														3	
BN107	BN107-4	ROC Core (Confirmatory)	1/15/13	906	7225	160-1284-4	1	1	1														3	
BN108	BN108-1	ROC Core (Confirmatory)	1/14/13	1500	7224	160-1277-21	1	1	1														3	
BN108	BN108-2	ROC Core (Confirmatory)				NS	1	1	1															
BN108	BN108-3	ROC Core (Confirmatory)				NS	1	1	1															
BN108	BN108-4	ROC Core (Confirmatory)				NS	1	1	1															
BN109	BN109-1	ROC Core (Confirmatory)	1/15/13	940	7225	160-1284-5	1	1	1														3	
BN109	BN109-2	ROC Core (Confirmatory)	1/15/13	941	7225	160-1284-6	1	1	1														3	
BN109	BN109-3	ROC Core (Confirmatory)	1/15/13	942	7225	160-1284-7	1	1	1														3	
BN109	BN109-4	ROC Core (Confirmatory)	1/15/13	943	7225	160-1284-8	1	1	1														3	
BN110	BN110-1	ROC Core (Confirmatory)				NS	1	1	1															
BN110	BN110-2	ROC Core (Confirmatory)	1/15/13	1110	7226	160-1284-13	1	1	1														3	MS/MSD
BN110	BN110-3	ROC Core (Confirmatory)	1/15/13	1111	7226	160-1284-14	1	1	1														3	
BN110	BN110-4	ROC Core (Confirmatory)	1/15/13	1112	7226	160-1284-15	1	1	1														3	
BN111	BN111-1	**ADCP,** ROC Core (Confirmatory)	1/15/13	1020	7225	160-1284-9	1	1	1														3	
BN111	BN111-2	**ADCP,** ROC Core (Confirmatory)	1/15/13	1021	7225	160-1284-10	1	1	1														3	
BN111	BN111-3	**ADCP,** ROC Core (Confirmatory)	1/15/13	1022	7226	160-1284-11	1	1	1														3	
BN111	BN111-4	**ADCP,** ROC Core (Confirmatory)	1/15/13	1023	7226	160-1284-12	1	1	1														3	
BN201	BN201-1	ROC Core (AOC)	2/4/13	1330	7275	160-1466-12	1	1	1	1	1	1											3	
BN201	BN201-2	ROC Core (AOC)	2/4/13	1330	7275	160-1466-13	1	1	1	1	1	1											3	
BN201	BN201-3	ROC Core (AOC)	2/4/13	1330	7275	160-1466-14	1	1	1	1	1	1											3	
BN201	BN201-4	ROC Core (AOC)	2/4/13	1330	7275	160-1466-15	1	1	1	1	1	1											3	
BN202	BN202-1	ROC Core (AOC)	2/4/13	1440	7275	160-1466-16	1	1	1														3	
BN202	BN202-2	ROC Core (AOC)	2/4/13	1441	7275	160-1466-17	1	1	1														3	
BN202	BN202-3	ROC Core (AOC)	2/4/13	1442	7275	160-1466-18	1	1	1														3	
BN202	BN202-4	ROC Core (AOC)	2/4/13	1443	7275	160-1466-19	1	1	1														3	
BN203	BN203-1	ROC Core (AOC)				NS	1	1	1															
BN203	BN203-2	ROC Core (AOC)	1/9/13	1432	7213	160-1250-19	1	1	1														3	MS/MSD
BN203	BN203-3	ROC Core (AOC)	1/9/13	1434	7213	160-1250-20	1	1	1														3	
BN203	BN203-4	ROC Core (AOC)	1/9/13	1436	7213	160-1250-21	1	1	1														3	
BN204	BN204-1	ROC Core (AOC)	1/9/13	1411	7214	160-1250-22	1	1	1														3	
BN204	BN204-2	ROC Core (AOC)	1/9/13	1413	7214	160-1250-23	1	1	1														3	
BN204	BN204-3	ROC Core (AOC)	1/9/13	1415	7214	160-1250-24	1	1	1														3	
BN204	BN204-4	ROC Core (AOC)	1/9/13	1417	7214	160-1250-25	1	1	1														3	
BN205	BN205-1	ROC Core (AOC)	1/9/13	1325	7213	160-1250-15	1	1	1														3	
BN205	BN205-2	ROC Core (AOC)	1/9/13	1327	7213	160-1250-16	1	1	1														3	
BN205	BN205-3	ROC Core (AOC)	1/9/13	1329	7213	160-1250-17	1	1	1														3	
BN205	BN205-4	ROC Core (AOC)	1/9/13	1331	7213	160-1250-18	1	1	1														3	
BN206	BN206-1	ROC Core (AOC)	1/9/13	1243	7213	160-1250-11	1	1	1														3	
BN206	BN206-2	ROC Core (AOC)	1/9/13	1245	7213	160-1250-12	1	1	1														3	
BN206	BN206-3	ROC Core (AOC)	1/9/13	1247	7213	160-1250-13	1	1	1														3	
BN206	BN206-4	ROC Core (AOC)	1/9/13	1249	7213	160-1250-14	1	1	1														3	
BN207	BN207-1	ROC Core (AOC)				NS	1	1	1															
BN207	BN207-2	ROC Core (AOC)	1/9/13	1113	7212	160-1250-7	1	1	1														3	
BN207	BN207-3	ROC Core (AOC)	1/9/13	1115	7212	160-1250-8	1	1	1														3	
BN207	BN207-4	ROC Core (AOC)	1/9/13	1117	7212	160-1250-9	1	1	1														3	
BN208	BN208-1	ROC Core (AOC)				NS	1	1	1															
BN208	BN208-2	ROC Core (AOC)	1/9/13	1015	7214	160-1250-26	1	1	1														3	MS/MSD
BN208	BN208-3	ROC Core (AOC)	1/9/13	1017	7214	160-1250-27	1	1	1														3	
BN208	BN208-4	ROC Core (AOC)	1/9/13	1019	7214	160-1250-28	1	1	1														3	
BN209	BN209-1	ROC Core (AOC)				NS	1	1	1															
BN209	BN209-2	ROC Core (AOC)	1/9/13	930	7212	160-1250-4	1	1	1														3	
BN209	BN209-3	ROC Core (AOC)	1/9/13	932	7212	160-1250-5	1	1	1														3	
BN209	BN209-4	ROC Core (AOC)	1/9/13	934	7212	160-1250-6	1	1	1														3	
BN210	BN210-1	ROC Core (AOC)				NS	1	1	1															
BN210	BN210-2	ROC Core (AOC)	1/9/13	850	7212	160-1250-1	1	1	1														3	
BN210	BN210-3	ROC Core (AOC)	1/9/13	850	7212	160-1250-2	1	1	1														3	
BN210	BN210-4	ROC Core (AOC)	1/9/13	850	7212	160-1250-3	1	1	1														3	
BN211	BN211-1	ROC Core (AOC)				NS	1	1	1															
BN211	BN211-2	ROC Core (AOC)				NS	1	1	1															
BN211	BN211-3	ROC Core (AOC)	1/7/13	1232	7209	160-1241-9	1	1	1														3	
BN211	BN211-4	ROC Core (AOC)	1/7/13	1230	7209	160-1241-10	1	1	1														3	

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*						
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*						
						Sample Delivery Group/	Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
							EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
BN212	BN212-1	ROC Core (AOC)	1/7/13	1255	7209	160-1241-5	1	1	1														3	
BN212	BN212-2	ROC Core (AOC)	1/7/13	1300	7209	160-1241-6	1	1	1														3	
BN212	BN212-3	ROC Core (AOC)	1/7/13	1303	7209	160-1241-7	1	1	1														3	
BN212	BN212-4	ROC Core (AOC)	1/7/13	1305	7209	160-1241-8	1	1	1														3	
BN213	BN213-1	ROC Core (AOC)	1/7/13	1350	7209	160-1241-1	1	1	1														3	
BN213	BN213-2	ROC Core (AOC)	1/7/13	1352	7209	160-1241-2	1	1	1														3	
BN213	BN213-3	ROC Core (AOC)	1/7/13	1354	7209	160-1241-3	1	1	1														3	
BN213	BN213-4	ROC Core (AOC)	1/7/13	1355	7209	160-1241-4	1	1	1														3	
BN214	BN214-1	ROC Core (AOC)	1/8/13	835	7251	160-1245-1	1	1	1														3	MS/MSD
BN214	BN214-2	ROC Core (AOC)	1/8/13	836	7251	160-1245-2	1	1	1														3	
BN214	BN214-3	ROC Core (AOC)	1/8/13	837	7251	160-1245-3	1	1	1														3	
BN214	BN214-4	ROC Core (AOC)	1/8/13	838	7251	160-1245-4	1	1	1														3	
BN215	BN215-1	ROC Core (AOC)				NS	1	1	1															
BN215	BN215-2	ROC Core (AOC)				NS	1	1	1															
BN215	BN215-3	ROC Core (AOC)	1/8/13	930	7251	160-1245-5	1	1	1														3	
BN215	BN215-4	ROC Core (AOC)	1/8/13	931	7251	160-1245-6	1	1	1														3	
BN216	BN216-1	ROC Core (AOC)	1/8/13	1010	7251	160-1245-7	1	1	1	1	1	1											3	
BN216	BN216-2	ROC Core (AOC)	1/8/13	1012	7251	160-1245-8	1	1	1	1	1	1											3	
BN216	BN216-3	ROC Core (AOC)	1/8/13	1013	7251	160-1245-9	1	1	1	1	1	1											3	
BN216	BN216-4	ROC Core (AOC)	1/8/13	1014	7251	160-1245-10	1	1	1	1	1	1											3	
BN217	BN217-1	ROC Core (AOC)				NS	1	1	1															
BN217	BN217-2	ROC Core (AOC)				NS	1	1	1															
BN217	BN217-3	ROC Core (AOC)	1/8/13	1116	7253	160-1245-11	1	1	1														3	
BN217	BN217-4	ROC Core (AOC)	1/8/13	1117	7253	160-1245-12	1	1	1														3	
BN218	BN218-1	ROC Core (AOC)				NS	1	1	1															
BN218	BN218-2	ROC Core (AOC)	1/8/13	1220	7253	160-1245-13	1	1	1														3	
BN218	BN218-3	ROC Core (AOC)	1/8/13	1222	7253	160-1245-14	1	1	1														3	
BN218	BN218-4	ROC Core (AOC)	1/8/13	1223	7253	160-1245-15	1	1	1														3	
BN219	BN219-1	ROC Core (AOC)				NS	1	1	1															
BN219	BN219-2	ROC Core (AOC)	1/8/13	1410	7253	160-1245-16	1	1	1														3	
BN219	BN219-3	ROC Core (AOC)	1/8/13	1411	7253	160-1245-17	1	1	1														3	
BN219	BN219-4	ROC Core (AOC)	1/8/13	1412	7253	160-1245-18	1	1	1														3	
BN220	BN220-1	ROC Core (AOC)				NS	1	1	1															
BN220	BN220-2	ROC Core (AOC)				NS	1	1	1															
BN220	BN220-3	ROC Core (AOC)	1/8/13	1440	7253	160-1245-19	1	1	1														3	MS/MSD
BN220	BN220-4	ROC Core (AOC)	1/8/13	1442	7253	160-1245-20	1	1	1														3	
BN221	BN221-1	ROC Core (AOC)	1/4/13	1343	7208	160-1231-1	1	1	1														3	
BN221	BN221-2	ROC Core (AOC)				NS[1]	1	1	1															
BN221	BN221-3	ROC Core (AOC)				NS[1]	1	1	1															
BN221	BN221-4	ROC Core (AOC)				NS[1]	1	1	1															
BN222	BN222-1	ROC Core (AOC)	1/4/13	1415	7208	160-1231-2	1	1	1														3	MS/MSD
BN222	BN222-2	ROC Core (AOC)				NS[1]	1	1	1															
BN222	BN222-3	ROC Core (AOC)				NS[1]	1	1	1															
BN222	BN222-4	ROC Core (AOC)				NS[1]	1	1	1															
BN223	BN223-1	ROC Core (AOC)	1/4/13	1435	7208	160-1231-3	1	1	1														3	
BN223	BN223-2	ROC Core (AOC)				NS[1]	1	1	1															
BN223	BN223-3	ROC Core (AOC)				NS[1]	1	1	1															
BN223	BN223-4	ROC Core (AOC)				NS[1]	1	1	1															
BN224	BN224-1	ROC Core (AOC)	1/7/13	903	7252	160-1241-12	1	1	1														3	
BN224	BN224-2	ROC Core (AOC)				NS[1]	1	1	1															
BN224	BN224-3	ROC Core (AOC)				NS[1]	1	1	1															
BN224	BN224-4	ROC Core (AOC)				NS[1]	1	1	1															
BN225	BN225-1	ROC Core (AOC)	1/7/13	919	7252	160-1241-15	1	1	1														3	
BN225	BN225-2	ROC Core (AOC)				NS[1]	1	1	1															
BN225	BN225-3	ROC Core (AOC)				NS[1]	1	1	1															
BN225	BN225-4	ROC Core (AOC)				NS[1]	1	1	1															
BN226	BN226-1	ROC Core (AOC)	1/7/13	936	7252	160-1241-16	1	1	1														3	
BN226	BN226-2	ROC Core (AOC)				NS[1]	1	1	1															
BN226	BN226-3	ROC Core (AOC)				NS[1]	1	1	1															
BN226	BN226-4	ROC Core (AOC)				NS[1]	1	1	1															
BN227	BN227-1	ROC Core (AOC)	1/7/13	954	7252	160-1241-11	1	1	1														3	MS/MSD
BN227	BN227-2	ROC Core (AOC)				NS[1]	1	1	1															
BN227	BN227-3	ROC Core (AOC)				NS[1]	1	1	1															
BN227	BN227-4	ROC Core (AOC)				NS[1]	1	1	1															
BN228	BN228-1	ROC Core (AOC)	1/7/13	1010	7252	160-1241-13	1	1	1														3	
BN228	BN228-2	ROC Core (AOC)				NS[1]	1	1	1															
BN228	BN228-3	ROC Core (AOC)				NS[1]	1	1	1															
BN228	BN228-4	ROC Core (AOC)				NS[1]	1	1	1															
BN229	BN229-1	ROC Core (AOC)	1/7/13	1042	7252	160-1241-17	1	1	1														3	
BN229	BN229-2	ROC Core (AOC)				NS[1]	1	1	1															
BN229	BN229-3	ROC Core (AOC)				NS[1]	1	1	1															
BN229	BN229-4	ROC Core (AOC)				NS[1]	1	1	1															
BN230	BN230-1	ROC Core (AOC)	1/7/13	1024	7252	160-1241-14	1	1	1														3	
BN230	BN230-2	ROC Core (AOC)				NS[1]	1	1	1															
BN230	BN230-3	ROC Core (AOC)				NS[1]	1	1	1															
BN230	BN230-4	ROC Core (AOC)				NS[1]	1	1	1															
BN307	BN307-1	ROC Core (Drydock Discharge)	1/24/13	1510	7249	160-1345-41	1	1	1	1	1	1											3	
BN307	BN307-2	ROC Core (Drydock Discharge)	1/24/13	1511	7249	160-1345-42	1	1	1	1	1	1											3	
BN307	BN307-3	ROC Core (Drydock Discharge)	1/24/13	1512	7249	160-1345-43	1	1	1	1	1	1											3	
BN307	BN307-4	ROC Core (Drydock Discharge)	1/24/13	1513	7249	160-1345-44	1	1	1	1	1	1											3	

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*						
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*						
							Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
							EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Sample Delivery Group/ Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
BN308	BN308-1	ROC Core (Drydock Discharge)	1/24/13	1440	7248	160-1345-37	1	1	1														3	
BN308	BN308-2	ROC Core (Drydock Discharge)	1/24/13	1441	7248	160-1345-38	1	1	1														3	
BN308	BN308-3	ROC Core (Drydock Discharge)	1/24/13	1442	7248	160-1345-39	1	1	1														3	
BN308	BN308-4	ROC Core (Drydock Discharge)	1/24/13	1443	7248	160-1345-40	1	1	1														3	
BN309	BN309-1	ROC Core (Drydock Discharge)	1/15/13	1520	7227	160-1284-26	1	1	1														3	
BN309	BN309-2	ROC Core (Drydock Discharge)	1/15/13	1521	7227	160-1284-27	1	1	1														3	
BN309	BN309-3	ROC Core (Drydock Discharge)	1/15/13	1522	7227	160-1284-28	1	1	1														3	
BN309	BN309-4	ROC Core (Drydock Discharge)	1/15/13	1523	7227	160-1284-29	1	1	1														3	
BN310	BN310-1	ROC Core (Drydock Discharge)	1/16/13	910	7228	160-1293-1	1	1	1														3	
BN310	BN310-2	ROC Core (Drydock Discharge)	1/16/13	911	7228	160-1293-2	1	1	1														3	
BN310	BN310-3	ROC Core (Drydock Discharge)	1/16/13	912	7228	160-1293-3	1	1	1														3	
BN310	BN310-4	ROC Core (Drydock Discharge)	1/16/13	913	7228	160-1293-4	1	1	1														3	
BN311	BN311-1	ROC Core (Drydock Discharge)	1/16/13	930	7228	160-1293-5	1	1	1														3	
BN311	BN311-2	ROC Core (Drydock Discharge)	1/16/13	931	7228	160-1293-6	1	1	1														3	
BN311	BN311-3	ROC Core (Drydock Discharge)	1/16/13	932	7228	160-1293-7	1	1	1														3	
BN311	BN311-4	ROC Core (Drydock Discharge)	1/16/13	933	7228	160-1293-8	1	1	1														3	
BN312	BN312-1	ROC Core (Drydock Discharge);	1/24/13	1413	7248	160-1245-33	1	1	1														3	
BN312	BN312-2	ROC Core (Drydock Discharge);	1/24/13	1414	7248	160-1245-34	1	1	1														3	
BN312	BN312-3	ROC Core (Drydock Discharge);	1/24/13	1415	7248	160-1245-35	1	1	1														3	
BN312	BN312-4	ROC Core (Drydock Discharge);	1/24/13	1416	7248	160-1245-36	1	1	1														3	
BN312	BN312-1SF	(Drydock Discharge); Sedflume	2/11/13	1056	7280	160-1509-4																	3	
BN312	BN312-2SF	(Drydock Discharge); Sedflume	2/11/13	1057	7280	160-1509-5																	3	
BN312	BN312-GC1	(Drydock Discharge); Geochronology	2/13/13	1240	7285	160-1541-16							1	1									3	depth in cm
BN312	BN312-GC2	(Drydock Discharge); Geochronology	2/13/13	1244	7285	160-1541-17							1	1									3	depth in cm
BN312	BN312-GC3	(Drydock Discharge); Geochronology	2/13/13	1248	7285	160-1541-18							1	1									3	depth in cm
BN312	BN312-GC4	(Drydock Discharge); Geochronology	2/13/13	1251	7285	160-1541-19							1	1									3	depth in cm
BN312	BN312-GC5	(Drydock Discharge); Geochronology	2/13/13	1254	7285	160-1541-20							1	1									3	depth in cm
BN312	BN312-GC6	(Drydock Discharge); Geochronology	2/13/13	1257	7286	160-1541-21							1	1									3	depth in cm
BN312	BN312-GC7	(Drydock Discharge); Geochronology	2/13/13	1300	7286	160-1541-22							1	1									3	depth in cm
BN312	BN312-GC8	(Drydock Discharge); Geochronology	2/13/13	1303	7286	160-1541-23							1	1									3	depth in cm
BN312	BN312-GC9	(Drydock Discharge); Geochronology	2/13/13	1306	7286	160-1541-24							1	1									3	depth in cm
BN312	BN312-GC10	(Drydock Discharge); Geochronology	2/13/13	1309	7286	160-1541-25							1	1									3	depth in cm
BN312	BN312-GC11	(Drydock Discharge); Geochronology	2/13/13	1314	7286	160-1541-26							1	1									3	depth in cm
BN312	BN312-GC12	(Drydock Discharge); Geochronology	2/13/13	1320	7286	160-1541-27							1	1									3	depth in cm
BN312	BN312-GC13	(Drydock Discharge); Geochronology	2/13/13	1326	7286	160-1541-28							1	1									3	depth in cm
BN312	BN312-GC14	(Drydock Discharge); Geochronology	2/13/13	1332	7286	160-1541-29							1	1									3	depth in cm
BN312	BN312-GC15	(Drydock Discharge); Geochronology	2/13/13	1339	7286	160-1541-30							1	1									3	depth in cm
BN312	BN312-GC1A	(Drydock Discharge); Geochronology	2/13/13	1241	7285	160-1553-16						1											3	depth in cm; BN312-2-4 on COC 7291
BN312	BN312-GC2A	(Drydock Discharge); Geochronology	2/13/13	1245	7285	160-1553-19						1											3	depth in cm; BN312-10-12 on COC 7291
BN312	BN312-GC3A	(Drydock Discharge); Geochronology	2/13/13	1249	7285	160-1553-22						1											3	depth in cm; BN312-18-20 on COC 7291
BN312	BN312-GC4A	(Drydock Discharge); Geochronology	2/13/13	1252	7285	160-1553-24						1											3	depth in cm; BN312-24-26 on COC 7292
BN312	BN312-GC5A	(Drydock Discharge); Geochronology	2/13/13	1255	7285	160-1553-26						1											3	depth in cm; BN312-30-32 on COC 7292
BN312	BN312-GC6A	(Drydock Discharge); Geochronology	2/13/13	1258	7286	160-1553-28						1											3	depth in cm; BN312-36-38 on COC 7292
BN312	BN312-GC7A	(Drydock Discharge); Geochronology	2/13/13	1301	7286	160-1553-30						1											3	depth in cm; BN312-42-44 on COC 7292
BN312	BN312-GC8A	(Drydock Discharge); Geochronology	2/13/13	1304	7286	160-1553-32						1											3	depth in cm; BN312-48-50 on COC 7293
BN312	BN312-GC9A	(Drydock Discharge); Geochronology	2/13/13	1307	7286	160-1553-34						1											3	depth in cm; BN312-54-56 on COC 7293
BN312	BN312-GC10A	(Drydock Discharge); Geochronology	2/13/13	1310	7286	160-1553-36						1											3	depth in cm; BN312-60-62 on COC 7293
BN312	BN312-GC11A	(Drydock Discharge); Geochronology	2/13/13	1315	7286	160-1553-40						1											3	depth in cm; BN312-70-72 on COC 7293
BN312	BN312-GC12A	(Drydock Discharge); Geochronology	2/13/13	1321	7286	160-1553-45						1											3	depth in cm; BN312-82-84 on COC 7294
BN312	BN312-GC13A	(Drydock Discharge); Geochronology	2/13/13	1327	7286	160-1553-50						1											3	depth in cm; BN312-94-96 on COC 7294
BN312	BN312-GC14A	(Drydock Discharge); Geochronology	2/13/13	1333	7286	160-1553-55						1											3	depth in cm; BN312-104-106 on COC 7295
BN312	BN312-GC15A	(Drydock Discharge); Geochronology	2/13/13	1340	7286	160-1553-60						1											3	depth in cm; archive sample
BN312	BN312-2-4	(Drydock Discharge); Geochronology	2/13/13	1241	7291	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-4-6	(Drydock Discharge); Geochronology	2/13/13	1242	7291	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-6-8	(Drydock Discharge); Geochronology	2/13/13	1243	7291	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-10-12	(Drydock Discharge); Geochronology	2/13/13	1245	7291	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-12-4	(Drydock Discharge); Geochronology	2/13/13	1246	7291	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-14-16	(Drydock Discharge); Geochronology	2/13/13	1247	7292	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-18-20	(Drydock Discharge); Geochronology	2/13/13	1249	7292	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-20-22	(Drydock Discharge); Geochronology	2/13/13	1250	7292	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-24-26	(Drydock Discharge); Geochronology	2/13/13	1252	7292	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-26-28	(Drydock Discharge); Geochronology	2/13/13	1253	7292	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-30-32	(Drydock Discharge); Geochronology	2/13/13	1255	7292	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-32-34	(Drydock Discharge); Geochronology	2/13/13	1256	7292	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-36-38	(Drydock Discharge); Geochronology	2/13/13	1258	7292	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-38-40	(Drydock Discharge); Geochronology	2/13/13	1259	7292	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-42-44	(Drydock Discharge); Geochronology	2/13/13	1301	7292	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-44-46	(Drydock Discharge); Geochronology	2/13/13	1302	7293	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-48-50	(Drydock Discharge); Geochronology	2/13/13	1304	7293	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-50-52	(Drydock Discharge); Geochronology	2/13/13	1305	7293	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-54-56	(Drydock Discharge); Geochronology	2/13/13	1307	7293	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-56-58	(Drydock Discharge); Geochronology	2/13/13	1308	7293	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-60-62	(Drydock Discharge); Geochronology	2/13/13	1310	7293	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-62-64	(Drydock Discharge); Geochronology	2/13/13	1311	7293	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-64-66	(Drydock Discharge); Geochronology	2/13/13	1312	7293	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-66-68	(Drydock Discharge); Geochronology	2/13/13	1313	7293	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-70-72	(Drydock Discharge); Geochronology	2/13/13	1315	7293	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-72-74	(Drydock Discharge); Geochronology	2/13/13	1316	7294	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-74-76	(Drydock Discharge); Geochronology	2/13/13	1317	7294	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-76-78	(Drydock Discharge); Geochronology	2/13/13	1318	7294	on hold						1	1	1										depth in cm; archive sample

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*						
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*						
							Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
							EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Sample Delivery Group/ Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR	TAR	TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
BN312	BN312-78-80	(Drydock Discharge); Geochronology	2/13/13	1319	7294	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-82-84	(Drydock Discharge); Geochronology	2/13/13	1321	7294	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-84-86	(Drydock Discharge); Geochronology	2/13/13	1322	7294	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-86-88	(Drydock Discharge); Geochronology	2/13/13	1323	7294	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-88-90	(Drydock Discharge); Geochronology	2/13/13	1324	7294	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-90-92	(Drydock Discharge); Geochronology	2/13/13	1325	7294	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-94-96	(Drydock Discharge); Geochronology	2/13/13	1327	7294	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-96-98	(Drydock Discharge); Geochronology	2/13/13	1328	7295	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-98-100	(Drydock Discharge); Geochronology	2/13/13	1329	7295	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-100-102	(Drydock Discharge); Geochronology	2/13/13	1330	7295	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-102-104	(Drydock Discharge); Geochronology	2/13/13	1331	7295	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-106-108	(Drydock Discharge); Geochronology	2/13/13	1333	7295	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-108-110	(Drydock Discharge); Geochronology	2/13/13	1334	7295	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-110-112	(Drydock Discharge); Geochronology	2/13/13	1335	7295	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-112-114	(Drydock Discharge); Geochronology	2/13/13	1336	7295	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-114-116	(Drydock Discharge); Geochronology	2/13/13	1337	7295	on hold						1	1	1										depth in cm; archive sample
BN312	BN312-116-118	(Drydock Discharge); Geochronology	2/13/13	1338	7295	on hold						1	1	1										depth in cm; archive sample
BN313	BN313-1	ROC Core (Drydock Discharge)	1/10/13	1300	7220	160-1267-12	1	1	1														4	
BN313	BN313-2	ROC Core (Drydock Discharge)	1/10/13	1304	7220	160-1267-13	1	1	1														4	
BN313	BN313-3	ROC Core (Drydock Discharge)	1/10/13	1306	7220	160-1267-14	1	1	1														4	
BN313	BN313-4	ROC Core (Drydock Discharge)	1/10/13	1308	7220	160-1267-15	1	1	1														4	
BN314	BN314-1	ROC Core (Drydock Discharge)				NS	1	1	1															
BN314	BN314-2	ROC Core (Drydock Discharge)	1/10/13	1340	7220	160-1267-16	1	1	1														4	
BN314	BN314-3	ROC Core (Drydock Discharge)	1/10/13	1342	7220	160-1267-17	1	1	1														4	
BN314	BN314-4	ROC Core (Drydock Discharge)	1/10/13	1344	7220	160-1267-18	1	1	1														4	
BN315	BN315-1	ROC Core (Drydock Discharge)	1/10/13	1420	7220	160-1267-19	1	1	1														4	
BN315	BN315-2	ROC Core (Drydock Discharge)	1/10/13	1421	7220	160-1267-20	1	1	1														4	
BN315	BN315-3	ROC Core (Drydock Discharge)	1/10/13	1422	7221	160-1267-21	1	1	1														4	
BN315	BN315-4	ROC Core (Drydock Discharge)	1/10/13	1424	7221	160-1267-22	1	1	1														4	
BN316	BN316-1	ROC Core (Drydock Discharge)	1/15/13	1250	7226	160-1284-16	1	1	1														3	
BN316	BN316-2	ROC Core (Drydock Discharge)	1/15/13	1251	7226	160-1284-17	1	1	1														3	
BN316	BN316-3	ROC Core (Drydock Discharge)	1/15/13	1252	7226	160-1284-18	1	1	1														3	
BN316	BN316-4	ROC Core (Drydock Discharge)	1/15/13	1253	7226	160-1284-19	1	1	1														3	
BN316	BN316-1SF	(Drydock Discharge); Sedflume	2/11/13	1145	7280	160-1509-5																	3	
BN316	BN316-2SF	(Drydock Discharge); Sedflume	2/11/13	1146	7280	160-1509-6																	3	
BN317	BN317-1	ROC Core (Drydock Discharge)	1/10/13	1455	7221	160-1267-23	1	1	1														4	
BN317	BN317-2	ROC Core (Drydock Discharge)	1/10/13	1457	7221	160-1267-24	1	1	1														4	
BN317	BN317-3	ROC Core (Drydock Discharge)	1/10/13	1459	7221	160-1267-25	1	1	1														4	
BN317	BN317-4	ROC Core (Drydock Discharge)	1/10/13	1501	7221	160-1267-26	1	1	1														4	
BN318	BN318-1	ROC Core (Drydock Discharge)	1/14/13	1533	7224	160-1277-22	1	1	1														3	
BN318	BN318-2	ROC Core (Drydock Discharge)	1/14/13	1534	7224	160-1277-23	1	1	1														3	
BN318	BN318-3	ROC Core (Drydock Discharge)	1/14/13	1535	7224	160-1277-24	1	1	1														3	
BN318	BN318-4	ROC Core (Drydock Discharge)	1/14/13	1536	7224	160-1277-25	1	1	1														3	
BN319	BN319-1	ROC Core (Step-out centered on BN01)				NS*	1	1	1	1	1	1												
BN319	BN319-2	ROC Core (Step-out centered on BN01)				NS*	1	1	1	1	1	1												
BN319	BN319-3	ROC Core (Step-out centered on BN01)				NS*	1	1	1	1	1	1												
BN319	BN319-4	ROC Core (Step-out centered on BN01)				NS*	1	1	1	1	1	1												
BN320	BN320-1	ROC Core (Step-out centered on BN01)				NS*	1	1	1															
BN320	BN320-2	ROC Core (Step-out centered on BN01)				NS*	1	1	1															
BN320	BN320-3	ROC Core (Step-out centered on BN01)				NS*	1	1	1															
BN320	BN320-4	ROC Core (Step-out centered on BN01)				NS*	1	1	1															
BN321	BN321-1	ROC Core (Step-out centered on BN01)				NS*	1	1	1															
BN321	BN321-2	ROC Core (Step-out centered on BN01)				NS*	1	1	1															
BN321	BN321-3	ROC Core (Step-out centered on BN01)				NS*	1	1	1															
BN321	BN321-4	ROC Core (Step-out centered on BN01)				NS*	1	1	1															
BS04	BS04-1SF	Sedflume	2/11/13	945	7280	160-1509-1																	3	
BS04	BS04-2SF	Sedflume	2/11/13	946	7280	160-1509-2																	3	
BS04	BS04-GC1	Geochronology	2/13/13	1441	7284	160-1541-1							1	1									3	depth in cm
BS04	BS04-GC2	Geochronology	2/13/13	1445	7284	160-1541-2							1	1									3	depth in cm
BS04	BS04-GC3	Geochronology	2/13/13	1449	7284	160-1541-3							1	1									3	depth in cm
BS04	BS04-GC4	Geochronology	2/13/13	1452	7284	160-1541-4							1	1									3	depth in cm
BS04	BS04-GC5	Geochronology	2/13/13	1455	7284	160-1541-5							1	1									3	depth in cm
BS04	BS04-GC6	Geochronology	2/13/13	1458	7284	160-1541-6							1	1									3	depth in cm
BS04	BS04-GC7	Geochronology	2/13/13	1501	7284	160-1541-7							1	1									3	depth in cm
BS04	BS04-GC8	Geochronology	2/13/13	1504	7284	160-1541-8							1	1									3	depth in cm
BS04	BS04-GC9	Geochronology	2/13/13	1507	7284	160-1541-9							1	1									3	depth in cm
BS04	BS04-GC10	Geochronology	2/13/13	1510	7284	160-1541-10							1	1									3	depth in cm
BS04	BS04-GC11	Geochronology	2/13/13	1515	7285	160-1541-11							1	1									3	depth in cm
BS04	BS04-GC12	Geochronology	2/13/13	1521	7285	160-1541-12							1	1									3	depth in cm
BS04	BS04-GC13	Geochronology	2/13/13	1527	7285	160-1541-13							1	1									3	depth in cm
BS04	BS04-GC14	Geochronology	2/13/13	1533	7285	160-1541-14							1	1									3	depth in cm
BS04	BS04-GC15	Geochronology	2/13/13	1540	7285	160-1541-15							1	1									3	depth in cm
BS04	BS04-GC1A	Geochronology	2/13/13	1442	7284	160-1554-21						1											3	depth in cm; BS04-2-4 on coc 7287
BS04	BS04-GC2A	Geochronology	2/13/13	1446	7284	160-1554-24						1											3	depth in cm; BS04-10-12 on coc 7287
BS04	BS04-GC3A	Geochronology	2/13/13	1450	7284	160-1554-27						1											3	depth in cm; BS04-18-20 on coc 7287
BS04	BS04-GC4A	Geochronology	2/13/13	1453	7284	160-1554-29						1											3	depth in cm; BS04-24-26 on coc 7287
BS04	BS04-GC5A	Geochronology	2/13/13	1456	7284	160-1554-1						1											3	depth in cm; BS04-30-32 on coc 7288
BS04	BS04-GC6A	Geochronology	2/13/13	1459	7284	160-1554-3						1											3	depth in cm; BS04-36-38 on coc 7288
BS04	BS04-GC7A	Geochronology	2/13/13	1502	7284	160-1554-5						1											3	depth in cm; BS04-42-44 on coc 7288
BS04	BS04-GC8A	Geochronology	2/13/13	1505	7284	160-1554-7						1											3	depth in cm; BS04-48-50 on coc 7288

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*						
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*						
							Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
							EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Sample Delivery Group/ Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
BS04	BS04-GC9A	Geochronology	2/13/13	1508	7284	160-1554-9						1											3	depth in cm; BS04-54-56 on coc 7288
BS04	BS04-GC10A	Geochronology	2/13/13	1511	7284	160-1554-11						1											3	depth in cm; BS04-60-62 on coc 7289
BS04	BS04-GC11A	Geochronology	2/13/13	1516	7285	160-1554-15						1											3	depth in cm; BS04-70-72 on coc 7289
BS04	BS04-GC12A	Geochronology	2/13/13	1522	7285	160-1554-20						1											3	depth in cm; BS04-82-842 on coc 7289
BS04	BS04-GC13A	Geochronology	2/13/13	1528	7285							1												depth in cm; BS04-94-96 on coc 7290
BS04	BS04-GC14A	Geochronology	2/13/13	1534	7285							1												depth in cm; BS04-106-108 on coc 7290
BS04	BS04-GC15A	Geochronology	2/13/13	1541	7285							1												depth in cm; BS04-116-118 on coc 7291
BS04	BS04-2-4	Geochronology	2/13/13	1442	7287							1												depth in cm; archived sample
BS04	BS04-4-6	Geochronology	2/13/13	1443	7287	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-6-8	Geochronology	2/13/13	1444	7287	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-10-12	Geochronology	2/13/13	1446	7287	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-12-14	Geochronology	2/13/13	1447	7287	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-14-16	Geochronology	2/13/13	1448	7287	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-18-20	Geochronology	2/13/13	1450	7287	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-20-22	Geochronology	2/13/13	1451	7287	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-24-26	Geochronology	2/13/13	1453	7287	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-26-28	Geochronology	2/13/13	1454	7287	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-30-32	Geochronology	2/13/13	1456	7288	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-32-34	Geochronology	2/13/13	1457	7288	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-36-38	Geochronology	2/13/13	1459	7288	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-38-40	Geochronology	2/13/13	1500	7288	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-42-44	Geochronology	2/13/13	1502	7288	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-44-46	Geochronology	2/13/13	1503	7288	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-48-50	Geochronology	2/13/13	1505	7288	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-50-52	Geochronology	2/13/13	1506	7288	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-56-58	Geochronology	2/13/13	1508	7288	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-42-44	Geochronology	2/13/13	1509	7288	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-60-62	Geochronology	2/13/13	1511	7289	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-62-64	Geochronology	2/13/13	1512	7289	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-64-66	Geochronology	2/13/13	1513	7289	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-66-68	Geochronology	2/13/13	1514	7289	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-70-72	Geochronology	2/13/13	1516	7289	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-72-74	Geochronology	2/13/13	1517	7289	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-74-76	Geochronology	2/13/13	1518	7289	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-76-78	Geochronology	2/13/13	1519	7289	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-78-80	Geochronology	2/13/13	1520	7289	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-82-84	Geochronology	2/13/13	1522	7289	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-84-86	Geochronology	2/13/13	1523	7290	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-88-90	Geochronology	2/13/13	1525	7290	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-90-92	Geochronology	2/13/13	1526	7290	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-94-96	Geochronology	2/13/13	1528	7290	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-96-98	Geochronology	2/13/13	1529	7290	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-98-100	Geochronology	2/13/13	1530	7290	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-100-102	Geochronology	2/13/13	1531	7290	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-102-104	Geochronology	2/13/13	1532	7290	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-106-108	Geochronology	2/13/13	1534	7290	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-108-110	Geochronology	2/13/13	1535	7290	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-110-112	Geochronology	2/13/13	1536	7291	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-112-114	Geochronology	2/13/13	1537	7291	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-114-116	Geochronology	2/13/13	1539	7291	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-116-118	Geochronology	2/13/13	1539	7291	on hold						1	1	1										depth in cm; archived sample
BS04	BS04-86-88	Geochronology	2/13/13	1524	7291	on hold						1	1	1										depth in cm; archived sample
BS09A	BS09A-1TS	*Macoma nasuta*	2/5/13	1400	7307	160-1496-5																	3	Lab to composite
BS09A	BS09A-2TS	*Macoma nasuta*	2/5/13	1412	7307	160-1496-6												1	1	1	1	1	3	Lab to composite
BS09A	BS09A-3TS	*Macoma nasuta*	2/5/13	1350	7307	160-1496-7																	3	Lab to composite
BS09A	BS09A-VV	*Macoma nasuta - sediment (van veen)*	1/3/13	1200	7208	160-1231-6	1	1	1														3	
BS101	BS101-1	ROC Core (Confirmatory)	1/23/13	1339	7241	160-1333-21	1	1	1	1	1	1											3	
BS101	BS101-2	ROC Core (Confirmatory)	1/23/13	1340	7241	160-1333-22	1	1	1	1	1	1											3	
BS101	BS101-3	ROC Core (Confirmatory)	1/23/13	1341	7241	160-1333-23	1	1	1	1	1	1											3	
BS101	BS101-4	ROC Core (Confirmatory)	1/23/13	1342	7241	160-1333-24	1	1	1	1	1	1											3	
BS102	BS102-1	ROC Core (Confirmatory)	1/23/13	1445	7241	160-1333-25	1	1	1														3	
BS102	BS102-2	ROC Core (Confirmatory)	1/23/13	1446	7241	160-1333-26	1	1	1														3	
BS102	BS102-3	ROC Core (Confirmatory)	1/23/13	1447	7241	160-1333-27	1	1	1														3	
BS102	BS102-4	ROC Core (Confirmatory)	1/23/13	1448	7241	160-1333-28	1	1	1														3	
BS103	BS103-1	ROC Core (Confirmatory)	1/31/13	1000	7270	160-1423-5	1	1	1														4	
BS103	BS103-2	ROC Core (Confirmatory)	1/31/13	1001	7270	160-1423-6	1	1	1														4	
BS103	BS103-3	ROC Core (Confirmatory)	1/31/13	1002	7270	160-1423-7	1	1	1														4	
BS103	BS103-4	ROC Core (Confirmatory)	1/31/13	1003	7270	160-1423-8	1	1	1														4	
BS104	BS104-1	ROC Core (Confirmatory)	1/16/13	1110	7229	160-1293-13	1	1	1														3	
BS104	BS104-2	ROC Core (Confirmatory)	1/16/13	1111	7229	160-1293-14	1	1	1														3	
BS104	BS104-3	ROC Core (Confirmatory)	1/16/13	1112	7229	160-1293-15	1	1	1														3	
BS104	BS104-4	ROC Core (Confirmatory)	1/16/13	1113	7229	160-1293-16	1	1	1														3	
BS105	BS105-1	ROC Core (Confirmatory)				NS	1	1	1															
BS105	BS105-2	ROC Core (Confirmatory)				NS	1	1	1															
BS105	BS105-3	ROC Core (Confirmatory)				NS	1	1	1															
BS105	BS105-4	ROC Core (Confirmatory)	1/16/13	1240	7229	160-1293-17	1	1	1														3	
BS106	BS106-1	ROC Core (Confirmatory)	1/16/13	1456	7230	160-1293-26	1	1	1														3	
BS106	BS106-2	ROC Core (Confirmatory)	1/16/13	1457	7230	160-1293-27	1	1	1														3	
BS106	BS106-3	ROC Core (Confirmatory)	1/16/13	1458	7230	160-1293-28	1	1	1														3	
BS106	BS106-4	ROC Core (Confirmatory)	1/16/13	1459	7230	160-1293-29	1	1	1														3	

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*						
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*						
							Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
						Sample Delivery Group/	EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
BS107	BS107-1	ROC Core (Confirmatory)	1/16/13	1456	7230	160-1293-22	1	1	1														3	
BS107	BS107-2	ROC Core (Confirmatory)	1/16/13	1457	7230	160-1293-23	1	1	1														3	
BS107	BS107-3	ROC Core (Confirmatory)	1/16/13	1458	7230	160-1293-24	1	1	1														3	
BS107	BS107-4	ROC Core (Confirmatory)	1/16/13	1459	7230	160-1293-25	1	1	1														3	
BS108	BS108-1	ROC Core (Confirmatory)	1/16/13	1350	7229	160-1293-18	1	1	1														3	
BS108	BS108-2	ROC Core (Confirmatory)	1/16/13	1351	7229	160-1293-19	1	1	1														3	
BS108	BS108-3	ROC Core (Confirmatory)	1/16/13	1352	7229	160-1293-20	1	1	1														3	
BS108	BS108-4	ROC Core (Confirmatory)	1/16/13	1353	7230	160-1293-21	1	1	1														3	
BS109	BS109-1	ROC Core (Confirmatory)	1/17/13	900	7231	160-1319-1	1	1	1														3	
BS109	BS109-2	ROC Core (Confirmatory)	1/17/13	901	7231	160-1319-2	1	1	1														3	
BS109	BS109-3	ROC Core (Confirmatory)	1/17/13	902	7231	160-1319-3	1	1	1														3	
BS109	BS109-4	ROC Core (Confirmatory)	1/17/13	903	7231	160-1319-4	1	1	1														3	
BS110	BS110-1	ROC Core (Confirmatory)	1/17/13	943	7231	160-1319-5	1	1	1														3	
BS110	BS110-2	ROC Core (Confirmatory)	1/17/13	944	7231	160-1319-6	1	1	1														3	
BS110	BS110-3	ROC Core (Confirmatory)	1/17/13	945	7231	160-1319-7	1	1	1														3	
BS110	BS110-4	ROC Core (Confirmatory)	1/17/13	946	7231	160-1319-8	1	1	1														3	
BS111	BS111-1	ROC Core (Confirmatory)	1/17/13	1025	7231	160-1319-9	1	1	1														3	MS/MSD
BS111	BS111-2	ROC Core (Confirmatory)	1/17/13	1026	7231	160-1319-10	1	1	1														3	
BS111	BS111-3	ROC Core (Confirmatory)	1/17/13	1027	7232	160-1319-11	1	1	1														3	
BS111	BS111-4	ROC Core (Confirmatory)	1/17/13	1028	7232	160-1319-12	1	1	1														3	
BS112	BS112-1	ROC Core (Confirmatory)	1/17/13	1345	7233	160-1319-21	1	1	1														3	
BS112	BS112-2	ROC Core (Confirmatory)	1/17/13	1346	7233	160-1319-22	1	1	1														3	
BS112	BS112-3	ROC Core (Confirmatory)	1/17/13	1347	7233	160-1319-23	1	1	1														3	
BS112	BS112-4	ROC Core (Confirmatory)	1/17/13	1348	7233	160-1319-24	1	1	1														3	
BS113	BS113-1	ROC Core (Confirmatory)	1/17/13	1420	7233	160-1319-25	1	1	1														3	
BS113	BS113-2	ROC Core (Confirmatory)	1/17/13	1421	7233	160-1319-26	1	1	1														3	
BS113	BS113-3	ROC Core (Confirmatory)	1/17/13	1422	7233	160-1319-27	1	1	1														3	
BS113	BS113-4	ROC Core (Confirmatory)	1/17/13	1423	7233	160-1319-28	1	1	1														3	
BS114	BS114-1	ROC Core (Confirmatory)	1/17/13	1500	7233	160-1319-29	1	1	1														3	
BS114	BS114-2	ROC Core (Confirmatory)	1/17/13	1501	7233	160-1319-30	1	1	1														3	
BS114	BS114-3	ROC Core (Confirmatory)	1/17/13	1502	7234	160-1319-31	1	1	1														3	
BS114	BS114-4	ROC Core (Confirmatory)	1/17/13	1503	7234	160-1319-32	1	1	1														3	
BS115	BS115-1	ROC Core (Confirmatory)	1/22/13	855	7235	160-1325-1	1	1	1														4	
BS115	BS115-2	ROC Core (Confirmatory)	1/22/13	856	7235	160-1325-2	1	1	1														4	
BS115	BS115-3	ROC Core (Confirmatory)	1/22/13	857	7235	160-1325-3	1	1	1														4	
BS115	BS115-4	ROC Core (Confirmatory)	1/22/13	858	7235	160-1325-4	1	1	1														4	
BS116	BS116-1	ROC Core (Confirmatory)	1/22/13	955	7235	160-1325-5	1	1	1														4	MS/MSD
BS116	BS116-2	ROC Core (Confirmatory)	1/22/13	956	7235	160-1325-6	1	1	1														4	
BS116	BS116-3	ROC Core (Confirmatory)	1/22/13	957	7235	160-1325-7	1	1	1														4	
BS116	BS116-4	ROC Core (Confirmatory)	1/22/13	958	7235	160-1325-8	1	1	1														4	
BS117	BS117-1	ROC Core (Confirmatory)	1/22/13	1043	7235	160-1325-9	1	1	1	1	1	1											4	
BS117	BS117-2	ROC Core (Confirmatory)	1/22/13	1044	7235	160-1325-10	1	1	1	1	1	1											4	
BS117	BS117-3	ROC Core (Confirmatory)	1/22/13	1045	7236	160-1325-11	1	1	1	1	1	1											4	
BS117	BS117-4	ROC Core (Confirmatory)	1/22/13	1046	7236	160-1325-12	1	1	1	1	1	1											4	
BS118	BS118-1	ROC Core (Confirmatory)	1/17/13	1120	7232	160-1319-13	1	1	1														3	
BS118	BS118-2	ROC Core (Confirmatory)	1/17/13	1121	7232	160-1319-14	1	1	1														3	
BS118	BS118-3	ROC Core (Confirmatory)	1/17/13	1122	7232	160-1319-15	1	1	1														3	
BS118	BS118-4	ROC Core (Confirmatory)	1/17/13	1123	7232	160-1319-16	1	1	1														3	
BS119	BS119-1	ROC Core (Confirmatory)	1/17/13	1200	7232	160-1319-17	1	1	1														3	
BS119	BS119-2	ROC Core (Confirmatory)	1/17/13	1201	7232	160-1319-18	1	1	1														3	
BS119	BS119-3	ROC Core (Confirmatory)	1/17/13	1202	7232	160-1319-19	1	1	1														3	
BS119	BS119-4	ROC Core (Confirmatory)	1/17/13	1203	7232	160-1319-20	1	1	1														3	
BS120	BS120-1	ROC Core (Confirmatory)	1/22/13	1430	7237	160-1325-25	1	1	1														4	
BS120	BS120-2	ROC Core (Confirmatory)	1/22/13	1431	7237	160-1325-26	1	1	1														4	
BS120	BS120-3	ROC Core (Confirmatory)	1/22/13	1432	7237	160-1325-27	1	1	1														4	
BS120	BS120-4	ROC Core (Confirmatory)	1/22/13	1433	7237	160-1325-28	1	1	1														4	
BS121	BS121-1	ROC Core (Confirmatory)	1/22/13	1350	7237	160-1325-21	1	1	1														4	MS/MSD
BS121	BS121-2	ROC Core (Confirmatory)	1/22/13	1351	7237	160-1325-22	1	1	1														4	
BS121	BS121-3	ROC Core (Confirmatory)	1/22/13	1352	7237	160-1325-23	1	1	1														4	
BS121	BS121-4	ROC Core (Confirmatory)	1/22/13	1353	7237	160-1325-24	1	1	1														4	
BS122	BS122-1	ROC Core (Confirmatory)	1/22/13	1149	7236	160-1325-13	1	1	1														4	
BS122	BS122-2	ROC Core (Confirmatory)	1/22/13	1150	7236	160-1325-14	1	1	1														4	
BS122	BS122-3	ROC Core (Confirmatory)	1/22/13	1151	7236	160-1325-15	1	1	1														4	
BS122	BS122-4	ROC Core (Confirmatory)	1/22/13	1152	7236	160-1325-16	1	1	1														4	
BS123	BS123-1	ROC Core (Confirmatory)	1/22/13	1300	7236	160-1325-17	1	1	1														4	
BS123	BS123-2	ROC Core (Confirmatory)	1/22/13	1301	7236	160-1325-18	1	1	1														4	
BS123	BS123-3	ROC Core (Confirmatory)	1/22/13	1302	7236	160-1325-19	1	1	1														4	
BS123	BS123-4	ROC Core (Confirmatory)	1/22/13	1303	7236	160-1325-20	1	1	1														4	
BS124	BS124-1	ROC Core (Confirmatory)	1/23/13	1014	7239	160-1333-9	1	1	1														3	
BS124	BS124-2	ROC Core (Confirmatory)	1/23/13	1015	7239	160-1333-10	1	1	1														3	
BS124	BS124-3	ROC Core (Confirmatory)	1/23/13	1016	7240	160-1333-11	1	1	1														3	
BS124	BS124-4	ROC Core (Confirmatory)	1/23/13	1017	7240	160-1333-12	1	1	1														3	
BS125	BS125-1	ROC Core (Confirmatory)	1/23/13	1100	7240	160-1333-13	1	1	1														3	
BS125	BS125-2	ROC Core (Confirmatory)	1/23/13	1101	7240	160-1333-14	1	1	1														3	
BS125	BS125-3	ROC Core (Confirmatory)	1/23/13	1102	7240	160-1333-15	1	1	1														3	
BS125	BS125-4	ROC Core (Confirmatory)	1/23/13	1103	7240	160-1333-16	1	1	1														3	
BS126	BS126-1	ROC Core (Confirmatory)	1/22/13	1515	7237	160-1325-29	1	1	1														4	
BS126	BS126-2	ROC Core (Confirmatory)	1/22/13	1516	7237	160-1325-30	1	1	1														4	
BS126	BS126-3	ROC Core (Confirmatory)	1/22/13	1517	7238	160-1325-31	1	1	1														4	
BS126	BS126-4	ROC Core (Confirmatory)	1/22/13	1518	7238	160-1325-32	1	1	1														4	

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*							
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*							
						Sample Delivery Group/	Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
							EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
BS127	BS127-1	ROC Core (Confirmatory)	1/23/13	845	7239	160-1333-1	1	1	1														3	
BS127	BS127-2	ROC Core (Confirmatory)	1/23/13	846	7239	160-1333-2	1	1	1														3	
BS127	BS127-3	ROC Core (Confirmatory)	1/23/13	847	7239	160-1333-3	1	1	1														3	
BS127	BS127-4	ROC Core (Confirmatory)	1/23/13	848	7239	160-1333-4	1	1	1														3	
BS128	BS128-1	ROC Core (Confirmatory)	1/23/13	1145	7240	160-1333-17	1	1	1														3	
BS128	BS128-2	ROC Core (Confirmatory)	1/23/13	1146	7240	160-1333-18	1	1	1														3	
BS128	BS128-3	ROC Core (Confirmatory)	1/23/13	1147	7240	160-1333-19	1	1	1														3	
BS128	BS128-4	ROC Core (Confirmatory)	1/23/13	1148	7240	160-1333-20	1	1	1														3	
BS129	BS129-1	ROC Core (Confirmatory)	1/24/13	820	7245	160-1345-1	1	1	1														3	
BS129	BS129-2	ROC Core (Confirmatory)	1/24/13	821	7245	160-1345-2	1	1	1														3	
BS129	BS129-3	ROC Core (Confirmatory)	1/24/13	822	7245	160-1345-3	1	1	1														3	
BS129	BS129-4	ROC Core (Confirmatory)	1/24/13	823	7245	160-1345-4	1	1	1														3	
BS130	BS130-1	ROC Core (Confirmatory)	1/23/13	936	7239	160-1333-5	1	1	1														3	
BS130	BS130-2	ROC Core (Confirmatory)	1/23/13	937	7239	160-1333-6	1	1	1														3	
BS130	BS130-3	ROC Core (Confirmatory)	1/23/13	938	7239	160-1333-7	1	1	1														3	
BS130	BS130-4	ROC Core (Confirmatory)	1/23/13	939	7239	160-1333-8	1	1	1														3	
BS131	BS131-1	ROC Core (Step-out centered on BS12)				NS*	1	1	1	1	1	1												
BS131	BS131-2	ROC Core (Step-out centered on BS12)				NS*	1	1	1	1	1	1												
BS131	BS131-3	ROC Core (Step-out centered on BS12)				NS*	1	1	1	1	1	1												
BS131	BS131-4	ROC Core (Step-out centered on BS12)				NS*	1	1	1	1	1	1												
BS132	BS132-1	ROC Core (Step-out centered on BS12				NS*	1	1	1															
BS132	BS132-2	ROC Core (Step-out centered on BS12				NS*	1	1	1															
BS132	BS132-3	ROC Core (Step-out centered on BS12				NS*	1	1	1															
BS132	BS132-4	ROC Core (Step-out centered on BS12				NS*	1	1	1															
BS133	BS133-1	ROC Core (Step-out centered on BS12				NS*	1	1	1															
BS133	BS133-2	ROC Core (Step-out centered on BS12				NS*	1	1	1															
BS133	BS133-3	ROC Core (Step-out centered on BS12				NS*	1	1	1															
BS133	BS133-4	ROC Core (Step-out centered on BS12				NS*	1	1	1															
SB02A	SB02A-1TS	*Macoma nasuta*	2/5/13	1300	7307	160-1496-3																	3	Lab to composite
SB02A	SB02A-2TS	*Macoma nasuta*	2/5/13	1241	7307	160-1496-2												1	1	1	1	1	3	Lab to composite
SB02A	SB02A-3TS	*Macoma nasuta*	2/5/13	1240	7307	160-1496-1																	3	Lab to composite
SB02A	SB02A-VV	*Macoma nasuta - sediment (van veen)*	12/18/12	1240	7304	160-1358-49	1	1	1														3	
SB05A	SB05A-1TS	*Macoma nasuta*	2/6/13	955	7279	160-1497-4																	3	Lab to composite
SB05A	SB05A-2TS	*Macoma nasuta*	2/6/13	1005	7279	160-1497-5												1	1	1	1	1	3	Lab to composite
SB05A	SB05A-3TS	*Macoma nasuta*	2/6/13	945	7279	160-1497-6																	3	Lab to composite
SB05A	SB05A-VV	*Macoma nasuta - sediment (van veen)*	12/18/12	1500	7303	160-1358-50	1	1	1														3	
SB07A	SB07A-1TS	*Macoma nasuta*	2/6/13	910	7279	160-1497-1																	3	Lab to composite
SB07A	SB07A-2TS	*Macoma nasuta*	2/6/13	925	7279	160-1497-2												1	1	1	1	1	3	Lab to composite
SB07A	SB07A-3TS	*Macoma nasuta*	2/6/13	845	7279	160-1497-3																	3	Lab to composite
SB07A	SB07A-VV	*Macoma nasuta - sediment (van veen)*	1/3/13	930	7208	160-1231-5	1	1	1														3	
SB101	SB101-1	ROC Core (Confirmatory)	1/31/13	1410	7271	160-1423-17	1	1	1														4	
SB101	SB101-2	ROC Core (Confirmatory)	1/31/13	1411	7271	160-1423-18	1	1	1														4	
SB101	SB101-3	ROC Core (Confirmatory)	1/31/13	1412	7271	160-1423-19	1	1	1														4	
SB101	SB101-4	ROC Core (Confirmatory)	1/31/13	1413	7271	160-1423-20	1	1	1														4	
SB102	SB102-1	ROC Core (Confirmatory)	2/5/13	1105	7276	160-1465-9	1	1	1														4	
SB102	SB102-2	ROC Core (Confirmatory)	2/5/13	1106	7276	160-1465-10	1	1	1														4	
SB102	SB102-3	ROC Core (Confirmatory)	2/5/13	1107	7277	160-1465-11	1	1	1														4	
SB102	SB102-4	ROC Core (Confirmatory)	2/5/13	1108	7277	160-1465-12	1	1	1														4	
SB103	SB103-1	ROC Core (Confirmatory)	2/4/13	1005	7274	160-1466-9	1	1	1														3	
SB103	SB103-2	ROC Core (Confirmatory)	2/4/13	1006	7274	160-1466-10	1	1	1														3	
SB103	SB103-3	ROC Core (Confirmatory)	2/4/13	1007	7275	160-1466-11	1	1	1														3	
SB103	SB103-4	ROC Core (Confirmatory)				NS	1	1	1															
SB104	SB104-1	ROC Core (Confirmatory)	1/31/13	1050	7270	160-1423-9	1	1	1														4	
SB104	SB104-2	ROC Core (Confirmatory)				NS	1	1	1															
SB104	SB104-3	ROC Core (Confirmatory)				NS	1	1	1															
SB104	SB104-4	ROC Core (Confirmatory)				NS	1	1	1															
SB105	SB105-1	ROC Core (Confirmatory)	1/31/13	1115	7270	160-1423-10	1	1	1														4	
SB105	SB105-2	ROC Core (Confirmatory)	1/31/13	1116	7271	160-1423-11	1	1	1														4	
SB105	SB105-3	ROC Core (Confirmatory)				NS	1	1	1															
SB105	SB105-4	ROC Core (Confirmatory)				NS	1	1	1															
SB106	SB106-1	ROC Core (Confirmatory)	1/28/13	1445	7263	160-1358-25	1	1	1														3	MS/MSD
SB106	SB106-2	ROC Core (Confirmatory)	1/28/13	1446	7263	160-1358-26	1	1	1														3	
SB106	SB106-3	ROC Core (Confirmatory)	1/28/13	1447	7263	160-1358-27	1	1	1														3	
SB106	SB106-4	ROC Core (Confirmatory)	1/28/13	1448	7263	160-1358-28	1	1	1														3	
SB107	SB107-1	ROC Core (Confirmatory)	1/31/13	1150	7271	160-1423-12	1	1	1	1	1	1											4	
SB107	SB107-2	ROC Core (Confirmatory)	1/31/13	1151	7271	160-1423-13	1	1	1	1	1	1											4	
SB107	SB107-3	ROC Core (Confirmatory)	1/31/13	1152	7271	160-1423-14	1	1	1	1	1	1											4	
SB107	SB107-4	ROC Core (Confirmatory)	1/31/13	1153	7271	160-1423-15	1	1	1	1	1	1											4	
SB108	SB108-1	ROC Core (Confirmatory)	1/28/13	1340	7263	160-1358-21	1	1	1														3	
SB108	SB108-2	ROC Core (Confirmatory)	1/28/13	1341	7263	160-1358-22	1	1	1														3	
SB108	SB108-3	ROC Core (Confirmatory)	1/28/13	1342	7263	160-1358-23	1	1	1														3	
SB108	SB108-4	ROC Core (Confirmatory)	1/28/13	1343	7263	160-1358-24	1	1	1														3	
SB201	SB201-1	ROC Core (AOC)	1/14/13	959	7222	160-1277-1	1	1	1														3	
SB201	SB201-2	ROC Core (AOC)	1/14/13	1000	7222	160-1277-2	1	1	1														3	
SB201	SB201-3	ROC Core (AOC)	1/14/13	1001	7222	160-1277-3	1	1	1														3	

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*							
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemisty*							
							Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
							EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Sample Delivery Group/ Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
SB201	SB201-4	ROC Core (AOC)	1/14/13	1002	7222	160-1277-4	1	1	1														3	
SB202	SB202-1	ROC Core (AOC)	1/14/13	1040	7222	160-1277-5	1	1	1														3	
SB202	SB202-2	ROC Core (AOC)	1/14/13	1041	7222	160-1277-6	1	1	1														3	
SB202	SB202-3	ROC Core (AOC)	1/14/13	1042	7222	160-1277-7	1	1	1														3	
SB202	SB202-4	ROC Core (AOC)	1/14/13	1043	7222	160-1277-8	1	1	1														3	

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*							
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*							
							Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
						Sample Delivery Group/	EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
SB203	SB203-1	ROC Core (AOC)	1/14/13	1117	7223	160-1277-9	1	1	1														3	MS/MSD
SB203	SB203-2	ROC Core (AOC)	1/14/13	1118	7223	160-1277-10	1	1	1														3	
SB203	SB203-3	ROC Core (AOC)	1/14/13	1119	7223	160-1277-11	1	1	1														3	
SB203	SB203-4	ROC Core (AOC)	1/14/13	1120	7223	160-1277-12	1	1	1														3	
SB204	SB204-1	ROC Core (AOC)	1/14/13	1153	7223	160-1277-13	1	1	1	1	1	1											3	
SB204	SB204-2	ROC Core (AOC)	1/14/13	1154	7223	160-1277-14	1	1	1	1	1	1											3	
SB204	SB204-3	ROC Core (AOC)	1/14/13	1155	7223	160-1277-15	1	1	1	1	1	1											3	
SB204	SB204-4	ROC Core (AOC)	1/14/13	1156	7223	160-1277-16	1	1	1	1	1	1											3	
SB204	SB205-1	ROC Core (AOC)	1/14/13	1340	7223	160-1277-17	1	1	1														3	
SB205	SB205-2	ROC Core (AOC)	1/14/13	1341	7223	160-1277-18	1	1	1														3	
SB205	SB205-3	ROC Core (AOC)	1/14/13	1342	7223	160-1277-19	1	1	1														3	
SB205	SB205-4	ROC Core (AOC)	1/14/13	1343	7223	160-1277-20	1	1	1														3	
SB206	SB206-1	ROC Core (AOC)	1/24/13	920	7245	160-1345-5	1	1	1														3	
SB206	SB206-2	ROC Core (AOC)	1/24/13	921	7245	160-1345-6	1	1	1														3	
SB206	SB206-3	ROC Core (AOC)	1/24/13	922	7245	160-1345-7	1	1	1														3	
SB206	SB206-4	ROC Core (AOC)	1/24/13	923	7245	160-1345-8	1	1	1														3	
SB207	SB207-1	ROC Core (AOC)	1/25/13	1005	7257	160-1355-9	1	1	1														3	
SB207	SB207-2	ROC Core (AOC)	1/25/13	1006	7257	160-1355-10	1	1	1														3	
SB207	SB207-3	ROC Core (AOC)	1/25/13	1007	7258	160-1355-11	1	1	1														3	
SB207	SB207-4	ROC Core (AOC)	1/25/13	1008	7258	160-1355-12	1	1	1														3	
SB208	SB208-1	ROC Core (AOC)	1/25/13	1045	7258	160-1355-13	1	1	1														3	
SB208	SB208-2	ROC Core (AOC)	1/25/13	1046	7258	160-1355-14	1	1	1														3	
SB208	SB208-3	ROC Core (AOC)	1/25/13	1047	7258	160-1355-15	1	1	1														3	
SB208	SB208-4	ROC Core (AOC)	1/25/13	1048	7258	160-1355-16	1	1	1														3	
SB209	SB209-1	ROC Core (AOC)	1/25/13	1124	7258	160-1355-17	1	1	1														3	MS/MSD
SB209	SB209-2	ROC Core (AOC)	1/25/13	1125	7258	160-1355-18	1	1	1														3	
SB209	SB209-3	ROC Core (AOC)	1/25/13	1126	7258	160-1355-19	1	1	1														3	
SB209	SB209-4	ROC Core (AOC)	1/25/13	1127	7258	160-1355-20	1	1	1														3	
SB210	SB210-1	ROC Core (AOC)	1/25/13	1250/1306	7301	160-1355-21/160-1355-25	1	1	1	1	1	1											3	
SB210	SB210-2	ROC Core (AOC)	1/25/13	1251/1307	7301	160-1355-22/160-1355-26	1	1	1	1	1	1											3	
SB210	SB210-3	ROC Core (AOC)	1/25/13	1252/1308	7301	160-1355-23/160-1355-27	1	1	1	1	1	1											3	
SB210	SB210-4	ROC Core (AOC)	1/25/13	1253/1309	7301	160-1355-24/160-1355-28	1	1	1	1	1	1											3	
SB211	SB211-1	ROC Core (AOC)	1/25/13	1341	7260	160-1355-32	1	1	1														3	
SB211	SB211-2	ROC Core (AOC)	1/25/13	1342	7260	160-1355-33	1	1	1														3	
SB211	SB211-3	ROC Core (AOC)	1/25/13	1343	7260	160-1355-34	1	1	1														3	
SB211	SB211-4	ROC Core (AOC)	1/25/13	1344	7260	160-1355-35	1	1	1														3	
SB212	SB212-1	ROC Core (AOC)	1/25/13	1415	7260	160-1355-36	1	1	1														3	
SB212	SB212-2	ROC Core (AOC)	1/25/13	1416	7260	160-1355-37	1	1	1														3	
SB212	SB212-3	ROC Core (AOC)	1/25/13	1417	7260	160-1355-29	1	1	1														3	
SB212	SB212-4	ROC Core (AOC)	1/25/13	1418	7260	160-1355-30	1	1	1														3	
SB213	SB213-1	ROC Core (AOC)				NS	1	1	1															
SB213	SB213-2	ROC Core (AOC)	1/28/13	900	7261	160-1358-1	1	1	1														3	
SB213	SB213-3	ROC Core (AOC)	1/28/13	901	7261	160-1358-2	1	1	1														3	
SB213	SB213-4	ROC Core (AOC)	1/28/13	902	7261	160-1358-3	1	1	1														3	
SB214	SB214-1	ROC Core (AOC)				NS	1	1	1															
SB214	SB214-2	ROC Core (AOC)				NS	1	1	1															
SB214	SB214-3	ROC Core (AOC)	1/28/13	1208	7262	160-1358-19	1	1	1														3	
SB214	SB214-4	ROC Core (AOC)	1/28/13	1209	7262	160-1358-20	1	1	1														3	
SB215	SB215-1	ROC Core (AOC)				NS	1	1	1															
SB215	SB215-2	ROC Core (AOC)	1/28/13	1135	7262	160-1358-16	1	1	1														3	
SB215	SB215-3	ROC Core (AOC)	1/28/13	1136	7262	160-1358-17	1	1	1														3	
SB215	SB215-4	ROC Core (AOC)	1/28/13	1137	7262	160-1358-18	1	1	1														3	
SB216	SB216-1	ROC Core (AOC)	1/28/13	940	7261	160-1358-4	1	1	1														3	MS/MSD
SB216	SB216-2	ROC Core (AOC)	1/28/13	941	7261	160-1358-5	1	1	1														3	
SB216	SB216-3	ROC Core (AOC)	1/28/13	942	7261	160-1358-6	1	1	1														3	
SB216	SB216-4	ROC Core (AOC)	1/28/13	943	7261	160-1358-7	1	1	1														3	
SB217	SB217-1	ROC Core (AOC)	1/28/13	1030	7261	160-1358-8	1	1	1														3	
SB217	SB217-2	ROC Core (AOC)	1/28/13	1031	7261	160-1358-9	1	1	1														3	
SB217	SB217-3	ROC Core (AOC)	1/28/13	1032	7261	160-1358-10	1	1	1														3	
SB217	SB217-4	ROC Core (AOC)	1/28/13	1033	7262	160-1358-11	1	1	1														3	
SB218	SB218-1	ROC Core (AOC)	1/28/13	1100	7262	160-1358-12	1	1	1														3	
SB218	SB218-2	ROC Core (AOC)	1/28/13	1101	7262	160-1358-13	1	1	1														3	
SB218	SB218-3	ROC Core (AOC)	1/28/13	1102	7262	160-1358-14	1	1	1														3	
SB218	SB218-4	ROC Core (AOC)	1/28/13	1103	7262	160-1358-15	1	1	1														3	
SB219	SB219-1	ROC Core (AOC)	1/31/13	1330	7271	160-1423-16	1	1	1														4	
SB219	SB219-2	ROC Core (AOC)				NS	1	1	1															
SB219	SB219-3	ROC Core (AOC)				NS	1	1	1															
SB219	SB219-4	ROC Core (AOC)				NS	1	1	1															
SB220	SB220-1	ROC Core (Step-out centered on SB04)				NS*	1	1	1	1	1	1												
SB220	SB220-2	ROC Core (Step-out centered on SB04)				NS*	1	1	1	1	1	1												
SB220	SB220-3	ROC Core (Step-out centered on SB04)				NS*	1	1	1	1	1	1												
SB220	SB220-4	ROC Core (Step-out centered on SB04)				NS*	1	1	1	1	1	1												
SB221	SB221-1	ROC Core (Step-out centered on SB04)				NS*	1	1	1															
SB221	SB221-2	ROC Core (Step-out centered on SB04)				NS*	1	1	1															
SB221	SB221-3	ROC Core (Step-out centered on SB04)				NS*	1	1	1															
SB221	SB221-4	ROC Core (Step-out centered on SB04)				NS*	1	1	1															

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*							
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemisty*							
						Sample Delivery Group/	Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
							EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
SB222	SB222-1	ROC Core (Step-out centered on SB04)				NS*	1	1	1															
SB222	SB222-2	ROC Core (Step-out centered on SB04)				NS*	1	1	1															
SB222	SB222-3	ROC Core (Step-out centered on SB04)				NS*	1	1	1															
SB222	SB222-4	ROC Core (Step-out centered on SB04)				NS*	1	1	1															

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*							
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*							
						Sample Delivery Group/	Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
							EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
SB223	SB223-1	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB223	SB223-2	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB223	SB223-3	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB223	SB223-4	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB224	SB224-1	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB224	SB224-2	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB224	SB224-3	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB224	SB224-4	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB225	SB225-1	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB225	SB225-2	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB225	SB225-3	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB225	SB225-4	ROC Core (Step-out centered on SB05)				NS*	1	1	1															
SB226	SB226-1	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB226	SB226-2	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB226	SB226-3	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB226	SB226-4	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB227	SB227-1	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB227	SB227-2	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB227	SB227-3	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB227	SB227-4	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB228	SB228-1	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB228	SB228-2	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB228	SB228-3	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB228	SB228-4	ROC Core (Step-out centered on SB06)				NS*	1	1	1															
SB229	SB229-1	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB229	SB229-2	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB229	SB229-3	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB229	SB229-4	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB230	SB230-1	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB230	SB230-2	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB230	SB230-3	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB230	SB230-4	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB231	SB231-1	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB231	SB231-2	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB231	SB231-3	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB231	SB231-4	ROC Core (Step-out centered on SB07)				NS*	1	1	1															
SB232	SB232-1	ROC Core (Step-out centered on SB09)	2/4/13	900	7274	160-1466-1	1	1	1														3	MS/MSD
SB232	SB232-2	ROC Core (Step-out centered on SB09)	2/4/13	901	7274	160-1466-2	1	1	1														3	
SB232	SB232-3	ROC Core (Step-out centered on SB09)	2/4/13	902	7274	160-1466-3	1	1	1														3	
SB232	SB232-4	ROC Core (Step-out centered on SB09)	2/4/13	903	7274	160-1466-4	1	1	1														3	
SB233	SB233-1	ROC Core (Step-out centered on SB09)	2/5/13	855	7276	160-1465-1	1	1	1														4	
SB233	SB233-2	ROC Core (Step-out centered on SB09)	2/5/13	856	7276	160-1465-2	1	1	1														4	
SB233	SB233-3	ROC Core (Step-out centered on SB09)	2/5/13	857	7276	160-1465-3	1	1	1														4	

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*						
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*						
							Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
							EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Sample Delivery Group/ Lab Sample ID*	TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR	Validation Level	Comments
SB233	SB233-4	ROC Core (Step-out centered on SB09)	2/5/13	858	7276	160-1465-4	1	1	1														4	
SB234	SB234-1	ROC Core (Step-out centered on SB09)	2/4/13	930	7274	160-1466-5	1	1	1														3	
SB234	SB234-2	ROC Core (Step-out centered on SB09)	2/4/13	931	7274	160-1466-6	1	1	1														3	
SB234	SB234-3	ROC Core (Step-out centered on SB09)	2/4/13	932	7274	160-1466-7	1	1	1														3	
SB234	SB234-4	ROC Core (Step-out centered on SB09)	2/4/13	933	7274	160-1466-8	1	1	1														3	
SB235	SB235-1	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB235	SB235-2	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB235	SB235-3	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB235	SB235-4	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB236	SB236-1	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB236	SB236-2	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB236	SB236-3	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB236	SB236-4	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB237	SB237-1	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB237	SB237-2	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB237	SB237-3	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB237	SB237-4	ROC Core (Step-out centered on SB10)				NS*	1	1	1															
SB238	SB238-1	ROC Core (Ship Shield Area)	1/25/13	925	7257	160-1355-5	1	1	1														3	
SB238	SB238-2	ROC Core (Ship Shield Area)	1/25/13	926	7257	160-1355-6	1	1	1														3	
SB238	SB238-3	ROC Core (Ship Shield Area)	1/25/13	927	7257	160-1355-7	1	1	1														3	
SB238	SB238-4	ROC Core (Ship Shield Area)	1/25/13	928	7257	160-1355-8	1	1	1														3	
SB239	SB239-1	ROC Core (Ship Shield Area)	1/24/13	1220	7247	160-1345-29	1	1	1	1	1	1											3	
SB239	SB239-2	ROC Core (Ship Shield Area)	1/24/13	1221	7247	160-1345-30	1	1	1	1	1	1											3	
SB239	SB239-3	ROC Core (Ship Shield Area)	1/24/13	1222	7248	160-1345-31	1	1	1	1	1	1											3	
SB239	SB239-4	ROC Core (Ship Shield Area)	1/24/13	1223	7248	160-1345-32	1	1	1	1	1	1											3	
SB240	SB240-1	ROC Core (Ship Shield Area)	1/24/13	1025	7246	160-1345-13	1	1	1														3	MS/MSD
SB240	SB240-2	ROC Core (Ship Shield Area)	1/24/13	1026	7246	160-1345-14	1	1	1														3	
SB240	SB240-3	ROC Core (Ship Shield Area)	1/24/13	1027	7246	160-1345-15	1	1	1														3	
SB240	SB240-4	ROC Core (Ship Shield Area)	1/24/13	1028	7246	160-1345-16	1	1	1														3	
SB241	SB241-1	ROC Core (Ship Shield Area)	1/24/13	1000	7245	160-1345-9	1	1	1														3	
SB241	SB241-2	ROC Core (Ship Shield Area)	1/24/13	1001	7245	160-1345-10	1	1	1														3	
SB241	SB241-3	ROC Core (Ship Shield Area)	1/24/13	1002	7246	160-1345-11	1	1	1														3	
SB241	SB241-4	ROC Core (Ship Shield Area)	1/24/13	1003	7246	160-1345-12	1	1	1														3	
SB242	SB242-1	ROC Core (Ship Shield Area)	1/24/13	1055	7246	160-1345-17	1	1	1														3	
SB242	SB242-2	ROC Core (Ship Shield Area)	1/24/13	1056	7246	160-1345-18	1	1	1														3	
SB242	SB242-3	ROC Core (Ship Shield Area)	1/24/13	1057	7246	160-1345-19	1	1	1														3	
SB242	SB242-4	ROC Core (Ship Shield Area)	1/24/13	1058	7246	160-1345-20	1	1	1														3	
SB243	SB243-1	ROC Core (Ship Shield Area)	1/24/13	1130	7247	160-1345-21	1	1	1														3	
SB243	SB243-2	ROC Core (Ship Shield Area)	1/24/13	1131	7247	160-1345-22	1	1	1														3	
SB243	SB243-3	ROC Core (Ship Shield Area)	1/24/13	1132	7247	160-1345-23	1	1	1														3	
SB243	SB243-4	ROC Core (Ship Shield Area)	1/24/13	1133	7247	160-1345-24	1	1	1														3	
SB244	SB244-1	ROC Core (Ship Shield Area)	1/24/13	1153	7247	160-1345-25	1	1	1														3	
SB244	SB244-2	ROC Core (Ship Shield Area)	1/24/13	1154	7247	160-1345-26	1	1	1														3	
SB244	SB244-3	ROC Core (Ship Shield Area)	1/24/13	1155	7247	160-1345-27	1	1	1														3	
SB244	SB244-4	ROC Core (Ship Shield Area)	1/24/13	1156	7247	160-1345-28	1	1	1														3	
SB245	SB245-1	ROC Core (Ship Shield Area)	1/25/13	910	7257	160-1355-1	1	1	1														3	
SB245	SB245-2	ROC Core (Ship Shield Area)	1/25/13	911	7257	160-1355-2	1	1	1														3	
SB245	SB245-3	ROC Core (Ship Shield Area)	1/25/13	912	7257	160-1355-3	1	1	1														3	
SB245	SB245-4	ROC Core (Ship Shield Area)	1/25/13	914	7257	160-1355-4	1	1	1														3	
SB246	SB246-1		2/5/13	925	7276	160-1465-5	1	1	1														4	MS/MSD
SB246	SB246-2		2/5/13	926	7276	160-1465-6	1	1	1														4	
SB246	SB246-3		2/5/13	927	7276	160-1465-7	1	1	1														4	
SB246	SB246-4		2/5/13	928	7276	160-1465-8	1	1	1														4	
RP01A	RP01A-TS	*Macoma nasuta* – Reference (Paradise Cove)	2/4/13	840	7273	160-1467-4												1	1	1	1	1	4	Lab to composite
RP02A	RP02A-TS	*Macoma nasuta* – Reference (Paradise Cove)	2/4/13	925	7273	160-1467-5																	4	Lab to composite
RP03A	RP03A-TS	*Macoma nasuta* – Reference (Paradise Cove)				NS																		Lab to composite
RP01A	RP01A-VV	*Macoma nasuta* – Reference (Paradise Cove) - sediment (van veen)	12/18/12	1127	7304	160-1358-43	1	1	1														3	
RP02A	RP02A-VV	*Macoma nasuta – Reference (Paradise Cove) - sediment (van veen)*	12/18/12	1215	7304	160-1358-44	1	1	1														3	MS/MSD
RP03A	RP03A-VV	*Macoma nasuta – Reference (Paradise Cove) - sediment (van veen)*	12/18/12	1245	7304	160-1358-45	1	1	1														3	
RY01A	RY01A-TS	*Macoma nasuta* – Reference (Oyster Point)	2/4/13	1145	7273	160-1467-1																	4	Lab to composite

Table 2-1 Summary of Samples Collected, Collection Date, Analysis Method, and Data Validation Level
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

							Sediment								*Water*			*Tissue*						
							Radiochemistry			*Geophysical*			*Geochronology*		*Radiochemistry*			*Radiochemistry*						
							Gamma	Sr-90	Pu-239	TOC	Particle Size	Bulk Density	Pb-210	Cs-137	Gamma	Sr-90	Pu-239	Cs-137 and gammas	Sr-90	Ra-226	U-235	Pu-239		
Location ID	*Sample ID*	*Description*	*Date Sampled*	*Time Sampled*	*COC Number*	*Sample Delivery Group/ Lab Sample ID*	EPA 901.1 Mod	EPA 905.0 Mod	A-01-R Iso-Pu	D4129	D422M	D2937M	EPA 901.1	EPA 901.1	EPA 901.1	EPA 905.0	A-01-R Iso-Pu	EPA 901.1 Mod	EPA 905 Mod	EPA 903.1 Mod	A-01-R Iso-U	A-01-R Iso-Pu	Validation Level	Comments
							TASL	TASL	TASL	ALS	TASL	TASL	TAR		TASL	TASL	TASL	TAR	TAR	TAR	TAR	TAR		
RY02A	RY02A-TS	*Macoma nasuta* – Reference (Oyster Point)	2/4/13	1216	7273	160-1467-2												1	1	1	1	1	4	Lab to composite
RY03A	RY03A-TS	*Macoma nasuta* – Reference (Oyster Point)	2/4/13	1243	7273	160-1467-3																	4	Lab to composite
RY01A	RY01A-VV	*Macoma nasuta* – Reference (Oyster Point)	12/18/12	1436	7304	160-1358-46	1	1	1									1	1	1	1	1	3	
RY02A	RY02A-VV	*Macoma nasuta* – Reference (Oyster Point)	12/18/12	1521	7304	160-1358-47	1	1	1									1	1	1	1	1	3	
RY03A	RY03A-VV	*Macoma nasuta* – Reference (Oyster Point)	12/18/12	1600	7304	130-1358-48	1	1	1									1	1	1	1	1	3	
RZ01	RZ01-TS	*Macoma nasuta* – Zero Time	12/18/12	930	7206	160-1181-1/46191-1												1	1	1	1	1	4	
	SB-USACE1	Soil Boring USACE	2/12/13	940	7281	160-1515-1									1	1	1						3	
FIELDQC	EB-010413	Equipment blank	1/4/13	1500	7208	160-1231-4									1	1	1						3	
FIELDQC	EB-010713	Equipment blank	1/7/13	1450	7252	160-1241-18									1	1	1						3	
FIELDQC	EB-010813	Equipment blank	1/8/13	1135	7254	160-1245-21									1	1	1						3	
FIELDQC	EB-010913	Equipment blank	1/9/13	1202	7212	160-1250-10									1	1	1						3	
FIELDQC	EB-011013	Equipment blank	1/10/13	1520	7221	160-1267-27									1	1	1						4	
FIELDQC	EB-011413	Equipment blank	1/14/13	1550	7224	160-1277-26									1	1	1						3	
FIELDQC	EB-011513	Equipment blank	1/15/13	1545	7227	160-1284-30									1	1	1						3	
FIELDQC	EB-011613	Equipment blank	1/16/13	1520	7230	160-1293-30									1	1	1						3	
FIELDQC	EB-011713	Equipment blank	1/17/13	1520	7234	160-1319-33									1	1	1						3	
FIELDQC	EB-012213	Equipment blank	1/22/13	1530	7238	160-1333-29									1	1	1						3	
FIELDQC	EB-012313	Equipment blank	1/23/13	1520	7241	160-1333-33									1	1	1						3	
FIELDQC	EB-012413	Equipment blank	1/24/13	1558	7249	160-1345-45									1	1	1						3	
FIELDQC	EB-012513	Equipment blank	1/25/13	1425	7260	160-1355-31									1	1	1						3	
FIELDQC	EB-012813	Equipment blank	1/28/13	1530	7263	160-1358-29									1	1	1						3	
FIELDQC	EB-012913	Equipment blank	1/29/13	1245	7306	160-1358-42									1	1	1						3	
FIELDQC	EB-013013	Equipment blank	1/30/13	1453	7268	160-1378-34									1	1	1						3	
FIELDQC	EB-013113	Equipment blank	1/31/13	1440	7272	160-1423-21									1	1	1						4	
FIELDQC	EB-020413	Equipment blank	2/4/13	1513	7275	160-1466-20									1	1	1						3	
FIELDQC	EB-020513	Equipment blank	2/5/13	1603	7277	160-1465-13									1	1	1						4	
FIELDQC	EB-021113	Equipment blank	2/11/13	1235	7280	160-1509-7									1	1	1						3	
FIELDQC	EB-021312	Equipment blank	2/12/13	1020	7281	160-1515-2									1	1	1						3	
FIELDQC	SB-021213	Source blank	2/12/13	1250	7281	160-1515-3									1	1	1						3	
SA01	SA01-3	Historic samples from TTEC	2/20/09	824	160-1054	160-1054-1	1	1	1														3	
BN01_2009	BN01-2	Historic samples from TTEC	2/20/09	1103	160-1054	160-1054-2	1	1	1														3	
BS12_2009	BS12-1	Historic samples from TTEC	2/21/09	1208	160-1054	160-1054-3	1	1	1														3	
BS12_2009	BS12-2	Historic samples from TTEC	2/21/09	1208	160-1054	160-1054-4	1	1	1														3	
SB04_2009	SB04-1	Historic samples from TTEC	2/21/09	1050	160-1054	160-1054-5	1	1	1														3	
SB04_2009	SB04-3	Historic samples from TTEC	2/21/09	1050	160-1054	160-1054-6	1	1	1														3	
SB05_2009	SB05-2	Historic samples from TTEC	2/21/09	1034	160-1054	160-1054-7	1	1	1														3	
SB05_2009	SB05-4	Historic samples from TTEC	2/21/09	1034	160-1054	160-1054-8	1	1	1														3	
SB06_2009	SB06-1	Historic samples from TTEC	2/21/09	1024	160-1054	160-1054-9	1	1	1														3	
SB07_2009	SB07-4	Historic samples from TTEC	2/21/09	1003	160-1054	160-1054-10	1	1	1														3	
SB10_2009	SB10-4	Historic samples from TTEC	2/21/09	948	160-1054	160-1054-11	1	1	1														3	

NS = not sampled
NS* = not sampled. Step outs were not to be sampled.
NS[1] = not sampled. Concrete bottom in Dry dock 4.
TASL = TestAmerica St Louis
TAR = TestAmerica Richland

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Actinium 228	0.68	J	0.68 J	0.090		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Actinium 228	1.1	J	1.1 J	0.14		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-1	BS127-1	1/23/2013	SE-N	E901.1	Actinium 228	0.35	J	0.35 J	0.096		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-2	BS127-2	1/23/2013	SE-N	E901.1	Actinium 228	0.68	J	0.68 J	0.063		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-3	BS127-3	1/23/2013	SE-N	E901.1	Actinium 228	0.81	J	0.81 J	0.052		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-4	BS127-4	1/23/2013	SE-N	E901.1	Actinium 228	0.73	J	0.73 J	0.037		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-5	BS130-1	1/23/2013	SE-N	E901.1	Actinium 228	0.60	J	0.60 J	0.046		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-6	BS130-2	1/23/2013	SE-N	E901.1	Actinium 228	0.72	J	0.72 J	0.042		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-7	BS130-3	1/23/2013	SE-N	E901.1	Actinium 228	0.87	J	0.87 J	0.059		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-8	BS130-4	1/23/2013	SE-N	E901.1	Actinium 228	0.64	J	0.64 J	0.056		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-9	BS124-1	1/23/2013	SE-N	E901.1	Actinium 228	0.62	J	0.62 J	0.060		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-10	BS124-2	1/23/2013	SE-N	E901.1	Actinium 228	0.77	J	0.77 J	0.042		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-11	BS124-3	1/23/2013	SE-N	E901.1	Actinium 228	0.66	J	0.66 J	0.047		PCI/G	X2

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1333-1_ErpSynectics_Itsi	160-1333-12	BS124-4	1/23/2013	SE-N	E901.1	Actinium 228	0.80	J	0.80 J	0.037		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-13	BS125-1	1/23/2013	SE-N	E901.1	Actinium 228	0.58	J	0.58 J	0.040		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-14	BS125-2	1/23/2013	SE-N	E901.1	Actinium 228	0.64	J	0.64 J	0.053		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-15	BS125-3	1/23/2013	SE-N	E901.1	Actinium 228	0.64	J	0.64 J	0.040		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-16	BS125-4	1/23/2013	SE-N	E901.1	Actinium 228	0.79	J	0.79 J	0.053		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-17	BS128-1	1/23/2013	SE-N	E901.1	Actinium 228	0.58	J	0.58 J	0.047		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-18	BS128-2	1/23/2013	SE-N	E901.1	Actinium 228	0.73	J	0.73 J	0.056		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-19	BS128-3	1/23/2013	SE-N	E901.1	Actinium 228	0.67	J	0.67 J	0.048		PCI/G	X2
160-1333-1_ErpSynectics_Itsi	160-1333-20	BS128-4	1/23/2013	SE-N	E901.1	Actinium 228	0.85	J	0.85 J	0.056		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Americium 241	-0.052	UJ	ND UJ	0.081		PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Americium 241	0.0000	UJ	ND UJ	0.060		PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Bismuth 212	0.76	J	0.76 J	0.44		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Bismuth 212	0.91	J	0.91 J	0.57		PCI/G	X2

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Bismuth 214	0.56	J	0.56 J	0.12		PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Bismuth 214	0.49	J	0.49 J	0.076		PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Cobalt 60	0.0015	UJ	ND UJ	0.045	0.036	PCI/G	X/X2
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Cobalt 60	-0.0004	UJ	ND UJ	0.049	0.036	PCI/G	X2
160-1267-1_ErpSynectics_Itsi	160-1267-24	BN317-2	1/10/2013	SE-N	E901.1	Cobalt 60	-0.0044	UJ	ND UJ	0.025	0.036	PCI/G	X2
160-1267-1_ErpSynectics_Itsi	160-1267-25	BN317-3	1/10/2013	SE-N	E901.1	Cobalt 60	0.010	UJ	ND UJ	0.019	0.036	PCI/G	X2
160-1267-1_ErpSynectics_Itsi	160-1267-26	BN317-4	1/10/2013	SE-N	E901.1	Cobalt 60	-0.030	UJ	ND UJ	0.027	0.036	PCI/G	X2
160-1267-1_ErpSynectics_Itsi	160-1267-21	BN315-3	1/10/2013	SE-N	E901.1	Cobalt 60	-0.0013	UJ	ND UJ	0.021	0.036	PCI/G	X2
160-1267-1_ErpSynectics_Itsi	160-1267-22	BN315-4	1/10/2013	SE-N	E901.1	Cobalt 60	0.0097	UJ	ND UJ	0.020	0.036	PCI/G	X2
160-1267-1_ErpSynectics_Itsi	160-1267-23	BN317-1	1/10/2013	SE-N	E901.1	Cobalt 60	0.0051	UJ	ND UJ	0.024	0.036	PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Cesium 137	0.037	UJ	ND UJ	0.044	0.070	PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Cesium 137	0.12	J	0.12 J	0.036	0.070	PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Europium 152	0.095	J	0.095 J	0.082		PCI/G	X2

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Europium 152	0.033	UJ	ND UJ	0.12		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Europium 154	0.027	UJ	ND UJ	0.34		PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Europium 154	0.048	UJ	ND UJ	0.28		PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Potassium 40	15.3	J	15.3 J	0.41		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Potassium 40	13.8	J	13.8 J	0.57		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-21	SB108-1	1/28/2013	SE-N	E901.1	Potassium 40	12.9	J	12.9 J	0.24		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-22	SB108-2	1/28/2013	SE-N	E901.1	Potassium 40	14.2	J	14.2 J	0.25		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-23	SB108-3	1/28/2013	SE-N	E901.1	Potassium 40	11.3	J	11.3 J	0.19		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-26	SB106-2	1/28/2013	SE-N	E901.1	Potassium 40	12.0	J	12.0 J	0.20		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-27	SB106-3	1/28/2013	SE-N	E901.1	Potassium 40	12.0	J	12.0 J	0.26		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-28	SB106-4	1/28/2013	SE-N	E901.1	Potassium 40	12.0	J	12.0 J	0.26		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-30	SA411-1	1/29/2013	SE-N	E901.1	Potassium 40	12.2	J	12.2 J	0.15		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-31	SA411-2	1/29/2013	SE-N	E901.1	Potassium 40	13.1	J	13.1 J	0.16		PCI/G	X2

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1358-1_ErpSynectics_Itsi	160-1358-32	SA411-3	1/29/2013	SE-N	E901.1	Potassium 40	12.0	J	12.0 J	0.21		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-33	SA411-4	1/29/2013	SE-N	E901.1	Potassium 40	12.4	J	12.4 J	0.26		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-34	SA412-1	1/29/2013	SE-N	E901.1	Potassium 40	12.2	J	12.2 J	0.18		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-24	SB108-4	1/28/2013	SE-N	E901.1	Potassium 40	13.2	J	13.2 J	0.29		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-25	SB106-1	1/28/2013	SE-N	E901.1	Potassium 40	11.8	J	11.8 J	0.22		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-35	SA412-2	1/29/2013	SE-N	E901.1	Potassium 40	13.5	J	13.5 J	0.20		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-36	SA412-3	1/29/2013	SE-N	E901.1	Potassium 40	14.2	J	14.2 J	0.27		PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-2	BN01-2	2/20/2009	SE-N	E901.1	Potassium 40	13.5	J	13.5 J	0.34		PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-3	BS12-1	2/21/2009	SE-N	E901.1	Potassium 40	12.0	J	12.0 J	0.17		PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-4	BS12-2	2/21/2009	SE-N	E901.1	Potassium 40	10.1	J	10.1 J	0.15		PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-6	SB04-3	2/21/2009	SE-N	E901.1	Potassium 40	13.9	J	13.9 J	0.23		PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-7	SB05-2	2/21/2009	SE-N	E901.1	Potassium 40	13.3	J	13.3 J	0.22		PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-1	SA01-3	2/20/2009	SE-N	E901.1	Potassium 40	12.2	J	12.2 J	0.21		PCI/G	X2

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1054-1_ErpSynectics_Itsi	160-1054-8	SB05-4	2/21/2009	SE-N	E901.1	Potassium 40	15.3	J	15.3 J	0.21		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-37	SA412-4	1/29/2013	SE-N	E901.1	Potassium 40	12.1	J	12.1 J	0.31		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-38	SA410-1	1/29/2013	SE-N	E901.1	Potassium 40	11.6	J	11.6 J	0.18		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-39	SA410-2	1/29/2013	SE-N	E901.1	Potassium 40	12.3	J	12.3 J	0.14		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-40	SA410-3	1/29/2013	SE-N	E901.1	Potassium 40	8.9	J	8.9 J	0.14		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-41	SA410-4	1/29/2013	SE-N	E901.1	Potassium 40	9.2	J	9.2 J	0.21		PCI/G	X2
ST54283_160-1181_Revised[1]	J2L2004261	RZ01-TS	12/18/2012	TA-N	E901.1	Potassium 40	2.1	J	2.1 J	0.12		PCI/G	D1
160-1054-1_ErpSynectics_Itsi	160-1054-9	SB06-1	2/21/2009	SE-N	E901.1	Potassium 40	11.6	J	11.6 J	0.24		PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-10	SB07-4	2/21/2009	SE-N	E901.1	Potassium 40	15.1	J	15.1 J	0.20		PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-11	SB10-4	2/21/2009	SE-N	E901.1	Potassium 40	15.1	J	15.1 J	0.38		PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-5	SB04-1	2/21/2009	SE-N	E901.1	Potassium 40	14.1	J	14.1 J	0.25		PCI/G	X2
160-1293-1_ErpSynectics_Itsi	160-1293-18	BS108-1	1/16/2013	SE-N	E901.1	Protactinium 234	0.061	J	0.061 J	0.056		PCI/G	B5

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1293-1_ErpSynectics_Itsi	160-1293-7	BN311-3	1/16/2013	SE-N	E901.1	Protactinium 234	0.12	J	0.12 J	0.044		PCI/G	B5
160-1293-1_ErpSynectics_Itsi	160-1293-17	BS105-4	1/16/2013	SE-N	E901.1	Protactinium 234	0.060	J	0.060 J	0.054		PCI/G	B5
160-1293-1_ErpSynectics_Itsi	160-1293-12	BN101-4	1/16/2013	SE-N	E901.1	Protactinium 234	0.069	J	0.069 J	0.049		PCI/G	B5
160-1293-1_ErpSynectics_Itsi	160-1293-1	BN310-1	1/16/2013	SE-N	E901.1	Protactinium 234	0.071	J	0.071 J	0.071		PCI/G	B5
160-1293-1_ErpSynectics_Itsi	160-1293-2	BN310-2	1/16/2013	SE-N	E901.1	Protactinium 234	0.081	J	0.081 J	0.072		PCI/G	B5
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Protactinium 234	0.069	UJ	ND UJ	0.16		PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Protactinium 234	0.026	UJ	ND UJ	0.12		PCI/G	X2
160-1378-1_ErpSynectics_Itsi	160-1378-21	SA419-4	1/30/2013	SE-N	E901.1	Protactinium 234	0.064	J	0.064 J	0.048		PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-22	SA420-1	1/30/2013	SE-N	E901.1	Protactinium 234	0.067	J	0.067 J	0.057		PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-25	SA420-4	1/30/2013	SE-N	E901.1	Protactinium 234	0.079	J	0.079 J	0.059		PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-29	SA426-4	1/30/2013	SE-N	E901.1	Protactinium 234	0.080	J	0.080 J	0.070		PCI/G	B5
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Lead 210	1.5	J	1.5 J	0.61		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Lead 210	-0.53	UJ	ND UJ	0.90		PCI/G	X2

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1466-1_ErpSynectics_Itsi	160-1466-7	SB234-3	2/4/2013	SE-N	E901.1	Lead 210	0.61	J	0.61 J	0.57		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-9	SB103-1	2/4/2013	SE-N	E901.1	Lead 210	1.2	J	1.2 J	0.60		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-10	SB103-2	2/4/2013	SE-N	E901.1	Lead 210	0.35	J	0.35 J	0.28		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-1	SB232-1	2/4/2013	SE-N	E901.1	Lead 210	1.4	J	1.4 J	0.39		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-2	SB232-2	2/4/2013	SE-N	E901.1	Lead 210	0.71	J	0.71 J	0.38		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-3	SB232-3	2/4/2013	SE-N	E901.1	Lead 210	0.87	J	0.87 J	0.63		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-4	SB232-4	2/4/2013	SE-N	E901.1	Lead 210	1.3	J	1.3 J	0.74		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-5	SB234-1	2/4/2013	SE-N	E901.1	Lead 210	1.7	J	1.7 J	0.49		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-6	SB234-2	2/4/2013	SE-N	E901.1	Lead 210	0.88	J	0.88 J	0.60		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-13	BN201-2	2/4/2013	SE-N	E901.1	Lead 210	1.6	J	1.6 J	0.55		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-14	BN201-3	2/4/2013	SE-N	E901.1	Lead 210	1.4	J	1.4 J	0.73		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-15	BN201-4	2/4/2013	SE-N	E901.1	Lead 210	1.0	J	1.0 J	0.45		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-16	BN202-1	2/4/2013	SE-N	E901.1	Lead 210	1.8	J	1.8 J	0.82		PCI/G	B5

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1466-1_ErpSynectics_Itsi	160-1466-17	BN202-2	2/4/2013	SE-N	E901.1	Lead 210	1.9	J	1.9 J	0.43		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-18	BN202-3	2/4/2013	SE-N	E901.1	Lead 210	1.8	J	1.8 J	0.61		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-19	BN202-4	2/4/2013	SE-N	E901.1	Lead 210	1.9	J	1.9 J	0.74		PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-8	SB234-4	2/4/2013	SE-N	E901.1	Lead 210	0.99	J	0.99 J	0.50		PCI/G	B5
ST54729_160-1497_Revised[1]	J3B0804144	SB05A-1TS	2/6/2013	TA-N	E901.1	Lead 210	0.11	J	0.11 J	0.076		PCI/G	B5
ST54729_160-1497_Revised[1]	J3B0804144	SB05A-1TS	2/6/2013	TA-N	E901.1	Lead 212	0.033	J	0.033 J	0.014		PCI/G	B5
ST54728_160-1496_Revised[1]	J3B0704099	BN11A-3TS	2/5/2013	TA-N	E901.1	Lead 212	0.028	J	0.028 J	0.019		PCI/G	B5
ST54728_160-1496_Revised[1]	J3B0704091	SB02A-3TS	2/5/2013	TA-N	E901.1	Lead 212	0.035	J	0.035 J	0.017		PCI/G	B5
ST54728_160-1496_Revised[1]	J3B0704097	BN11A-1TS	2/5/2013	TA-N	E901.1	Lead 212	0.021	J	0.021 J	0.016		PCI/G	B5
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Lead 212	0.76	J	0.76 J	0.086		PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Lead 212	0.62	J	0.62 J	0.066		PCI/G	X2

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1241-1_ErpSynecticcs_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Lead 214	0.57	J	0.57 J	0.075		PCI/G	X2
160-1358-1_ErpSynecticcs_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Lead 214	0.44	J	0.44 J	0.11		PCI/G	X2
ST54728_160-1496_Revised[1]	J3B0704099	BN11A-3TS	2/5/2013	TA-N	E901.1	Lead 214	0.071	J	0.071 J	0.026		PCI/G	B5
160-1355-1_ErpSynecticcs_Itsi	160-1355-10	SB207-2	1/25/2013	SE-N	A01RM	Plutonium 239	0.024	J	0.024 J	0.012	1.0	PCI/G	X2
160-1355-1_ErpSynecticcs_Itsi	160-1355-13	SB208-1	1/25/2013	SE-N	A01RM	Plutonium 239	0.021	J	0.021 J	0.012	1.0	PCI/G	X2
ST54729_160-1497_Revised[1]	J3B0804144	SB05A-1TS	2/6/2013	TA-N	E903.1	Radium 226	ND	UJ	ND UJ	0.085	0.70	PCI/G	X2
ST54729_160-1497_Revised[1]	J3B0804145	SB05A-2TS	2/6/2013	TA-N	E903.1	Radium 226	ND	UJ	ND UJ	0.083	0.70	PCI/G	X2
ST54729_160-1497_Revised[1]	J3B0804146	SB05A-3TS	2/6/2013	TA-N	E903.1	Radium 226	ND	UJ	ND UJ	0.068	0.70	PCI/G	X2
ST54729_160-1497_Revised[1]	J3B0804141	SB07A-1TS	2/6/2013	TA-N	E903.1	Radium 226	ND	UJ	ND UJ	0.084	0.70	PCI/G	X2
ST54729_160-1497_Revised[1]	J3B0804142	SB07A-2TS	2/6/2013	TA-N	E903.1	Radium 226	ND	UJ	ND UJ	0.071	0.70	PCI/G	X2
ST54729_160-1497_Revised[1]	J3B0804143	SB07A-3TS	2/6/2013	TA-N	E903.1	Radium 226	ND	UJ	ND UJ	0.11	0.70	PCI/G	X2

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Radium 226 (from daughters)	0.56	J	0.56 J	0.12	0.70	PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Radium 226 (from daughters)	0.49	J	0.49 J	0.076	0.70	PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-3	BN213-3	1/7/2013	SE-N	E905.0	Strontium 90	0.17	UJ	ND UJ	0.19	0.32	PCI/G	X
160-1284-1_ErpSynectics_Itsi	160-1284-1	BN107-1	1/15/2013	SE-N	E905.0	Strontium 90	-1.9	R	-1.9 R	0.28	0.32	PCI/G	Z
160-1284-1_ErpSynectics_Itsi	160-1284-6	BN109-2	1/15/2013	SE-N	E905.0	Strontium 90	-0.26	R	-0.26 R	0.12	0.32	PCI/G	Z
160-1284-1_ErpSynectics_Itsi	160-1284-7	BN109-3	1/15/2013	SE-N	E905.0	Strontium 90	-0.25	R	-0.25 R	0.14	0.32	PCI/G	Z
160-1284-1_ErpSynectics_Itsi	160-1284-12	BN111-4	1/15/2013	SE-N	E905.0	Strontium 90	-0.89	R	-0.89 R	0.24	0.32	PCI/G	Z
160-1241-1_ErpSynectics_Itsi	160-1241-16	BN226-1	1/7/2013	SE-N	E905.0	Strontium 90	0.079	UJ	ND UJ	0.18	0.32	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-15	SA418-4	1/30/2013	SE-N	E905.0	Strontium 90	0.16	UJ	ND UJ	0.22	0.32	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-9	SA413-2	1/30/2013	SE-N	E905.0	Strontium 90	-0.12	UJ	ND UJ	0.13	0.32	PCI/G	X2
160-1423-1_ErpSynectics_Itsi	160-1423-9	SB104-1	1/31/2013	SE-N	E905.0	Strontium 90	0.0033	UJ	ND UJ	0.23	0.32	PCI/G	X
160-1241-1_ErpSynectics_Itsi	160-1241-8	BN212-4	1/7/2013	SE-N	E905.0	Strontium 90	0.14	UJ	ND UJ	0.20	0.32	PCI/G	X
160-1284-1_ErpSynectics_Itsi	160-1284-8	BN109-4	1/15/2013	SE-N	E905.0	Strontium 90	-0.24	R	-0.24 R	0.12	0.32	PCI/G	Z

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1423-1_ErpSynectics_Itsi	160-1423-11	SB105-2	1/31/2013	SE-N	E905.0	Strontium 90	0.046	UJ	ND UJ	0.17	0.32	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-11	SB217-4	1/28/2013	SE-N	E905.0	Strontium 90	-0.0065	UJ	ND UJ	0.50	0.32	PCI/G	X/X2
160-1358-1_ErpSynectics_Itsi	160-1358-19	SB214-3	1/28/2013	SE-N	E905.0	Strontium 90	-0.0049	UJ	ND UJ	0.17	0.32	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-10	SB103-2	2/4/2013	SE-N	E905.0	Strontium 90	0.032	UJ	ND UJ	0.18	0.32	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-41	SA410-4	1/29/2013	SE-N	E905.0	Strontium 90	0.16	UJ	ND UJ	0.18	0.32	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-1	BS109-1	1/17/2013	SE-N	E905.0	Strontium 90	-0.043	UJ	ND UJ	0.18	0.32	PCI/G	X2
160-1319-1_ErpSynectics_Itsi[1]	160-1319-28	BS113-4	1/17/2013	SE-N	E905.0	Strontium 90	-0.49	R	-0.49 R	0.19	0.32	PCI/G	Z
160-1319-1_ErpSynectics_Itsi[1]	160-1319-16	BS118-4	1/17/2013	SE-N	E905.0	Strontium 90	-0.22	R	-0.22 R	0.15	0.32	PCI/G	Z
160-1333-1_ErpSynectics_Itsi	160-1333-5	BS130-1	1/23/2013	SE-N	E905.0	Strontium 90	0.097	UJ	ND UJ	0.17	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-4	BS127-4	1/23/2013	SE-N	E905.0	Strontium 90	-0.037	UJ	ND UJ	0.15	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-3	BS127-3	1/23/2013	SE-N	E905.0	Strontium 90	0.073	UJ	ND UJ	0.13	0.32	PCI/G	B4
160-1358-1_ErpSynectics_Itsi	160-1358-46	RY01A-VV	12/18/2012	SE-N	E905.0	Strontium 90	-0.22	R	-0.22 R	0.15	0.32	PCI/G	Z
160-1333-1_ErpSynectics_Itsi	160-1333-2	BS127-2	1/23/2013	SE-N	E905.0	Strontium 90	0.14	UJ	ND UJ	0.16	0.32	PCI/G	B4

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1333-1_ErpSynecticcs_Itsi	160-1333-1	BS127-1	1/23/2013	SE-N	E905.0	Strontium 90	-0.025	UJ	ND UJ	0.15	0.32	PCI/G	B4
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-5	BS116-1	1/22/2013	SE-N	E905.0	Strontium 90	0.094	UJ	ND UJ	0.20	0.32	PCI/G	X
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-6	BS116-2	1/22/2013	SE-N	E905.0	Strontium 90	0.17	UJ	ND UJ	0.19	0.32	PCI/G	X
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-7	BS116-3	1/22/2013	SE-N	E905.0	Strontium 90	-0.77	R	-0.77 R	0.24	0.32	PCI/G	Z
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-10	BS117-2	1/22/2013	SE-N	E905.0	Strontium 90	0.066	UJ	ND UJ	0.18	0.32	PCI/G	X
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-11	BS117-3	1/22/2013	SE-N	E905.0	Strontium 90	0.0000	UJ	ND UJ	0.19	0.32	PCI/G	X
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-12	BS117-4	1/22/2013	SE-N	E905.0	Strontium 90	0.019	UJ	ND UJ	0.19	0.32	PCI/G	X
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-15	BS122-3	1/22/2013	SE-N	E905.0	Strontium 90	0.014	UJ	ND UJ	0.20	0.32	PCI/G	X
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-17	BS123-1	1/22/2013	SE-N	E905.0	Strontium 90	-0.20	UJ	ND UJ	0.20	0.32	PCI/G	X2
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-27	BS120-3	1/22/2013	SE-N	E905.0	Strontium 90	0.068	UJ	ND UJ	0.24	0.32	PCI/G	X
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-28	BS120-4	1/22/2013	SE-N	E905.0	Strontium 90	0.015	UJ	ND UJ	0.28	0.32	PCI/G	X
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-20	BS123-4	1/22/2013	SE-N	E905.0	Strontium 90	-0.016	UJ	ND UJ	0.18	0.32	PCI/G	X
160-1325-1_ErpSynecticcs_Itsi[1]	160-1325-1	BS115-1	1/22/2013	SE-N	E905.0	Strontium 90	0.18	UJ	ND UJ	0.18	0.32	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1054-1_ErpSynectics_Itsi	160-1054-8	SB05-4	2/21/2009	SE-N	E905.0	Strontium 90	0.0051	UJ	ND UJ	0.26	3.0	PCI/G	X
160-1054-1_ErpSynectics_Itsi	160-1054-7	SB05-2	2/21/2009	SE-N	E905.0	Strontium 90	0.028	UJ	ND UJ	0.32	3.0	PCI/G	X
160-1054-1_ErpSynectics_Itsi	160-1054-6	SB04-3	2/21/2009	SE-N	E905.0	Strontium 90	0.12	UJ	ND UJ	0.29	3.0	PCI/G	X
160-1054-1_ErpSynectics_Itsi	160-1054-4	BS12-2	2/21/2009	SE-N	E905.0	Strontium 90	0.15	UJ	ND UJ	0.33	3.0	PCI/G	X
160-1054-1_ErpSynectics_Itsi	160-1054-3	BS12-1	2/21/2009	SE-N	E905.0	Strontium 90	0.021	UJ	ND UJ	0.33	3.0	PCI/G	X
160-1333-1_ErpSynectics_Itsi	160-1333-19	BS128-3	1/23/2013	SE-N	E905.0	Strontium 90	0.021	UJ	ND UJ	0.13	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-20	BS128-4	1/23/2013	SE-N	E905.0	Strontium 90	0.071	UJ	ND UJ	0.14	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-27	BS102-3	1/23/2013	SE-N	E905.0	Strontium 90	-0.60	R	-0.60 R	0.18	0.32	PCI/G	Z
160-1333-1_ErpSynectics_Itsi	160-1333-18	BS128-2	1/23/2013	SE-N	E905.0	Strontium 90	0.14	J	0.14 J	0.13	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-15	BS125-3	1/23/2013	SE-N	E905.0	Strontium 90	0.096	UJ	ND UJ	0.15	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-17	BS128-1	1/23/2013	SE-N	E905.0	Strontium 90	-0.12	UJ	ND UJ	0.14	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-16	BS125-4	1/23/2013	SE-N	E905.0	Strontium 90	-0.010	UJ	ND UJ	0.14	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-14	BS125-2	1/23/2013	SE-N	E905.0	Strontium 90	-0.15	UJ	ND UJ	0.17	0.32	PCI/G	B4

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1333-1_ErpSynectics_Itsi	160-1333-13	BS125-1	1/23/2013	SE-N	E905.0	Strontium 90	-0.012	UJ	ND UJ	0.15	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-12	BS124-4	1/23/2013	SE-N	E905.0	Strontium 90	0.15	J	0.15 J	0.15	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-11	BS124-3	1/23/2013	SE-N	E905.0	Strontium 90	-0.13	UJ	ND UJ	0.17	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-8	BS130-4	1/23/2013	SE-N	E905.0	Strontium 90	0.15	UJ	ND UJ	0.15	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-10	BS124-2	1/23/2013	SE-N	E905.0	Strontium 90	0.084	UJ	ND UJ	0.17	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-9	BS124-1	1/23/2013	SE-N	E905.0	Strontium 90	0.12	UJ	ND UJ	0.14	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-7	BS130-3	1/23/2013	SE-N	E905.0	Strontium 90	0.036	UJ	ND UJ	0.14	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-6	BS130-2	1/23/2013	SE-N	E905.0	Strontium 90	0.023	UJ	ND UJ	0.14	0.32	PCI/G	B4
160-1333-1_ErpSynectics_Itsi	160-1333-26	BS102-2	1/23/2013	SE-N	E905.0	Strontium 90	-0.15	UJ	ND UJ	0.15	0.32	PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-2	BN01-2	2/20/2009	SE-N	E905.0	Strontium 90	-0.012	UJ	ND UJ	0.32	3.0	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-9	SB207-1	1/25/2013	SE-N	E905.0	Strontium 90	-0.77	R	-0.77 R	0.20	0.32	PCI/G	Z
160-1345-1_ErpSynectics_Itsi	160-1345-37	BN308-1	1/24/2013	SE-N	E905.0	Strontium 90	-0.18	UJ	ND UJ	0.13	0.32	PCI/G	X2
160-1345-1_ErpSynectics_Itsi	160-1345-38	BN308-2	1/24/2013	SE-N	E905.0	Strontium 90	-0.28	R	-0.28 R	0.16	0.32	PCI/G	Z

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1355-1_ErpSynectics_Itsi	160-1355-14	SB208-2	1/25/2013	SE-N	E905.0	Strontium 90	-0.027	UJ	ND UJ	0.24	0.32	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-16	SB208-4	1/25/2013	SE-N	E905.0	Strontium 90	-0.24	UJ	ND UJ	0.28	0.32	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-17	SB209-1	1/25/2013	SE-N	E905.0	Strontium 90	-0.21	R	-0.21 R	0.13	0.32	PCI/G	Z
160-1293-1_ErpSynectics_Itsi	160-1293-2	BN310-2	1/16/2013	SE-N	E905.0	Strontium 90	0.15	UJ	ND UJ	0.25	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-1	BN310-1	1/16/2013	SE-N	E905.0	Strontium 90	0.030	UJ	ND UJ	0.34	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-12	BN101-4	1/16/2013	SE-N	E905.0	Strontium 90	-0.086	UJ	ND UJ	0.13	0.32	PCI/G	X/X2
160-1355-1_ErpSynectics_Itsi	160-1355-5	SB238-1	1/25/2013	SE-N	E905.0	Strontium 90	0.10	UJ	ND UJ	0.17	0.32	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-4	SB245-4	1/25/2013	SE-N	E905.0	Strontium 90	0.050	UJ	ND UJ	0.21	0.32	PCI/G	X
160-1293-1_ErpSynectics_Itsi	160-1293-10	BN101-2	1/16/2013	SE-N	E905.0	Strontium 90	0.19	UJ	ND UJ	0.26	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-9	BN101-1	1/16/2013	SE-N	E905.0	Strontium 90	0.17	UJ	ND UJ	0.29	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-11	BN101-3	1/16/2013	SE-N	E905.0	Strontium 90	0.18	UJ	ND UJ	0.27	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-17	BS105-4	1/16/2013	SE-N	E905.0	Strontium 90	-0.24	UJ	ND UJ	0.26	0.32	PCI/G	X2
160-1293-1_ErpSynectics_Itsi	160-1293-26	BS106-1	1/16/2013	SE-N	E905.0	Strontium 90	-0.21	R	-0.21 R	0.13	0.32	PCI/G	Z

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1293-1_ErpSynectics_Itsi	160-1293-28	BS106-3	1/16/2013	SE-N	E905.0	Strontium 90	-0.68	R	-0.68 R	0.17	0.32	PCI/G	Z
160-1293-1_ErpSynectics_Itsi	160-1293-13	BS104-1	1/16/2013	SE-N	E905.0	Strontium 90	-0.064	UJ	ND UJ	0.29	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-14	BS104-2	1/16/2013	SE-N	E905.0	Strontium 90	-0.055	UJ	ND UJ	0.27	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-15	BS104-3	1/16/2013	SE-N	E905.0	Strontium 90	0.18	UJ	ND UJ	0.24	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-16	BS104-4	1/16/2013	SE-N	E905.0	Strontium 90	-0.0064	UJ	ND UJ	0.26	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-7	BN311-3	1/16/2013	SE-N	E905.0	Strontium 90	0.087	UJ	ND UJ	0.26	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-8	BN311-4	1/16/2013	SE-N	E905.0	Strontium 90	-0.014	UJ	ND UJ	0.26	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-3	BN310-3	1/16/2013	SE-N	E905.0	Strontium 90	0.0036	UJ	ND UJ	0.26	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-4	BN310-4	1/16/2013	SE-N	E905.0	Strontium 90	0.0099	UJ	ND UJ	0.26	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-5	BN311-1	1/16/2013	SE-N	E905.0	Strontium 90	0.15	UJ	ND UJ	0.28	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-6	BN311-2	1/16/2013	SE-N	E905.0	Strontium 90	0.038	UJ	ND UJ	0.33	0.32	PCI/G	X/X2
160-1293-1_ErpSynectics_Itsi	160-1293-18	BS108-1	1/16/2013	SE-N	E905.0	Strontium 90	-0.66	R	-0.66 R	0.27	0.32	PCI/G	Z
160-1293-1_ErpSynectics_Itsi	160-1293-19	BS108-2	1/16/2013	SE-N	E905.0	Strontium 90	0.047	UJ	ND UJ	0.21	0.32	PCI/G	X/X2

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1293-1_ErpSynectics_Itsi	160-1293-20	BS108-3	1/16/2013	SE-N	E905.0	Strontium 90	0.27	UJ	0.27 UJ	0.21	0.32	PCI/G	X2
160-1267-1_ErpSynectics_Itsi	160-1267-14	BN313-3	1/10/2013	SE-N	E905.0	Strontium 90	-0.63	R	-0.63 R	0.18	0.32	PCI/G	Z
160-1277-1_ErpSynectics_Itsi[1]	160-1277-3	SB201-3	1/14/2013	SE-N	E905.0	Strontium 90	-0.52	R	-0.52 R	0.19	0.32	PCI/G	Z
160-1054-1_ErpSynectics_Itsi	160-1054-5	SB04-1	2/21/2009	SE-N	E905.0	Strontium 90	0.040	UJ	ND UJ	0.31	3.0	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-11	BN217-3	1/8/2013	SE-N	E905.0	Strontium 90	0.093	UJ	ND UJ	0.40	0.32	PCI/G	X/X2
160-1245-1_ErpSynectics_Itsi	160-1245-12	BN217-4	1/8/2013	SE-N	E905.0	Strontium 90	0.049	UJ	ND UJ	0.20	0.32	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-14	BN218-3	1/8/2013	SE-N	E905.0	Strontium 90	0.12	UJ	ND UJ	0.48	0.32	PCI/G	X/X2
160-1245-1_ErpSynectics_Itsi	160-1245-18	BN219-4	1/8/2013	SE-N	E905.0	Strontium 90	0.060	UJ	ND UJ	0.18	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-1	BN210-2	1/9/2013	SE-N	E905.0	Strontium 90	0.098	UJ	ND UJ	0.27	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-2	BN210-3	1/9/2013	SE-N	E905.0	Strontium 90	0.41	UJ	ND UJ	0.82	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-5	BN209-3	1/9/2013	SE-N	E905.0	Strontium 90	-0.35	UJ	ND UJ	0.39	0.32	PCI/G	X
160-1054-1_ErpSynectics_Itsi	160-1054-11	SB10-4	2/21/2009	SE-N	E905.0	Strontium 90	0.079	UJ	ND UJ	0.28	3.0	PCI/G	X
160-1054-1_ErpSynectics_Itsi	160-1054-1	SA01-3	2/20/2009	SE-N	E905.0	Strontium 90	0.22	UJ	ND UJ	0.29	3.0	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

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SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1054-1_ErpSynectics_Itsi	160-1054-10	SB07-4	2/21/2009	SE-N	E905.0	Strontium 90	0.11	UJ	ND UJ	0.32	3.0	PCI/G	X
160-1054-1_ErpSynectics_Itsi	160-1054-9	SB06-1	2/21/2009	SE-N	E905.0	Strontium 90	0.066	UJ	ND UJ	0.35	3.0	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-2	BN214-2	1/8/2013	SE-N	E905.0	Strontium 90	-0.18	R	-0.18 R	0.13	0.32	PCI/G	Z
160-1250-1_ErpSynectics_Itsi	160-1250-6	BN209-4	1/9/2013	SE-N	E905.0	Strontium 90	-0.0036	UJ	ND UJ	0.26	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-7	BN207-2	1/9/2013	SE-N	E905.0	Strontium 90	-0.0041	UJ	ND UJ	0.21	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-8	BN207-3	1/9/2013	SE-N	E905.0	Strontium 90	0.20	UJ	ND UJ	0.34	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-9	BN207-4	1/9/2013	SE-N	E905.0	Strontium 90	-0.081	UJ	ND UJ	0.21	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-12	BN206-2	1/9/2013	SE-N	E905.0	Strontium 90	0.028	UJ	ND UJ	0.30	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-13	BN206-3	1/9/2013	SE-N	E905.0	Strontium 90	0.080	UJ	ND UJ	0.17	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-14	BN206-4	1/9/2013	SE-N	E905.0	Strontium 90	-0.027	UJ	ND UJ	0.25	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-15	BN205-1	1/9/2013	SE-N	E905.0	Strontium 90	-0.22	UJ	ND UJ	0.25	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-17	BN205-3	1/9/2013	SE-N	E905.0	Strontium 90	-0.061	UJ	ND UJ	0.21	0.32	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-19	BN203-2	1/9/2013	SE-N	E905.0	Strontium 90	-0.051	UJ	ND UJ	0.22	0.32	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1250-1_ErpSynecticS_Itsi	160-1250-20	BN203-3	1/9/2013	SE-N	E905.0	Strontium 90	0.10	UJ	ND UJ	0.17	0.32	PCI/G	X
160-1345-1_ErpSynecticS_Itsi	160-1345-18	SB242-2	1/24/2013	SE-N	E905.0	Strontium 90	-0.037	UJ	ND UJ	0.23	0.32	PCI/G	X
160-1345-1_ErpSynecticS_Itsi	160-1345-19	SB242-3	1/24/2013	SE-N	E905.0	Strontium 90	0.16	UJ	ND UJ	0.23	0.32	PCI/G	X
160-1345-1_ErpSynecticS_Itsi	160-1345-20	SB242-4	1/24/2013	SE-N	E905.0	Strontium 90	-0.32	R	-0.32 R	0.12	0.32	PCI/G	Z
160-1345-1_ErpSynecticS_Itsi	160-1345-26	SB244-2	1/24/2013	SE-N	E905.0	Strontium 90	-0.15	UJ	ND UJ	0.14	0.32	PCI/G	X2
160-1345-1_ErpSynecticS_Itsi	160-1345-28	SB244-4	1/24/2013	SE-N	E905.0	Strontium 90	-0.63	R	-0.63 R	0.17	0.32	PCI/G	Z
160-1345-1_ErpSynecticS_Itsi	160-1345-3	BS129-3	1/24/2013	SE-N	E905.0	Strontium 90	0.032	UJ	ND UJ	0.23	0.32	PCI/G	X
160-1345-1_ErpSynecticS_Itsi	160-1345-4	BS129-4	1/24/2013	SE-N	E905.0	Strontium 90	0.14	UJ	ND UJ	0.28	0.32	PCI/G	X
160-1345-1_ErpSynecticS_Itsi	160-1345-8	SB206-4	1/24/2013	SE-N	E905.0	Strontium 90	-0.011	UJ	ND UJ	0.28	0.32	PCI/G	X
160-1345-1_ErpSynecticS_Itsi	160-1345-9	SB241-1	1/24/2013	SE-N	E905.0	Strontium 90	-0.81	R	-0.81 R	0.25	0.32	PCI/G	Z
160-1345-1_ErpSynecticS_Itsi	160-1345-14	SB240-2	1/24/2013	SE-N	E905.0	Strontium 90	-0.40	R	-0.40 R	0.12	0.32	PCI/G	Z
160-1277-1_ErpSynecticS_Itsi[1]	160-1277-17	SB205-1	1/14/2013	SE-N	E905.0	Strontium 90	0.15	UJ	ND UJ	0.19	0.32	PCI/G	X
160-1277-1_ErpSynecticS_Itsi[1]	160-1277-1	SB201-1	1/14/2013	SE-N	E905.0	Strontium 90	-0.17	UJ	ND UJ	0.14	0.32	PCI/G	X2

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

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SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1277-1_ErpSynectics_Itsi[1]	160-1277-18	SB205-2	1/14/2013	SE-N	E905.0	Strontium 90	0.16	UJ	ND UJ	0.24	0.32	PCI/G	X
160-1277-1_ErpSynectics_Itsi[1]	160-1277-19	SB205-3	1/14/2013	SE-N	E905.0	Strontium 90	-0.054	UJ	ND UJ	0.17	0.32	PCI/G	X
160-1277-1_ErpSynectics_Itsi[1]	160-1277-16	SB204-4	1/14/2013	SE-N	E905.0	Strontium 90	0.11	UJ	ND UJ	0.17	0.32	PCI/G	X
ST54283_160-1181_Revised[1]	J2L2004261	RZ01-TS	12/18/2012	TA-N	E905.0	STRONTIUM TOTAL	ND	UJ	ND UJ	0.11	0.17	PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Thorium 234	1.1	J	1.1 J	0.78		PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Thorium 234	1.7	J	1.7 J	0.57		PCI/G	X2
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Thallium 208	0.34	J	0.34 J	0.030		PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Thallium 208	0.24	J	0.24 J	0.056		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-9	SB102-1	2/5/2013	SE-N	E901.1	Thallium 208	0.22	J	0.22 J	0.022		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-10	SB102-2	2/5/2013	SE-N	E901.1	Thallium 208	0.26	J	0.26 J	0.015		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-11	SB102-3	2/5/2013	SE-N	E901.1	Thallium 208	0.27	J	0.27 J	0.023		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-12	SB102-4	2/5/2013	SE-N	E901.1	Thallium 208	0.29	J	0.29 J	0.022		PCI/G	X2

Table 2-2
Qualified Results Table
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Parcel F Rad SAP Amendment
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SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1465-1_ErpSynectics_Itsi	160-1465-1	SB233-1	2/5/2013	SE-N	E901.1	Thallium 208	0.19	J	0.19 J	0.019		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-2	SB233-2	2/5/2013	SE-N	E901.1	Thallium 208	0.21	J	0.21 J	0.018		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-3	SB233-3	2/5/2013	SE-N	E901.1	Thallium 208	0.28	J	0.28 J	0.014		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-4	SB233-4	2/5/2013	SE-N	E901.1	Thallium 208	0.36	J	0.36 J	0.017		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-5	SB246-1	2/5/2013	SE-N	E901.1	Thallium 208	0.27	J	0.27 J	0.014		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-6	SB246-2	2/5/2013	SE-N	E901.1	Thallium 208	0.32	J	0.32 J	0.020		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-7	SB246-3	2/5/2013	SE-N	E901.1	Thallium 208	0.27	J	0.27 J	0.022		PCI/G	X2
160-1465-1_ErpSynectics_Itsi	160-1465-8	SB246-4	2/5/2013	SE-N	E901.1	Thallium 208	0.27	J	0.27 J	0.019		PCI/G	X2
160-1054-1_ErpSynectics_Itsi	160-1054-2	BN01-2	2/20/2009	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.18	0.20	PCI/G	X
160-1465-1_ErpSynectics_Itsi	160-1465-4	SB233-4	2/5/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1333-1_ErpSynectics_Itsi	160-1333-27	BS102-3	1/23/2013	SE-N	E901.1	Uranium 235	0.072	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1333-1_ErpSynectics_Itsi	160-1333-20	BS128-4	1/23/2013	SE-N	E901.1	Uranium 235	0.068	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1465-1_ErpSynectics_Itsi	160-1465-2	SB233-2	2/5/2013	SE-N	E901.1	Uranium 235	-0.020	UJ	ND UJ	0.11	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1333-1_ErpSynectics_Itsi	160-1333-6	BS130-2	1/23/2013	SE-N	E901.1	Uranium 235	0.098	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1333-1_ErpSynectics_Itsi	160-1333-8	BS130-4	1/23/2013	SE-N	E901.1	Uranium 235	0.059	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1333-1_ErpSynectics_Itsi	160-1333-10	BS124-2	1/23/2013	SE-N	E901.1	Uranium 235	0.081	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1333-1_ErpSynectics_Itsi	160-1333-15	BS125-3	1/23/2013	SE-N	E901.1	Uranium 235	0.070	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1333-1_ErpSynectics_Itsi	160-1333-17	BS128-1	1/23/2013	SE-N	E901.1	Uranium 235	0.077	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-1	BS109-1	1/17/2013	SE-N	E901.1	Uranium 235	0.080	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-32	BS114-4	1/17/2013	SE-N	E901.1	Uranium 235	0.019	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-17	BS119-1	1/17/2013	SE-N	E901.1	Uranium 235	0.12	UJ	ND UJ	0.14	0.20	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-24	BS112-4	1/17/2013	SE-N	E901.1	Uranium 235	0.095	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-26	BS113-2	1/17/2013	SE-N	E901.1	Uranium 235	0.056	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-28	BS113-4	1/17/2013	SE-N	E901.1	Uranium 235	0.0021	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-2	BS109-2	1/17/2013	SE-N	E901.1	Uranium 235	0.062	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-4	BS109-4	1/17/2013	SE-N	E901.1	Uranium 235	0.14	UJ	ND UJ	0.15	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
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Parcel F DGI Phase 2b Sampling Event

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SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1319-1_ErpSynectics_Itsi[1]	160-1319-7	BS110-3	1/17/2013	SE-N	E901.1	Uranium 235	0.037	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-12	BS111-4	1/17/2013	SE-N	E901.1	Uranium 235	0.094	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1319-1_ErpSynectics_Itsi[1]	160-1319-14	BS118-2	1/17/2013	SE-N	E901.1	Uranium 235	0.061	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-43	RP01A-VV	12/18/2012	SE-N	E901.1	Uranium 235	0.10	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-45	RP03A-VV	12/18/2012	SE-N	E901.1	Uranium 235	0.092	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-39	SA410-2	1/29/2013	SE-N	E901.1	Uranium 235	0.046	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1325-1_ErpSynectics_Itsi[1]	160-1325-3	BS115-3	1/22/2013	SE-N	E901.1	Uranium 235	0.082	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1325-1_ErpSynectics_Itsi[1]	160-1325-21	BS121-1	1/22/2013	SE-N	E901.1	Uranium 235	0.0000	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1325-1_ErpSynectics_Itsi[1]	160-1325-22	BS121-2	1/22/2013	SE-N	E901.1	Uranium 235	0.087	UJ	ND UJ	0.14	0.20	PCI/G	X
160-1325-1_ErpSynectics_Itsi[1]	160-1325-29	BS126-1	1/22/2013	SE-N	E901.1	Uranium 235	0.092	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1325-1_ErpSynectics_Itsi[1]	160-1325-31	BS126-3	1/22/2013	SE-N	E901.1	Uranium 235	0.029	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1325-1_ErpSynectics_Itsi[1]	160-1325-32	BS126-4	1/22/2013	SE-N	E901.1	Uranium 235	0.12	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1325-1_ErpSynectics_Itsi[1]	160-1325-19	BS123-3	1/22/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.14	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
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SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1325-1_ErpSynectics_Itsi[1]	160-1325-16	BS122-4	1/22/2013	SE-N	E901.1	Uranium 235	0.082	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1325-1_ErpSynectics_Itsi[1]	160-1325-14	BS122-2	1/22/2013	SE-N	E901.1	Uranium 235	0.043	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1325-1_ErpSynectics_Itsi[1]	160-1325-8	BS116-4	1/22/2013	SE-N	E901.1	Uranium 235	0.091	UJ	ND UJ	0.15	0.20	PCI/G	X
160-1333-1_ErpSynectics_Itsi	160-1333-1	BS127-1	1/23/2013	SE-N	E901.1	Uranium 235	0.13	UJ	ND UJ	0.14	0.20	PCI/G	X
160-1325-1_ErpSynectics_Itsi[1]	160-1325-7	BS116-3	1/22/2013	SE-N	E901.1	Uranium 235	0.12	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1333-1_ErpSynectics_Itsi	160-1333-2	BS127-2	1/23/2013	SE-N	E901.1	Uranium 235	0.068	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-15	SB218-4	1/28/2013	SE-N	E901.1	Uranium 235	0.35	J	0.35 J	0.18	0.20	PCI/G	X2
160-1358-1_ErpSynectics_Itsi	160-1358-14	SB218-3	1/28/2013	SE-N	E901.1	Uranium 235	0.13	UJ	ND UJ	0.14	0.20	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-7	SB234-3	2/4/2013	SE-N	E901.1	Uranium 235	0.14	J	0.14 J	0.093	0.20	PCI/G	B5
160-1358-1_ErpSynectics_Itsi	160-1358-17	SB215-3	1/28/2013	SE-N	E901.1	Uranium 235	0.029	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-36	SA412-3	1/29/2013	SE-N	E901.1	Uranium 235	0.076	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-25	SB106-1	1/28/2013	SE-N	E901.1	Uranium 235	0.075	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-34	SA412-1	1/29/2013	SE-N	E901.1	Uranium 235	0.031	UJ	ND UJ	0.10	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
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Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1358-1_ErpSynectics_Itsi	160-1358-28	SB106-4	1/28/2013	SE-N	E901.1	Uranium 235	0.10	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-23	SB108-3	1/28/2013	SE-N	E901.1	Uranium 235	0.068	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-21	SB108-1	1/28/2013	SE-N	E901.1	Uranium 235	0.064	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-11	SB103-3	2/4/2013	SE-N	E901.1	Uranium 235	0.16	J	0.16 J	0.089	0.20	PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-9	SB103-1	2/4/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-3	SB232-3	2/4/2013	SE-N	E901.1	Uranium 235	0.14	J	0.14 J	0.11	0.20	PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-2	SB232-2	2/4/2013	SE-N	E901.1	Uranium 235	0.043	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-14	BN201-3	2/4/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-13	BN201-2	2/4/2013	SE-N	E901.1	Uranium 235	0.17	J	0.17 J	0.067	0.20	PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-6	SB234-2	2/4/2013	SE-N	E901.1	Uranium 235	0.019	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-4	SB232-4	2/4/2013	SE-N	E901.1	Uranium 235	0.038	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-8	SB234-4	2/4/2013	SE-N	E901.1	Uranium 235	0.13	J	0.13 J	0.083	0.20	PCI/G	B5
160-1358-1_ErpSynectics_Itsi	160-1358-1	SB213-2	1/28/2013	SE-N	E901.1	Uranium 235	0.075	UJ	ND UJ	0.12	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1358-1_ErpSynectics_Itsi	160-1358-2	SB213-3	1/28/2013	SE-N	E901.1	Uranium 235	0.066	UJ	ND UJ	0.093	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-5	SB216-2	1/28/2013	SE-N	E901.1	Uranium 235	0.044	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-8	SB217-1	1/28/2013	SE-N	E901.1	Uranium 235	0.10	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-10	SB217-3	1/28/2013	SE-N	E901.1	Uranium 235	0.074	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1358-1_ErpSynectics_Itsi	160-1358-11	SB217-4	1/28/2013	SE-N	E901.1	Uranium 235	0.047	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-19	BN202-4	2/4/2013	SE-N	E901.1	Uranium 235	0.14	J	0.14 J	0.11	0.20	PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-18	BN202-3	2/4/2013	SE-N	E901.1	Uranium 235	0.12	J	0.12 J	0.12	0.20	PCI/G	B5
160-1466-1_ErpSynectics_Itsi	160-1466-16	BN202-1	2/4/2013	SE-N	E901.1	Uranium 235	0.032	UJ	ND UJ	0.16	0.20	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-15	BN201-4	2/4/2013	SE-N	E901.1	Uranium 235	0.17	J	0.17 J	0.086	0.20	PCI/G	B5
160-1241-1_ErpSynectics_Itsi	160-1241-17	BN229-1	1/7/2013	SE-N	E901.1	Uranium 235	0.048	UJ	ND UJ	0.21	0.20	PCI/G	X2
160-1284-1_ErpSynectics_Itsi	160-1284-18	BN316-3	1/15/2013	SE-N	E901.1	Uranium 235	0.012	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1284-1_ErpSynectics_Itsi	160-1284-19	BN316-4	1/15/2013	SE-N	E901.1	Uranium 235	0.097	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1284-1_ErpSynectics_Itsi	160-1284-20	BN103-3	1/15/2013	SE-N	E901.1	Uranium 235	0.099	UJ	ND UJ	0.11	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1284-1_ErpSynectics_Itsi	160-1284-23	BN102-2	1/15/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1284-1_ErpSynectics_Itsi	160-1284-26	BN309-1	1/15/2013	SE-N	E901.1	Uranium 235	0.083	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1423-1_ErpSynectics_Itsi	160-1423-2	SA422-2	1/31/2013	SE-N	E901.1	Uranium 235	0.14	UJ	ND UJ	0.15	0.20	PCI/G	X
160-1423-1_ErpSynectics_Itsi	160-1423-14	SB107-3	1/31/2013	SE-N	E901.1	Uranium 235	0.094	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1284-1_ErpSynectics_Itsi	160-1284-8	BN109-4	1/15/2013	SE-N	E901.1	Uranium 235	0.089	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1241-1_ErpSynectics_Itsi	160-1241-4	BN213-4	1/7/2013	SE-N	E901.1	Uranium 235	0.039	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1241-1_ErpSynectics_Itsi	160-1241-5	BN212-1	1/7/2013	SE-N	E901.1	Uranium 235	0.094	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1241-1_ErpSynectics_Itsi	160-1241-7	BN212-3	1/7/2013	SE-N	E901.1	Uranium 235	0.098	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1241-1_ErpSynectics_Itsi	160-1241-10	BN211-4	1/7/2013	SE-N	E901.1	Uranium 235	0.077	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1241-1_ErpSynectics_Itsi	160-1241-12	BN224-1	1/7/2013	SE-N	E901.1	Uranium 235	0.048	UJ	ND UJ	0.17	0.20	PCI/G	X
160-1241-1_ErpSynectics_Itsi	160-1241-14	BN230-1	1/7/2013	SE-N	E901.1	Uranium 235	0.071	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1423-1_ErpSynectics_Itsi	160-1423-4	SA422-4	1/31/2013	SE-N	E901.1	Uranium 235	0.064	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1423-1_ErpSynectics_Itsi	160-1423-6	BS103-2	1/31/2013	SE-N	E901.1	Uranium 235	0.046	UJ	ND UJ	0.11	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1423-1_ErpSynectics_Itsi	160-1423-20	SB101-4	1/31/2013	SE-N	E901.1	Uranium 235	-0.0029	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1284-1_ErpSynectics_Itsi	160-1284-10	BN111-2	1/15/2013	SE-N	E901.1	Uranium 235	0.065	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1241-1_ErpSynectics_Itsi	160-1241-16	BN226-1	1/7/2013	SE-N	E901.1	Uranium 235	0.14	UJ	ND UJ	0.16	0.20	PCI/G	X
160-1423-1_ErpSynectics_Itsi	160-1423-17	SB101-1	1/31/2013	SE-N	E901.1	Uranium 235	0.092	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-19	SA419-2	1/30/2013	SE-N	E901.1	Uranium 235	0.13	J	0.13 J	0.10	0.20	PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-20	SA419-3	1/30/2013	SE-N	E901.1	Uranium 235	0.14	UJ	0.14 UJ	0.080	0.20	PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-10	SA413-3	1/30/2013	SE-N	E901.1	Uranium 235	0.0042	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-11	SA413-4	1/30/2013	SE-N	E901.1	Uranium 235	0.17	J	0.17 J	0.10	0.20	PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-8	SA413-1	1/30/2013	SE-N	E901.1	Uranium 235	0.089	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-9	SA413-2	1/30/2013	SE-N	E901.1	Uranium 235	0.088	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-4	SA414-1	1/30/2013	SE-N	E901.1	Uranium 235	0.13	J	0.13 J	0.079	0.20	PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-5	SA414-2	1/30/2013	SE-N	E901.1	Uranium 235	0.091	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-6	SA414-3	1/30/2013	SE-N	E901.1	Uranium 235	0.064	UJ	ND UJ	0.11	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1378-1_ErpSynectics_Itsi	160-1378-7	SA414-4	1/30/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-3	SA415-4	1/30/2013	SE-N	E901.1	Uranium 235	0.12	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-18	SA416-4	1/30/2013	SE-N	E901.1	Uranium 235	0.15	J	0.15 J	0.084	0.20	PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-1	SA417-3	1/30/2013	SE-N	E901.1	Uranium 235	0.061	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-2	SA417-4	1/30/2013	SE-N	E901.1	Uranium 235	0.041	UJ	ND UJ	0.15	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-12	SA418-1	1/30/2013	SE-N	E901.1	Uranium 235	0.20	J	0.20 J	0.087	0.20	PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-13	SA418-2	1/30/2013	SE-N	E901.1	Uranium 235	0.13	J	0.13 J	0.11	0.20	PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-14	SA418-3	1/30/2013	SE-N	E901.1	Uranium 235	-0.0034	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-22	SA420-1	1/30/2013	SE-N	E901.1	Uranium 235	0.075	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-29	SA426-4	1/30/2013	SE-N	E901.1	Uranium 235	0.093	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1466-1_ErpSynectics_Itsi	160-1466-12	BN201-1	2/4/2013	SE-N	E901.1	Uranium 235	0.19	J	0.19 J	0.067	0.20	PCI/G	B5
160-1378-1_ErpSynectics_Itsi	160-1378-26	SA426-1	1/30/2013	SE-N	E901.1	Uranium 235	0.084	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1378-1_ErpSynectics_Itsi	160-1378-28	SA426-3	1/30/2013	SE-N	E901.1	Uranium 235	0.086	UJ	ND UJ	0.11	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1277-1_ErpSynectics_Itsi[1]	160-1277-17	SB205-1	1/14/2013	SE-N	E901.1	Uranium 235	0.084	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1277-1_ErpSynectics_Itsi[1]	160-1277-20	SB205-4	1/14/2013	SE-N	E901.1	Uranium 235	0.049	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1277-1_ErpSynectics_Itsi[1]	160-1277-24	BN318-3	1/14/2013	SE-N	E901.1	Uranium 235	0.082	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1277-1_ErpSynectics_Itsi[1]	160-1277-22	BN318-1	1/14/2013	SE-N	E901.1	Uranium 235	0.10	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1277-1_ErpSynectics_Itsi[1]	160-1277-1	SB201-1	1/14/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.14	0.20	PCI/G	X
160-1345-1_ErpSynectics_Itsi	160-1345-36	BN312-4	1/24/2013	SE-N	E901.1	Uranium 235	0.069	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1345-1_ErpSynectics_Itsi	160-1345-14	SB240-2	1/24/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1345-1_ErpSynectics_Itsi	160-1345-9	SB241-1	1/24/2013	SE-N	E901.1	Uranium 235	0.074	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1345-1_ErpSynectics_Itsi	160-1345-6	SB206-2	1/24/2013	SE-N	E901.1	Uranium 235	0.095	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1345-1_ErpSynectics_Itsi	160-1345-4	BS129-4	1/24/2013	SE-N	E901.1	Uranium 235	0.035	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1345-1_ErpSynectics_Itsi	160-1345-3	BS129-3	1/24/2013	SE-N	E901.1	Uranium 235	0.072	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1345-1_ErpSynectics_Itsi	160-1345-22	SB243-2	1/24/2013	SE-N	E901.1	Uranium 235	0.098	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1345-1_ErpSynectics_Itsi	160-1345-19	SB242-3	1/24/2013	SE-N	E901.1	Uranium 235	0.063	UJ	ND UJ	0.12	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1250-1_ErpSynectics_Itsi	160-1250-21	BN203-4	1/9/2013	SE-N	E901.1	Uranium 235	0.12	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-22	BN204-1	1/9/2013	SE-N	E901.1	Uranium 235	0.13	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1345-1_ErpSynectics_Itsi	160-1345-17	SB242-1	1/24/2013	SE-N	E901.1	Uranium 235	-0.0005	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-23	BN204-2	1/9/2013	SE-N	E901.1	Uranium 235	0.094	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-24	BN204-3	1/9/2013	SE-N	E901.1	Uranium 235	0.094	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-26	BN208-2	1/9/2013	SE-N	E901.1	Uranium 235	0.092	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-28	BN208-4	1/9/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-15	BN205-1	1/9/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.14	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-13	BN206-3	1/9/2013	SE-N	E901.1	Uranium 235	0.080	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-11	BN206-1	1/9/2013	SE-N	E901.1	Uranium 235	0.085	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-3	BN214-3	1/8/2013	SE-N	E901.1	Uranium 235	0.10	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-4	BN214-4	1/8/2013	SE-N	E901.1	Uranium 235	0.091	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-6	BN215-4	1/8/2013	SE-N	E901.1	Uranium 235	0.057	UJ	ND UJ	0.13	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1245-1_ErpSynectics_Itsi	160-1245-8	BN216-2	1/8/2013	SE-N	E901.1	Uranium 235	0.091	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-9	BN216-3	1/8/2013	SE-N	E901.1	Uranium 235	0.10	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-10	BN216-4	1/8/2013	SE-N	E901.1	Uranium 235	0.12	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-11	BN217-3	1/8/2013	SE-N	E901.1	Uranium 235	0.069	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1054-1_ErpSynectics_Itsi	160-1054-11	SB10-4	2/21/2009	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.16	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-6	BN209-4	1/9/2013	SE-N	E901.1	Uranium 235	0.10	UJ	ND UJ	0.15	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-3	BN210-4	1/9/2013	SE-N	E901.1	Uranium 235	0.072	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1250-1_ErpSynectics_Itsi	160-1250-2	BN210-3	1/9/2013	SE-N	E901.1	Uranium 235	0.090	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-13	BN218-2	1/8/2013	SE-N	E901.1	Uranium 235	0.097	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-12	BN217-4	1/8/2013	SE-N	E901.1	Uranium 235	0.10	UJ	ND UJ	0.15	0.20	PCI/G	X
160-1245-1_ErpSynectics_Itsi	160-1245-2	BN214-2	1/8/2013	SE-N	E901.1	Uranium 235	0.023	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1054-1_ErpSynectics_Itsi	160-1054-5	SB04-1	2/21/2009	SE-N	E901.1	Uranium 235	0.072	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1277-1_ErpSynectics_Itsi[1]	160-1277-4	SB201-4	1/14/2013	SE-N	E901.1	Uranium 235	0.047	UJ	ND UJ	0.13	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

ITSI Gilbane

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1277-1_ErpSynectics_Itsi[1]	160-1277-8	SB202-4	1/14/2013	SE-N	E901.1	Uranium 235	0.073	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1267-1_ErpSynectics_Itsi	160-1267-23	BN317-1	1/10/2013	SE-N	E901.1	Uranium 235	0.097	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1267-1_ErpSynectics_Itsi	160-1267-1	BN104-1	1/10/2013	SE-N	E901.1	Uranium 235	0.072	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1267-1_ErpSynectics_Itsi	160-1267-2	BN104-2	1/10/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1277-1_ErpSynectics_Itsi[1]	160-1277-13	SB204-1	1/14/2013	SE-N	E901.1	Uranium 235	-0.023	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1267-1_ErpSynectics_Itsi	160-1267-15	BN313-4	1/10/2013	SE-N	E901.1	Uranium 235	0.041	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1267-1_ErpSynectics_Itsi	160-1267-18	BN314-4	1/10/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1267-1_ErpSynectics_Itsi	160-1267-21	BN315-3	1/10/2013	SE-N	E901.1	Uranium 235	0.078	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1267-1_ErpSynectics_Itsi	160-1267-9	BN106-2	1/10/2013	SE-N	E901.1	Uranium 235	0.10	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1267-1_ErpSynectics_Itsi	160-1267-11	BN106-4	1/10/2013	SE-N	E901.1	Uranium 235	0.053	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1267-1_ErpSynectics_Itsi	160-1267-13	BN313-2	1/10/2013	SE-N	E901.1	Uranium 235	0.089	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1293-1_ErpSynectics_Itsi	160-1293-13	BS104-1	1/16/2013	SE-N	E901.1	Uranium 235	0.061	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1293-1_ErpSynectics_Itsi	160-1293-15	BS104-3	1/16/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.11	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1293-1_ErpSynectics_Itsi	160-1293-23	BS107-2	1/16/2013	SE-N	E901.1	Uranium 235	0.071	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1293-1_ErpSynectics_Itsi	160-1293-26	BS106-1	1/16/2013	SE-N	E901.1	Uranium 235	0.084	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1293-1_ErpSynectics_Itsi	160-1293-10	BN101-2	1/16/2013	SE-N	E901.1	Uranium 235	0.068	UJ	ND UJ	0.16	0.20	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-7	SB238-3	1/25/2013	SE-N	E901.1	Uranium 235	0.12	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-2	SB245-2	1/25/2013	SE-N	E901.1	Uranium 235	0.091	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-4	SB245-4	1/25/2013	SE-N	E901.1	Uranium 235	0.087	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1293-1_ErpSynectics_Itsi	160-1293-3	BN310-3	1/16/2013	SE-N	E901.1	Uranium 235	0.095	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1293-1_ErpSynectics_Itsi	160-1293-2	BN310-2	1/16/2013	SE-N	E901.1	Uranium 235	0.037	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-19	SB209-3	1/25/2013	SE-N	E901.1	Uranium 235	0.097	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-24	SB210-4	1/25/2013	SE-N	E901.1	Uranium 235	0.090	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-37	SB212-2	1/25/2013	SE-N	E901.1	Uranium 235	0.080	UJ	ND UJ	0.10	0.20	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-29	SB212-3	1/25/2013	SE-N	E901.1	Uranium 235	0.13	UJ	ND UJ	0.13	0.20	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-17	SB209-1	1/25/2013	SE-N	E901.1	Uranium 235	0.090	UJ	ND UJ	0.11	0.20	PCI/G	X

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

SDG	Lab Sample ID	Sample ID	Sample Collection Date	Type	Analysis	Parameter	Original Value	Qualifier	New Value	MDL	RL	Units	Reason
160-1355-1_ErpSynectics_Itsi	160-1355-16	SB208-4	1/25/2013	SE-N	E901.1	Uranium 235	0.11	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1345-1_ErpSynectics_Itsi	160-1345-44	BN307-4	1/24/2013	SE-N	E901.1	Uranium 235	0.10	UJ	ND UJ	0.11	0.20	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-9	SB207-1	1/25/2013	SE-N	E901.1	Uranium 235	0.049	UJ	ND UJ	0.12	0.20	PCI/G	X
160-1355-1_ErpSynectics_Itsi	160-1355-14	SB208-2	1/25/2013	SE-N	E901.1	Uranium 235	0.093	UJ	ND UJ	0.14	0.20	PCI/G	X

Matrix / Sample Type

Matrix	Matrix Description	Sample Code	Sample Code Description
SE	SEDIMENT (ASSOCIATED WITH SURFACE WATER)	N	Normal Environmental Sample
TA	ANIMAL TISSUE	N	Normal Environmental Sample

Data Qualifier Definitions

Flag	Description
J	Estimated: The analyte was positively identified, the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
R	The data are rejected due to deficiencies in meeting QC criteria and may not be used for decision making.
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

Reason and Comment Code Definitions

Code	Description
B4	Negative Blank
B5	The analyte was found in an associated blank as well as in the sample.
D1	Lab Replicate RPD

Table 2-2
Qualified Results Table
Parcel F Radiological DGI
Parcel F Rad SAP Amendment
Parcel F DGI Phase 2b Sampling Event

Reason and Comment Code Definitions

Code	Description
X	Raised reporting limit
X2	Qualified due to professional judgment, see data validation narrative.
Z	Data rejected due to radiological anomolies

Table 3-1 Summary of Equipment Blank Detections and Affected Samples
Quality Control Summary Report
Parcel F Phase 2b Data Gap Investigation
Hunters Point Naval Shipyard, California

Sample ID	Analyte	Result	MDL/ MDA	RL	Units	SDG	Samples Affected
EB-010413	Protactinium 234	14.2	11.9		pCi/L	160-1231-1	None
EB-010413	Lead 210	127	106		pCi/L	160-1231-1	None
EB-010713	Uranium 235	25.3	25.2		pCi/L	160-1241-1	None
EB-011013	Uranium 235	25	19.5		pCi/L	160-1267-1	None
EB-011013	Strontium 90	0.279	0.185	3	pCi/L	160-1267-1	None
EB-011413	Uranium 235	6.71	21.9		pCi/L	160-1277-1	None
EB-011713	Strontium 90	0.279	0.148	3	pCi/L	160-1319-1	None
EB-012213	Bismuth 214	17.6	11.9		pCi/L	160-1325-1	None
EB-012213	Protactinium 234	20.3	10.2		pCi/L	160-1325-1	None
EB-012213	Lead 210	103	84.6		pCi/L	160-1325-1	None
EB-012213	Radium 226 (from daughters)	17.6	11.9	50	pCi/L	160-1325-1	None
EB-012313	Lead 214	24.8	10.7		pCi/L	160-1333-1	None
EB-012913	Strontium 90	0.184	0.148	3	pCi/L	160-1358-1	None
EB-013013	Strontium 90	0.112	0.0973	3	pCi/L	160-1378-1	None
EB-020413	Strontium 90	0.0914	0.0655	3	pCi/L	160-1466-1	None

Notes:

MDA= minimum detectable activity
MDL= method detection limit
pCi/g = picocurie per gram
pCi/L = picocurie per liter
RL= reporting limit
SDG = sample delivery group

ATTACHMENT A

VALIDATION REPORTS

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90)
DATA VALIDATION DATE:	March 01, 2013
SDG NUMBER:	160-1054
SAMPLING DATE(S):	February 20, 2009 - February 21, 2009

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
SA01-3	160-1054-1	Sediment	X	X	X
BN01-2	160-1054-2	Sediment	X	X	X
BS12-1	160-1054-3	Sediment	X	X	X
BS12-2	160-1054-4	Sediment	X	X	X
SB04-1	160-1054-5	Sediment	X	X	X
SB04-3	160-1054-6	Sediment	X	X	X
SB05-2	160-1054-7	Sediment	X	X	X
SB05-4	160-1054-8	Sediment	X	X	X
SB06-1	160-1054-9	Sediment	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
SB07-4	160-1054-10	Sediment	X	X	X
SB10-4	160-1054-11	Sediment	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1054 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-21126 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Actinium-228	0.0708 pCi/g	0.0439 pCi/g	3.22

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. All affected detected sample results for Actinium-228 in the associated samples were demonstrated to be significantly different ($Z_{DERs} > 2.58$); therefore, no data qualification was required.

All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SA01-3 (batch 21126) of this SDG. The MD sample had an RER value of 1.19 for Potassium-40, exceeding the SAP precision requirement of RER $\leq$ 1. The following associated sample results were all detected and were assigned a validation qualifier of estimated (J).

Isotope	Client Sample ID	Detect	Qualifier
Potassium-40	SA01-3	Yes	J
	BN01-2	Yes	J
	BS12-1	Yes	J
	BS12-2	Yes	J
	SB04-1	Yes	J
	SB04-3	Yes	J
	SB05-2	Yes	J
	SB05-4	Yes	J
	SB06-1	Yes	J
	SB07-4	Yes	J
	SB10-4	Yes	J

All other MD criteria were met. No additional data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BN01-1	0.179 pCi/g	0.100 pCi/g
	SB04-1	0.106 pCi/g	0.100 pCi/g
	SB10-4	0.162 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SA01-3 (batch 23888) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for any of the samples in this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SA01-3 (batch 21991) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for any of the samples in this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	SA01-3	0.292 pCi/g	0.170 pCi/g
	BN01-2	0.323 pCi/g	0.170 pCi/g
	BS12-1	0.328 pCi/g	0.170 pCi/g
	BS12-2	0.328 pCi/g	0.170 pCi/g
	SB04-1	0.306 pCi/g	0.170 pCi/g
	SB04-3	0.287 pCi/g	0.170 pCi/g
Strontium-90	SB05-2	0.318 pCi/g	0.170 pCi/g
	SB05-4	0.262 pCi/g	0.170 pCi/g
	SB06-1	0.350 pCi/g	0.170 pCi/g
	SB07-4	0.316 pCi/g	0.170 pCi/g
	SB10-4	0.281 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1054

Client Sample ID	Laboratory Sample ID	Isotope	Reason Code	Validated Qualifier
BN01-1	160-1054-2	Uranium-235	X	UJ
SB04-1	160-1054-5	Uranium-235	X	UJ
SB10-4	160-1054-11	Uranium-235	X	UJ
All Samples	All Samples	Potassium-40	X2	J
All Samples	All Samples	Strontium-90	X	UJ

VALIDATA
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4070 Balleycastle Lane, Duluth, GA 30097
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www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
SUBCONTRACTED LAB:	TestAmerica, Inc. – Richland, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level IV
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, EPA 903.1
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Tissue
TYPE OF ANALYSES:	Gamma Spectroscopy, (Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Uranium-235, Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Alpha Scintillation, (Radium-226)
DATA VALIDATION DATE:	March 02, 2013
SDG NUMBER:	160-1181
SAMPLING DATE(S):	January 10, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	U-235	Sr-90	Ra-226
RZ01-TS	J2L200426-1	Tissue	X	X	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE, EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1181 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Two primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60 and Cesium-137. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample RZ01-TS (batch 2356062) of this SDG. The following detected sample result was qualified as estimated (J) for an MD result exceeding SAP precision requirements.

Client Sample ID	Isotope	RPD	RPD Limit
RZ01-TS	Potassium-40	43.5%	≤ 40 %

All other MD criteria were met. No additional data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

ALPHA SPECTROMETRY METHODS (Uranium-235, Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample RZ01-TS (batches 2356064 and 2356065) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The Method Blank for batch 2356068 detection limit exceeded the SAP reporting limit due to a low but acceptable carrier recovery. The associated client sample result was non-detected; therefore, no data qualification was required.

Lab Sample ID	Isotope	Detection Limit	Reporting Limit
Blank 2356068	Strontium-90	0.201 pCi/g	0.170 pCi/g

All other Blank criteria were met. No data qualification was required.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample RZ01-TS (batch 2356068) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

The Strontium carrier for the LCS recovered below the laboratory QC limit of 20% yield (17%). The LCS recovered at 78%, within the SAP and laboratory QC limits; therefore, no data qualification was required. All other Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following isotope activity in the sample listed was negative by an absolute value between two and three times the total propagated uncertainty, indicating negative bias. This result was assigned a validation qualifier of estimated (UJ).

Isotope	Field Sample ID	Sigma Value
Strontium-90	RZ01-TS	2.75

All other Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

RADIUM-226

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 903.1 for the Radium-226 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample RZ01-TS (batch 2356066) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Radium-226 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - 160-1181

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
RZ01-TS	J2L200426-1	Potassium-40	J
RZ01-TS	J2L200426-1	Strontium-90	UJ

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
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www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90)
DATA VALIDATION DATE:	February 27, 2013
SDG NUMBER:	160-1231
SAMPLING DATE(S):	January 03, 2013 - January 04, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BN221-1	160-1231-1	Sediment	X	X	X
BN222-1	160-1231-2	Sediment	X	X	X
BN223-1	160-1231-3	Sediment	X	X	X
EB-010413	160-1231-4	Water	X	X	X
SB07A-VV	160-1231-5	Sediment	X	X	X
BS09A-VV	160-1231-6	Sediment	X	X	X
BN11A-VV	160-1231-7	Sediment	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE, EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1231 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-27099 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Lead-214	0.0607 pCi/g	0.0440 pCi/g	2.76

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. All affected detected sample results for Lead-214 in the associated samples were demonstrated to be significantly different ($Z_{DER} > 2.58$); therefore, no data qualification was required.

All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples BN221-1 (batch 27099) and EB-010413 (batch 25696) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BN221-1	0.103 pCi/g	0.100 pCi/g
	SB07A-VV	0.113 pCi/g	0.100 pCi/g
	BS09A-VV	0.111 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample EB-010413 (batch 26049) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 26149. MS/MSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample BN222-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD analysis was not performed for batches 25645 and 26155. LCS/LCSD (batch 25645) and MS/MSD (batch 26155) analyses were performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS sample analysis was performed on sample BN222-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

The Strontium carrier for the MS sample BN222-1 recovered at 17%, below the laboratory QC limit of 40%. The MS recovered at 93%, well within the laboratory QC limits; therefore, no data qualification was required. All other Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1231

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
BN221-1	160-1231-1	Uranium-235	UJ
SB07A-VV	160-1231-5	Uranium-235	UJ
BS09A-VV	160-1231-6	Uranium-235	UJ

VALIDATA
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4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
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DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90)
DATA VALIDATION DATE:	February 27, 2013
SDG NUMBER:	160-1241
SAMPLING DATE(S):	January 07, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BN213-1	160-1241-1	Sediment	X	X	X
BN213-2	160-1241-2	Sediment	X	X	X
BN213-3	160-1241-3	Sediment	X	X	X
BN213-4	160-1241-4	Sediment	X	X	X
BN212-1	160-1241-5	Sediment	X	X	X
BN212-2	160-1241-6	Sediment	X	X	X
BN212-3	160-1241-7	Sediment	X	X	X
BN212-4	160-1241-8	Sediment	X	X	X
BN211-3	160-1241-9	Sediment	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BN211-4	160-1241-10	Sediment	X	X	X
BN227-1	160-1241-11	Sediment	X	X	X
BN224-1	160-1241-12	Sediment	X	X	X
BN228-1	160-1241-13	Sediment	X	X	X
BN230-1	160-1241-14	Sediment	X	X	X
BN225-1	160-1241-15	Sediment	X	X	X
BN226-1	160-1241-16	Sediment	X	X	X
BN229-1	160-1241-17	Sediment	X	X	X
EB-010713	160-1241-18	Water	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1241 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

Insufficient sample volume was provided by the client to fill the laboratory tuna can geometry for client sample BN229-1. The laboratory used a 100 mL geometry container with a standard density of 1. Due to the density difference of the standard and the sample, the following results are potentially biased low. Detected sample results were assigned a validation qualifier of estimated (J). Non-detected sample results were assigned a validation qualifier of estimated (UJ).

Client Sample ID	Isotope	Detect	Qualifier
BN229-1	Actinium-228	Yes	J
	Americium-241	No	UJ
	Bismuth-212	Yes	J
	Bismuth-214	Yes	J
	Cesium-137	Yes	J
	Cobalt-60	No	UJ
	Europium-152	Yes	J
	Europium-154	No	UJ
	Lead-210	Yes	J
	Lead-212	Yes	J
	Lead-214	Yes	J
	Potassium-40	Yes	J
	Protactinium-234	No	UJ
	Radium-226	Yes	J
	Thallium-208	Yes	J
	Thorium-234	Yes	J
	Uranium-235	No	UJ

All other Sample Receipt, Preparation and Holding Time criteria were met. No additional data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-26275 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Actinium-228	0.0592 pCi/g	0.0448 pCi/g	2.64

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. All affected detected sample results for Actinium-228 in the associated samples were demonstrated to be significantly different ($Z_{DER} > 2.58$); therefore, no data qualification was required.

All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples BN213-1(batch 26275) and EB-010713 (batch 26157) of this SDG. The laboratory LIMS did not calculate the RER values for sample BN213-1. Below are the calculated RER values. All MD criteria were met. No data qualification was required.

Client Sample ID	Isotope	RER Value	RER Limit
BN213-1	Actinium-228	0.49	≤ 1
	Americium-241	0.25	≤ 1
	Bismuth-212	0.65	≤ 1
	Bismuth-214	0.53	≤ 1
	Cesium-137	0.53	≤ 1
	Cobalt-60	0.41	≤ 1
	Europium-152	0.23	≤ 1
	Europium-154	0.08	≤ 1
	Lead-210	0.06	≤ 1

Client Sample ID	Isotope	RER Value	RER Limit
	Lead-212	0.35	≤ 1
	Lead-214	0.15	≤ 1
	Potassium-40	0.54	≤ 1
	Protactinium-234	0.25	≤ 1
	Radium-226	0.53	≤ 1
	Thallium-208	0.87	≤ 1
BN213-1	Thorium-234	0.23	≤ 1
	Uranium-235	1.0	≤ 1

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BN213-4	0.123 pCi/g	0.100 pCi/g
Uranium-235	BN212-1	0.103 pCi/g	0.100 pCi/g
Uranium-235	BN212-3	0.129 pCi/g	0.100 pCi/g
Uranium-235	BN211-4	0.121 pCi/g	0.100 pCi/g
Uranium-235	BN224-1	0.167 pCi/g	0.100 pCi/g
Uranium-235	BN230-1	0.128 pCi/g	0.100 pCi/g
Uranium-235	BN226-1	0.155 pCi/g	0.100 pCi/g

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BN229-1	0.205 pCi/g	0.100 pCi/g
Cobalt-60	BN229-1	0.045 pCi/g	0.040 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample EB-010413 (batch 26049) of SDG 160-1231. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 26269. MS/MSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample BN227-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD analysis was not performed for batches 26381 and 26369. LCS/LCSD (batch 26381) and MS/MSD (batch 26369) analyses were performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sample BN227-1 of this SDG. All MS criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	BN213-3	0.190 pCi/g	0.170 pCi/g
	BN212-4	0.196 pCi/g	0.170 pCi/g
	BN226-1	0.177 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1241

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
BN213-4	160-1241-4	Uranium-235	UJ
BN212-1	160-1241-5	Uranium-235	UJ
BN212-3	160-1241-7	Uranium-235	UJ
BN211-4	160-1241-10	Uranium-235	UJ
BN224-1	160-1241-12	Uranium-235	UJ
BN230-1	160-1241-14	Uranium-235	UJ
BN226-1	160-1241-16	Uranium-235	UJ
BN213-3	160-1241-3	Strontium-90	UJ
BN212-4	160-1241-8	Strontium-90	UJ
BN226-1	160-1241-16	Strontium-90	UJ
BN229-1	160-1241-17	Actinium-228	J
BN229-1	160-1241-17	Americium-241	UJ
BN229-1	160-1241-17	Bismuth-212	J
BN229-1	160-1241-17	Bismuth-214	J
BN229-1	160-1241-17	Cesium-137	J
BN229-1	160-1241-17	Cobalt-60	UJ
BN229-1	160-1241-17	Europium-152	J
BN229-1	160-1241-17	Europium-154	UJ
BN229-1	160-1241-17	Lead-210	J
BN229-1	160-1241-17	Lead-212	J
BN229-1	160-1241-17	Lead-214	J
BN229-1	160-1241-17	Potassium-40	J
BN229-1	160-1241-17	Protactinium-234	UJ
BN229-1	160-1241-17	Radium-226	J
BN229-1	160-1241-17	Thallium-208	J
BN229-1	160-1241-17	Thorium-234	J
BN229-1	160-1241-17	Uranium-235	UJ

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
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DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO, South Burlington, VT
SUBCONTRACTED LAB:	Columbia Analytical Services, Inc., Kelso, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, ASTM D4129M, ASTM D422M, ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Total Organic Carbon, Particle Size, Bulk Density
DATA VALIDATION DATE:	March 03, 2013
SDG NUMBER:	160-1245
SAMPLING DATE(S):	January 08, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BN214-1	160-1245-1	Sediment	X	X	X			
BN214-2	160-1245-2	Sediment	X	X	X			
BN214-3	160-1245-3	Sediment	X	X	X			
BN214-4	160-1245-4	Sediment	X	X	X			
BN215-3	160-1245-5	Sediment	X	X	X			
BN215-4	160-1245-6	Sediment	X	X	X			

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BN216-1	160-1245-7	Sediment	X	X	X			
BN216-2	160-1245-8	Sediment	X	X	X	X	X	X
BN216-3	160-1245-9	Sediment	X	X	X	X	X	X
BN216-4	160-1245-10	Sediment	X	X	X	X	X	X
BN217-3	160-1245-11	Sediment	X	X	X			
BN217-4	160-1245-12	Sediment	X	X	X			
BN218-2	160-1245-13	Sediment	X	X	X			
BN218-3	160-1245-14	Sediment	X	X	X			
BN218-4	160-1245-15	Sediment	X	X	X			
BN219-2	160-1245-16	Sediment	X	X	X			
BN219-3	160-1245-17	Sediment	X	X	X			
BN219-4	160-1245-18	Sediment	X	X	X			
BN220-3	160-1245-19	Sediment	X	X	X			
BN220-4	160-1245-20	Sediment	X	X	X			
EB-010813	160-1245-21	Water	X	X	X			

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1245 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-26673 for the following isotopes:

Isotope	Blank Activity	2s TPU	Z-Score
Actinium-228	0.1017 pCi/g	0.0515 pCi/g	3.95
Potassium-40	0.3399 pCi/g	0.0255 pCi/g	2.67

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte results. All affected detected sample results for Actinium-228 and Potassium-40 in the associated samples were demonstrated to be significantly different ($Z_{DERs} > 2.58$); therefore, no data qualification was required.

All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples BN214-1 (batch 26673) and EB-010813 (batch 27131) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BN214-2	0.128 pCi/g	0.100 pCi/g
	BN214-3	0.114 pCi/g	0.100 pCi/g
	BN214-4	0.115 pCi/g	0.100 pCi/g
	BN215-4	0.130 pCi/g	0.100 pCi/g
	BN216-2	0.120 pCi/g	0.100 pCi/g
	BN216-3	0.108 pCi/g	0.100 pCi/g
	BN216-4	0.125 pCi/g	0.100 pCi/g
	BN217-3	0.117 pCi/g	0.100 pCi/g
	BN217-4	0.152 pCi/g	0.100 pCi/g
	BN218-2	0.116 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

The laboratory did not perform MD analyses for batches 26657 and 26662. MS/MSD analyses were performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples BN214-1 and BN220-3 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable with qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activity in the sample listed was negative by an absolute value greater than three times the total propagated uncertainty, indicating a severe negative bias. This result was assigned a validation qualifier of rejected (R).

Isotope	Field Sample ID	Sigma Value
Strontium-90	BN214-2	3.03

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

The laboratory did not perform MD analyses for batches 26381, 26672 and 27141. LCS/LCSD and MS/MSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples BN220-3 and BN214-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

Samples BN217-3 and BN218-3 had Strontium carrier recoveries below the acceptance criterion of 40%, causing the detection limits to exceed the SAP reporting limits. The two sample results were assigned a validation qualifier of estimated (UJ).

All other Chemical Yield criteria were met. No additional data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

See Major Issues Section for rejected data.

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	BN217-3	0.403 pCi/g	0.170 pCi/g
	BN217-4	0.201 pCi/g	0.170 pCi/g
	BN218-3	0.478 pCi/g	0.170 pCi/g
	BN219-4	0.184 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

TOTAL ORGANIC CARBON (TOC)

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) were performed according to ASTM Method D4129M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no reported results greater than the QL in the blanks associated with this fraction of the SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed by the laboratory. All LCS criteria were met. No action was required.

V.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sample K1300395-001. All MS/MSD criteria were met. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

PARTICLE SIZE

SUMMARY

I.) General:

The analysis for Particle Size was performed according to ASTM Method D422M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1245

Client Sample ID	Laboratory Sample ID	Isotope	Reason Code	Validated Qualifier
BN214-2	160-1245-2	Strontium-90	Z	R
BN217-3	160-1245-11	Strontium-90	X, X2	UJ
BN217-4	160-1245-12	Strontium-90	X	UJ
BN218-3	160-1245-14	Strontium-90	X, X2	UJ
BN219-4	160-1245-18	Strontium-90	X	UJ
BN214-2	160-1245-2	Uranium-235	X	UJ
BN214-3	160-1245-3	Uranium-235	X	UJ
BN214-4	160-1245-4	Uranium-235	X	UJ
BN215-4	160-1245-6	Uranium-235	X	UJ
BN216-2	160-1245-8	Uranium-235	X	UJ
BN216-3	160-1245-9	Uranium-235	X	UJ
BN216-4	160-1245-10	Uranium-235	X	UJ
BN217-3	160-1245-11	Uranium-235	X	UJ
BN217-4	160-1245-12	Uranium-235	X	UJ
BN218-2	160-1245-13	Uranium-235	X	UJ

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DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90)
DATA VALIDATION DATE:	February 28, 2013
SDG NUMBER:	160-1250
SAMPLING DATE(S):	January 09, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BN210-2	160-1250-1	Sediment	X	X	X
BN210-3	160-1250-2	Sediment	X	X	X
BN210-4	160-1250-3	Sediment	X	X	X
BN209-2	160-1250-4	Sediment	X	X	X
BN209-3	160-1250-5	Sediment	X	X	X
BN209-4	160-1250-6	Sediment	X	X	X
BN207-2	160-1250-7	Sediment	X	X	X
BN207-3	160-1250-8	Sediment	X	X	X
BN207-4	160-1250-9	Sediment	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
EB-010913	160-1250-10	Water	X	X	X
BN206-1	160-1250-11	Sediment	X	X	X
BN206-2	160-1250-12	Sediment	X	X	X
BN206-3	160-1250-13	Sediment	X	X	X
BN206-4	160-1250-14	Sediment	X	X	X
BN205-1	160-1250-15	Sediment	X	X	X
BN205-2	160-1250-16	Sediment	X	X	X
BN205-3	160-1250-17	Sediment	X	X	X
BN205-4	160-1250-18	Sediment	X	X	X
BN203-2	160-1250-19	Sediment	X	X	X
BN203-3	160-1250-20	Sediment	X	X	X
BN203-4	160-1250-21	Sediment	X	X	X
BN204-1	160-1250-22	Sediment	X	X	X
BN204-2	160-1250-23	Sediment	X	X	X
BN204-3	160-1250-24	Sediment	X	X	X
BN204-4	160-1250-25	Sediment	X	X	X
BN208-2	160-1250-26	Sediment	X	X	X
BN208-3	160-1250-27	Sediment	X	X	X
BN208-4	160-1250-28	Sediment	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1250 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-27113 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Actinium-228	0.1352 pCi/g	0.0703 pCi/g	3.85

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. All affected detected sample results for Actinium-228 in the associated samples were demonstrated to be significantly different ($Z_{DERs} > 2.58$); therefore, no data qualification was required.

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-27121 for the following isotopes:

Isotope	Blank Activity	2s TPU	Z-Score
Actinium-228	0.0605 pCi/g	0.0460 pCi/g	2.63
Lead-214	0.0965 pCi/g	0.0378 pCi/g	5.11

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte results. All affected detected sample results for Actinium-228 and Lead-214 in the associated samples were demonstrated to be significantly different ($Z_{DERs} > 2.58$); therefore, no data qualification was required.

All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-010913 (batch 26658), BN210-2 (batch 27113), and BN204-1 (batch 27121) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BN210-3	0.113 pCi/g	0.100 pCi/g
	BN210-4	0.110 pCi/g	0.100 pCi/g
	BN209-4	0.147 pCi/g	0.100 pCi/g
Uranium-235	BN206-1	0.111 pCi/g	0.100 pCi/g
	BN206-3	0.105 pCi/g	0.100 pCi/g
	BN205-1	0.141 pCi/g	0.100 pCi/g
	BN203-4	0.132 pCi/g	0.100 pCi/g
	BN204-1	0.126 pCi/g	0.100 pCi/g
	BN204-2	0.108 pCi/g	0.100 pCi/g
	BN204-3	0.129 pCi/g	0.100 pCi/g
	BN208-2	0.122 pCi/g	0.100 pCi/g
	BN208-4	0.119 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample EB-010913 (batch 26639) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batches 27100 and 27105. MS/MSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples BN203-2 and BN208-2 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD analysis was not performed for batches 28487, 27416, and 27735. LCS/LCSD (batch 28487) and MS/MSD (batches 27416 and 27735) analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples BN203-2 and BN208-2 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

The Strontium carrier for samples BN210-3 and BN209-3 recovered below the laboratory QC limit of 40% yield (16% and 31%, respectively) indicating a potential high bias for the sample results. Both samples results were non-detected; therefore, no data qualification was required. All other Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	BN210-2	0.273 pCi/g	0.170 pCi/g
	BN210-3	0.817 pCi/g	0.170 pCi/g
	BN209-3	0.387 pCi/g	0.170 pCi/g
	BN209-4	0.258 pCi/g	0.170 pCi/g
	BN207-2	0.213 pCi/g	0.170 pCi/g
	BN207-3	0.336 pCi/g	0.170 pCi/g
	BN207-4	0.209 pCi/g	0.170 pCi/g
	BN206-2	0.299 pCi/g	0.170 pCi/g
	BN206-3	0.171 pCi/g	0.170 pCi/g

Isotope	Client Sample ID	Detection Limit	Reporting Limit
	BN206-4	0.248 pCi/g	0.170 pCi/g
	BN205-1	0.247 pCi/g	0.170 pCi/g
	BN205-3	0.212 pCi/g	0.170 pCi/g
	BN203-2	0.222 pCi/g	0.170 pCi/g
	BN203-3	0.172 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1250

Client Sample ID	Laboratory Sample ID	Isotope	Reason Code	Validated Qualifier
BN210-3	160-1250-2	Uranium-235	X	UJ
BN210-4	160-1250-3	Uranium-235	X	UJ
BN209-4	160-1250-6	Uranium-235	X	UJ
BN206-1	160-1250-11	Uranium-235	X	UJ
BN206-3	160-1250-13	Uranium-235	X	UJ
BN205-1	160-1250-15	Uranium-235	X	UJ
BN203-4	160-1250-21	Uranium-235	X	UJ
BN204-1	160-1250-22	Uranium-235	X	UJ
BN204-2	160-1250-23	Uranium-235	X	UJ
BN204-3	160-1250-24	Uranium-235	X	UJ
BN208-2	160-1250-26	Uranium-235	X	UJ
BN208-4	160-1250-28	Uranium-235	X	UJ
BN210-2	160-1250-1	Strontium-90	X	UJ
BN210-3	160-1250-2	Strontium-90	X	UJ
BN209-3	160-1250-5	Strontium-90	X	UJ
BN209-4	160-1250-6	Strontium-90	X	UJ
BN207-2	160-1250-7	Strontium-90	X	UJ
BN207-3	160-1250-8	Strontium-90	X	UJ
BN207-4	160-1250-9	Strontium-90	X	UJ
BN206-2	160-1250-12	Strontium-90	X	UJ
BN206-3	160-1250-13	Strontium-90	X	UJ
BN206-4	160-1250-14	Strontium-90	X	UJ
BN205-1	160-1250-15	Strontium-90	X	UJ
BN205-3	160-1250-17	Strontium-90	X	UJ
BN203-2	160-1250-19	Strontium-90	X	UJ
BN203-3	160-1250-20	Strontium-90	X	UJ

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO, South Burlington, VT
SUBCONTRACTED LAB:	Columbia Analytical Services, Inc., Kelso, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level IV
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, ASTM D4129M, ASTM D422M, ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Total Organic Carbon, Particle Size, Bulk Density
DATA VALIDATION DATE:	February 28, 2013
SDG NUMBER:	160-1267
SAMPLING DATE(S):	January 10, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BN104-1	160-1267-1	Sediment	X	X	X			
BN104-2	160-1267-2	Sediment	X	X	X			
BN104-3	160-1267-3	Sediment	X	X	X			
BN104-4	160-1267-4	Sediment	X	X	X			
BN105-1	160-1267-5	Sediment	X	X	X			
BN105-2	160-1267-6	Sediment	X	X	X			

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BN105-3	160-1267-7	Sediment	X	X	X			
BN105-4	160-1267-8	Sediment	X	X	X			
BN106-2	160-1267-9	Sediment	X	X	X	X	X	X
BN106-3	160-1267-10	Sediment	X	X	X	X	X	X
BN106-4	160-1267-11	Sediment	X	X	X	X	X	X
BN313-1	160-1267-12	Sediment	X	X	X			
BN313-2	160-1267-13	Sediment	X	X	X			
BN313-3	160-1267-14	Sediment	X	X	X			
BN313-4	160-1267-15	Sediment	X	X	X			
BN314-2	160-1267-16	Sediment	X	X	X			
BN314-3	160-1267-17	Sediment	X	X	X			
BN314-4	160-1267-18	Sediment	X	X	X			
BN315-1	160-1267-19	Sediment	X	X	X			
BN315-2	160-1267-20	Sediment	X	X	X			
BN315-3	160-1267-21	Sediment	X	X	X			
BN315-4	160-1267-22	Sediment	X	X	X			
BN317-1	160-1267-23	Sediment	X	X	X			
BN317-2	160-1267-24	Sediment	X	X	X			
BN317-3	160-1267-25	Sediment	X	X	X			
BN317-4	160-1267-26	Sediment	X	X	X			
EB-011013	160-1267-27	Water	X	X	X			

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1267 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-27710 for the following isotopes:

Isotope	Blank Activity	2s TPU	Z-Score
Actinium-228	0.1047 pCi/g	0.0448 pCi/g	4.67
Lead-214	0.0462 pCi/g	0.0330 pCi/g	2.80

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte results. All affected detected sample results for Actinium-228 and Lead-214 in the associated samples were demonstrated to be significantly different ($Z_{DERs} > 2.58$); therefore, no data qualification was required.

All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-011013 (batch 27418), BN104-1 (batch 27710), and BN315-3 (batch 27722) of this SDG.

MD sample BN315-3 had an RER value of 1.10 for Cobalt-60, exceeding the SAP precision requirement of RER ≤ 1. The following associated sample results were all non-detected and were assigned a validation qualifier of estimated (UJ).

Isotope	Client Sample ID	Detect	Qualifier
Cobalt-60	BN315-3	No	UJ
	BN315-4	No	UJ
	BN317-1	No	UJ
	BN317-2	No	UJ
	BN317-3	No	UJ
	BN317-4	No	UJ

All other MD criteria were met. No additional data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BN104-1	0.121 pCi/g	0.100 pCi/g
Uranium-235	BN104-2	0.114 pCi/g	0.100 pCi/g
	BN106-2	0.124 pCi/g	0.100 pCi/g
	BN106-4	0.104 pCi/g	0.100 pCi/g
	BN313-2	0.115 pCi/g	0.100 pCi/g
	BN313-4	0.117 pCi/g	0.100 pCi/g
	BN314-4	0.118 pCi/g	0.100 pCi/g
	BN315-3	0.106 pCi/g	0.100 pCi/g
	BN317-1	0.120 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-011013 (batch 27380) and BN314-4 (batch 27699) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 27698. MS/MSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample BN105-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable without qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activity in the sample listed was negative by an absolute value greater than three times the total propagated uncertainty indicating a severe negative bias. This result was assigned a validation qualifier of rejected (R).

Isotope	Client Sample ID	Sigma Value
Strontium-90	BN313-3	8.18

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD analysis was not performed for batches 28487, 28491, and 28785. LCS/LCSD (batch 28487) and MS/MSD (batches 28491 and 28785) analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples BN105-1 of this SDG and SB203-1 of SDG 160-1277. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

See Major Issues Section for rejected data.

All other Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

TOTAL ORGANIC CARBON (TOC)

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) were performed according to ASTM Method D4129M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no reported results greater than the QL in the blanks associated with this fraction of the SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed by the laboratory. All LCS criteria were met. No action was required.

V.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sample K1300395-001. All MS/ MSD criteria were met. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

PARTICLE SIZE

SUMMARY

I.) General:

The analysis for Particle Size was performed according to ASTM Method D422M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

Data Qualification Summary Table - 160-1267

Client Sample ID	Laboratory Sample ID	Isotope	Reason Code	Validated Qualifier
BN313-3	160-1267-14	Strontium-90	Z	R
BN315-3	160-1267-21	Cobalt-60	X2	UJ
BN315-4	160-1267-22	Cobalt-60	X2	UJ
BN317-1	160-1267-23	Cobalt-60	X2	UJ
BN317-2	160-1267-24	Cobalt-60	X2	UJ
BN317-3	160-1267-25	Cobalt-60	X2	UJ
BN317-4	160-1267-26	Cobalt-60	X2	UJ
BN104-1	160-1267-1	Uranium-235	X	UJ
BN104-2	160-1267-2	Uranium-235	X	UJ
BN106-2	160-1267-9	Uranium-235	X	UJ
BN106-4	160-1267-11	Uranium-235	X	UJ
BN313-2	160-1267-13	Uranium-235	X	UJ
BN313-4	160-1267-15	Uranium-235	X	UJ
BN314-4	160-1267-18	Uranium-235	X	UJ
BN315-3	160-1267-21	Uranium-235	X	UJ
BN317-1	160-1267-23	Uranium-235	X	UJ

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Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
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DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO, South Burlington, VT
SUBCONTRACTED LAB:	Columbia Analytical Services, Inc., Kelso, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, ASTM D4129M, ASTM D422M, ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Total Organic Carbon, Particle Size, Bulk Density
DATA VALIDATION DATE:	March 01, 2013
SDG NUMBER:	160-1277
SAMPLING DATE(S):	January 14, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
SB201-1	160-1277-1	Sediment	X	X	X			
SB201-2	160-1277-2	Sediment	X	X	X			
SB201-3	160-1277-3	Sediment	X	X	X			
SB201-4	160-1277-4	Sediment	X	X	X			
SB202-1	160-1277-5	Sediment	X	X	X			
SB202-2	160-1277-6	Sediment	X	X	X			

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
SB202-3	160-1277-7	Sediment	X	X	X			
SB202-4	160-1277-8	Sediment	X	X	X			
SB203-1	160-1277-9	Sediment	X	X	X			
SB203-2	160-1277-10	Sediment	X	X	X			
SB203-3	160-1277-11	Sediment	X	X	X			
SB203-4	160-1277-12	Sediment	X	X	X			
SB204-1	160-1277-13	Sediment	X	X	X	X	X	X
SB204-2	160-1277-14	Sediment	X	X	X	X	X	X
SB204-3	160-1277-15	Sediment	X	X	X	X	X	X
SB204-4	160-1277-16	Sediment	X	X	X	X	X	X
SB205-1	160-1277-17	Sediment	X	X	X			
SB205-2	160-1277-18	Sediment	X	X	X			
SB205-3	160-1277-19	Sediment	X	X	X			
SB205-4	160-1277-20	Sediment	X	X	X			
BN108-1	160-1277-21	Sediment	X	X	X			
BN318-1	160-1277-22	Sediment	X	X	X			
BN318-2	160-1277-23	Sediment	X	X	X			
BN318-3	160-1277-24	Sediment	X	X	X			
BN318-4	160-1277-25	Sediment	X	X	X			
EB-011413	160-1277-26	Water	X	X	X			

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1277 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples SB201-1 (batch 27977), BN108-1 (batch 27978), and EB-011413 (batch 27987) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	SB201-1	0.141 pCi/g	0.100 pCi/g
	SB201-4	0.133 pCi/g	0.100 pCi/g
	SB202-4	0.125 pCi/g	0.100 pCi/g
	SB204-1	0.114 pCi/g	0.100 pCi/g
	SB205-1	0.115 pCi/g	0.100 pCi/g
	SB205-4	0.117 pCi/g	0.100 pCi/g
	BN318-1	0.109 pCi/g	0.100 pCi/g
	BN318-3	0.101 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample 160-1284-30 (batch 27966) of SDG 160-1284. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analyses for batches 28102 and 28157. MS/MSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples SB203-1 of this SDG and 160-1284-13 of SDG 160-1284. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable with qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activity in the sample listed was negative by an absolute value greater than three times the total propagated uncertainty indicating a severe negative bias. This result was assigned a validation qualifier of rejected (R).

Isotope	Client Sample ID	Sigma Value
Strontium-90	SB201-3	6.00

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SB205-4 (batch 32712) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analyses for batches 28487 and 28785. LCS/LCSD and MS/MSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample SB203-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following isotope activity in the sample listed was negative by an absolute value between two and three times the total propagated uncertainty indicating negative bias. This result was assigned a validation qualifier of estimated (UJ).

Isotope	Client Sample ID	Sigma Value
Strontium-90	SB201-1	2.49

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	SB204-4	0.174 pCi/g	0.170 pCi/g
	SB205-1	0.191 pCi/g	0.170 pCi/g
	SB205-2	0.239 pCi/g	0.170 pCi/g
	SB205-3	0.173 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

TOTAL ORGANIC CARBON (TOC)

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) were performed according to ASTM Method D4129M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no reported results greater than the QL in the blanks associated with this fraction of the SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed by the laboratory. All LCS criteria were met. No action was required.

V.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sample K1300395-001. All MS/MSD criteria were met. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

PARTICLE SIZE

SUMMARY

I.) General:

The analysis for Particle Size was performed according to ASTM Method D422M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCSs were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1277

Client Sample ID	Laboratory Sample ID	Isotope	Reason Code	Validated Qualifier
SB201-3	160-1277-3	Strontium-90	Z	R
SB201-1	160-1277-1	Strontium-90	X2	UJ
SB204-4	160-1277-16	Strontium-90	X	UJ
SB205-1	160-1277-17	Strontium-90	X	UJ
SB205-2	160-1277-18	Strontium-90	X	UJ
SB205-3	160-1277-19	Strontium-90	X	UJ
SB201-1	160-1277-1	Uranium-235	X	UJ
SB201-4	160-1277-4	Uranium-235	X	UJ
SB202-4	160-1277-8	Uranium-235	X	UJ
SB204-1	160-1277-13	Uranium-235	X	UJ
SB205-1	160-1277-17	Uranium-235	X	UJ
SB205-4	160-1277-20	Uranium-235	X	UJ
BN318-1	160-1277-22	Uranium-235	X	UJ
BN318-3	160-1277-24	Uranium-235	X	UJ

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www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90)
DATA VALIDATION DATE:	March 04, 2013
SDG NUMBER:	160-1284
SAMPLING DATE(S):	January 15, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BN107-1	160-1284-1	Sediment	X	X	X
BN107-2	160-1284-2	Sediment	X	X	X
BN107-3	160-1284-3	Sediment	X	X	X
BN107-4	160-1284-4	Sediment	X	X	X
BN109-1	160-1284-5	Sediment	X	X	X
BN109-2	160-1284-6	Sediment	X	X	X
BN109-3	160-1284-7	Sediment	X	X	X
BN109-4	160-1284-8	Sediment	X	X	X
BN111-1	160-1284-9	Sediment	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BN111-2	160-1284-10	Sediment	X	X	X
BN111-3	160-1284-11	Sediment	X	X	X
BN111-4	160-1284-12	Sediment	X	X	X
BN110-2	160-1284-13	Sediment	X	X	X
BN110-3	160-1284-14	Sediment	X	X	X
BN110-4	160-1284-15	Sediment	X	X	X
BN316-1	160-1284-16	Sediment	X	X	X
BN316-2	160-1284-17	Sediment	X	X	X
BN316-3	160-1284-18	Sediment	X	X	X
BN316-4	160-1284-19	Sediment	X	X	X
BN103-3	160-1284-20	Sediment	X	X	X
BN103-4	160-1284-21	Sediment	X	X	X
BN102-1	160-1284-22	Sediment	X	X	X
BN102-2	160-1284-23	Sediment	X	X	X
BN102-3	160-1284-24	Sediment	X	X	X
BN102-4	160-1284-25	Sediment	X	X	X
BN309-1	160-1284-26	Sediment	X	X	X
BN309-2	160-1284-27	Sediment	X	X	X
BN309-3	160-1284-28	Sediment	X	X	X
BN309-4	160-1284-29	Sediment	X	X	X
EB-011513	160-1284-30	Water	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1284 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-28155 for the following isotopes:

Isotope	Blank Activity	2s TPU	Z-Score
Bismuth-214	0.0714 pCi/g	0.0464 pCi/g	3.08
Actinium-228	0.1399 pCi/g	0.0747 pCi/g	3.75

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte results. All affected detected sample results for Bismuth-212 and Actinium-228 in the associated samples were demonstrated to be significantly different ($Z_{DER} > 2.58$); therefore, no data qualification was required.

All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-011513 (batch 28003), BN107-1 (batch 28155), and BN103-4 (batch 28156) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BN109-4	0.107 pCi/g	0.100 pCi/g
	BN111-2	0.105 pCi/g	0.100 pCi/g
	BN316-3	0.127 pCi/g	0.100 pCi/g
	BN316-4	0.104 pCi/g	0.100 pCi/g
	BN103-3	0.105 pCi/g	0.100 pCi/g
	BN102-3	0.117 pCi/g	0.100 pCi/g
	BN309-1	0.105 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-011513 (batch 27966) and BN110-3 (batch 28176) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 28157. MS/MSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample BN110-2 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable with qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activities in the samples listed were negative by an absolute value greater than three times the total propagated uncertainty, indicating a severe negative bias. These results were assigned a validation qualifier of rejected (R).

Isotope	Field Sample ID	Sigma Value
Strontium-90	BN107-1	14.7
	BN109-2	5.20
	BN109-3	4.08
	BN109-4	4.35
	BN111-4	8.45

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples SB205-4 (batch 32712) of SDG 160-1277 and BN309-4 of this SDG. All MD criteria were met. No data qualification was required.

MD analysis was not performed for batches 28487 and 30660. LCS/LCSD (batch 28487) and MS/MSD (batch 30660) analyses were performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample BN110-2 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

See Major Issues Section for rejected data.

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1284

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
BN107-1	160-1284-1	Strontium-90	R
BN109-2	160-1284-6	Strontium-90	R
BN109-3	160-1284-7	Strontium-90	R
BN109-4	160-1284-8	Strontium-90	R
BN111-4	160-1284-12	Strontium-90	R
BN109-4	160-1284-8	Uranium-235	UJ
BN111-2	160-1284-10	Uranium-235	UJ
BN316-3	160-1284-18	Uranium-235	UJ
BN316-4	160-1284-19	Uranium-235	UJ
BN103-3	160-1284-20	Uranium-235	UJ
BN102-3	160-1284-23	Uranium-235	UJ
BN309-1	160-1284-26	Uranium-235	UJ

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90)
DATA VALIDATION DATE:	March 04, 2013
SDG NUMBER:	160-1293
SAMPLING DATE(S):	January 16, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BN310-1	160-1293-1	Sediment	X	X	X
BN310-2	160-1293-2	Sediment	X	X	X
BN310-3	160-1293-3	Sediment	X	X	X
BN310-4	160-1293-4	Sediment	X	X	X
BN311-1	160-1293-5	Sediment	X	X	X
BN311-2	160-1293-6	Sediment	X	X	X
BN311-3	160-1293-7	Sediment	X	X	X
BN311-4	160-1293-8	Sediment	X	X	X
BN101-1	160-1293-9	Sediment	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BN101-2	160-1293-10	Sediment	X	X	X
BN101-3	160-1293-11	Sediment	X	X	X
BN101-4	160-1293-12	Sediment	X	X	X
BS104-1	160-1293-13	Sediment	X	X	X
BS104-2	160-1293-14	Sediment	X	X	X
BS104-3	160-1293-15	Sediment	X	X	X
BS104-4	160-1293-16	Sediment	X	X	X
BS105-4	160-1293-17	Sediment	X	X	X
BS108-1	160-1293-18	Sediment	X	X	X
BS108-2	160-1293-19	Sediment	X	X	X
BS108-3	160-1293-20	Sediment	X	X	X
BS108-4	160-1293-21	Sediment	X	X	X
BS107-1	160-1293-22	Sediment	X	X	X
BS107-2	160-1293-23	Sediment	X	X	X
BS107-3	160-1293-24	Sediment	X	X	X
BS107-4	160-1293-25	Sediment	X	X	X
BS106-1	160-1293-26	Sediment	X	X	X
BS106-2	160-1293-27	Sediment	X	X	X
BS106-3	160-1293-28	Sediment	X	X	X
BS106-4	160-1293-29	Sediment	X	X	X
EB-011613	160-1293-30	Water	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1293 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-28456 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Protactinium-234	0.0471 pCi/g	0.0356 pCi/g	2.64

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated detected samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

Isotope	Client Sample ID	Z-DER	Pass/Fail
Protactinium-234	BN310-1	0.61	Fail
	BN310-2	0.67	Fail
	BN311-3	1.56	Fail
	BN101-4	0.47	Fail
	BN105-4	0.36	Fail
	BS108-1	0.40	Fail

All other Blank criteria were met. No additional data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-011613 (batch 28300), BN310-1 (batch 28456), and BS108-4 (batch 28477) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BN310-2	0.133 pCi/g	0.100 pCi/g
	BN310-3	0.101 pCi/g	0.100 pCi/g
	BN101-2	0.162 pCi/g	0.100 pCi/g
	BS104-1	0.116 pCi/g	0.100 pCi/g
	BS104-3	0.107 pCi/g	0.100 pCi/g

Isotope	Client Sample ID	Detection Limit	Reporting Limit
	BS107-2	0.102 pCi/g	0.100 pCi/g
Uranium-235	BS106-1	0.195 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample BS105-4 (batch 28454) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batches 28472 and 28449. MS/MSD and LCS/LCSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample BN101-4 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable with qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activities in the samples listed were negative by an absolute value greater than three times the total propagated uncertainty indicating a severe negative bias. These results were assigned a validation qualifier of rejected (R).

Isotope	Client Sample ID	Sigma Value
Strontium-90	BS108-1	5.56
	BS106-1	3.54
	BS106-3	8.94

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

Batch 31940:

Due to a laboratory LIMS failure, as described in the Case Narrative, electronic uploads of sample aliquots were lost. Samples were analyzed by the laboratory at a sample aliquot estimate of 1 gram. Due to the loss of exact information on sample size, the results may be inaccurate. Typically, sample sizes have varied approximately 1% higher based on previous sample aliquots analyzed by the laboratory from the site. All associated non-detected samples were qualified estimated (UJ). Associated detected sample results were qualified estimated (J). The affected samples were:

Client Sample ID	Detect	Qualifier
BN310-1	No	UJ
BN310-2	No	UJ
BN310-3	No	UJ
BN310-4	No	UJ
BN311-1	No	UJ
BN311-2	No	UJ
BN311-3	No	UJ
BN311-4	No	UJ
BN101-1	No	UJ
BN101-2	No	UJ
BN101-3	No	UJ
BS104-1	No	UJ
BS104-2	No	UJ
BS104-3	No	UJ
BS104-4	No	UJ
BS105-4	No	UJ
BS108-2	No	UJ
BS108-3	Yes	J

All other Instrument Performance criteria were met. No additional data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

Batch 31940:

The Method Blank MB 160-31940 method detection limit exceeded the SAP reporting limit. All associated non-detected samples were qualified estimated (UJ). Associated detected sample results were qualified as estimated (J). See Instrument Performance section for client sample IDs and qualifiers.

All other Blank criteria were met. No additional data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

Batch 31940:

The LCS 160-31940 Strontium-90 percent recovery was 210 %, which exceeded the laboratory QC limits of 136 %. Associated samples with detected sample results are potentially biased high and were qualified as estimated (J). Associated samples with non-detected sample results did not require qualification. The affected sample was:

Client Sample ID	Detect	Qualifier
BS108-3	Yes	J

All other LCS/LCSD criteria were met. No additional data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples MN310-1 (batch 31940) of this SDG and BN309-4 of SDG 160-1284. All MD criteria were met. No data qualification was required.

MD analysis was not performed for batches 28487 and 31966. LCS/LCSD (batch 28487) and MS/MSD (batch 31966) analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample BN101-4 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

The Yttrium carrier for sample BN311-2 recovered below the laboratory QC limit of 40% yield (38%) indicating a potential high bias for the sample results. The sample result was a non-detect; therefore, no data qualification was required. All other Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

See Major Issues Section for rejected data.

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	BN310-1	0.341 pCi/g	0.170 pCi/g
	BN310-2	0.250 pCi/g	0.170 pCi/g
	BN310-3	0.258 pCi/g	0.170 pCi/g
	BN310-4	0.258 pCi/g	0.170 pCi/g
	BN311-1	0.283 pCi/g	0.170 pCi/g
	BN311-2	0.332 pCi/g	0.170 pCi/g
	BN311-3	0.264 pCi/g	0.170 pCi/g
	BN311-4	0.263 pCi/g	0.170 pCi/g
	BN101-1	0.289 pCi/g	0.170 pCi/g
	BN101-2	0.262 pCi/g	0.170 pCi/g
	BN101-3	0.270 pCi/g	0.170 pCi/g
	BS104-1	0.294 pCi/g	0.170 pCi/g

Isotope	Client Sample ID	Detection Limit	Reporting Limit
	BS104-2	0.266 pCi/g	0.170 pCi/g
	BS104-3	0.238 pCi/g	0.170 pCi/g
	BS104-4	0.255 pCi/g	0.170 pCi/g
	BS105-4	0.257 pCi/g	0.170 pCi/g
	BS108-2	0.208 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1293

Client Sample ID	Laboratory Sample ID	Isotope	Reason Code	Validated Qualifier
BS108-1	160-1293-18	Strontium-90	Z	R
BS106-1	160-1293-26	Strontium-90	Z	R
BS106-3	160-1293-28	Strontium-90	Z	R
BN310-1	160-1293-1	Strontium-90	X, X2	UJ
BN310-2	160-1293-2	Strontium-90	X, X2	UJ
BN310-3	160-1293-3	Strontium-90	X, X2	UJ
BN310-4	160-1293-4	Strontium-90	X, X2	UJ
BN311-1	160-1293-5	Strontium-90	X, X2	UJ
BN311-2	160-1293-6	Strontium-90	X, X2	UJ
BN311-3	160-1293-7	Strontium-90	X, X2	UJ
BN311-4	160-1293-8	Strontium-90	X, X2	UJ
BN101-1	160-1293-9	Strontium-90	X, X2	UJ
BN101-2	160-1293-10	Strontium-90	X, X2	UJ
BN101-3	160-1293-11	Strontium-90	X, X2	UJ
BS104-1	160-1293-13	Strontium-90	X, X2	UJ
BS104-2	160-1293-14	Strontium-90	X, X2	UJ
BS104-3	160-1293-15	Strontium-90	X, X2	UJ
BS104-4	160-1293-16	Strontium-90	X, X2	UJ
BS105-4	160-1293-17	Strontium-90	X2	UJ
BS108-2	160-1293-19	Strontium-90	X, X2	UJ
BS108-3	160-1293-20	Strontium-90	X2	J
BN310-1	160-1293-1	Protactinium-234	B5	J
BN310-2	160-1293-2	Protactinium-234	B5	J
BN311-3	160-1293-7	Protactinium-234	B5	J
BN101-4	160-1293-12	Protactinium-234	B5	J
BN105-4	160-1293-17	Protactinium-234	B5	J
BS108-1	160-1293-18	Protactinium-234	B5	J
BN310-2	160-1293-2	Uranium-235	X	UJ
BN310-3	160-1293-3	Uranium-235	X	UJ
BN101-2	160-1293-10	Uranium-235	X	UJ
BS104-1	160-1293-13	Uranium-235	X	UJ
BS104-3	160-1293-15	Uranium-235	X	UJ
BS107-2	160-1293-23	Uranium-235	X	UJ
BS106-1	160-1293-26	Uranium-235	X	UJ

VALIDATA
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DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90)
DATA VALIDATION DATE:	March 05, 2013
SDG NUMBER:	160-1319
SAMPLING DATE(S):	January 17, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BS109-1	160-1319-1	Sediment	X	X	X
BS109-2	160-1319-2	Sediment	X	X	X
BS109-3	160-1319-3	Sediment	X	X	X
BS109-4	160-1319-4	Sediment	X	X	X
BS110-1	160-1319-5	Sediment	X	X	X
BS110-2	160-1319-6	Sediment	X	X	X
BS110-3	160-1319-7	Sediment	X	X	X
BS110-4	160-1319-8	Sediment	X	X	X
BS111-1	160-1319-9	Sediment	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BS111-2	160-1319-10	Sediment	X	X	X
BS111-3	160-1319-11	Sediment	X	X	X
BS111-4	160-1319-12	Sediment	X	X	X
BS118-1	160-1319-13	Sediment	X	X	X
BS118-2	160-1319-14	Sediment	X	X	X
BS118-3	160-1319-15	Sediment	X	X	X
BS118-4	160-1319-16	Sediment	X	X	X
BS119-1	160-1319-17	Sediment	X	X	X
BS119-2	160-1319-18	Sediment	X	X	X
BS119-3	160-1319-19	Sediment	X	X	X
BS119-4	160-1319-20	Sediment	X	X	X
BS112-1	160-1319-21	Sediment	X	X	X
BS112-2	160-1319-22	Sediment	X	X	X
BS112-3	160-1319-23	Sediment	X	X	X
BS112-4	160-1319-24	Sediment	X	X	X
BS113-1	160-1319-25	Sediment	X	X	X
BS113-2	160-1319-26	Sediment	X	X	X
BS113-3	160-1319-27	Sediment	X	X	X
BS113-4	160-1319-28	Sediment	X	X	X
BS114-1	160-1319-29	Sediment	X	X	X
BS114-2	160-1319-30	Sediment	X	X	X
BS114-3	160-1319-31	Sediment	X	X	X
BS114-4	160-1319-32	Sediment	X	X	X
EB-011713	160-1319-33	Water	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1319 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-29315 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Lead-214	0.0478 pCi/g	0.0309 pCi/g	3.03

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. All of the affected detected Lead-214 results in the associated samples were demonstrated to be significantly different ($Z_{DERs} > 2.58$); therefore, no data qualification was required.

All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-011713 (batch 28803), BS109-1 (batch 29315), and BS112-1(batch 29320) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BS109-1	0.108 pCi/g	0.100 pCi/g
	BS109-2	0.119 pCi/g	0.100 pCi/g
	BS109-4	0.150 pCi/g	0.100 pCi/g
	BS110-3	0.114 pCi/g	0.100 pCi/g
	BS111-4	0.122 pCi/g	0.100 pCi/g
	BS118-2	0.114 pCi/g	0.100 pCi/g
	BS119-1	0.143 pCi/g	0.100 pCi/g
	BS112-4	0.106 pCi/g	0.100 pCi/g
	BS113-2	0.103 pCi/g	0.100 pCi/g
	BS113-4	0.115 pCi/g	0.100 pCi/g
	BS114-4	0.123 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-011713 (batch 29329) and BS119-1 (batch 29317) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 29311. MS/MSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample BS111-1 of this SDG. MSD 160-1319-9 had a spike recovery (114%) slightly outside the upper control limit of 113%. The MS/MSD passed the RPD/RER criteria; therefore, no data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable with qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activities in the samples listed were negative by an absolute value greater than three times the total propagated uncertainty indicating a severe negative bias. These results were assigned a validation qualifier of rejected (R).

Isotope	Field Sample ID	Sigma Value
Strontium-90	BS118-4	3.25
	BS113-4	5.71

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample BS112-1 (batch 30731) of this SDG. All MD criteria were met. No data qualification was required.

MD analysis was not performed for batches 23786 and 33315. LCS/LCSD (batch 23786) and MS/MSD (batch 33315) analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample BS111-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

See Major Issues Section for rejected data.

The following non-detected sample result was assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	BS109-1	0.183 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1319

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
BS118-4	160-1319-16	Strontium-90	R
BS113-4	160-1319-28	Strontium-90	R
BS109-1	160-1319-1	Strontium-90	UJ
BS109-1	160-1319-1	Uranium-235	UJ
BS109-2	160-1319-2	Uranium-235	UJ
BS109-4	160-1319-4	Uranium-235	UJ
BS110-3	160-1319-7	Uranium-235	UJ
BS111-4	160-1319-12	Uranium-235	UJ
BS118-2	160-1319-14	Uranium-235	UJ
BS119-1	160-1319-17	Uranium-235	UJ
BS112-4	160-1319-24	Uranium-235	UJ
BS113-2	160-1319-26	Uranium-235	UJ
BS113-4	160-1319-28	Uranium-235	UJ
BS114-4	160-1319-32	Uranium-235	UJ

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DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO, South Burlington, VT
SUBCONTRACTED LAB:	Columbia Analytical Services, Inc., Kelso, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level IV
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, ASTM D4129M, ASTM D422M, ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Total Organic Carbon, Particle Size, Bulk Density
DATA VALIDATION DATE:	March 05, 2013
SDG NUMBER:	160-1325
SAMPLING DATE(S):	January 22, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BS115-1	160-1325-1	Sediment	X	X	X			
BS115-2	160-1325-2	Sediment	X	X	X			
BS115-3	160-1325-3	Sediment	X	X	X			
BS115-4	160-1325-4	Sediment	X	X	X			
BS116-1	160-1325-5	Sediment	X	X	X			
BS116-2	160-1325-6	Sediment	X	X	X			

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BS116-3	160-1325-7	Sediment	X	X	X			
BS116-4	160-1325-8	Sediment	X	X	X			
BS117-1	160-1325-9	Sediment	X	X	X	X	X	X
BS117-2	160-1325-10	Sediment	X	X	X	X	X	X
BS117-3	160-1325-11	Sediment	X	X	X	X	X	X
BS117-4	160-1325-12	Sediment	X	X	X	X	X	X
BS122-1	160-1325-13	Sediment	X	X	X			
BS122-2	160-1325-14	Sediment	X	X	X			
BS122-3	160-1325-15	Sediment	X	X	X			
BS122-4	160-1325-16	Sediment	X	X	X			
BS123-1	160-1325-17	Sediment	X	X	X			
BS123-2	160-1325-18	Sediment	X	X	X			
BS123-3	160-1325-19	Sediment	X	X	X			
BS123-4	160-1325-20	Sediment	X	X	X			
BS121-1	160-1325-21	Sediment	X	X	X			
BS121-2	160-1325-22	Sediment	X	X	X			
BS121-3	160-1325-23	Sediment	X	X	X			
BS121-4	160-1325-24	Sediment	X	X	X			
BS120-1	160-1325-25	Sediment	X	X	X			
BS120-2	160-1325-26	Sediment	X	X	X			
BS120-3	160-1325-27	Sediment	X	X	X			
BS120-4	160-1325-28	Sediment	X	X	X			
BS126-1	160-1325-29	Sediment	X	X	X			
BS126-2	160-1325-30	Sediment	X	X	X			
BS126-3	160-1325-31	Sediment	X	X	X			
BS126-4	160-1325-32	Sediment	X	X	X			
EB-012213	160-1325-33	Water	X	X	X			

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1325 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-012213 (batch 29359), BS115-1 (batch 30289), and BS121-1(batch 30292) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BS115-3	0.105 pCi/g	0.100 pCi/g
	BS116-3	0.117 pCi/g	0.100 pCi/g
	BS116-4	0.154 pCi/g	0.100 pCi/g
	BS122-2	0.122 pCi/g	0.100 pCi/g
	BS122-4	0.126 pCi/g	0.100 pCi/g
	BS123-3	0.144 pCi/g	0.100 pCi/g
	BS121-1	0.109 pCi/g	0.100 pCi/g
	BS121-2	0.136 pCi/g	0.100 pCi/g
	BS126-1	0.101 pCi/g	0.100 pCi/g
	BS126-3	0.107 pCi/g	0.100 pCi/g
	BS126-4	0.118 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-011713 (batch 29329) of SDG 160-1319. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batches 29903 and 29905. MS/MSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples BS116-1and BS121-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable with qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activity in the sample listed was negative by an absolute value greater than three times the total propagated uncertainty indicating a severe negative bias. This result was assigned a validation qualifier of rejected (R).

Isotope	Client Sample ID	Sigma Value
Strontium-90	BS116-3	8.8

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD analysis was not performed for batches 23786, 31866, and 33340. LCS/LCSD (batch 23786) and MS/MSD (batches 31866 and 33340) analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples BS121-1 and BS116-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

See Major Issues Section for rejected data.

The following isotope activity in the sample listed was negative by an absolute value between two and three times the total propagated uncertainty indicating a negative bias. This result was assigned a validation qualifier of estimated (UJ).

Isotope	Client Sample ID	Sigma Value
Strontium-90	BS123-1	2.4

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	BS115-1	0.183 pCi/g	0.170 pCi/g
	BS116-1	0.183 pCi/g	0.170 pCi/g
	BS116-2	0.183 pCi/g	0.170 pCi/g
	BS117-2	0.183 pCi/g	0.170 pCi/g
	BS117-3	0.183 pCi/g	0.170 pCi/g
	BS117-4	0.183 pCi/g	0.170 pCi/g
	BS122-3	0.183 pCi/g	0.170 pCi/g
	BS123-4	0.183 pCi/g	0.170 pCi/g
	BS120-3	0.183 pCi/g	0.170 pCi/g
	BS120-4	0.183 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

TOTAL ORGANIC CARBON (TOC)

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) were performed according to ASTM Method D4129M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no reported results greater than the QL in the blanks associated with this fraction of the SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed by the laboratory. All LCS criteria were met. No action was required.

V.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sample K1300855-001. All MS/MSD criteria were met. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

PARTICLE SIZE

SUMMARY

I.) General:

The analysis for Particle Size was performed according to ASTM Method D422M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - 160-1325

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
BS116-3	160-1325-7	Strontium-90	R
BS115-1	160-1325-1	Strontium-90	UJ
BS116-1	160-1325-5	Strontium-90	UJ
BS116-2	160-1325-6	Strontium-90	UJ
BS117-2	160-1325-10	Strontium-90	UJ
BS117-3	160-1325-11	Strontium-90	UJ
BS117-4	160-1325-12	Strontium-90	UJ
BS122-3	160-1325-15	Strontium-90	UJ
Bs123-1	160-1325-17	Strontium-90	UJ
BS123-4	160-1325-20	Strontium-90	UJ
BS120-3	160-1325-27	Strontium-90	UJ
BS120-4	160-1325-28	Strontium-90	UJ
BS115-3	160-1325-3	Uranium-235	UJ
BS116-3	160-1325-7	Uranium-235	UJ
BS116-4	160-1325-8	Uranium-235	UJ
BS122-2	160-1325-14	Uranium-235	UJ
BS122-4	160-1325-16	Uranium-235	UJ
BS123-3	160-1325-19	Uranium-235	UJ
BS121-1	160-1325-21	Uranium-235	UJ
BS121-2	160-1325-22	Uranium-235	UJ
BS126-1	160-1325-29	Uranium-235	UJ
BS126-3	160-1325-31	Uranium-235	UJ
BS126-4	160-1325-32	Uranium-235	UJ

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO, South Burlington, VT
SUBCONTRACTED LAB:	Columbia Analytical Services, Inc., Kelso, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, ASTM D4129M, ASTM D422M, ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Total Organic Carbon, Particle Size, Bulk Density
DATA VALIDATION DATE:	March 19, 2013
SDG NUMBER:	160-1333
SAMPLING DATE(S):	January 23, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BS127-1	160-1333-1	Sediment	X	X	X			
BS127-2	160-1333-2	Sediment	X	X	X			
BS127-3	160-1333-3	Sediment	X	X	X			
BS127-4	160-1333-4	Sediment	X	X	X			
BS130-1	160-1333-5	Sediment	X	X	X			
BS130-2	160-1333-6	Sediment	X	X	X			

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BS130-3	160-1333-7	Sediment	X	X	X			
BS130-4	160-1333-8	Sediment	X	X	X			
BS124-1	160-1333-9	Sediment	X	X	X			
BS124-2	160-1333-10	Sediment	X	X	X			
BS124-3	160-1333-11	Sediment	X	X	X			
BS124-4	160-1333-12	Sediment	X	X	X			
BS125-1	160-1333-13	Sediment	X	X	X			
BS125-2	160-1333-14	Sediment	X	X	X			
BS125-3	160-1333-15	Sediment	X	X	X			
BS125-4	160-1333-16	Sediment	X	X	X			
BS128-1	160-1333-17	Sediment	X	X	X			
BS128-2	160-1333-18	Sediment	X	X	X			
BS128-3	160-1333-19	Sediment	X	X	X			
BS128-4	160-1333-20	Sediment	X	X	X			
BS101-1	160-1333-21	Sediment	X	X	X			
BS101-2	160-1333-22	Sediment	X	X	X	X	X	X
BS101-3	160-1333-23	Sediment	X	X	X	X	X	X
BS101-4	160-1333-24	Sediment	X	X	X	X	X	X
BS102-1	160-1333-25	Sediment	X	X	X			
BS102-2	160-1333-26	Sediment	X	X	X			
BS102-3	160-1333-27	Sediment	X	X	X			
BS102-4	160-1333-28	Sediment	X	X	X			
EB-012313	160-1333-29	Water	X	X	X			

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1333 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-30313 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Lead-214	0.0506 pCi/g	0.0384 pCi/g	2.63

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. All affected detected sample results for Lead-214 in the associated samples were demonstrated to be significantly different ($Z_{DER} > 2.58$); therefore, no data qualification was required.

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-30318 for the following isotopes:

Isotope	Blank Activity	2s TPU	Z-Score
Actinium-228	0.0704 pCi/g	0.0473 pCi/g	2.98
Potassium-40	0.3079 pCi/g	0.1880 pCi/g	3.28

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte results. All affected detected sample results for Actinium-228 and Potassium-40 in the associated samples were demonstrated to be significantly different ($Z_{DER} > 2.58$); therefore, no data qualification was required.

All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-012313 (batch 29583), BS127-1 (batch 30313), and BS101-1 (batch 30318) of this SDG. MD sample BS127-1 had an RER value of 1.18 for Actinium-228, exceeding SAP precision requirements of RER ≤ 1. The following associated sample results were all detected and were assigned a validation qualifier of estimated (J).

Isotope	Client Sample ID	Detect	Qualifier
Actinium-228	BS127-1	Yes	J
	BS127-2	Yes	J
	BS127-3	Yes	J
	BS127-4	Yes	J
	BS130-1	Yes	J
	BS130-2	Yes	J
	BS130-3	Yes	J
	BS130-4	Yes	J
	BS124-1	Yes	J
	BS124-2	Yes	J
	BS124-3	Yes	J
	BS124-4	Yes	J
	BS125-1	Yes	J
	BS125-2	Yes	J
	BS125-3	Yes	J
	BS125-4	Yes	J
	BS128-1	Yes	J
	BS128-2	Yes	J
	BS128-3	Yes	J

Isotope	Client Sample ID	Detect	Qualifier
	BS128-4	Yes	J

All other MD criteria were met. No additional data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BS127-1	0.141 pCi/g	0.100 pCi/g
	BS127-2	0.103 pCi/g	0.100 pCi/g
	BS130-2	0.103 pCi/g	0.100 pCi/g
	BS130-4	0.102 pCi/g	0.100 pCi/g
	BS124-2	0.110 pCi/g	0.100 pCi/g
	BS125-3	0.109 pCi/g	0.100 pCi/g
	BS128-1	0.102 pCi/g	0.100 pCi/g
	BS128-4	0.128 pCi/g	0.100 pCi/g
	BS102-3	0.105 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-012313 (batch 29892), BS127-1 (batch 30276), and BS125-3 (batch 30318) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable with qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activity in the sample listed was negative by an absolute value greater than three times the total propagated uncertainty indicating a severe negative bias. This result was assigned a validation qualifier of rejected (R).

Isotope	Client Sample ID	Sigma Value
Strontium-90	BS102-3	7.73

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The Strontium-90 activity in Method Blank 160-36485 was negative by an absolute value between two and three times the total propagated uncertainty, indicating a potential low bias to associated sample results. Non-detected sample results were assigned a validation qualifier of estimated (UJ). Detected sample results were assigned a validation qualifier of estimated (J).

Isotope	Lab Sample ID	Activity	Sigma Value
Strontium-90	MB 160-36485	-0.219 pCi/g	2.92

Client Sample ID	Isotope	Detect	Qualifier
BS127-1	Strontium-90	No	UJ
BS127-2	Strontium-90	No	UJ
BS127-3	Strontium-90	No	UJ
BS127-4	Strontium-90	No	UJ
BS130-1	Strontium-90	No	UJ
BS130-2	Strontium-90	No	UJ
BS130-3	Strontium-90	No	UJ
BS130-4	Strontium-90	No	UJ
BS124-1	Strontium-90	No	UJ
BS124-2	Strontium-90	No	UJ
BS124-3	Strontium-90	No	UJ
BS124-4	Strontium-90	Yes	J
BS125-1	Strontium-90	No	UJ
BS125-2	Strontium-90	No	UJ
BS125-3	Strontium-90	No	UJ
BS125-4	Strontium-90	No	UJ
BS128-1	Strontium-90	No	UJ
BS128-2	Strontium-90	Yes	J
BS128-3	Strontium-90	No	UJ
BS128-4	Strontium-90	No	UJ

All other Blank criteria were met. No additional data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples BS101-1 (batch 33372) and BS125-1 (batch 36485) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 23786. LCS/LCSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

See Major Issues Section for rejected data.

The following isotope activity in the sample listed was negative by an absolute value between two and three times the total propagated uncertainty indicating negative bias. This result was assigned a validation qualifier of estimated (UJ).

Isotope	Client Sample ID	Sigma Value
Strontium-90	BS102-2	2.12

The following non-detected sample result was assigned a validation qualifier of estimated (UJ) for method detection limit exceeding the SAP reporting limit. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	BS130-1	0.171 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

TOTAL ORGANIC CARBON (TOC)

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) were performed according to ASTM Method D4129M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no reported results greater than the QL in the blanks associated with this fraction of the SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed by the laboratory. All LCS criteria were met. No action was required.

V.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sample BS101-2 of this SDG. All MS/MSD criteria were met. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

PARTICLE SIZE

SUMMARY

I.) General:

The analysis for Particle Size was performed according to ASTM Method D422M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCSs were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCSs were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1333

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
BS102-3	160-1333-27	Strontium-90	R
BS127-1	160-1333-1	Strontium-90, Uranium-235	UJ
BS127-2	160-1333-2	Strontium-90, Uranium-235	UJ
BS127-3	160-1333-3	Strontium-90	UJ
BS127-4	160-1333-4	Strontium-90	UJ
BS130-1	160-1333-5	Strontium-90	UJ
BS130-2	160-1333-6	Strontium-90, Uranium-235	UJ
BS130-3	160-1333-7	Strontium-90	UJ
BS130-4	160-1333-8	Strontium-90, Uranium-235	UJ
BS124-1	160-1333-9	Strontium-90	UJ
BS124-2	160-1333-10	Strontium-90, Uranium-235	UJ
BS124-3	160-1333-11	Strontium-90	UJ
BS124-4	160-1333-12	Strontium-90	J
BS125-1	160-1333-13	Strontium-90	UJ
BS125-2	160-1333-14	Strontium-90	UJ
BS125-3	160-1333-15	Strontium-90, Uranium-235	UJ
BS125-4	160-1333-16	Strontium-90	UJ
BS128-1	160-1333-17	Uranium-235	UJ
BS128-1	160-1333-17	Strontium-90	UJ
BS128-2	160-1333-18	Strontium-90	J
BS128-3	160-1333-19	Strontium-90	UJ
BS128-4	160-1333-20	Strontium-90, Uranium-235	UJ
BS102-2	160-1333-26	Strontium-90	UJ
BS102-3	160-1333-27	Uranium-235	UJ
First 20 client samples	160-1333-1 through 160-1333-20	Actinium-228	J

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO, South Burlington, VT
SUBCONTRACTED LAB:	Columbia Analytical Services, Inc., Kelso, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, ASTM D4129M, ASTM D422M, ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Total Organic Carbon, Particle Size, Bulk Density
DATA VALIDATION DATE:	March 07, 2013
SDG NUMBER:	160-1345
SAMPLING DATE(S):	January 24, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BS129-1	160-1345-1	Sediment	X	X	X			
BS129-2	160-1345-2	Sediment	X	X	X			
BS129-3	160-1345-3	Sediment	X	X	X			
BS129-4	160-1345-4	Sediment	X	X	X			
SB206-1	160-1345-5	Sediment	X	X	X			
SB206-2	160-1345-6	Sediment	X	X	X			

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
SB206-3	160-1345-7	Sediment	X	X	X			
SB206-4	160-1345-8	Sediment	X	X	X			
SB241-1	160-1345-9	Sediment	X	X	X			
SB241-2	160-1345-10	Sediment	X	X	X			
SB241-3	160-1345-11	Sediment	X	X	X			
SB241-4	160-1345-12	Sediment	X	X	X			
SB240-1	160-1345-13	Sediment	X	X	X			
SB240-2	160-1345-14	Sediment	X	X	X			
SB240-3	160-1345-15	Sediment	X	X	X			
SB240-4	160-1345-16	Sediment	X	X	X			
SB242-1	160-1345-17	Sediment	X	X	X			
SB242-2	160-1345-18	Sediment	X	X	X			
SB242-3	160-1345-19	Sediment	X	X	X			
SB242-4	160-1345-20	Sediment	X	X	X			
SB243-1	160-1345-21	Sediment	X	X	X			
SB243-2	160-1345-22	Sediment	X	X	X			
SB243-3	160-1345-23	Sediment	X	X	X			
SB243-4	160-1345-24	Sediment	X	X	X			
SB244-1	160-1345-25	Sediment	X	X	X			
SB244-2	160-1345-26	Sediment	X	X	X			
SB244-3	160-1345-27	Sediment	X	X	X			
SB244-4	160-1345-28	Sediment	X	X	X			
SB239-1	160-1345-29	Sediment	X	X	X	X	X	X
SB239-2	160-1345-30	Sediment	X	X	X	X	X	X
SB239-3	160-1345-31	Sediment	X	X	X	X	X	X
SB239-4	160-1345-32	Sediment	X	X	X	X	X	X
BN312-1	160-1345-33	Sediment	X	X	X			
BN312-2	160-1345-34	Sediment	X	X	X			
BN312-3	160-1345-35	Sediment	X	X	X			
BN312-4	160-1345-36	Sediment	X	X	X			
BN308-1	160-1345-37	Sediment	X	X	X			
BN308-2	160-1345-38	Sediment	X	X	X			
BN308-3	160-1345-39	Sediment	X	X	X			
BN308-4	160-1345-40	Sediment	X	X	X			
BN307-1	160-1345-41	Sediment	X	X	X	X	X	X
BN307-2	160-1345-42	Sediment	X	X	X	X	X	X
BN307-3	160-1345-43	Sediment	X	X	X	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BN307-4	160-1345-44	Sediment	X	X	X	X	X	X
EB-012413	160-1345-45	Water	X	X	X			

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1345 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-30698 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Lead-214	0.0573 pCi/g	0.0382 pCi/g	3.00

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. All affected detected sample results for Lead-214 in the associated samples were demonstrated to be significantly different (Z_{DER}> 2.58); therefore, no data qualification was required. All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples 160-1333-29 (batch 29583) of SDG 160-1333, BS129-1 (batch 30667), SB243-1 (batch 30686), and BN307-1 (batch 30698) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	BS129-3	0.122 pCi/g	0.100 pCi/g
	BS129-4	0.117 pCi/g	0.100 pCi/g
	SB206-2	0.130 pCi/g	0.100 pCi/g
	SB241-1	0.112 pCi/g	0.100 pCi/g
	SB240-2	0.116 pCi/g	0.100 pCi/g
	SB242-1	0.105 pCi/g	0.100 pCi/g
	SB242-3	0.118 pCi/g	0.100 pCi/g
	SB243-2	0.109 pCi/g	0.100 pCi/g
	BN312-4	0.113 pCi/g	0.100 pCi/g
	BN307-4	0.111 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples 160-1333-29 (batch 29892) of SDG 160-1333, SB242-4 (batch 30906), and BN308-4 (batch 30907) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 30904. MS/MSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples SB240-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

The Plutonium-236 tracer recovery (20.4%) for sample SB244-1 was below the lower control limit of 30% indicating a potential high bias. Plutonium-239 was not detected in the sample; therefore no data qualification was required.

All other Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable with qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activities in the samples listed were negative by an absolute value greater than three times the total propagated uncertainty indicating a severe negative bias. These results were assigned a validation qualifier of rejected (R).

Isotope	Client Sample ID	Sigma Value
Strontium-90	SB241-1	7.38
	SB240-2	8.24
	SB242-4	6.47
	SB244-4	8.38
	BN308-2	3.83

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

Method Blank MB 160-35449 activity exceeded the SAP reporting limits indicating a potential high bias for the associated batch sample results. The two associated samples (SB240-2 and SB242-4) were rejected for excessive negative activities. See Major Issues Section for details.

All other Blank criteria were met. No additional data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples 160-1333-21 (batch 33372) of SDG 160-1333, SB243-1 (batch 33983), and SB240-2 (batch 35449) of this SDG. SB240-2 was rejected for excessive negative activities. See Major Issues Section for details.

All other MD criteria were met. No additional data qualification was required.

The laboratory did not perform MD analyses for batches 23786 and 33640. LCS/LCSD and MS/MSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample SB240-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

See Major Issues Section for rejected data.

The following isotope activities in the samples listed were negative by an absolute value between two and three times the total propagated uncertainty indicating a negative bias. These results were assigned a validation qualifier of estimated (UJ).

Isotope	Client Sample ID	Sigma Value
Strontium-90	SB244-2	2.34
	BN308-1	2.80

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	BS129-3	0.232 pCi/g	0.170 pCi/g
	BS129-4	0.284 pCi/g	0.170 pCi/g
	SB206-4	0.281 pCi/g	0.170 pCi/g
	SB242-2	0.227 pCi/g	0.170 pCi/g
	SB242-3	0.225 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

TOTAL ORGANIC CARBON (TOC)

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) were performed according to ASTM Method D4129M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no reported results greater than the QL in the blanks associated with this fraction of the SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed by the laboratory. All LCS criteria were met. No action was required.

V.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sample K1300855-001. All MS/MSD criteria were met. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

PARTICLE SIZE

SUMMARY

I.) General:

The analysis for Particle Size was performed according to ASTM Method D422M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1345

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
SB241-1	160-1345-9	Strontium-90	R
SB240-2	160-1345-14	Strontium-90	R
SB242-4	160-1345-20	Strontium-90	R
SB244-4	160-1345-28	Strontium-90	R
BN308-2	160-1345-38	Strontium-90	R
BS129-3	160-1345-3	Strontium-90	UJ
BS129-4	160-1345-4	Strontium-90	UJ
SB206-4	160-1345-8	Strontium-90	UJ
SB242-2	160-1345-18	Strontium-90	UJ
SB242-3	160-1345-19	Strontium-90	UJ
SB244-2	160-1345-26	Strontium-90	UJ
BN308-1	160-1345-37	Strontium-90	UJ
BS129-3	160-1345-3	Uranium-235	UJ
BS129-4	160-1345-4	Uranium-235	UJ
SB206-2	160-1345-6	Uranium-235	UJ
SB241-1	160-1345-9	Uranium-235	UJ
SB240-2	160-1345-14	Uranium-235	UJ
SB242-1	160-1345-17	Uranium-235	UJ
SB242-3	160-1345-19	Uranium-235	UJ
SB243-2	160-1345-22	Uranium-235	UJ
BN312-4	160-1345-36	Uranium-235	UJ
BN307-4	160-1345-44	Uranium-235	UJ

VALIDATA
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DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO, South Burlington, VT
SUBCONTRACTED LAB:	Columbia Analytical Services, Inc., Kelso, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, ASTM D4129M, ASTM D422M, ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Total Organic Carbon, Particle Size, Bulk Density
DATA VALIDATION DATE:	March 19, 2013
SDG NUMBER:	160-1355
SAMPLING DATE(S):	January 25, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
SB245-1	160-1355-1	Sediment	X	X	X			
SB245-2	160-1355-2	Sediment	X	X	X			
SB245-3	160-1355-3	Sediment	X	X	X			
SB245-4	160-1355-4	Sediment	X	X	X			
SB238-1	160-1355-5	Sediment	X	X	X			
SB238-2	160-1355-6	Sediment	X	X	X			

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
SB238-3	160-1355-7	Sediment	X	X	X			
SB238-4	160-1355-8	Sediment	X	X	X			
SB207-1	160-1355-9	Sediment	X	X	X			
SB207-2	160-1355-10	Sediment	X	X	X			
SB207-3	160-1355-11	Sediment	X	X	X			
SB207-4	160-1355-12	Sediment	X	X	X			
SB208-1	160-1355-13	Sediment	X	X	X			
SB208-2	160-1355-14	Sediment	X	X	X			
SB208-3	160-1355-15	Sediment	X	X	X			
SB208-4	160-1355-16	Sediment	X	X	X			
SB209-1	160-1355-17	Sediment	X	X	X			
SB209-2	160-1355-18	Sediment	X	X	X			
SB209-3	160-1355-19	Sediment	X	X	X			
SB209-4	160-1355-20	Sediment	X	X	X			
SB210-1	160-1355-21	Sediment	X	X	X			
SB210-2	160-1355-22	Sediment	X	X	X			
SB210-3	160-1355-23	Sediment	X	X	X			
SB210-4	160-1355-24	Sediment	X	X	X			
SB210-1	160-1355-25	Sediment				X	X	X
SB210-2	160-1355-26	Sediment				X	X	X
SB210-3	160-1355-27	Sediment				X	X	X
SB210-4	160-1355-28	Sediment				X	X	X
SB212-3	160-1355-29	Sediment	X	X	X			
SB212-4	160-1355-30	Sediment	X	X	X			
EB-012513	160-1355-31	Water	X	X	X			
SB211-1	160-1355-32	Sediment	X	X	X			
SB211-2	160-1355-33	Sediment	X	X	X			
SB211-3	160-1355-34	Sediment	X	X	X			
SB211-4	160-1355-35	Sediment	X	X	X			
SB212-1	160-1355-36	Sediment	X	X	X			
SB212-2	160-1355-37	Sediment	X	X	X			

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1355 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-012513 (batch 31134), SB209-2 (batch 30913), and SB210-1 (batch 30914) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	SB245-2	0.110 pCi/g	0.100 pCi/g
	SB245-4	0.112 pCi/g	0.100 pCi/g
	SB238-3	0.126 pCi/g	0.100 pCi/g
	SB207-1	0.121 pCi/g	0.100 pCi/g
	SB208-2	0.136 pCi/g	0.100 pCi/g
	SB208-4	0.117 pCi/g	0.100 pCi/g
	SB209-1	0.108 pCi/g	0.100 pCi/g
	SB209-3	0.108 pCi/g	0.100 pCi/g
	SB210-4	0.104 pCi/g	0.100 pCi/g
	SB212-3	0.134 pCi/g	0.100 pCi/g
	SB212-2	0.102 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples SB209-3 (batch 31131) of this SDG, and 160-1358-29 (batch 30909) of SDG 160-1358. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 23786. LCS/LCSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

Batch 31130: The MS Plutonium-239 recovery (118%) was outside of the upper laboratory QC limit of 113%, indicating a potential high bias for that analyte. The following associated detected Plutonium-239 results were qualified as estimated (J) due to the potential high bias. Non-detected results did not require qualification.

Isotope	Client Sample ID	Detect	Qualifier
Plutonium-239	SB207-2	Yes	J
	SB208-1	Yes	J

All other MS/MSD criteria were met. No additional data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable with qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activities in the samples listed were negative by an absolute value greater than three times the total propagated uncertainty indicating a severe negative bias. These results were assigned a validation qualifier of rejected (R).

Isotope	Client Sample ID	Sigma Value
Strontium-90	SB207-1	8.67
	SB209-1	3.40

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SB210-1 (batch 34504) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analyses for batches 23786 and 33680. LCS/LCSD and MS/MSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample SB209-1 (batch 33680) of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

See Major Issues Section for rejected data.

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	SB245-4	0.213 pCi/g	0.170 pCi/g
	SB238-1	0.173 pCi/g	0.170 pCi/g
	SB208-2	0.236 pCi/g	0.170 pCi/g
	SB208-4	0.279 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

TOTAL ORGANIC CARBON (TOC)

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) were performed according to ASTM Method D4129M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no reported results greater than the QL in the blanks associated with this fraction of the SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed by the laboratory. All LCS criteria were met. No action was required.

V.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sample SB210-1 of this SDG. All MS/MSD criteria were met. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

PARTICLE SIZE

SUMMARY

I.) General:

The analysis for Particle Size was performed according to ASTM Method D422M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1355

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
SB207-1	160-1355-9	Strontium-90	R
SB209-1	160-1355-17	Strontium-90	R
SB245-4	160-1355-4	Strontium-90	UJ
SB238-1	160-1355-5	Strontium-90	UJ
SB208-2	160-1355-14	Strontium-90	UJ
SB208-4	160-1355-16	Strontium-90	UJ
SB245-2	160-1355-2	Uranium-235	UJ
SB245-4	160-1355-4	Uranium-235	UJ
SB238-3	160-1355-7	Uranium-235	UJ
SB207-1	160-1355-9	Uranium-235	UJ
SB208-2	160-1355-14	Uranium-235	UJ
SB208-4	160-1355-16	Uranium-235	UJ
SB209-1	160-1355-17	Uranium-235	UJ
SB209-3	160-1355-19	Uranium-235	UJ
SB210-4	160-1355-24	Uranium-235	UJ
SB212-3	160-1355-29	Uranium-235	UJ
SB212-2	160-1355-37	Uranium-235	UJ
SB207-2	160-1355-10	Plutonium-239	J
SB208-1	160-1355-13	Plutonium-239	J

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
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www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 Secondary Radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90)
DATA VALIDATION DATE:	March 22, 2013
SDG NUMBER:	160-1358
SAMPLING DATE(S):	January 28, 2013 - January 29, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
SB213-2	160-1358-1	Sediment	X	X	X
SB213-3	160-1358-2	Sediment	X	X	X
SB213-4	160-1358-3	Sediment	X	X	X
SB216-1	160-1358-4	Sediment	X	X	X
SB216-2	160-1358-5	Sediment	X	X	X
SB216-3	160-1358-6	Sediment	X	X	X
SB216-4	160-1358-7	Sediment	X	X	X
SB217-1	160-1358-8	Sediment	X	X	X
SB217-2	160-1358-9	Sediment	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
SB217-3	160-1358-10	Sediment	X	X	X
SB217-4	160-1358-11	Sediment	X	X	X
SB218-1	160-1358-12	Sediment	X	X	X
SB218-2	160-1358-13	Sediment	X	X	X
SB218-3	160-1358-14	Sediment	X	X	X
SB218-4	160-1358-15	Sediment	X	X	X
SB215-2	160-1358-16	Sediment	X	X	X
SB215-3	160-1358-17	Sediment	X	X	X
SB215-4	160-1358-18	Sediment	X	X	X
SB214-3	160-1358-19	Sediment	X	X	X
SB214-4	160-1358-20	Sediment	X	X	X
SB108-1	160-1358-21	Sediment	X	X	X
SB108-2	160-1358-22	Sediment	X	X	X
SB108-3	160-1358-23	Sediment	X	X	X
SB108-4	160-1358-24	Sediment	X	X	X
SB106-1	160-1358-25	Sediment	X	X	X
SB106-2	160-1358-26	Sediment	X	X	X
SB106-3	160-1358-27	Sediment	X	X	X
SB106-4	160-1358-28	Sediment	X	X	X
EB-012813	160-1358-29	Water	X	X	X
SA411-1	160-1358-30	Sediment	X	X	X
SA411-2	160-1358-31	Sediment	X	X	X
SA411-3	160-1358-32	Sediment	X	X	X
SA411-4	160-1358-33	Sediment	X	X	X
SA412-1	160-1358-34	Sediment	X	X	X
SA412-2	160-1358-35	Sediment	X	X	X
SA412-3	160-1358-36	Sediment	X	X	X
SA412-4	160-1358-37	Sediment	X	X	X
SA410-1	160-1358-38	Sediment	X	X	X
SA410-2	160-1358-39	Sediment	X	X	X
SA410-3	160-1358-40	Sediment	X	X	X
SA410-4	160-1358-41	Sediment	X	X	X
EB-012913	160-1358-42	Water	X	X	X
RP01A-VV	160-1358-43	Sediment	X	X	X
RP02A-VV	160-1358-44	Sediment	X	X	X
RP03A-VV	160-1358-45	Sediment	X	X	X
RY01A-VV	160-1358-46	Sediment	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
RY02A-VV	160-1358-47	Sediment	X	X	X
RY03A-VV	160-1358-48	Sediment	X	X	X
SB02A-VV	160-1358-49	Sediment	X	X	X
SB05A-VV	160-1358-50	Sediment	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1358 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

Insufficient sample volume was provided by the client to fill the laboratory tuna can geometry for client sample SB218-4. The laboratory used a 25 mL geometry container for the sample. The laboratory did not analyze any corresponding QC samples in the 25 mL geometry. Due to the absence of QC samples, detected sample results for SB218-4 were assigned a validation qualifier of estimated (J). Non-detected sample results were assigned a validation qualifier of estimated (UJ).

Client Sample ID	Isotope	Detect	Qualifier
SB218-4	Actinium-228	Yes	J
	Americium-241	No	UJ
	Bismuth-212	Yes	J
	Bismuth-214	Yes	J
	Cesium-137	No	UJ
	Cobalt-60	No	UJ
	Europium-152	No	UJ
	Europium-154	No	UJ
	Lead-210	No	UJ
	Lead-212	Yes	J
	Lead-214	Yes	J
	Potassium-40	Yes	J
	Protactinium-234	No	UJ
	Radium-226	Yes	J
	Thallium-208	Yes	J
	Thorium-234	Yes	J
	Uranium-235	Yes	J

All other Sample Receipt, Preparation and Holding Time criteria were met. No additional data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-012513 (batch 31134) of SDG 160-1355, SB213-2 (batch 31290), SB108-1(batch31293), and RP01A-VV (batch 31298) of this SDG. MD sample SB108-2 had an RER value of 2.18 for Potassium-40, exceeding the SAP precision requirement of RER $\leq$ 1. The following associated Potassium-40 sample results were all detected and were assigned a validation qualifier of estimated (J).

Isotope	Client Sample ID	Detect	Qualifier
Potassium-40	SB108-1	Yes	J
	SB108-2	Yes	J
	SB108-3	Yes	J
	SB108-4	Yes	J
	SB106-1	Yes	J
	SB106-2	Yes	J
	SB106-3	Yes	J
	SB106-4	Yes	J
	SA411-1	Yes	J
	SA411-2	Yes	J
	SA411-3	Yes	J
	SA411-4	Yes	J
	SA412-1	Yes	J
	SA412-2	Yes	J
	SA412-3	Yes	J
	SA412-4	Yes	J
	SA410-1	Yes	J
	SA410-2	Yes	J

Isotope	Client Sample ID	Detect	Qualifier
	SA410-3	Yes	J
	SA410-4	Yes	J

All other MD criteria were met. No additional data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	SB213-2	0.118 pCi/g	0.100 pCi/g
Uranium-235	SB213-3	0.105 pCi/g	0.100 pCi/g
Uranium-235	SB216-2	0.112 pCi/g	0.100 pCi/g
Uranium-235	SB217-1	0.110 pCi/g	0.100 pCi/g
Uranium-235	SB217-3	0.104 pCi/g	0.100 pCi/g
Uranium-235	SB217-4	0.123 pCi/g	0.100 pCi/g
Uranium-235	SB218-3	0.136 pCi/g	0.100 pCi/g
Cobalt-60	SB218-4	0.049 pCi/g	0.040 pCi/g
Uranium-235	SB215-3	0.109 pCi/g	0.100 pCi/g
Uranium-235	SB108-1	0.116 pCi/g	0.100 pCi/g
Uranium-235	SB108-3	0.104 pCi/g	0.100 pCi/g

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	SB106-1	0.104 pCi/g	0.100 pCi/g
Uranium-235	SB106-4	0.112 pCi/g	0.100 pCi/g
Uranium-235	SA412-1	0.102 pCi/g	0.100 pCi/g
Uranium-235	SA412-3	0.118 pCi/g	0.100 pCi/g
Uranium-235	SA410-2	0.105 pCi/g	0.100 pCi/g
Uranium-235	RP01A-VV	0.118 pCi/g	0.100 pCi/g
Uranium-235	RP03A-VV	0.110 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample EB-012813 (batch 30909) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batches 31845, 31863, and 31922. MS/MSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples SB216-1, SB106-1, and RP02A-VV of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

See Major Issues Section for rejected data.

All other laboratory data were acceptable with qualification.

MAJOR ISSUES

I.) Detection Decisions and Critical Values (CV):

The following isotope activity in the sample listed was negative by an absolute value greater than three times the total propagated uncertainty indicating a severe negative bias. This result was assigned a validation qualifier of rejected (R).

Isotope	Client Sample ID	Sigma Value
Strontium-90	RY01A-VV	3.15

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD analysis was not performed for batches 23786, 33996, 34279, and 34304. LCS/LCSD (batch 23786), MS/MSD (batches 33996, 34279, 34304) analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on samples SB216-1, SB106-1, and RP02A-VV of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

The Strontium carrier recovery (21%) for sample SB217-4 was outside the lower control limit of 40%, which elevated the detection limit above the reporting limit. The non-detected sample result was assigned a validation qualifier of estimated (UJ).

All other Chemical Yield criteria were met. No additional data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

See Major Issues Section for rejected data.

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	SB217-4	0.502 pCi/g	0.170 pCi/g
	SB214-3	0.174 pCi/g	0.170 pCi/g
	SA410-4	0.176 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1358

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
RY01A-VV	160-1358-46	Strontium-90	R
SB217-4	160-1358-11	Strontium-90	UJ
SB214-3	160-1358-19	Strontium-90	UJ
SA410-4	160-1358-41	Strontium-90	UJ
SB218-4	160-1358-15	Actinium-228	J
SB218-4	160-1358-15	Americium-241	UJ
SB218-4	160-1358-15	Bismuth-212	J
SB218-4	160-1358-15	Bismuth-214	J
SB218-4	160-1358-15	Cesium-137	UJ
SB218-4	160-1358-15	Cobalt-60	UJ
SB218-4	160-1358-15	Europium-152	UJ
SB218-4	160-1358-15	Europium-154	UJ
SB218-4	160-1358-15	Lead-210	UJ
SB218-4	160-1358-15	Lead-212	J
SB218-4	160-1358-15	Lead-214	J
SB218-4	160-1358-15	Potassium-40	J
SB218-4	160-1358-15	Protactinium-234	UJ
SB218-4	160-1358-15	Radium-226	J
SB218-4	160-1358-15	Thallium-208	J
SB218-4	160-1358-15	Thorium-234	J
SB218-4	160-1358-15	Uranium-235	J
SB108-1	160-1358-21	Potassium-40	J
SB108-2	160-1358-22	Potassium-40	J
SB108-3	160-1358-23	Potassium-40	J
SB108-4	160-1358-24	Potassium-40	J
SB106-1	160-1358-25	Potassium-40	J
SB106-2	160-1358-26	Potassium-40	J
SB106-3	160-1358-27	Potassium-40	J
SB106-4	160-1358-28	Potassium-40	J
SA411-1	160-1358-30	Potassium-40	J
SA411-2	160-1358-31	Potassium-40	J
SA411-3	160-1358-32	Potassium-40	J
SA411-4	160-1358-33	Potassium-40	J
SA412-1	160-1358-34	Potassium-40	J
SA412-2	160-1358-35	Potassium-40	J

Data Qualification Summary Table - 160-1358

Field Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
SA412-3	160-1358-36	Potassium-40	J
SA412-4	160-1358-37	Potassium-40	J
SA410-1	160-1358-38	Potassium-40	J
SA410-2	160-1358-39	Potassium-40	J
SA410-3	160-1358-40	Potassium-40	J
SA410-4	160-1358-41	Potassium-40	J
SB213-2	160-1358-1	Uranium-235	UJ
SB213-3	160-1358-2	Uranium-235	UJ
SB216-2	160-1358-5	Uranium-235	UJ
SB217-1	160-1358-8	Uranium-235	UJ
SB217-3	160-1358-10	Uranium-235	UJ
SB217-4	160-1358-11	Uranium-235	UJ
SB218-3	160-1358-14	Uranium-235	UJ
SB218-4	160-1358-15	Cobalt-60	UJ
SB215-3	160-1358-17	Uranium-235	UJ
SB108-1	160-1358-21	Uranium-235	UJ
SB108-3	160-1358-23	Uranium-235	UJ
SB106-1	160-1358-25	Uranium-235	UJ
SB106-4	160-1358-28	Uranium-235	UJ
SA412-1	160-1358-34	Uranium-235	UJ
SA412-3	160-1358-36	Uranium-235	UJ
SA410-2	160-1358-39	Uranium-235	UJ
RP01A-VV	160-1358-43	Uranium-235	UJ
RP03A-VV	160-1358-45	Uranium-235	UJ

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO, South Burlington, VT
SUBCONTRACTED LAB:	Columbia Analytical Services, Inc., Kelso, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, ASTM D4129M, ASTM D422M, ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Total Organic Carbon, Particle Size, Bulk Density
DATA VALIDATION DATE:	March 22, 2013
SDG NUMBER:	160-1378
SAMPLING DATE(S):	January 30, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
SA417-3	160-1378-1	Sediment	X	X	X			
SA417-4	160-1378-2	Sediment	X	X	X			
SA415-4	160-1378-3	Sediment	X	X	X			
SA414-1	160-1378-4	Sediment	X	X	X	X	X	X
SA414-2	160-1378-5	Sediment	X	X	X	X	X	X
SA414-3	160-1378-6	Sediment	X	X	X	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
SA414-4	160-1378-7	Sediment	X	X	X	X	X	X
SA413-1	160-1378-8	Sediment	X	X	X			
SA413-2	160-1378-9	Sediment	X	X	X			
SA413-3	160-1378-10	Sediment	X	X	X			
SA413-4	160-1378-11	Sediment	X	X	X			
SA418-1	160-1378-12	Sediment	X	X	X			
SA418-2	160-1378-13	Sediment	X	X	X			
SA418-3	160-1378-14	Sediment	X	X	X			
SA418-4	160-1378-15	Sediment	X	X	X			
SA416-2	160-1378-16	Sediment	X	X	X			
SA416-3	160-1378-17	Sediment	X	X	X			
SA416-4	160-1378-18	Sediment	X	X	X			
SA419-2	160-1378-19	Sediment	X	X	X			
SA419-3	160-1378-20	Sediment	X	X	X			
SA419-4	160-1378-21	Sediment	X	X	X			
SA420-1	160-1378-22	Sediment	X	X	X			
SA420-2	160-1378-23	Sediment	X	X	X			
SA420-3	160-1378-24	Sediment	X	X	X			
SA420-4	160-1378-25	Sediment	X	X	X			
SA426-1	160-1378-26	Sediment	X	X	X			
SA426-2	160-1378-27	Sediment	X	X	X			
SA426-3	160-1378-28	Sediment	X	X	X			
SA426-4	160-1378-29	Sediment	X	X	X			
SA421-1	160-1378-30	Sediment	X	X	X			
SA421-2	160-1378-31	Sediment	X	X	X			
SA421-3	160-1378-32	Sediment	X	X	X			
SA421-4	160-1378-33	Sediment	X	X	X			
EB-013013	160-1378-34	Water	X	X	X			

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1378 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The Method Blank activity exceeded the SAP reporting limit and also the $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-32463 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score	Reporting Limit
Uranium-235	0.104 pCi/g	0.073 pCi/g	2.85	0.100 pCi/g

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DERs} > 2.58$) did not require data qualification. Associated detected samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

Isotope	Client Sample ID	Z-DER	Pass/Fail
Uranium-235	SA414-1	0.35	Fail
	SA413-4	0.74	Fail
	SA418-1	1.2	Fail
	SA418-2	0.31	Fail
	SA416-4	0.63	Fail
	SA419-2	0.35	Fail

Isotope	Client Sample ID	Z-DER	Pass/Fail
	SA419-3	0.50	Fail

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-32464 for the following isotopes:

Isotope	Blank Activity	2s TPU	Z-Score
Bismuth-214	0.0629pCi/g	0.0476 pCi/g	2.64
Actinium-228	0.0705 pCi/g	0.0516 pCi/g	2.73

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte results. All affected detected sample results for Bismuth-214 and Actinium-228 in the associated samples were demonstrated to be significantly different ($Z_{DERs} > 2.58$); therefore, no data qualification was required.

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-32464 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Protactinium-234	0.0483 pCi/g	0.0346 pCi/g	2.79

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DERs} > 2.58$) did not require data qualification. Associated detected samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

Isotope	Client Sample ID	Z-DER	Pass/Fail
Protactinium-234	SA419-4	0.37	Fail
	SA420-1	0.39	Fail
	SA420-4	0.57	Fail
	SA426-4	0.56	Fail

All other Blank criteria were met. No additional data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-013013 (batch 32526), SA417-3 (batch 32463), and SA419-4 (batch 32464) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	SA417-3	0.110 pCi/g	0.100 pCi/g
	SA417-4	0.112 pCi/g	0.100 pCi/g
	SA415-4	0.126 pCi/g	0.100 pCi/g
	SA414-2	0.121 pCi/g	0.100 pCi/g
	SA414-3	0.136 pCi/g	0.100 pCi/g
	SA414-4	0.117 pCi/g	0.100 pCi/g
	SA413-1	0.108 pCi/g	0.100 pCi/g
	SA413-2	0.108 pCi/g	0.100 pCi/g
	SA413-3	0.104 pCi/g	0.100 pCi/g
	SA418-3	0.134 pCi/g	0.100 pCi/g
	SA420-1	0.118 pCi/g	0.100 pCi/g

Isotope	Client Sample ID	Detection Limit	Reporting Limit
	SA426-1	0.117 pCi/g	0.100 pCi/g
	SA426-3	0.111 pCi/g	0.100 pCi/g
	SA426-4	0.116 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples SA416-3 (batch 32677) and EB-013013 (batch 34489) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 32677. MS/MSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample SA414-1 (batch 32677) of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SB210-1 (batch 34504) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analyses for batches 23786 and 34504. LCS/LCSD and MS/MSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample SB209-1 (batch 33680) of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following isotope activity in the sample listed was negative by an absolute value between two and three times the total propagated uncertainty, indicating negative bias. This result was assigned a validation qualifier of estimated (UJ).

Isotope	Client Sample ID	Sigma Value
Strontium-90	SA413-2	2.03

The following non-detected sample result was assigned a validation qualifier of estimated (UJ) for method detection limit exceeding the SAP reporting limit. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	SA418-4	0.217 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

TOTAL ORGANIC CARBON (TOC)

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) were performed according to ASTM Method D4129M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no reported results greater than the QL in the blanks associated with this fraction of the SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed by the laboratory. All LCS criteria were met. No action was required.

V.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sample K1301028-001. All MS/MSD criteria were met. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

PARTICLE SIZE

SUMMARY

I.) General:

The analysis for Particle Size was performed according to ASTM Method D422M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1378

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
SA414-1	160-1378-4	Uranium-235	J
SA413-4	160-1378-11	Uranium-235	J
SA418-1	160-1378-12	Uranium-235	J
SA418-2	160-1378-13	Uranium-235	J
SA416-4	160-1378-18	Uranium-235	J
SA419-2	160-1378-19	Uranium-235	J
SA419-3	160-1378-20	Uranium-235	UJ
SA417-3	160-1378-1	Uranium-235	UJ
SA417-4	160-1378-2	Uranium-235	UJ
SA415-4	160-1378-3	Uranium-235	UJ
SA414-2	160-1378-5	Uranium-235	UJ
SA414-3	160-1378-6	Uranium-235	UJ
SA414-4	160-1378-7	Uranium-235	UJ
SA413-1	160-1378-8	Uranium-235	UJ
SA413-2	160-1378-9	Uranium-235	UJ
SA413-3	160-1378-10	Uranium-235	UJ
SA418-3	160-1378-14	Uranium-235	UJ
SA420-1	160-1378-22	Uranium-235	UJ
SA426-1	160-1378-26	Uranium-235	UJ
SA426-3	160-1378-28	Uranium-235	UJ
SA426-4	160-1378-29	Uranium-235	UJ
SA419-4	160-1378-21	Protactinium-234	J
SA420-1	160-1378-22	Protactinium-234	J
SA420-4	160-1378-25	Protactinium-234	J
SA426-4	160-1378-29	Protactinium-234	J
SA413-2	160-1378-9	Strontium-90	UJ
SA418-4	160-1378-15	Strontium-90	UJ

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO, South Burlington, VT
SUBCONTRACTED LAB:	Columbia Analytical Services, Inc., Kelso, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level IV
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, ASTM D4129M, ASTM D422M, ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Total Organic Carbon, Particle Size, Bulk Density
DATA VALIDATION DATE:	March 20, 2013
SDG NUMBER:	160-1423
SAMPLING DATE(S):	January31, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
SA422-1	160-1423-1	Sediment	X	X	X	X	X	X
SA422-2	160-1423-2	Sediment	X	X	X	X	X	X
SA422-3	160-1423-3	Sediment	X	X	X	X	X	X
SA422-4	160-1423-4	Sediment	X	X	X	X	X	X
BS103-1	160-1423-5	Sediment	X	X	X			
BS103-2	160-1423-6	Sediment	X	X	X			

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
BS103-3	160-1423-7	Sediment	X	X	X			
BS103-4	160-1423-8	Sediment	X	X	X			
SB104-1	160-1423-9	Sediment	X	X	X			
SB105-1	160-1423-10	Sediment	X	X	X			
SB105-2	160-1423-11	Sediment	X	X	X			
SB107-1	160-1423-12	Sediment	X	X	X	X	X	X
SB107-2	160-1423-13	Sediment	X	X	X	X	X	X
SB107-3	160-1423-14	Sediment	X	X	X	X	X	X
SB107-4	160-1423-15	Sediment	X	X	X	X	X	X
SB219-1	160-1423-16	Sediment	X	X	X			
SB101-1	160-1423-17	Sediment	X	X	X			
SB101-2	160-1423-18	Sediment	X	X	X			
SB101-3	160-1423-19	Sediment	X	X	X			
SB101-4	160-1423-20	Sediment	X	X	X			
EB013113	160-1423-21	Sediment	X	X	X			

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1423 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-013113 (batch 33075) and SA422-1 (batch 32496) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	SA422-2	0.153 pCi/g	0.100 pCi/g
	SA422-4	0.111 pCi/g	0.100 pCi/g
	BS103-2	0.107 pCi/g	0.100 pCi/g
	SB107-3	0.122 pCi/g	0.100 pCi/g
	SB101-1	0.128 pCi/g	0.100 pCi/g
	SB101-4	0.120 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples SA422-1 (batch 32705) of this SDG, and 160-1378-34 (batch 34489) of SDG 160-1378. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SA422-1 (batch 36433) of this SDG. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 35952. LCS/LCSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	SB104-1	0.228 pCi/g	0.170 pCi/g
	SB105-2	0.172 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

TOTAL ORGANIC CARBON (TOC)

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) were performed according to ASTM Method D4129M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no reported results greater than the QL in the blanks associated with this fraction of the SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed by the laboratory. All LCS criteria were met. No action was required.

V.) Matrix Spike / Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sample K1301263-001. All MS/MSD criteria were met. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

PARTICLE SIZE

SUMMARY

I.) General:

The analysis for Particle Size was performed according to ASTM Method D422M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

Data Qualification Summary Table - 160-1423

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
SA422-2	160-1423-2	Uranium-235	UJ
SA422-4	160-1423-4	Uranium-235	UJ
BS103-2	160-1423-6	Uranium-235	UJ
SB107-3	160-1423-14	Uranium-235	UJ
SB101-1	160-1423-17	Uranium-235	UJ
SB101-4	160-1423-20	Uranium-235	UJ
SB104-1	160-1423-9	Strontium-90	UJ
SB105-2	160-1423-11	Strontium-90	UJ

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level IV
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90)
DATA VALIDATION DATE:	March 26, 2013
SDG NUMBER:	160-1465
SAMPLING DATE(S):	February 05, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
SB233-1	160-1465-1	Sediment	X	X	X
SB233-2	160-1465-2	Sediment	X	X	X
SB233-3	160-1465-3	Sediment	X	X	X
SB233-4	160-1465-4	Sediment	X	X	X
SB246-1	160-1465-5	Sediment	X	X	X
SB246-2	160-1465-6	Sediment	X	X	X
SB246-3	160-1465-7	Sediment	X	X	X
SB246-4	160-1465-8	Sediment	X	X	X
SB102-1	160-1465-9	Sediment	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
SB102-2	160-1465-10	Sediment	X	X	X
SB102-3	160-1465-11	Sediment	X	X	X
SB102-4	160-1465-12	Sediment	X	X	X
EB-020513	160-1465-13	Water	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1465 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-020513 (batch 33358) and SB233-1 (batch 33347) of this SDG. MD sample SB233-1 had an RER value of 1.68 for Thallium-208, exceeding SAP precision requirements of RER $\leq$ 1. The following associated sample results were all detected and were assigned a validation qualifier of estimated (J).

Isotope	Client Sample ID	Detect	Qualifier
Thallium-208	SB233-1	Yes	J
	SB233-2	Yes	J
	SB233-3	Yes	J
	SB233-4	Yes	J
	SB246-1	Yes	J
	SB246-2	Yes	J
	SB246-3	Yes	J
Thallium-208	SB246-4	Yes	J
	SB102-1	Yes	J
	SB102-2	Yes	J
	SB102-3	Yes	J
	SB102-4	Yes	J

All other MD criteria were met. No additional data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	SB233-2	0.107 pCi/g	0.100 pCi/g
	SB233-4	0.127 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample EB013013 (batch 34489) from SDG 160-1378. All MD criteria were met. No data qualification was required.

MD analysis was not performed for batch 34903. MS/MSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample SB246-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD analysis was not performed for batches 35952 and 36438. LCS/LCSD (batch 35952) and MS/MSD (batch 36438) analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample SB246-1 of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - 160-1465

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
All Sediment Samples (1-12)	160-1465-1 through 160-1465-12	Thallium-208	J
160-1465-2	SB233-2	Uranium-235	UJ
160-1465-4	SB233-4	Uranium-235	UJ

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO, South Burlington, VT
SUBCONTRACTED LAB:	Columbia Analytical Services, Inc., Kelso, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level IV
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, ASTM D4129M, ASTM D422M, ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Total Organic Carbon, Particle Size, Bulk Density
DATA VALIDATION DATE:	March 26, 2013
SDG NUMBER:	160-1466
SAMPLING DATE(S):	February 04, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
SB232-1	160-1466-1	Sediment	X	X	X			
SB232-2	160-1466-2	Sediment	X	X	X			
SB232-3	160-1466-3	Sediment	X	X	X			
SB232-4	160-1466-4	Sediment	X	X	X			
SB234-1	160-1466-5	Sediment	X	X	X			
SB234-2	160-1466-6	Sediment	X	X	X			

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90	TOC	Particle Size	Bulk Density
SB234-3	160-1466-7	Sediment	X	X	X			
SB234-4	160-1466-8	Sediment	X	X	X			
SB103-1	160-1466-9	Sediment	X	X	X			
SB103-2	160-1466-10	Sediment	X	X	X			
SB103-3	160-1466-11	Sediment	X	X	X			
BN201-1	160-1466-12	Sediment	X	X	X	X	X	X
BN201-2	160-1466-13	Sediment	X	X	X	X	X	X
BN201-3	160-1466-14	Sediment	X	X	X	X	X	X
BN201-4	160-1466-15	Sediment	X	X	X	X	X	X
BN202-1	160-1466-16	Sediment	X	X	X			
BN202-2	160-1466-17	Sediment	X	X	X			
BN202-3	160-1466-18	Sediment	X	X	X			
BN202-4	160-1466-19	Sediment	X	X	X			
EB020413	160-1466-20	Water	X	X	X			

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1466 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The Method Blank activity exceeded the SAP reporting limit in method blank MB 160-33979 for the following isotope:

Isotope	Blank Activity	2s TPU	MDL	Reporting Limit
Uranium-235	0.109 pCi/g	0.0.101 pCi/g	0.077 pCi/g	0.100 pCi/g

The following associated detected samples are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

Isotope	Client Sample ID	Detect	Qualifier
Uranium-235	SB232-3	Yes	J
	SB234-3	Yes	J
	SB234-4	Yes	J
	SB103-3	Yes	J
	BN201-1	Yes	J

Isotope	Client Sample ID	Detect	Qualifier
	BN201-2	Yes	J
	BN201-4	Yes	J
	BN202-3	Yes	J
	BN202-4	Yes	J

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-33979 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Lead-214	0.0842 pCi/g	0.0514 pCi/g	3.28

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. All affected detected sample results for Lead-214 in the associated samples were demonstrated to be significantly different ($Z_{DERs} > 2.58$); therefore, no data qualification was required.

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 160-33979 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Lead-210	0.8024 pCi/g	0.621 pCi/g	2.584

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DERs} > 2.58$) did not require data qualification. Associated detected samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

Isotope	Client Sample ID	Detect	Z-DER	Pass/Fail
Lead-210	SB232-1	Yes	1.25	Fail
	SB232-2	Yes	-0.21	Fail
	SB232-3	Yes	0.13	Fail
	SB232-4	Yes	0.78	Fail
	SB234-1	Yes	1.74	Fail
	SB234-2	Yes	0.14	Fail
	SB234-3	Yes	-0.42	Fail
	SB234-4	Yes	0.39	Fail
	SB103-1	Yes	0.71	Fail
	SB103-2	Yes	-1.24	Fail
	SB103-3	No	N/A	N/A
	BN201-1	Yes	2.88	Pass
	BN201-2	Yes	1.52	Fail
	BN201-3	Yes	0.94	Fail

Isotope	Client Sample ID	Detect	Z-DER	Pass/Fail
	BN201-4	Yes	0.49	Fail
	BN202-1	Yes	1.42	Fail
	BN202-2	Yes	1.22	Fail
	BN202-3	Yes	1.84	Fail
	BN202-4	Yes	1.59	Fail

All other Blank criteria were met. No additional data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-020513 (batch 33358) of SDG 160-1465 and SB232-1 (batch 33979) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample results were assigned a validation qualifier of estimated (UJ) for method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Uranium-235	SB232-2	0.103 pCi/g	0.100 pCi/g
	SB232-4	0.122 pCi/g	0.100 pCi/g
	SB234-2	0.116 pCi/g	0.100 pCi/g
	SB103-1	0.120 pCi/g	0.100 pCi/g
	BN201-3	0.118 pCi/g	0.100 pCi/g
	BN202-1	0.159 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample EB-013013 (batch 34489) of SDG 160-1378. All MD criteria were met. No data qualification was required.

The laboratory did not perform MD analysis for batch 34909. MS/MSD analysis was performed in lieu of the MD analysis to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample SB232-1 (batch 34909) of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

The laboratory did not perform MD analyses for batches 35952 and 36585. LCS/LCSD and MS/MSD analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample SB232-1 (batch 36585) of this SDG. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following non-detected sample result was assigned a validation qualifier of estimated (UJ) for method detection limit exceeding the SAP reporting limit. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Detection Limit	Reporting Limit
Strontium-90	SB103-2	0.176 pCi/g	0.170 pCi/g

All other Detection Decisions and CV criteria were met. No additional data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

TOTAL ORGANIC CARBON (TOC)

SUMMARY

I.) General:

The analyses for Total Organic Carbon (TOC) were performed according to ASTM Method D4129M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no Major Issues for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

All Calibration criteria were met. No action was required.

III.) Blanks:

There were no reported results greater than the QL in the blanks associated with this fraction of the SDG. No action was required.

IV.) Laboratory Control Samples (LCS):

One LCS was analyzed by the laboratory. All LCS criteria were met. No action was required.

V.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD analysis was performed on sampleBN201-1 of this SDG. All MS/MSD criteria were met. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

PARTICLE SIZE

SUMMARY

I.) General:

The analysis for Particle Size was performed according to ASTM Method D422M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

All criteria were met. No action was required.

Data Qualification Summary Table - 160-1466

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
SB232-1	160-1466-1	Lead-210	J
SB232-2	160-1466-2	Lead-210	J
SB232-3	160-1466-3	Lead-210	J
SB232-4	160-1466-4	Lead-210	J
SB234-1	160-1466-5	Lead-210	J
SB234-2	160-1466-6	Lead-210	J
SB234-3	160-1466-7	Lead-210	J
SB234-4	160-1466-8	Lead-210	J
SB103-1	160-1466-9	Lead-210	J
SB103-2	160-1466-10	Lead-210	J
BN201-2	160-1466-13	Lead-210	J
BN201-3	160-1466-14	Lead-210	J
BN201-4	160-1466-15	Lead-210	J
BN202-1	160-1466-16	Lead-210	J
BN202-2	160-1466-17	Lead-210	J
BN202-3	160-1466-18	Lead-210	J
BN202-4	160-1466-19	Lead-210	J
SB232-3	160-1466-3	Uranium-235	J
SB234-3	160-1466-7	Uranium-235	J
SB234-4	160-1466-8	Uranium-235	J
SB103-3	160-1466-11	Uranium-235	J
BN201-1	160-1466-12	Uranium-235	J
BN201-2	160-1466-13	Uranium-235	J
BN201-4	160-1466-15	Uranium-235	J
BN202-3	160-1466-18	Uranium-235	J
BN202-4	160-1466-19	Uranium-235	J
SB232-2	160-1466-2	Uranium-235	UJ
SB232-4	160-1466-4	Uranium-235	UJ
SB234-2	160-1466-6	Uranium-235	UJ
SB103-1	160-1466-9	Uranium-235	UJ
BN201-3	160-1466-14	Uranium-235	UJ
BN202-1	160-1466-16	Uranium-235	UJ
SB103-2	160-1466-10	Strontium-90	UJ

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DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
SUBCONTRACTED LAB:	TestAmerica, Inc. – Richland, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level IV
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, EPA 903.1
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Tissue
TYPE OF ANALYSES:	Gamma Spectroscopy, (Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Uranium-235, Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Alpha Scintillation, (Radium-226)
DATA VALIDATION DATE:	March 06, 2013
SDG NUMBER:	160-1467
SAMPLING DATE(S):	February 04, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	U-235	Sr-90	Ra-226
RY01A-TS	160-1467-1	Tissue	X	X	X	X	X
RY02A-TS	160-1467-2	Tissue	X	X	X	X	X
RY03A-TS	160-1467-3	Tissue	X	X	X	X	X
RP01A-TS	160-1467-4	Tissue	X	X	X	X	X
RP02A-TS	160-1467-5	Tissue	X	X	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1467 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Two primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60 and Cesium-137. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample RP01A-TS (batch 3037040) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

ALPHA SPECTROMETRY METHODS (Uranium-235, Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

The peak resolution for Uranium-232 and Uranium-238 were slightly above the FWHM laboratory limits. The LCS recovery met SAP requirements; therefore, no data qualification was necessary. All other LCS criteria were met. No data qualification was required.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples RP02A-TS (Uranium-235, batch 3037041) and RY03A-TS (Plutonium-239, batch 3037042) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

The LCS tracer yield for Uranium-232 (29%) was below the SAP limit of 40%, indicating a potential high bias. The LCS recovery met SAP requirements; therefore, no data qualification was necessary. All other Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was required.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample RY01A-TS (batch 3037038) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

RADIUM-226

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 903.1 for the Radium-226 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample RY02A-TS (batch 3037039) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Radium-226 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - 160-1467

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
N/A	N/A	N/A	None

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DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
SUBCONTRACTED LAB:	TestAmerica, Inc. – Richland, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, EPA 903.1
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Tissue
TYPE OF ANALYSES:	Gamma Spectroscopy, (Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Uranium-235, Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Alpha Scintillation, (Radium-226)
DATA VALIDATION DATE:	March 06, 2013
SDG NUMBER:	160-1496
SAMPLING DATE(S):	February 05, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	U-235	Sr-90	Ra-226
SB02A-3TS	160-1496-1	Tissue	X	X	X	X	X
SB02A-2TS	160-1496-2	Tissue	X	X	X	X	X
SB02A-1TS	160-1496-3	Tissue	X	X	X	X	X
BS09A-3TS	160-1496-4	Tissue	X	X	X	X	X
BS09A-1TS	160-1496-5	Tissue	X	X	X	X	X
BS09A-2TS	160-1496-6	Tissue	X	X	X	X	X
BN11A-1TS	160-1496-7	Tissue	X	X	X	X	X
BN11A-2TS	160-1496-8	Tissue	X	X	X	X	X

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	U-235	Sr-90	Ra-226
BN11A-3TS	160-1496-9	Tissue	X	X	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1496 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Two primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60 and Cesium-137. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 3039040 for the following isotopes:

Isotope	Blank Activity	2s TPU	Z-Score
Potassium-40	0.2020 pCi/g	0.063 pCi/g	6.41
Lead-212	0.0316 pCi/g	0.009 pCi/g	6.80
Lead-214	0.0584 pCi/g	0.016 pCi/g	7.30

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated detected samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

Isotope	Client Sample ID	Z-DER	Pass/Fail
Potassium-40	SB02A-3TS	10.6	Pass
Potassium-40	SB02A-2TS	12.6	Pass
Potassium-40	SB02A-1TS	7.3	Pass
Potassium-40	BS09A-3TS	5.5	Pass

Isotope	Client Sample ID	Z-DER	Pass/Fail
Potassium-40	BS09A-1TS	6.0	Pass
Potassium-40	BS09A-2TS	12.2	Pass
Potassium-40	BN11A-1TS	11.5	Pass
Potassium-40	BN11A-2TS	6.5	Pass
Potassium-40	BN11A-3TS	10.5	Pass
Lead-212	SB02A-3TS	0.40	Fail
Lead-212	BN11A-1TS	-1.2	Fail
Lead-212	BN11A-3TS	-0.40	Fail
Lead-214	BN11A-3TS	0.60	Fail

All other Blank criteria were met. No additional data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SB02A-3TS (batch 3039040) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Uranium-235, Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was required.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples BS09A-3TS (Uranium-235, batch 3039043) and BS09A-1TS (Plutonium-239, batch 3039044) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was required.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SB02A-1TS (batch 3039041) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

RADIUM-226

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 903.1 for the Radium-226 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SB02A-1TS (batch 3039042) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Radium-226 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - 160-1496

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
SB02A-3TS	160-1496-1	Lead-212	J
BN11A-1TS	160-1496-7	Lead-212	J
BN11A-3TS	160-1496-9	Lead-212	J
BN11A-3TS	160-1496-9	Lead-214	J

VALIDATA
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(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
SUBCONTRACTED LAB:	TestAmerica, Inc. – Richland, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0, EPA 903.1
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Tissue
TYPE OF ANALYSES:	Gamma Spectroscopy, (Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Uranium-235, Plutonium-239), Gas Flow Proportional Counting, (Strontium-90), Alpha Scintillation, (Radium-226)
DATA VALIDATION DATE:	March 06, 2013
SDG NUMBER:	160-1497
SAMPLING DATE(S):	February 06, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	U-235	Sr-90	Ra-226
SB07A-1TS	160-1497-1	Tissue	X	X	X	X	X
SB07A-2TS	160-1497-2	Tissue	X	X	X	X	X
SB07A-3TS	160-1497-3	Tissue	X	X	X	X	X
SB05A-1TS	160-1497-4	Tissue	X	X	X	X	X
SB05A-2TS	160-1497-5	Tissue	X	X	X	X	X
SB05A-3TS	160-1497-6	Tissue	X	X	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1497 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Two primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60 and Cesium-137. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 3039065 for the following isotopes:

Isotope	Blank Activity	2s TPU	Z-Score
Potassium-40	0.1450 pCi/g	0.095 pCi/g	3.05
Lead-210	0.0805 pCi/g	0.050 pCi/g	3.29
Lead-212	0.0431 pCi/g	0.007 pCi/g	11.9
Lead-214	0.0696 pCi/g	0.016 pCi/g	8.7
Bismuth-214	0.0924 pCi/g	0.065 pCi/g	2.84

Z_{DER} was calculated to determine the relative difference of sample analyte results with the failed blank analyte result. The affected detected analytes in the associated samples that were demonstrated to be significantly different ($Z_{DER} > 2.58$) did not require data qualification. Associated detected samples with $Z_{DERs} < 2.58$ are potentially biased high and were qualified as estimated (J). Non-detected results did not require data qualification.

Isotope	Client Sample ID	Z-DER	Pass/Fail
Potassium-40	SB07A-1TS	11.9	Pass
Potassium-40	SB07A-2TS	5.9	Pass

Isotope	Client Sample ID	Z-DER	Pass/Fail
Potassium-40	SB07A-3TS	5.9	Pass
Potassium-40	SB05A-1TS	11.3	Pass
Potassium-40	SB05A-2TS	13.0	Pass
Potassium-40	SB05A-3TS	7.8	Pass
Lead-210	SB05A-1TS	0.6	Fail
Lead-212	SB05A-1TS	-1.4	Fail
Lead-214	All Samples	Non-detect	N/A
Bismuth-214	All Samples	Non-detect	N/A

All other Blank criteria were met. No additional data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SB07A-3TS (batch 3039065) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Uranium-235, Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was required.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples SB05A-1TS (Uranium-235, batch 3039067) and SB05A-2TS (Plutonium-239, batch 3039068) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was required.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SB07A-1TS (batch 3052038) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

RADIUM-226

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 903.1 for the Radium-226 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable with qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

The LCS 3039064 Radium-226 recovery (74%) was outside the lower control limit of the SAP acceptance criteria of 75% indicating a potential low bias for that analyte. All associated Radium-226 results were non-detected, and due to the potential low bias were qualified as estimated (UJ).

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on sample SB07A-2TS (batch 3039064) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Radium-226 included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

There were no discrepancies noted in Calculation/Transcription Verifications. No data qualification was required.

Data Qualification Summary Table - 160-1497

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
SB05A-1TS	160-1497-4	Lead-210	J
SB05A-1TS	160-1497-4	Lead-212	J
All Samples	All Samples	Radium-226	UJ

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHODS:	EPA 901.1, DOE A-01-R, EPA 905.0
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment & Water
TYPE OF ANALYSES:	Gamma Spectroscopy, (Radium-226, Uranium-235, Cesium-137, Cobalt-60 and 13 secondary radionuclides), Alpha Spectroscopy (Plutonium-239), Gas Flow Proportional Counting, (Strontium-90)
DATA VALIDATION DATE:	March 21, 2013
SDG NUMBER:	160-1509
SAMPLING DATE(S):	February 11, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Matrix	Gamma	Pu-239	Sr-90
BS04-1SF	160-1509-1	Sediment	X	X	X
BS04-2SF	160-1509-2	Sediment	X	X	X
BN312-1SF	160-1509-3	Sediment	X	X	X
BN312-2SF	160-1509-4	Sediment	X	X	X
BN316-1SF	160-1509-5	Sediment	X	X	X
BN316-2SF	160-1509-6	Sediment	X	X	X
EB-021113	160-1509-7	Water	X	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1509 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

Note: Four primary Radionuclides of Concern (ROCs) were analyzed by the laboratory for Gamma Spectroscopy and were assigned client requested reporting limits. These isotopes included: Cobalt-60, Cesium-137, Radium-226, and Uranium-235. Method detection limits and blank criteria were evaluated by the validator using the client requested reporting limits. In addition the client requested analyses of 13 secondary radionuclides which included: Actinium-228, Americium-241, Bismuth-212, Bismuth-214, Europium-252, Europium-254, Potassium-40, Protactinium-234, Lead-210, Lead-212, Lead-214, Thallium-208, and Thorium-234. The client did not assign reporting limits to the 13 secondary radionuclides. With client approval, sample method detection limits were evaluated by the validator using Professional Judgment. Method blanks were evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results are evaluated to determine if excessive positive or negative blank results adversely affect sample results.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples EB-021213 (batch 35435) from SDG 160-1515 and BS04-1SF (batch 35202) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

The following detected sample results had method detection limits exceeding the SAP reporting limits. Detected sample results with detection limits greater than reporting limits did not require data qualification.

Isotope	Client Sample ID	Activity	Detection Limit	Reporting Limit
Uranium-235	BS04-1SF	0.215 pCi/g	0.119 pCi/g	0.100 pCi/g
	BN316-1SF	0.159 pCi/g	0.104 pCi/g	0.100 pCi/g
	BN316-2SF	0.141 pCi/g	0.107 pCi/g	0.100 pCi/g

All other Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

ALPHA SPECTROMETRY METHODS (Plutonium-239)

SUMMARY

I.) General:

The laboratory has cited analytical method DOE A-01-R for the Alpha Spectrometry analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples 160-1378-34 (batch 34489) from SDG 160-1378 and BS04-1SF (batch 36630) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Alpha Spectrometry included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS analysis was not requested by the client for this SDG. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

STRONTIUM-90

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 905.0 for the Strontium-90 analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

All Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS/LCSD):

All LCS/LCSD criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD analysis was not performed for batches 35952 and 39395. LCS/LCSD (batch 35952) and MS/MSD (batch 39395) analyses were performed in lieu of the MD analyses to provide precision data. All precision criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Strontium-90 included in this SDG. No data qualification was required.

IX.) Matrix Spike/Matrix Spike Duplicate (MS/MSD):

MS/MSD sample analysis was performed on sample 160-1465-5 of SDG 160-1465. All MS/MSD criteria were met. No data qualification was required.

X.) Chemical Yield:

All Chemical Yield criteria were met. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1509

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
N/A	N/A	N/A	None

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
SUBCONTRACTED LAB:	TestAmerica, Inc. – Richland, WA
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHOD:	EPA 901.1
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment
TYPE OF ANALYSES:	Gamma Spectroscopy, (Age-Dating for Cesium-137 and Lead-210)
DATA VALIDATION DATE:	March 20, 2013
SDG NUMBER:	160-1541
SAMPLING DATE(S):	February 13, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Sub Lab Sample ID	Matrix	Cs-137	Pb-210
BS04-GC1	160-1541-1	MX6KR	Sediment	X	X
BS04-GC2	160-1541-2	MX6KT	Sediment	X	X
BS04-GC3	160-1541-3	MX6KV	Sediment	X	X
BS04-GC4	160-1541-4	MX6KW	Sediment	X	X
BS04-GC5	160-1541-5	MX6KX	Sediment	X	X
BS04-GC6	160-1541-6	MX6K0	Sediment	X	X
BS04-GC7	160-1541-7	MX6K1	Sediment	X	X
BS04-GC8	160-1541-8	MX6K2	Sediment	X	X
BS04-GC9	160-1541-9	MX6K3	Sediment	X	X
BS04-GC10	160-1541-10	MX6K4	Sediment	X	X

Client Sample ID	Lab Sample ID	Sub Lab Sample ID	Matrix	Cs-137	Pb-210
BS04-GC11	160-1541-11	MX6K5	Sediment	X	X
BS04-GC12	160-1541-12	MX6K6	Sediment	X	X
BS04-GC13	160-1541-13	MX6K7	Sediment	X	X
BS04-GC14	160-1541-14	MX6K8	Sediment	X	X
BS04-GC15	160-1541-15	MX6K9	Sediment	X	X
BN312-GC1	160-1541-16	MX6LA	Sediment	X	X
BN312-GC2	160-1541-17	MX6LC	Sediment	X	X
BN312-GC3	160-1541-18	MX6LD	Sediment	X	X
BN312-GC4	160-1541-19	MX6LE	Sediment	X	X
BN312-GC5	160-1541-20	MX6LF	Sediment	X	X
BN312-GC6	160-1541-21	MX6LG	Sediment	X	X
BN312-GC7	160-1541-22	MX6LH	Sediment	X	X
BN312-GC8	160-1541-23	MX6LJ	Sediment	X	X
BN312-GC9	160-1541-24	MX6LK	Sediment	X	X
BN312-GC10	160-1541-25	MX6LL	Sediment	X	X
BN312-GC11	160-1541-26	MX6LM	Sediment	X	X
BN312-GC12	160-1541-27	MX6LN	Sediment	X	X
BN312-GC13	160-1541-28	MX6LP	Sediment	X	X
BN312-GC14	160-1541-29	MX6LQ	Sediment	X	X
BN312-GC15	160-1541-30	MX6LR	Sediment	X	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MS = MATRIX SPIKE,
EB = EQUIPMENT BLANK, DL = DILUTION, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	Confirmed identification. The isotope was positively identified at the reported value. The reported concentration is within the calibrated range of the instrument and the result is not affected by any deficiencies in the associated quality control criteria.
J	The isotope was detected at the reported concentration; the quantitation is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.
U	Not considered detected. The associated number is the reported concentration.
UJ	Not considered detected. The associated number is the reported concentration, which may be inaccurate or imprecise.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1541 - Radiochemistry

ALL ANALYTICAL FRACTIONS

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

GAMMA SPECTROSCOPY

SUMMARY

I.) General:

The laboratory has cited analytical method EPA 901.1 for the Gamma Spectroscopy analyses.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualification.

MAJOR ISSUES

No major issues were encountered in this fraction of the SDG.

MINOR ISSUES / COMPLIANT DATA

I.) Sample Receipt, Preparation and Holding Times:

All Sample Receipt, Preparation and Holding Time criteria were met. No data qualification was necessary.

II.) Instrument Performance:

All Instrument Performance criteria were met. No data qualification was necessary.

III.) Calibration:

All Calibration criteria were met. No data qualification was necessary.

IV.) Background Level:

All Background Level criteria were met. No data qualification was necessary.

V.) Blanks:

Method Blank MB-3051050 activity exceeded the CRDL of 0.35 dpm/g, indicating a potential high bias to associated samples. The method blank was evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results were evaluated to determine if the positive blank result adversely affect sample results.

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB-3051050 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Lead-210	0.509 dpm/g	0.26 dpm/g	3.92

Z_{DER} was calculated to determine the relative difference of the sample analyte results with the failed blank analyte result. All affected sample results for Lead-210 were demonstrated to be significantly different ($Z_{DER} > 2.58$); therefore, no data qualification was required.

Method Blank MB-3051052 activity exceeded the CRDL of 0.35 dpm/g, indicating a potential high bias to associated samples. The method blank was evaluated statistically ($Z\text{-}_{BLANK}$ and $Z\text{-}_{DER}$ Scores), where the normalized differences between blank results and sample results were evaluated to determine if the positive blank result adversely affect sample results.

The $Z\text{-}_{BLANK}$ Score exceeded the 2.58 limit in method blank MB 3051052 for the following isotope:

Isotope	Blank Activity	2s TPU	Z-Score
Lead-210	0.472 dpm/g	0.23 dpm/g	4.10

Z_{DER} was calculated to determine the relative difference of the sample analyte results with the failed blank analyte result. All affected sample results for Lead-210 were demonstrated to be significantly different ($Z_{DER} > 2.58$); therefore, no data qualification was required.

All other Blank criteria were met. No data qualification was necessary.

VI.) Laboratory Control Samples (LCS):

All LCS criteria were met. No data qualification was necessary.

VII.) Laboratory Matrix Duplicate (MD):

MD sample analysis was performed on samples BS04-GC1 (batch 3051050) and BN312-GC1 (batch 3051052) of this SDG. All MD criteria were met. No data qualification was required.

VIII.) Field Duplicate (FD):

There were no Field Duplicates for Gamma Spectroscopy included in this SDG. No data qualification was required.

IX.) Matrix Spike Recovery (MS):

MS sample analysis is not applicable for Gamma Spectroscopy. No data qualification was required.

X.) Chemical Yield:

No tracers or chemical carriers are employed in Gamma Spectroscopy analysis. No data qualification was required.

XI.) Nuclide Identification and Interferences:

All data validation criteria pertaining to Nuclide Identification and Interferences were met. No data qualification was necessary.

XII.) Detection Decisions and Critical Values (CV):

All samples for Lead-210 method detection limits exceeded the CRDL. All samples results were detected above the MDL and CRDL; therefore, no data qualification was required.

All other Detection Decisions and CV criteria were met. No data qualification was required.

XIII.) Performance Evaluation Samples:

No Performance Evaluation Samples were submitted. No data qualification was required.

XIV.) Calculation/Transcription Verifications:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1541

Client Sample ID	Laboratory Sample ID	Isotope	Validated Qualifier
N/A	N/A	N/A	None

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
SUBCONTRACTED LAB:	TestAmerica, Inc. – South Burlington, VT
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHOD:	ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment
TYPE OF ANALYSIS:	Bulk Density
DATA VALIDATION DATE:	March 21, 2013
SDG NUMBER:	160-1553
SAMPLING DATE:	February 13, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Sample Matrix	Bulk Density
BS04-GC13A	160-1553-4	Sediment	X
BS04-GC14A	160-1553-9	Sediment	X
BS04-GC15A	160-1553-14	Sediment	X
BN312-GC1A	160-1553-16	Sediment	X
BN312-GC2A	160-1553-19	Sediment	X
BN312-GC3A	160-1553-22	Sediment	X
BN312-GC4A	160-1553-24	Sediment	X
BN312-GC5A	160-1553-26	Sediment	X
BN312-GC6A	160-1553-28	Sediment	X
BN312-GC7A	160-1553-30	Sediment	X
BN312-GC8A	160-1553-32	Sediment	X

Client Sample ID	Lab Sample ID	Sample Matrix	Bulk Density
BN312-GC9A	160-1553-34	Sediment	X
BN312-GC10A	160-1553-36	Sediment	X
BN312-GC11A	160-1553-40	Sediment	X
BN312-GC12A	160-1553-45	Sediment	X
BN312-GC13A	160-1553-50	Sediment	X
BN312-GC14A	160-1553-55	Sediment	X
BN312-GC15A	160-1553-60	Sediment	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	The reported result is not affected by any deficiencies in the associated quality control criteria.
J	The reported sample result is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1553 - Geotechnical

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1553

Client Sample ID	Laboratory Sample ID	Analyte	Validated Qualifier
N/A	N/A	N/A	None

VALIDATA
Chemical Services, Inc.
4070 Balleycastle Lane, Duluth, GA 30097
(770) 232-0130
(770) 232-5082 (Fax)
www.datavalidator.com

DATA VALIDATION SUMMARY REPORT

COMPANY:	ITSI Gilbane Company
SITE NAME:	Hunters Point Naval Shipyard Parcel F
PROJECT NO.:	07225.0002
CONTRACTED LAB:	TestAmerica, Inc. – St. Louis, MO
SUBCONTRACTED LAB:	TestAmerica, Inc. – South Burlington, VT
PRIME CONTRACT NO.:	N62473-08-D-8824
QA/QC LEVEL:	EPA Level III
ANALYTICAL METHOD:	ASTM D2937M
VALIDATION GUIDELINES:	*SAP, Radiological Screening and Data Gap Investigation, June, 2011, and Final Amendment to SAP, October, 2012; National Functional Guidelines for Inorganic Superfund Data Review, 2010; Laboratory QC Limits; Professional Judgment*
SAMPLE MATRIX:	Sediment
TYPE OF ANALYSIS:	Bulk Density
DATA VALIDATION DATE:	March 21, 2013
SDG NUMBER:	160-1554
SAMPLING DATE:	February 13, 2013

SAMPLES:

Client Sample ID	Lab Sample ID	Sample Matrix	Bulk Density
BS04-GC5A	160-1554-1	Sediment	X
BS04-GC6A	160-1554-3	Sediment	X
BS04-GC7A	160-1554-5	Sediment	X
BS04-GC8A	160-1554-7	Sediment	X
BS04-GC9A	160-1554-9	Sediment	X
BS04-GC10A	160-1554-11	Sediment	X
BS04-GC11A	160-1554-15	Sediment	X
BS04-GC12A	160-1554-20	Sediment	X
BS04-GC1A	160-1554-21	Sediment	X
BS04-GC2A	160-1554-24	Sediment	X
BS04-GC3A	160-1554-27	Sediment	X

Client Sample ID	Lab Sample ID	Sample Matrix	Bulk Density
BS04-GC4A	160-1554-29	Sediment	X

Suffix Codes: FD = FIELD DUPLICATE, RE = REANALYSIS, MD = MATRIX DUPLICATE

DATA REVIEWER(S): Thomas B. Granat

PEER REVIEWER(S): Kevin C. Harmon

Definitions of Data Validation Qualifiers

Qualifier	Definition
No qualifier	The reported result is not affected by any deficiencies in the associated quality control criteria.
J	The reported sample result is an estimate.
R	The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.

DATA VALIDATION SUMMARY

TestAmerica - SDG 160-1554 - Geotechnical

DATA VERIFICATION / COMPLIANCE

Data Package Completeness and Documentation:

The data package met all requirements for completeness criteria. The required documentation was present and complete.

BULK DENSITY

SUMMARY

I.) General:

The analysis for Bulk Density was performed according to ASTM Method D2937M.

II.) Overall Assessment of Data:

All laboratory data were acceptable without qualifications.

MAJOR ISSUES

There were no major problems for this fraction of the SDG.

MINOR ISSUES

I.) Holding Times:

All Holding Time criteria were met. No action was required.

II.) Calibration:

Calibration criteria were not required for this fraction. No action was required.

III.) Blanks:

Blanks were not applicable to this method. No action was required.

IV.) Laboratory Control Samples (LCS):

LCS's were not applicable to this method. No action was required.

V.) Laboratory Matrix Duplicate (MD):

MD analysis data was not submitted for this fraction of the SDG. No action was required.

VI.) Field Duplicates:

There were no field duplicate samples identified in this fraction of the SDG. No action was required.

VII.) Sample Result, Calculation/Transcription Verification:

This criterion was not evaluated for Level III.

Data Qualification Summary Table - 160-1554

Client Sample ID	Laboratory Sample ID	Analyte	Validated Qualifier
N/A	N/A	N/A	None

ATTACHMENT B

ANALYTICAL LABORATORY REPORTS
(provided electronically in attached CD)

ATTACHMENT C

FIELD CHANGE REQUESTS

ITSI Gilbane

Field Change Request

(Page 1 of 1)

Project Name:	Page of
Hunters Point Naval Shipyard Parcel F Radiological Data Gap Investigation	1 2
Project No./Task Code: 07225.0002/05400	Field Change No.: 07225.0002.0002
Applicable Document(s): *Revised Final Sampling and Analysis Plan for Radiological Screening and Data Gap Investigation at Parcel F, Hunters Point Naval Shipyard, San Francisco Bay, California* (Batelle, 2011) *Final Amendment to Final Sampling and Analysis Plan for Radiological Data Gap Investigation, Hunters Point Naval Shipyard, San Francisco, California* (ITSI Gilbane, 2012)	Document Date: June 3, 2011 November 2, 2012

Problem Description:

The SAP states Core Scientific International will analyze the geochronology samples. However, Core Scientific is not properly licensed to handle the samples. In addition, the SAP requires only Pb-210 and Cs-137 determinations for the samples, but dry weight bulk density data is required to interpretation with modeling and plotting.

Recommended Solution:

ITSI Gilbane recommends that the samples be analyzed by Test America using the SAP parameters with the addition of bulk density by ASTM D2937M (a SAP analysis). The results will be directed to Core Scientific International for interpretation with modeling and plotting.

Impact on Present and Completed Work:

The proposed change will result in more robust evaluation of the geochronology data, while complying with SAP requirements. Field crews and Test America Laboratory was notified of the change to be implemented.

Requested by:	Title:	Date:
Kristen Carlyon	Project Chemist	January 15, 2013

Technical and Management Review/Approval

Recommended Disposition:

The Client was notified of the minor change and provided a copy of this FCR via email February 15, 2013.

Clarification: ☐	Minor Change: ■	Major Change: ☐
Client Approval **Is Not Required**: ■		Client Approval **Is Required**: ☐
Regulatory Agency Approval **Is Not Required**: ■		Regulatory Agency Approval **Is Required**: ☐

ITSI Technical Reviewer

Comments:
Change complies with SAP requirements.

Signature:	Date:
Jeffrey Hess	January 15, 2013

ITSI Project Manager

Comments:
Change is approved for implementation.

Signature:	Date:
Rachel Hess	January 15, 2013

ITSI Gilbane

Field Change Request

(Page 1 of 1)

Project Name:	Page of
Hunters Point Naval Shipyard Parcel F Radiological Data Gap Investigation	1 2
Project No./Task Code:	Field Change No.:
07225.0002	07225.0002.0001
Applicable Document(s): *Revised Final Sampling and Analysis Plan for Radiological Screening and Data Gap Investigation at Parcel F, Hunters Point Naval Shipyard, San Francisco Bay, California* (Batelle, 2011) *Final Amendment to Final Sampling and Analysis Plan for Radiological Data Gap Investigation, Hunters Point Naval Shipyard, San Francisco, California* (ITSI Gilbane, 2012)	Document Date: June 3, 2011 November 2, 2012

Problem Description:

The SAP documents require that the sediment core samples for ROC, TOC, particle size, and bulk density to be sent to the laboratory be collected in plastic jars. Due to unstable conditions on the boat where samples are to be processed, procedures calling for intensive sampling handling, such as transfer to jars, are not optimal.

Recommended Solution:

ITSI Gilbane recommends that the samples be shipped to the lab directly in the 3.5-inch by 1-foot acetate sleeves with ends capped with Teflon tape and end caps. There is no technical difference to sample quality.

Impact on Present and Completed Work:

This process involves less sample handling that will lead to less chance of cross-contamination, less process decontamination, and increased efficiency. Field crews were notified of the change and implemented in the field.

Requested by:	Title:	Date:
Kristen Carlyon	Project Chemist	November 26, 2012

Technical and Management Review/Approval

Recommended Disposition:

The Client was notified of the minor change via email.

Clarification: ☐	Minor Change: ■	Major Change: ☐
Client Approval **Is Not Required**: ■		Client Approval **Is Required**: ☐
Regulatory Agency Approval **Is Not Required**: ■		Regulatory Agency Approval **Is Required**: ☐

ITSI Technical Reviewer

Comments:
Approved: Streamlined sample handling resulting in potentially greater productivity while also offering reduced potential for sample loss or cross-contamination is a positive change that should be implemented.

Signature:	Date:
	26 November 2012

ITSI Project Manager

Comments:
Change is approved for implementation.

Signature:	Date:
	28 November 2012

Appendix F
RESPONSE TO COMMENTS

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Responses to Regulatory Agency Comments on the
Draft Technical Memorandum Radiological Data Gap Investigation Ph2b at
Parcel F, Hunters Point Naval Shipyard, San Francisco, California (June 2013)

No.	Comments	Responses
REVIEW COMMENTS – Ryan Miya, Senior Hazardous Substances Scientist, Brownfields and Environmental Restoration Program – Berkeley, State of California Department of Toxic Substances Control, dated July 26, 2013		
SPECIFIC COMMENTS		
1.	**Executive Summary**. While the text states that the Phase 2b sediment radiological results did not produce any PAL exceedances for any of the radionuclides of concern, the text also states that Sedflume core BN316-SF exceeded the revised release limit for Cesium-137 and could not be released for sediment stability analysis. Please clarify what appear to be two contradictory pieces of information.	The release limits for the sedflume cores consisted of soil criteria from the HPNS Final Basewide Radiological Removal Action Memorandum (DON, 2006). No sediment-specific release criteria exist for HPNS. The soil release limit for Cs-137 (0.113 pCi/g) was approximately one order of magnitude more conservative than the lowest sediment PAL developed for Parcel F (1.28 pCi/g). Thus, it was possible for station BN316-SF to exceed the Cs-137 handling criteria for sedflume analysis while simultaneously failing to exceed the sediment PALs for the site. Text in Executive Summary, numbered list, item #4, has been revised to state: "*Although three sedflume cores were collected during Phase 2b sampling, radiological results from separate co-located handling cores indicated that sedflume core BN316-SF exceeded the revised soil release criterion for Cs-137 at HPNS. As a result, this core could not be released for sediment stability analysis because the sedflume contractor did not possess the applicable radioactive materials handling licenses. Soil release criteria were used as the release limits for the sedflume cores because no sediment-specific release criteria exist for HPNS. The soil release limit for Cs-137 was approximately one order of magnitude more conservative (i.e., lower) than the lowest sediment PAL developed for Parcel F.*" In addition, text in Section 3.1.3, Sediment Stability Sampling, subsection, second paragraph, has been revised to state: "*Analytical results indicated that samples from handling core BN316-SF exceeded the revised soil release criterion for Cs-137 (0.113 pCi/g) at HPNS. This release limit was taken from the Final Basewide Radiological Removal Action Memorandum (DON, 2006). Soil release criteria were used as the*

No.	Comments	Responses
		release limits for the sedflume cores because no sediment-specific release criteria exist for HPNS. The soil release limit for Cs-137 was approximately one order of magnitude more conservative (i.e., lower) than the lowest sediment PAL developed for Parcel F (1.28 pCi/g). Thus, it was possible for sediments from location BN316-SF to exceed the release criteria for sedflume analysis while simultaneously failing to exceed the PALs for human health and biota risk at the site. *Given that the Cs-137 activity in the BN316-SF handling core exceeded the applicable release criterion, the associated sedflume core from this location could not be released to SEI because this contractor did not possess the applicable radioactive materials handling license required to remove radioactive material from HPNS."*
2.	**Section 3.1.1 – Sediment Radionuclide Sampling.** Sediment Cores subsection, paragraph four. It is unclear why the text states that Thorium-230 was not included in the analytical suite for sediment as it is not a radionuclide of concern. Consideration should be given to either remove this sentence or briefly describe why this information is necessary. The same comment applies to the text in paragraph five of Section 3.1.2.	The omission of Thorium-230 from the Phase 2b analytical suite should be justified in the text for any potential reader who may compare the secondary ROC list from the Final DGI Work Plan to the Phase 2b sediment data results provided in Appendix B1 and question the absence of thorium. Text in Section 3.1.1, Sediment Cores Subsection, fourth paragraph, has been revised to state: "*Thorium-230 was the one secondary ROC identified in the Final DGI Work Plan that was not included in the analytical suite for sediment during the Phase 2b analysis because this radionuclide was not supported by the analytical methods for sediment listed in Worksheet 19 of the approved SAP. As Thorium-230 was not a primary ROC for Parcel F, and thus would not be included in the statistical analysis, this omission was considered negligible to the overall Phase 2b risk evaluation."* Text in Section 3.1.2, fifth paragraph, has been revised to state: "*Thorium-230 and Lead-210 (Pb-210) were the two secondary ROCs identified in the Final DGI Work Plan that were not included in the*

Responses to Regulatory Agency Comments on the Draft Technical Memorandum Radiological Data Gap Investigation Ph2b at Parcel F, Hunters Point Naval Shipyard, San Francisco, California (June 2013)

No.	Comments	Responses
		analytical suite for tissue during the Phase 2b analysis. Thorium-230 was not included because this radionuclide was not supported by the analytical methods for tissue listed in Worksheet 19 of the approved SAP. Lead-210 was not included because the standard calibration used by TestAmerica, Inc., for the approved tissue analytical method (EPA 901.1 Modified for Tissue) does not include Pb-210. As neither Thorium-230 nor Pb-210 were primary ROCs for Parcel F, and thus would not be included in the statistical analysis, these omissions were considered negligible to the overall Phase 2b bioaccumulation results."
3.	**Section 3.2.2 – Re-Analysis of Individual Samples with PAL Exceedances.** The text in this section states that no additional sampling was performed for the locations where insufficient archived volumes for re-analysis remained. However, this appears inconsistent with the text presented previously in the last paragraph of Section 3.1.1 which states that samples that did not have sufficient volume was addressed by using Phase 2b data from cores collected "immediately adjacent" to the Phase I locations. Please clarify and correct for consistency and accuracy as needed.	The text in Section 3.2.2 was meant to explain that no additional Phase 2b sampling was performed by re-occupying the two specific Phase 1 locations lacking sufficient archived sample volume for re-analysis. Instead, mean data from the planned Phase 2b sampling locations surrounding the Phase 1 locations were substituted as the re-analysis data. To clarify, the text in Section 3.2.2, first paragraph, has been revised to state: "*The four samples that did not have sufficient archived volume (one sample from location SA05 and three samples from location SB09) could not be re-analyzed. No Phase 2b sampling was performed at these specific locations (i.e., the Phase 1 locations were not re-occupied). Instead, mean data from planned Phase 2b samples immediately surrounding the original Phase 1 locations were used as the re-analysis data.* For consistency, the text in Section 3.1.1, final paragraph, has been revised to state: "*No Phase 2b sampling was performed at the specific Phase 1 locations that were lacking sufficient archived sample volume (i.e., the Phase 1 locations were not re-occupied). Instead, re-analysis for these four samples was addressed by using the mean data from planned Phase 2b samples immediately surrounding the original Phase 1 locations."*

Responses to Regulatory Agency Comments on the
Draft Technical Memorandum Radiological Data Gap Investigation Ph2b at
Parcel F, Hunters Point Naval Shipyard, San Francisco, California (June 2013)

No.	Comments	Responses
4.	**Section 3.2.3 - Sum of Fractions Results for Human Health Risk.** Please briefly explain what a negative fraction of PAL represents in the text.	Because the fraction of PAL is calculated by first subtracting the reference area mean concentration from the Phase 2b mean concentration prior to dividing by the PAL, a negative value indicates that the Phase 2b mean is less than the reference area mean (i.e., the site-specific level is less than the background level). A negative value for the sum of fractions indicates that the overall fraction of PAL data set is biased towards the Phase 2b mean being less than the reference area mean. Text in Section 3.2.3, second paragraph, has been expanded to include: "*A negative fraction of PAL calculated in this manner indicates that the Phase 2b mean concentration for that particular ROC is less than the Phase 2a reference area mean concentration (i.e., the site-specific ROC level at Parcel F is less than the background ROC level in San Francisco Bay).*" Text in Section 3.2.3, third paragraph, has been expanded to include: "*Because these total values are all less than 1.0, the cumulative human health risk from the six ROCs at Parcel F is considered acceptable for all exposure scenarios. Because these values are also negative, each of the corresponding data sets is biased towards ROC activity at the Phase 2b locations in Parcel F being less than ROC activity at the reference areas in San Francisco Bay.*"
5.	**Table 3-10 - Phase 2b Sum-of-Fractions Results for Human Health Risk.** Please provide a brief explanation as to why the intertidal and subtidal areas are not separated out in the total fraction of PAL row at the bottom of the table. The same comment applies to Table 3-11.	The intertidal and subtidal exposure scenarios were not separated out in the total fraction of PAL row in Table 3-10 based on the precedent established for this table in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013). The Navy agrees that this approach is inconsistent with the other tables in Section 3.0 and the overall project goal of evaluating the two CSMs separately. Table 3-10 has, thus, been revised to include separate totals for the intertidal and subtidal environments. Separate rows for intertidal and subtidal totals are not applicable to

No.	Comments	Responses
		Table 3-11 because the biota risk evaluation was not separated into separate exposure scenarios. While separate ecological PALs were developed for different target receptors, the most conservative (i.e., lowest) PAL for each ROC was used to calculate the sum of fractions. This approach follows the precedent established in the Final Phase 2a Technical Memorandum. To clarify, text in Section 3.2.3, second paragraph, has been expanded to state: "*The two human health risk CSM exposure scenarios relevant to Phase 2b (intertidal and subtidal) were evaluated separately by performing the sum of fractions calculations on each of the corresponding PALs (Table 2-9). Results were also combined across CSM exposure scenarios to evaluate human health risk at Parcel F as a whole….The sums of fractions for human health risk from the Phase 2b data for the intertidal environment and subtidal component were -0.1399 and -0.0048, respectively. The sum of fractions for human health risk from the Phase 2 data for Parcel F as a whole was -0.1447.*" In addition, text in Section 3.2.4, first paragraph, has been expanded to state: "*Thus, the fraction for each of the six ROCs was determined by comparing the maximum Phase 2b concentration for each ROC to the most conservative (i.e., lowest) ecological PAL developed for Parcel F (Table 2-10). Selecting the most conservative PAL for this calculation, regardless of target receptor (e.g., marine bird, mollusk, benthic fish, or polychaete worm) or radiation dose (e.g., 0.1 rad/day or 1.0 rad/day), yields the greatest possible sum of fractions. If this conservative value does not exceed the cumulative risk threshold of 1.0, then the conclusion can be drawn that a sum of fractions calculated from all other PAL combinations would not exceed the cumulative risk threshold as well. Only one ecological PAL was evaluated for each ROC because the biota risk evaluation for Parcel F was not separated into multiple CSM exposure scenarios (e.g., intertidal versus subtidal).*"

Responses to Regulatory Agency Comments on the
Draft Technical Memorandum Radiological Data Gap Investigation Ph2b at
Parcel F, Hunters Point Naval Shipyard, San Francisco, California (June 2013)

No.	Comments	Responses
6.	**Section 4.4 - Uncertainties**. Please consider moving the discussions regarding the analytical approach and data uncertainties from the Conclusions section to the end of Section 3 (new Section 3.5?). Concluding that there are uncertainties with the data is different than acknowledging and discussing them in the body of the text.	The uncertainties section (former Section 4.4) and all associated subsections have been moved to new Section 3.5 as requested.
7.	Please add a stand-alone section listing any deviations from the approved work plan as well as providing the technical rationale for why the deviations were implemented during the course of fieldwork.	New Section 3.6 (Deviations from the Approved Work Plan) has been added as requested to list any deviations from the approved work plan and to provide justification for these deviations. This section was grouped under main heading 3.0 because it is pertinent to the overall fieldwork section. This section also references the Field Deviations and Corrective Actions presented in the QCSR (Appendix E). See attached New Section 3.6 below:

New Section 3.6 Deviations from the Approved Work Plan

This section summarizes the field deviations from the approved Final DGI Work Plan (Battelle et al., 2011), as modified by ITSI Gilbane in November 2012,that occurred during the Phase 2b field effort. The sampling-related deviations are also presented in detail in the QCSR provided in Appendix E.

Sediment Step-Out Sampling. The ITSI Gilbane modifications to the Final DGI Work Plan detailed 3 step-out samples to be collected around each of the 10 Phase 1 sampling locations at which the on-site laboratory results indicated Ra-226 PAL exceedances. These step-out samples would be necessary from a technical standpoint to bound potential areas of localized Ra-226 contamination. However, at the request of the BCT, the 15 total samples generated from these 10 locations were first retrieved from archive and re-analyzed by Test America, Inc., to confirm the exceedances before step-out samples were collected. The results of this re-analysis are described in Section 3.2.2 of this Technical Memorandum.

The re-analysis results indicated that the Phase 1 Ra-226 results from the on-site laboratory for all 10 sample locations in question were erroneous and confirmed that these locations actually had Ra-226 concentrations below the applicable intertidal CSM PAL. As a result, the step-out samples were deemed unnecessary. The step-out sampling task was cancelled, and all proposed step-out samples were designated as "NS*," thus indicating not sampled, in Table 2-1 of the QCSR (Appendix E).

Sediment Core Refusal. The ITSI Gilbane modifications to the Final DGI Work Plan called for analytical sediment cores to be collected in the Berths North area at locations BN221, BN222, BN223, BN224, BN225, BN226, BN227, BN228, BN229, and BN230. These locations were not sampled due to the presence of

concrete at the bottom of Dry Dock 4, which would have resulted in immediate core refusal. All proposed samples from these locations were designated as "NS[1]," thus indicating not sampled due to a concrete bottom at Dry Dock 4, in Table 2-1 of the QCSR (Appendix E).

Clam Tissue Analysis. The ITSI Gilbane modifications to the Final DGI Work Plan and associated SAP specified that the analytical laboratory combine all clams from the three replicate cages for each Parcel F location into one single composite sample for that location prior to radiological analysis. The analytical laboratory (Test America, Inc.) failed to create these composite samples and, instead, analyzed each replicate cage individually. The results of the three replicates were ultimately averaged by project data analysts to generate a single clam tissue value for each Parcel F location for statistical analysis, as specified in the SAP. This action is also discussed in Section 3.3 of this Technical Memorandum.

Sedflume Sampling. The ITSI Gilbane modifications to the Final DGI Work Plan and associated SAP specified that three sedflume cores would be collected for sediment stability analysis. However, radiological data from co-located handling cores indicated that one of the sedflume cores exceeded the revised release criterion for Cs-137, and thus could not be released to the sedflume contractor SEI. As a result, only two sedflume cores were submitted for sediment stability analysis. All sedflume results presented in Section 3.4.1 and Appendix D1 are based on these two sedflume cores only. Sedflume sampling is discussed in detail in Section 3.1.3 of this Technical Memorandum.

Geochronology Laboratory. The ITSI Gilbane modifications to the Final DGI Work Plan and associated SAP identified Core Scientific as the analytical laboratory for radiological analysis of the geochronology core samples. However, Core Scientific did not possess the appropriate radioactive materials handling license from the U.S. Nuclear Regulatory Commission and a radio-bioassay accreditation from the Department of Energy Laboratory Approval Program, which are required to handle restricted materials from HPNS. Core Scientific was also unable to perform the dry weight bulk density analysis on the geochronology samples that was required by the SAP in addition to Pb-210 and Cs-137 radionuclide analysis. As a result, the geochronology cores were instead analyzed by Test America, Inc., for Pb-210 and Cs-137, as well as bulk density by American Society for Testing and Materials Method D2937M. The results were then directed to Core Scientific for sediment age dating interpretation with modeling and plotting. This change to the approved SAP was documented in Field Change Request 07225.0002.0002 (ITSI Gilbane, 2013), presented in Attachment C of the QCSR (Appendix E).

ADCP Measurements. Although the ADCP (time-series measurements of waves and currents) specified in the Final Parcel F Radiological DGI Work Plan was not included as a part of the Phase 2b field effort scope, the absence of new ADCP data was not critical to overall understanding of sediment stability at Parcel F.

ADCP data was originally intended to support the Phase 2b sediment stability analysis for Parcel F by updating the site hydrodynamic model (SEDZL; Battelle, 2007) with additional data to estimate the maximum possible erosion for extreme events. Because current velocity is reduced directly at the seafloor due to friction, direct measurements of the bottom layer velocity are most important for evaluating sediment transport. The "bottom-mounted" ADCP technology would have profiled the speed and direction of currents over discrete water column intervals between the sensor and the water surface but would not have been able to measure the speed and direction of currents directly at the seafloor at the point which it is mounted. Instead, bottom layer velocity would be predicted from the rate of change in measured layers above the bottom. These predictions would result in an appreciable level of uncertainty regarding sediment erosion, especially because bottom grain size and topography are expected to vary greatly across Parcel F. As a result, ADCP deployment was not considered critical to the overall understanding of sediment stability at Parcel F and was removed from the Phase 2b scope.

In the absence of new ADCP measurements, the same model predictions used in the Phase 2a sediment erosion calculations were applied to the Phase 2b sediment erosion calculations. This application is discussed in detail in Section 3.4.2 of this Technical Memorandum.

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REVIEW COMMENTS – Charlie Huang, Ph.D., Staff Toxicologist, California Department of Fish and Wildlife, Office of Spill Prevention and Response, dated July 23, 2013		
GENERAL COMMENTS		
1.	CDFW-OSPR appreciates the opportunity to provide guidance on the planned cleanup at HPNS. This memo will serve to inform the Navy of our continuing interest in coordinating any natural resource issues, as one of the designated State natural resource trustees.	Comment noted. No action required.
2.	As far as conducting a background radionuclide vs. site radionuclide comparison, CDFW-OSPR recommends that the Navy compare the summed total of all radionuclide energy (i.e. background energy vs. site energy). The assessment should not be done by individual radionuclide comparisons. An evaluation of ecological risk from radionuclide exposure should be conducted before the background comparison; this is in keeping with the Environmental Protection Agency's Eco Update (U.S. EPA, 2005) and Department of Toxic Substances Control Ecological Risk Assessment (ERA) guidance (DTSC, 1996).	The biota risk evaluation (i.e., ecological risk assessment) included in the Phase 2b Technical Memorandum follows the approach established in the *Final Work Plan for Radiological Data Gap Investigation at Parcel F, Hunters Point Naval Shipyard, San Francisco Bay, California* (Battelle et al., 2011), as modified by ITSI Gilbane in November 2012. This Final DGI Work Plan was approved by the overseeing regulatory agencies, and the same ecological risk approach was previously used by Battelle in the *Final Technical Memorandum for Radiological Data Gap Investigation Phase 2a, at Parcel F Submarine Areas, Parcel B Revetment Wall Areas, and San Francisco Bay Reference Sites, Hunters Point Naval Shipyard, San Francisco Bay, California* (Battelle and Sea Engineering, Inc., 2013). As stipulated in the Final DGI Work Plan, the ERICA tool (Brown et al., 2008) was used to estimate site-specific ecological PALs for four target receptors at Parcel F. Section 2.1.2 of the Final DGI Work Plan states that this approach for developing PALs "was similar to that used in Tier 1 (screening risk assessment) of the three-tiered Navy ecological risk assessment approach (U.S. Navy, 1999). It was also similar to Tier I in the three-tiered process described in "Principles and Issues in Radiological Ecological Risk Assessment" (Jones et al., 2003)." The Phase 2b maximum ROC concentrations were then compared to the most conservative (i.e., lowest) of the ecological PALs, and the resulting

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		ratios were totaled using a sum-of-fractions calculation. As the ITSI Gilbane modifications to the Final DGI Work Plan did not necessitate the calculation of new PALs during the Phase 2b analysis, the same ecological PALs developed by Battelle during the Phase 2a analysis were used for this comparison. The Navy believes that the sum-of-fractions approach used in the Phase 2b biota risk evaluation already satisfies the CDFW-OSPR request to evaluate the summed total of radionuclide energy present at the site. Following the precedent established in the Final Phase 2a Technical Memorandum, Section 3.2.4 of the Phase 2b Technical Memorandum states that "because the biota exposed to sediments at Parcel F are not expected to travel outside of the site boundaries, the biota PALs used for this analysis were not intended to represent increments above background." As a result, no "background energy versus site energy" comparison was incorporated into the biota risk evaluation. Because the biota risk evaluation in Phase 2b was consistent with that presented in the Final DGI Work Plan, as approved by the regulatory agencies and previously executed by Battelle in the Final Phase 2a Technical Memorandum, the Navy believes no additional changes are required. Text in Section 2.2, first paragraph, was revised to state: "*A radionuclide risk evaluation for both human health and biota was conducted during the Phase 2b investigation following the approach established in the Final DGI Work Plan (Battelle et al., 2011), as modified by ITSI Gilbane in November 2012. This DGI Work Plan was approved by the overseeing regulatory agencies, and the same risk evaluation approach was previously used in the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013). The same human health and ecological PALs that were developed during the Phase 2a risk evaluation were used*

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		for the Phase 2b investigation." Text in Section 2.2, third paragraph, was expanded to include: "*In contrast, the ecological PALs listed in this Technical Memorandum are not intended to represent increments above background because the target ecological receptors selected for the risk evaluation are not expected to travel outside of the Parcel F boundaries."*
3.	Unlike exposures to chemicals, which are typically expressed as the concentration in water or sediment, exposures to radionuclides are expressed as the dose rate received by the organism. Dose rates that account for the biological effects to the organism are additive; the total dose rate is the sum of the normalized dose rates for each radionuclide. If the total dose rate exceeds a recommended acceptable dose rate, site specific analysis is needed to determine the hazards posed by radio nuclides at the site. If the total dose rate falls below an accepted dose rate limit, radionuclides may be eliminated from further study.	As explained in the response to General Comment #2 above, the biota risk evaluation included in the Phase 2b Technical Memorandum follows the approach presented in the Final DGI Work Plan that was approved by the regulatory agencies and previously executed by Battelle in the Final Phase 2a Technical Memorandum. Section 2.1.2 of the Final DGI Work Plan explains how the ERICA tool was used to develop site-specific ecological PALs from various environmental exposure parameters and dose conversion coefficients. The ecological PALs listed in Table 2-10 of the Phase 2b Technical Memorandum represent the radionuclide concentrations in sediment that would yield radiation dose rates of 0.1 (40 μGy/hour) rad/day and 1.0 rad/day (400 μGy/hour) for marine birds, mollusks, benthic fish, and polychaete worms. The text in Section 2.1.2 of the Final DGI Work Plan states that "for aquatic organisms, a dose rate of 1.0 rad/day would not have any detrimental effects at the population level." The Navy believes that the current ecological risk assessment approach of comparing sediment radiological concentrations directly to site-specific ecological PALs already satisfies the CDFW-OSPR request to execute a dose-based screening because the PALs have essentially been "back-calculated" from radiological dose rates that are protective of the target receptors. Totaling the PAL ratios for each ROC using the sum-of-fractions approach described above accounts for the additive effects of exposure to multiple radionuclides. As shown in Table 3-11 of the Phase 2b Technical Memorandum, the total sum of fractions for risk to

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		biota from Phase 2b data for the six primary ROCs was 0.0225. Because this value falls below the accepted hazard limit of 1.0, all ROCs are eliminated for further biota risk evaluation. As a result, the Navy believes no additional changes are required.
4.	Regarding selection of radionuclides of potential ecological concern, radionuclide toxicity may be additive, antagonistic, or synergistic. For ERA purposes, CDFW-OSPR considers radionuclide toxicity as potentially additive (Jones, 2000).	Comment noted. No action required.
5.	Jones et al. (2003) suggested a way to evaluate dose to individual organisms. In protecting populations, considerable averaging over space and time could be allowed and still ensure adequate protection. In protecting individuals, however, it would be more appropriate to allow little or no averaging over space and time. Thus, in protecting individuals, use of the maximum concentrations of radionuclides in the environment at any location and at any time is more appropriate. Use of safety factors, appropriate default parameter values, maximum radionuclide concentrations in environmental media, and 100 percent organism residence time and exposure supports the application of this approach for evaluating doses to individuals. We recommend that the Navy use this approach for assessing ecological risks at Parcel F.	Section 3.2.4 of the Phase 2b Technical Memorandum states that "the fraction for each of the six ROCs was determined by comparing the **maximum** Phase 2b concentration for each ROC to the most conservative (i.e., lowest) ecological PAL developed for Parcel F (Table 2-10)." The Navy believes that this comparison satisfies the CDFW-OSPR request to use the maximum concentrations of radionuclides in the environment at any location and at any time to evaluate dose to individual organisms. As described in the response to General Comment #3 above, the PALs used in this comparison already incorporate radiological dose rates that are protective of the target receptors. As a result, the Navy believes no additional changes are required.
6.	CDFW-OSPR defers to the California Department of Public Health regarding the acceptable half-life and radiation types such as alpha, beta and gamma for all radionuclides remaining at Parcel F, in which residual radioactivity does not exceed the PALs.	Comment noted. No action required.
SPECIFIC COMMENTS		
1.	**Page 2, Section 1.0 Introduction**. One of specific goals for the study is "to identify areas of surface sediments that pose an unacceptable risk to human health and/or the environment." Since the environment should include ecological receptors, CDFW-OSPR recommends the Navy perform a radiological ecological risk assessment (Jones et al, 2003).	The Navy believes that the biota risk evaluation described in Sections 2.2.2 and 3.2.4 of the Phase 2b Technical Memorandum satisfies the project goal of evaluating unacceptable risk to the environment. As stated in Section 2.1.2 of the Final DGI Work Plan, the use of the ERICA tool to develop site-specific ecological PALs was "similar to Tier I in the three-tiered process described in "Principles and Issues in Radiological Ecological Risk Assessment" (Jones et al., 2003)." The sum-of-fractions

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		calculation described in Section 3.2.4 of the Phase 2b Technical Memorandum serves as a screening-level radiological ecological risk assessment accounting for additive effects of multiple ROCs. Because the total sum of fractions for risk to biota from Phase 2b data for the six primary ROCs (0.0225) was below the accepted hazard limit of 1.0, all ROCs may be eliminated from further biota risk evaluation, and proceeding to a baseline radiological ecological risk assessment is not required for Parcel F. In conclusion, the Navy believes that the overall biota risk evaluation presented in the Phase 2b Technical Memorandum follows the requirements of the Final DGI Work Plan that was approved by the regulatory agencies and previously executed by Battelle in the Final Phase 2a Technical Memorandum. No modification or expansion of this approach should be required.
2.	**Table 2-9**. CDFW-OSPR checked the PALs for radionuclides originally developed to be protective of human health to determine whether they are also protective of ecological receptors as well. The proposed PALs are lower than the generic biota concentration guides in sediments, where absorbed doses should not exceed 1 rad/d (10 mGy/d) for aquatic animals and 0.1 rad/d (1 mGy/d) for terrestrial animals, respectively, from exposure to radiation or radioactive material (U.S. Department of Energy, 2002). The PALs based on dose rates of 0.1 and 1.0 rad/day in Table 2-10 for four organisms (marine bird, mollusk, benthic fish and polychaete worm) were randomly checked and no arithmetic errors were found.	Comment noted. No action required.

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OTHER CHANGES (NOT REQUESTED BY AGENCY COMMENTS)		
1.	**Executive Summary and Introduction.** The text explaining the Phase 2b scope was found to incorrectly imply that Phase 2b confirmation sampling was proposed for areas of Phase 2a sampling that were found to contain ROCs exceeding PALs.	There were no PAL exceedances in the Phase 2a data. As stated on Page 44 of the Final Phase 2a Technical Memorandum (Battelle and Sea Engineering, Inc., 2013), "*The analyses of combined data from Phase 1 and Phase 2a…resulted in samples from only three core locations exceeding any PAL, and all of these samples were collected during Phase 1."* According to the ITSI modifications (2012) to the Final DGI Work Plan (Battelle et al., 2011), the Phase 2b confirmation sampling was proposed to delineate any potential Co-60 contamination in the South Basin Experimental Ship Shielding Area, to document the absence of radiological contamination in the area of former Piers B and C, and to delineate Phase 1 Ra-226 PAL exceedances if these exceedances were verified by sample re-analysis. To clarify, text in the Executive Summary, second paragraph, and in Section 1.0, fourth paragraph, was revised to state: "*The second portion of the Phase 2 DGI (hereafter referred to as Phase 2b) was designed to cover the remaining Parcel F areas that were not covered in Phase 2a, including portions of the Berths North Area, Berths South Area, South Basin Area, and Submarine Area. Phase 2b also included confirmation sampling at additional locations in the South Basin Experimental Ship Shielding Area to delineate any potential Co-60 contamination, as well as in the area of former Piers B and C (which were removed in 2011) to document the absence of radiological contamination. Finally, Phase 2b featured re-analysis of archived Phase 1 samples that were found to contain Ra-226 concentrations exceeding the project action limit (PAL) for the purposes of verifying these exceedances and determining the need for potential step-out sampling to delineate these exceedances."*

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2.	**Executive Summary, Section 3.2.1, Section 4.1.** Text describing the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance for conducting the Wilcoxon Rank Sum (WRS) Test was found to be lacking a proper citation.	The following reference was added to Section 5.0, References: *U.S. Nuclear Regulatory Commission (NRC), 2000. Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) NUREG-1575. Revision 1. Washington, DC.* A citation for NRC, 2000 was added following the MARSSIM text in the Executive Summary, sixth paragraph; Section 3.2.1, third paragraph; and Section 4.1, first paragraph.
3.	**Executive Summary.** Text in the Executive Summary, ninth paragraph, was found to contain an incomplete conclusion for the sedflume and erosion calculation results.	Text in the Executive Summary, ninth paragraph, was expanded to state: "*The critical shear stress of the top interval of both BN312-SF and BS04-SF was near 0.3 Pascal (Pa), where only the mobilization of small flocculants was observed. With the exception of the first interval, erosion was often initiated by applying shear stresses above 0.8 and 3.2 Pa for the BS04-SF and BN312-SF cores, respectively. In contrast, the predicted worst-case wave shear stress over a 25-year period was 0.64 Pa. Therefore, significant sediment resuspension from storm events is considered highly unlikely.*"
4.	**Section 3.2, Table 3-1.** The introduction to Table 3-1 in the second paragraph of Section 3.2 was found to lack an explanation of the "2009 Historic Tetra Tech EC Samples" that are also included in Table 3-1.	The "2009 Historic Tetra Tech EC Samples" are the same Phase 1 samples that were used for re-analysis during the Phase 2b investigation. To clarify, text in Section 3.1, second paragraph, was added to state: "*Table 3-1 also presents the 2009 historic Tetra Tech EC sample collection information for the Phase 1 samples that were re-analyzed during the Phase 2b analysis.*"

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5.	**Section 3.4.3.** The final three sentences of paragraph three in Section 3.4.3 were found to be redundant with paragraph five.	To avoid redundancy, text from Section 3.4.3, paragraphs three and five, was combined to state: "*The plot of Pb-210 concentrations with depth for core BN312-GC (Figure 2 in Appendix D2) indicates that concentrations of Pb-210 were found to be essentially constant over the entire 120-centimeter depth (i.e., there is no exponential drop in Pb-210 activity as a function of depth). Trend analysis for this core did not exhibit an R^2 value approaching 1.0, which would have indicated a strong relationship between the sampling results and sampling depth. This relatively constant profile could have been caused by mixing of the surface sediment or removal of a previous surface layer by a process such as dredging or scour. As a result, core BN312-GC was considered unsuitable for age dating analysis using regression, and no quantitative chronology interpretation could be made.*" This revised text was incorporated into Section 3.4.3 paragraph three, to present all discussion of core BN312-GC prior to discussion of core BS04-GC. This ordering follows the manner in which these cores are presented in Section 3.4.3, paragraph two, and in Appendix D2.