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OUTFALL 001 NCBC DAVISVILLE RI (DRAFT ACTING AS FINAL)

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TETRA TECH

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Drain Line Investigation and Data Report

for

**Former CED Area/QDC Outfall 001
Former Naval Construction Battalion Center Davisville
North Kingstown, Rhode Island**



**Naval Facilities Engineering Command
Mid-Atlantic**

**Contract Number N62470-08-D-1001
Contract Task Order WE01**

May 2011

DRAIN LINE INVESTIGATION AND DATA REPORT
FOR
FORMER CED AREA/QDC OUTFALL 001
FORMER NAVAL CONSTRUCTION BATTALION CENTER DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

COMPREHENSIVE LONG-TERM
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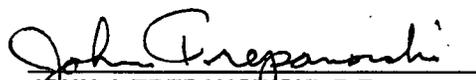

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1.0 INTRODUCTION

This report summarizes the findings of the confirmatory sampling and drain pipeline investigation conducted at Quonset Development Corporation (QDC) Outfall 001 (the outfall) at the Former Naval Construction Battalion Center (NCBC) Davisville in North Kingstown, Rhode Island. This report was prepared under the Comprehensive Long-Term Environmental Action-Navy (CLEAN) Contract No. N62470-08-D-1001, Contract Task Order (CTO) No. WE01. The field investigations described in this report were conducted from October through December 2010 in accordance with the *Sampling and Analysis Plan (SAP) for Confirmatory Sampling and Drain Line Investigation* dated August 2010 (Tetra Tech, 2010).

1.1 SITE BACKGROUND

This section provides background information on QDC Outfall 001.

1.1.1 Site Location and Description

QDC Outfall 001 is located in the central portion of the Former NCBC Davisville facility, to the west of Allen Harbor (Figure 1-1). Installation Restoration Program (IRP) Site 09 (Allen Harbor Landfill) is located to the northeast of the outfall, IRP Site 16 (Former Fire Training Area and Creosote Dip Tank) is located to the southeast of the outfall, and the Former Construction Equipment Department (“CED”) Area is located to the southwest. QDC Outfall 001 is located near the intersection of Marine Road and Sanford Road, behind a chain-link fence that surrounds a parking area for recreational users of Allen Harbor Landfill and Calf Pasture Point (Figure 1-2). Undeveloped wetlands are present to the east of the outfall. The presumed groundwater flow direction in the outfall area is toward the east, based on groundwater elevation data from numerous sites surrounding the area.

1.1.2 Site History

The Former NCBC Davisville was primarily used for training the Navy Construction Battalion “Seabees” in construction operations. The area also served as freight yards and storage areas for construction materials. Based on a review of historical “as-built” drawings of drainage systems at the former NCBC, QDC Outfall 001 is the discharge point for an underground drainage pipeline that originates from the former Building 224. Building 224 was part of the CED Area and was located approximately 1,000 feet southwest of the outfall (Figure 1-2).

The former Building 224 is the presumed source of contamination present in the outfall area. The building was used by the Navy as a vehicle-maintenance and truck-washing facility. Contaminants associated with materials used in these activities or in other historical activities conducted at the CED Area may have been disposed/released into the Building 224 drainage system, discharging at QDC Outfall 001. Historical CED Area activities are summarized below.

- **Study Area 01 – CED Drum Storage Area.** Study Area 01 is an open field located north of Building 224. From the late 1960's to 1974, the area was used to store 55-gallon drums of solvents and waste oil, with as many as 500 drums stored at one time. The condition of the drums was reported to be deteriorated, and liquids may have leaked onto the ground. The drums were removed in 1974. For a brief time, from December 1991 to April 1992, the area was used as a leaching field that received storm water and surface water runoff from a truck-washing area located at Building 224.
- **IRP Site 02 – CED Battery Acid Disposal Area.** Site 02 consisted of a former dry well and a leach field and does not include Building 224. Between 1955 and 1980, dilute sulfuric acid (reportedly containing lead) was transported through a floor drain in Building 224 to the dry well and leaching field in the northern portion of Site 02. It is estimated that approximately 18,000 gallons of dilute sulfuric acid were disposed into the dry well and leaching field, at a rate of approximately 60 gallons per month. In 1996, the Navy removed the well and the surface water and sediments contained within. The Navy also removed associated piping and lead-contaminated soils, decommissioned three monitoring wells, and cleaned the battery rooms of Building 224 and A10CT. A refueling area was also located in Site 02, and underground storage tanks (USTs) were associated with this area. The Navy removed the USTs in 1992.
- **IRP Site 03 – CED Solvent Disposal Area.** Site 03 is an unmarked, previously-paved lot located west of Building 224 and south of Battalion Boulevard. From 1955 to the late 1970's, paint thinners and unidentified solvents are thought to have been disposed on the ground in the area bordering Sayers Street, although the exact locations and limits of contaminant disposal are uncertain. It is estimated that approximately 3,000 gallons of solvents were disposed at the site, at a rate of approximately 10 gallons per month. The storage of heavy equipment also took place on a portion of Site 03.
- **Study Area 04 – CED Asphalt Disposal Area.** Study Area 4 is located 800 feet west of Building 224 and north of Battalion Boulevard. In the late 1960's, a black, pliable, asphaltic material from an unknown source was deposited in a trench. The Navy removed the material and associated contaminated soil in 1996.

- An outdoor vehicle wash pad and oil-water separator existed north of Building 224, each of which drained into the pipe leading to QDC Outfall 1.

The contamination present at QDC Outfall 001 is being addressed under the Navy's IRP as part of the CED Area.

1.1.3 QDC Outfall 001 Soil Removal

During QDC's storm water outfall maintenance activities, in the summer of 2008, QDC excavated soil that had accumulated downstream of the drain pipeline outfall. During this excavation, QDC observed stained soils as well as olfactory evidence of contamination. The soil was stockpiled adjacent to the outfall and the Navy was contacted.

At the Base Realignment and Closure (BRAC) Cleanup Team (BCT) meeting on September 25, 2008, the Navy agreed to characterize and dispose of the soils that were stockpiled adjacent to the outfall. A composite sample was collected from the soil stockpile at QDC Outfall 001. Analytical results from the sample indicated the presence of total petroleum hydrocarbons (TPH) (exceeding 10,000 milligrams per kilogram [mg/kg]), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and metals. The detected compounds were compared to: the Rhode Island Department of Environmental Management (RIDEM) Method 1 Soil Objectives/Residential Direct Exposure Criteria (DEC); the RIDEM Residential DEC for TPH (RIDEM, 2004); the USEPA Regional Screening Levels (RSLs) for Residential Soil (December 2009); and/or appropriate, selected, ecological screening values. TPH exceeded the RIDEM TPH DEC; select PAHs and metals exceeded some or all of the criteria; and select PCBs exceeded the RSL and ecological screening values. No VOCs exceeded the Residential DEC or RSLs, and only a few VOCs exceeded the soil or sediment ecological values.

In December 2008, the soil stockpile was removed from the Outfall 001 area, loaded into two roll-off containers, and staged behind a locked gate near the Tetra Tech project area. The soil roll-off containers (one containing 10.37 tons of soil, and the other, 12.54 tons) were then transported under a non-hazardous waste manifest to ESMI of New Hampshire.

1.1.4 Conceptual Site Model

The source of contamination to the soils and sediment located downstream of QDC Outfall 001 is believed to be discharge from the drainage pipe that formerly originated from Building 224. The drainage pipe has been inactive since at least 2006, when Building 224 was demolished. Contaminants associated with materials used during historical truck-maintenance activities (and other historical activities

that occurred in and around the Building 224 area) likely entered the drainage system and were either transported along the length of the pipe and discharged into soils and sediment downstream of the outfall, or accumulated in residual material within the pipe or in catch basins. Contaminants migrated with the flow of surface water further downstream, toward the wetland area, and either accumulated in the wetland or were transported into Allen Harbor.

In addition to soil and sediment contamination in the outfall area, there is the potential for subsurface soil contamination in areas adjacent to the underground drain pipeline, via exfiltration of the contaminated discharge flowing through the drain pipeline. However, based on observations made during the drain pipeline inspection, significant releases of contaminants into the adjacent soils are not believed to have occurred, as discussed in Sections 2 and 3.

Access to the outfall area is restricted by the chain-link fence that surrounds the parking area located along Sanford Road. Persons accessing the site include trespassers, although there are recreational areas in close proximity to the outfall. Given that the future land use of the area is unknown, it is customary to evaluate potential use of a property as residential and recreational. Therefore, potential future human receptors include residents and recreational users, in addition to industrial workers, construction workers, and trespassers. Ecological receptors include animal and plant species that could be affected by the contaminants present in environmental media. Human and ecological receptors may be affected by contaminants in the excavation area and the wetland area, and human receptors may be affected by contaminants in subsurface soils adjacent to the underground drain pipeline. Ecological receptors are not typically exposed to subsurface media (greater than 3 feet below ground surface [bgs]).

1.2 PROJECT OBJECTIVES

The objectives of this project are:

- to determine whether or not there are areas of compromised integrity along the length of the drain pipeline and, if so, are there associated subsurface soil contaminants present at concentrations that might represent a potential risk to human health.
- to determine whether or not residual material present in the drain-line pipe is providing a continuing source of contamination to the area downstream from the drain pipeline outlet, including the wetland area.
- to determine whether or not soil or sediment contaminants are present at concentrations that might represent a potential risk to human health or the environment, either in the previous

excavation area, downstream from the outfall, or in sediments in the wetland area downgradient from the outfall.

1.3 REPORT ORGANIZATION

This report details the project activities conducted at QDC Outfall 001 from October to December 2010. Section 1 provides an introduction, including site background information and project objectives. Section 2 presents a description of the field activities conducted during this investigation, including the results of the video inspection conducted along the drain pipeline. Section 3 provides the analytical results for the residual material, soil, and sediment samples collected as part of this investigation. Section 4 presents conclusions and recommendations for future work at the site. Appendix A contains a photograph log of the visual reconnaissance and video inspection. Appendix B contains the field forms for the residual material, sediment, test pit soil, and confirmatory soil samples. Appendix C contains the data validation memoranda documenting the Tier II data validation performed on the laboratory analytical results.

2.0 FIELD INVESTIGATION ACTIVITIES

This section outlines field investigation activities conducted at QDC Outfall from October 26, 2010 through December 10, 2010. Field activities were performed in accordance with the Draft Final *Sampling and Analysis Plan, (Field Sampling Plan and Quality Assurance Project Plan), Confirmatory Sampling and Drain Line Investigation, CED Area/QDC Outfall 001, Former Naval Construction Battalion Center Davisville, North Kingstown, Rhode Island* (Tetra Tech, 2010). Field activities included a drain pipeline investigation; test pitting; and residual material, soil, and sediment sampling.

2.1 DRAIN PIPELINE RECONNAISSANCE

On October 26, 2010, Tetra Tech performed a field reconnaissance to locate catch basins associated with QDC Outfall 001 that appear on historical engineering drawings of the Building 224 drainage system. The objectives of the reconnaissance were to determine whether or not these catch basins were intact and capable of providing access to the drain pipeline in order to observe its condition, and to evaluate the catch basin locations as potential access points for collection of associated residual material.

Nine catch basins are identified on the plans of the historical drainage system for Building 224 and their location confirmed during the reconnaissance (Figure 2-1). One of the catch basins (CB-1) was demolished in 2007 when Building 224 was demolished. During the October and December field mobilizations, Tetra Tech was able to locate each of the other eight catch basins and gain access to seven of them. The eighth catch basin was under a road and therefore inaccessible. Access to catch basins was gained through manholes, which were located in the field using Global Positioning System (GPS) and horizontal coordinates extracted from historical site plans. Some removal of foliage, vegetation, and/or soil was required to locate and uncover the manholes, to permit access for video equipment and sample collection devices. In Appendix A-1, photographs taken during the drain pipeline reconnaissance are provided. Further detail is provided in the following section.

2.2 REMOTE VIDEO INSPECTION

On December 6, 2010, Tetra Tech performed a remote video inspection of the drain pipeline located between the former Building 224 and QDC Outfall 001 to document the condition of the pipeline along its length and to identify connections to other underground pipelines. The inspection was conducted using a General Electric Rovver® 100 robotic crawler with remote video technology. Based on observations resulting from this inspection, the drain pipeline is constructed of five-foot sections of pre-cast concrete pipe. The sections are cemented together around the male end of the pipe, where it is inserted into the “bell” or female end of the pipe. The joints between the 5-foot sections are visible throughout the video

inspection. The findings of the inspection are described below by sections of drain pipeline, beginning at the outfall and moving upstream, ending at former Building 224. Screen shots taken from the video inspection are presented in Appendix A-2.

2.2.1 QDC Outfall 001 to Catch Basin (CB)-5

The video inspection was initiated from the headwall of QDC Outfall 001, where the drain pipeline terminates, and proceeded upstream through the pipeline. Due to the presence of approximately 4 inches of sediment that had accumulated in this portion of the drain pipeline, the remote, video-inspection rover was only able to advance approximately 30 feet upstream from the discharge end of the drain pipeline. Inspection of this portion of the drain pipeline indicated the 21-inch concrete pipe was in very good condition. Photograph 1 in Appendix A-2 shows the interior of the pipe at a location approximately 30 feet upstream from the outfall.

To inspect the portion of the drain pipeline beyond 30 feet from the outfall, the rover was lowered into CB-5 and driven downstream toward the outfall. The portion of the pipe near CB-5 is in good condition and relatively free of sediment. Moving in a downstream direction, the volume of accumulated sediment in the pipe increases and the condition of the pipe remains very good. Photos 2, 3, and 4, in Appendix A-2, show the condition of the pipe between CB-5 and the outfall. Photo 2 shows the pipe at a location approximately 39 feet downstream from CB-5; Photo 3 shows the pipe approximately 254 feet downstream from CB-5; and Photo 3 shows the disturbed sediments near the end of the outfall, and indicates that the rover traversed the entire length of this designated section of the drain pipeline (QDC Outfall 001 to CB-5).

2.2.2 CB-5 to CB-4

CB-4 is located immediately adjacent to the newly-paved Marine Road and to a newly-installed drain pipeline that runs parallel to Marine Road, on the same side of the road as the catch basin. Due to the close proximity of CB-4 to the road, it was assumed that any excavation to uncover the buried catch basin would result in damage to the asphalt and/or the newly-installed drain pipeline, therefore, access to CB-4 could not be gained during this investigation. To inspect the portion of the pipe between CB-5 and CB-4, the rover was lowered into CB-5 and driven upstream approximately 300 feet to CB-4. This portion of the drain line pipe is in good condition, with evidence of water intrusion along some of the joints (Appendix A, Photo 5). Section 2.3 provides a description of test-pitting activities conducted to evaluate the extent of damage to joints in the drain line pipe near CB-5. The volume of sediment observed within the pipe along this section is relatively low (Photo 6).

2.2.3 CB-4 to CB-3

This portion of the drain pipeline inspection, between CB-4 and CB-3, was accomplished by lowering the rover into CB-3 and driving downstream toward CB-4. CB-3 was unable to be located during the October 2010 reconnaissance, but was found beneath approximately one to two feet of soil, by utilizing information gained from the inspection between CB-2 and CB-3. Soil was excavated from the top of the manhole and the cover was removed to gain access to the catch basin.

A relatively large quantity of sediment (approximately 4 inches in depth) was observed within the first two sections of pipe downstream from CB-3 (Appendix A-2, Photo 7). At approximately 50 feet downstream from CB-3, evidence of corrosion and water infiltration was observed at one of the joints (Photo 8). Overall, however, the pipe is in very good condition, with some limited root penetration at the pipe connections.

Approximately 155 feet downstream from CB-3, a previously unknown catch basin was observed during the interior inspection of the pipe. This catch basin was labeled CB-9 for the purposes of the investigation. Distance and directional data collected during the inspection was utilized to locate CB-9 in the field, where it was found beneath approximately 1 to 2 feet of soil. Video inspection continued downstream along the drain pipeline from CB-9 to CB-4. The condition of this portion of the drain line pipe is very good, with approximately one 1 to 2 inches of sediment accumulated at the bottom of the pipe (Photo 9).

During the inspection, an 18-inch inlet pipe was observed, entering CB-3 from the west. Based on a review of historical drawings of the drain pipeline system, this connection appears to originate from the leach field that was formerly located north of former Building 224 (see Appendix A, Figure A-1).

2.2.4 CB-3 to CB-2

The inspection of the section of drain line pipe between CB-3 and CB-2 was accomplished by accessing the pipeline from CB-2 and driving the rover downstream through the pipe. CB-2 is located approximately 100 feet north of the former Building 224. Inspection of this section of the drain line showed the pipe in very good condition, with no significant quantity of accumulated sediment in the drain pipeline (Appendix A-2, Photo 10). During the video inspection from CB-2 to CB-3, a lateral connection from a 12-inch line was observed approximately 25 feet downstream from CB-2 (Photo 11). This line is believed to originate from the oil-water separator reported to be present in this portion of the CED Area.

2.2.5 Upstream from CB-2

The portion of the drain pipeline located upstream from CB-2 was not inspected during this investigation; however, CB-2 was accessed, and inlet and outlet pipes were observed, as shown on the diagram in Appendix A-1.

2.3 TEST PITTING AND ASSOCIATED SOIL SAMPLING

The project work plan specified the excavation of test pits and collection of soil samples at up to four locations along the length of the drain pipeline, where evidence of damage to the pipe was observed. In general, video inspection of the drain pipeline indicated it to be in very good condition, with only limited root penetration at some joints, and very little evidence of soil or water infiltration into the pipeline. Tetra Tech excavated one test pit approximately 100 feet upstream from CB-5, where evidence of water infiltration was observed during the video inspection (Figure 2-1). The test pit was excavated to a depth of approximately 6 feet bgs to expose the pipe joint, and a soil sample (QF-SO-TP01-5.56.5) was collected from 5.5 to 6.5 feet bgs (equivalent to the depth immediately below the drain line pipe, at the location of the joint). This sample is considered representative of soils beneath the drain line pipe that may have been impacted by a release of contaminants from the pipe. The soil sample was analyzed for the presence of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) including polycyclic aromatic hydrocarbons (PAHs), gasoline range organics (GRO) (C₅ – C₁₂), extractable total petroleum hydrocarbons (ExTPH) (C₉ – C₄₀), polychlorinated biphenyls (PCBs), and target analyte list (TAL) metals.

2.4 RESIDUAL MATERIAL SAMPLING

Five samples of residual material present within the catch basins were collected for laboratory analysis. Four residual material samples were collected from the bottom of each of the four catch basins that were accessed during the investigation, and one sample was from a location within 2 feet of the QDC Outfall. Samples of residual material were also analyzed for VOCs, SVOCs, including PAHs, GRO (C₅ – C₁₂), ExTPH (C₉ – C₄₀), PCBs, and TAL metals. The locations of residual material samples are summarized below:

<u>Residual Material Sample ID Number</u>	<u>Associated Catch Basin or Outfall ID</u>
RS01	CB-2
RS02	CB-3
RS03	CB-9
RS04	CB-5
RS05	Outfall 001

2.5 CONFIRMATORY SOIL SAMPLING

As part of the investigation, confirmatory soil samples were collected from the excavation advanced in 2008, near QDC Outfall 001. Tetra Tech collected five confirmatory soil samples (CS01 through CS05) from the sidewalls and bottom of the QDC Outfall 001 2008 excavation area (Figure 2-2). Soil samples CS01, CS02, and CS03 were collected from the north, east, and south sidewalls of the excavation area, respectively. Samples CS04 and CS05 were collected as five-point composite samples, from the bottom of the excavation area: sample CS04 from the west end of the excavation area, immediately downgradient of the outfall; sample CS05 from the east end of the excavation area, further from the outfall. These soil samples were also analyzed for VOCs, SVOCs, including PAHs, GRO (C₅ – C₁₂), ExTPH (C₉ – C₄₀), PCBs, and TAL metals.

2.6 SEDIMENT SAMPLING

The project work plan specified the collection of five sediment samples from the wetland area located downgradient from QDC Outfall 001 and downgradient from the 2008 excavation footprint. Since the drain pipeline inspection activities indicated only one soil sample location was warranted along the length of the drain pipeline, Tetra Tech, in consultation with the Navy, collected additional sediment samples from the wetland area. In total, nine sediment samples (SD01 through SD09) were collected during the investigation (Figure 2-2). The samples were collected from 0- to 6-inches below the sediment surface and were analyzed for VOCs, SVOCs, including PAHs, GRO (C₅ – C₁₂), ExTPH (C₉ – C₄₀), PCBs, and TAL metals.

3.0 ANALYTICAL RESULTS

This section describes the analytical results of the residual material, soil, and sediment samples collected during the December 2010 investigation. Analytical results are compared to project screening levels identified in Worksheet 15 of the Draft Final *SAP for Confirmatory Sampling and Drain Line Investigation* (Tetra Tech, 2010).

3.1 RESIDUAL MATERIAL RESULTS

Laboratory analytical results for residual material samples are presented in Table 3-1 and on Figures 3-1 through 3-6. Project screening levels (PSLs) for residual materials were not established for this project; however, chemical concentrations in residual material samples were compared to the chemical concentrations in the confirmatory soil and sediment samples to qualitatively evaluate the extent to which residual material from the drain pipe may have historically been, and may continue to be, a source of contamination to the downstream environment,

The highest concentrations of most detected contaminants were in residual material sample RS04, collected from catch basin CB-5. CB-5 is the furthest downstream catch basin in the drain pipeline system being investigated. The sample collected from this catch basin contained elevated concentrations (relative to the soil/sediment PSLs) of the VOCs 1,2,4-trichlorobenzene, 1,2,4-trimethylbenzene, 1,4-dichlorobenzene, chlorobenzene, ethylbenzene, toluene, and total xylenes; for most of the detected PAHs; for PCB Aroclor-1254; and for four metals. The concentration of ExTPH detected in this sample was 18,000 mg/kg.

Similar contaminants were detected in the other residual material samples, but were generally present at lower concentrations. One notable exception is the detection of the chlorinated solvents, *cis*-1,2-dichloroethene (DCE) and vinyl chloride, reported in two residual material samples collected from the two upstream catch basins (RS01 and RS02). In general, the lowest concentrations of contaminants detected in residual material samples were from RS05, the sample collected from accumulated material within the drain line pipe at the end of the drain pipeline (not a catch basin sample).

The types of contaminants detected in residual material samples are similar to those detected in soil and sediment samples, suggesting the contamination in the downstream area of the outfall may be attributed to the migration of contamination from the drain line pipe and catch basins. A comparison of concentration levels in the residual material sample collected from CB-5 with the contaminants detected in the soil samples collected from the 2008 excavation area suggests the residual material could be a continuing source of contamination to environmental media downstream from the outfall. The chemical

concentrations detected in the residual material sample collected from CB-5 are generally greater than the concentrations detected in soil samples. The highest concentrations of contaminants found at CB-5 were predominantly similar to or greater than the highest concentrations found at any of the sediment samples.

3.2 SOIL RESULTS

Confirmatory soil samples were collected from the bottom and sidewalls of the 2008 excavation area, and one soil sample was collected from a location adjacent to the underground drain line pipe.

3.2.1 Confirmatory Soil Samples - Analytical Results

Analytical results of confirmatory soil samples collected from the 2008 excavation area are presented in Table 3-2 and on Figures 3-7 through 3-12. The results are compared against the PSLs developed in Worksheet #15a of the SAP, with exceedances shaded in black. The PSLs for confirmatory soil samples are the lowest of human health and ecological screening values from the following sources: EPA Regions 3, 6, and 9 Regional Screening Values (RSLs) for Chemical Contaminants at Superfund Sites, Residential Soil Values (May 2010) (USEPA, 2010); RIDEM Residential DEC for TPH in soil (RIDEM, 2004); EPA Ecological Soil Screening Levels for plants, invertebrates, and wildlife (USEPA, 2003, 2005, 2006, 2007, 2008); ORNL Toxicological Benchmarks for plants (Efroymsen, et al, 1997a); ORNL Toxicological Benchmarks for invertebrates (Efroymsen, et al, 1997b); and EPA Region 5 Ecological Screening Levels (USEPA, 2003).

Confirmatory soil samples contained several petroleum constituents at concentrations exceeding the PSLs, including trimethylbenzene, GRO, ExTPH, and several PAHs. The highest concentrations were detected in soil sample CS04, collected from the bottom of the excavation area, and closest to the outfall.

PCB Aroclor-1254 and Aroclor-1260 were detected in select soil samples at levels exceeding the PSLs. Again, the highest concentrations were detected in CS04, from the bottom of the excavation area, closest to the outfall.

Several metals were detected in soil samples at levels exceeding the PSLs, including antimony, arsenic, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, vanadium, and zinc. The greatest number of exceedances was observed in sample CS04. For those metals detected in confirmatory soil samples, the associated maximum concentrations significantly exceeded the Davisville background surface soil data for antimony, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, mercury, nickel, silver, and zinc.

3.2.2 Test Pit Soil Sample - Analytical Results

Test pit soil sample results are presented in Table 3-3 and on Figures 3-1 through 3-6. The PSLs for test pit soil are the EPA Regions 3, 6, and 9 RSLs, Residential Soil Values. Ecological screening criteria are not applicable, since the soil sample was collected below a depth of 3 feet bgs.

In test pit soil sample TP01, when detected, the concentrations of VOCs, SVOCs, including PAHs, PCBs, ExTPH, and GRO were below the associated PSLs. The only metals detected in sample TP01 at concentrations exceeding the PSLs were arsenic, chromium, cobalt, and iron. These exceedances are not believed to be associated with a release of contamination from the outfall.

3.3 SEDIMENT RESULTS

Sediment results are presented in Table 3-4 and on Figures 3-7, 3-8, 3-10, 3-11, 3-13, and 3-14. The PSLs for sediment are the appropriate freshwater ecological screening levels selected from among: USEPA Region 3 Biological Technical Assistance Group (BTAG) Freshwater Sediment Screening Benchmarks (USEPA, 2006); sediment screening values derived using equilibrium partitioning theory, such as the Secondary Chronic Values (SCV) (Table 3 in Jones, et al., 1997) and the Ecotox Thresholds Sediment Quality Benchmarks (SQBs) (USEPA, 1996); and National Oceanographic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRTs) sediment benchmarks (Buchman, M. F., 2008).

In select sediment samples, all PAHs except naphthalene exceeded PSLs. The most significant exceedances were found in sample SD06.

PCB Aroclor-1254 and Aroclor-1260 were detected above PSLs in all sediment samples. The most significant exceedances were found in sample SD09.

In select sediment samples, the metals antimony, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc exceeded PSLs. The maximum concentrations in sediment samples significantly exceeded the Davisville background surface soil data for aluminum, antimony, barium, beryllium, cadmium, calcium, chromium, copper, iron, lead, magnesium, mercury, nickel, selenium, silver, and zinc.

Other than PAHs, as noted above, there were no significant detections of SVOCs, VOCs, ExTPH, or GRO in the sediment samples.

4.0 CONCLUSIONS AND RECOMMENDATIONS

This section presents conclusions based on the information collected during the investigation, and provides specific recommendations for future actions at the site. The Navy nominates QDC Outfall 001 sediment to be NCBC Davisville Operable Unit 10 (OU-10) under Section 31 of the Federal Facilities Agreement.

4.1 UNDERGROUND DRAIN PIPELINE

The underground drain pipeline located between former Building 224 and QDC Outfall 001 is in very good condition, with very little evidence of damage. The system appears to have accepted drainage from nine catch basins along the approximately 1,100 feet of inspected drain line pipe, and one of these catch basins, CB-1, was demolished during demolition of Building 224. In addition, connections to two other drainage systems were observed during inspection of the drain pipeline. The first is from the former oil-water separator located to the north of Building 224, and the second is believed to be from the former leach field in Study Area 01.

Additional investigation of the catch basins is recommended in order to estimate the volume of residual material present, and to determine the condition of the catch basin bottoms. Further investigation of the incoming drain pipeline that may originate from the former leach field is also warranted, to determine the extent of this drainage system and to evaluate the extent to which other sources of contamination could have contributed to the release that occurred downstream of the outfall area.

4.2 RESIDUAL MATERIAL

Residual material is present in catch basins and at various locations along the length of the drain pipeline. In certain sections of the line, up to 4 inches of dry, loose residual material are present along the bottom of the pipe, suggesting that water no longer flows along the length of the drain pipeline. Nevertheless, this material represents a potential threat of release to the environment if the catch basins were to become inundated with water, enabling this material to be mobilized toward the outfall.

The full nature and extent of contamination in residual material that has accumulated along the bottom of the pipe interior are not known, since only one sample of this material was collected during the investigation. The sample, collected near the end of the drain pipeline, contained lower concentrations of contaminants than did catch basin samples of residual material, but the concentrations were higher than the sediment screening levels.

Since residual material present in catch basins contains contaminants at concentrations similar to or higher than areas downstream of the outfall, this material could become a continuing source of contamination to environmental media located downstream of the outfall. Therefore, residual material present in catch basins and in the interior portions of the drain pipeline should be removed and transported offsite for disposal.

4.3 SOIL

Confirmatory soil sampling results indicate that the 2008 excavation did not remove all of the petroleum-contaminated soil from the area downstream from the outfall. Additional soil removal in the area of the 2008 excavation footprint is warranted, both vertically and laterally, toward the south and east. Prior to further soil removal actions, additional sample collection is recommended to delineate the extent of contamination.

Given the condition of the underground drain pipeline, and the absence of contamination in the soil sample collected from one location where the pipe appeared to be breached, no further action is warranted to evaluate potential contamination in soils along the length of the drain pipeline.

4.4 SEDIMENT

In the wetland area downstream from the outfall, sediments contain PAHs, PCBs, and metals at concentrations exceeding screening levels. While there is no screening criterion for ExTPH in sediment, the concentrations of ExTPH in sediment samples were an order of magnitude higher than the respective soil criterion, the RIDEM DEC for Residential Soils. The number and spatial distribution of sediment samples collected from the wetland are insufficient to delineate the extent of impacts; therefore, additional collection of sediment samples is warranted.

TABLES

TABLE 3-1

DRAFT

**ANALYTICAL RESULTS - RESIDUAL MATERIAL
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 1 OF 6**

LOCATION	QF-RS01	QF-RS01-D	QF-RS02	QF-RS03	QF-RS04	QF-RS05
SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
% MOISTURE	8.2	9.1	16	2.5	25	13
QC IDENTIFIER	DUPLICATE	DUPLICATE				
CATCH BASIN	CB-2	CB-2	CB-3	CB-9	CB-5	NA
VOLATILES (UG/KG)						
1,1,1-TRICHLOROETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
1,1,2,2-TETRACHLOROETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 UJ	1.9 U
1,1,2-TRICHLOROETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
1,1-DICHLOROETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
1,1-DICHLOROETHENE	1.4 UJ	1.4 UJ	1.5 UJ	1.5 UJ	140 U	1.9 UJ
1,2,4-TRICHLOROBENZENE	1.3 J	2.7 J	3.7 J	1.5 U	440 J	1.9 U
1,2,4-TRIMETHYLBENZENE	59	46	97	0.88 J	39000	3.7 J
1,2-DICHLOROBENZENE	22	21	42	1.5 U	7400 J	1.3 J
1,2-DICHLOROETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
1,2-DICHLOROPROPANE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
1,3,5-TRIMETHYLBENZENE	16	15	38	1.5 U	15000	1.3 J
1,3-DICHLOROBENZENE	5.4	3.7	6.2	1.5 U	530 J	1.9 U
1,4-DICHLOROBENZENE	49	32	32	1.5 U	6100 J	1.4 J
2-BUTANONE	4.7 J	R	R	R	R	R
2-HEXANONE	2.9 U	2.8 U	3 U	3 U	140 U	3.7 U
4-METHYL-2-PENTANONE	2.9 U	2.8 U	3 U	3 U	140 U	3.7 U
ACETONE	R	18 U	R	3.0 U	R	3.7 U
BENZENE	1.4 U	1.4 U	1.5 J	1.5 U	140 U	1.9 U
BROMODICHLOROMETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
BROMOFORM	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
BROMOMETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 UJ	1.9 U
CARBON DISULFIDE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
CARBON TETRACHLORIDE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
CHLOROBENZENE	2100 J	1100 J	3000 J	2.4 J	25000	4 J
CHLORODIBROMOMETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
CHLOROETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
CHLOROFORM	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U

TABLE 3-1

DRAFT

**ANALYTICAL RESULTS - RESIDUAL MATERIAL
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 2 OF 6**

LOCATION	QF-RS01	QF-RS01-D	QF-RS02	QF-RS03	QF-RS04	QF-RS05
SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
% MOISTURE	8.2	9.1	16	2.5	25	13
QC IDENTIFIER	DUPLICATE	DUPLICATE				
CATCH BASIN	CB-2	CB-2	CB-3	CB-9	CB-5	NA
VOLATILES (UG/KG)						
CHLOROMETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
CIS-1,2-DICHLOROETHENE	2.8 J	2 J	1.5 U	1.5 U	140 U	1.9 U
CIS-1,3-DICHLOROPROPENE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
ETHYLBENZENE	53	39	6.9	1.5 U	1200 J	1.9 U
METHYLENE CHLORIDE	1.4 UJ	4.1 J	1.5 UJ	1.6 J	140 U	1.9 UJ
STYRENE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
TETRACHLOROETHENE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
TOLUENE	13	8.6	4.9	1.5 U	660 J	1.9 U
TOTAL XYLENES	280	240	44	1.5 U	8100 J	1.9 U
TRANS-1,2-DICHLOROETHENE	1.7 J	1.4 U	1.5 U	1.5 U	140 U	1.9 U
TRANS-1,3-DICHLOROPROPENE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
TRICHLOROETHENE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
TRICHLOROFLUOROMETHANE	1.4 U	1.4 U	1.5 U	1.5 U	140 U	1.9 U
VINYL CHLORIDE	1.2 J	0.93 J	1.5 U	1.5 U	140 U	1.9 U
SEMIVOLATILES (UG/KG)						
2,4,5-TRICHLOROPHENOL	71 U	72 U	77 U	68 U	430 U	76 U
2,4,6-TRICHLOROPHENOL	71 U	72 U	77 U	68 U	430 U	76 U
2,4-DICHLOROPHENOL	71 U	72 U	77 U	68 U	430 U	76 U
2,4-DIMETHYLPHENOL	71 U	72 U	77 U	68 U	430 U	76 U
2,4-DINITROPHENOL	350 UJ	360 UJ	390 UJ	340 UJ	2200 UJ	380 UJ
2,4-DINITROTOLUENE	71 U	72 U	77 U	68 U	430 U	76 U
2,6-DINITROTOLUENE	71 U	72 U	77 U	68 U	430 U	76 U
2-CHLORONAPHTHALENE	71 U	72 U	77 U	68 U	430 U	76 U
2-CHLOROPHENOL	71 U	72 U	77 U	68 U	430 U	76 U
2-METHYLPHENOL	71 U	72 U	77 U	68 U	430 U	76 U
2-NITROANILINE	71 U	72 U	77 U	68 U	430 U	76 U
2-NITROPHENOL	71 U	72 U	77 U	68 U	430 U	76 U

TABLE 3-1

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**ANALYTICAL RESULTS - RESIDUAL MATERIAL
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 3 OF 6**

LOCATION	QF-RS01	QF-RS01-D	QF-RS02	QF-RS03	QF-RS04	QF-RS05
SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
% MOISTURE	8.2	9.1	16	2.5	25	13
QC IDENTIFIER	DUPLICATE	DUPLICATE				
CATCH BASIN	CB-2	CB-2	CB-3	CB-9	CB-5	NA
SEMIVOLATILES (UG/KG)						
3,3'-DICHLOROBENZIDINE	71 U	72 U	77 U	68 U	430 U	76 U
3-NITROANILINE	71 U	72 U	77 U	68 U	430 U	76 U
4,6-DINITRO-2-METHYLPHENOL	71 U	72 UJ	77 UJ	68 UJ	430 UJ	76 UJ
4-BROMOPHENYL PHENYL ETHER	180 U	180 U	200 U	170 U	1100 U	190 U
4-CHLORO-3-METHYLPHENOL	71 U	72 U	77 U	68 U	430 U	76 U
4-CHLOROANILINE	71 UJ	72 UJ	77 UJ	68 UJ	430 UJ	76 UJ
4-CHLOROPHENYL PHENYL ETHER	71 U	72 U	77 U	68 U	430 U	76 U
4-METHYLPHENOL	71 U	72 U	77 U	68 U	430 U	76 U
4-NITROANILINE	71 U	72 UJ	77 UJ	68 UJ	430 UJ	76 UJ
4-NITROPHENOL	71 UJ	72 U	77 U	68 U	430 U	76 U
BIS(2-CHLOROETHOXY)METHANE	71 U	72 U	77 U	68 U	430 U	76 U
BIS(2-CHLOROETHYL)ETHER	180 U	180 UJ	200 UJ	170 UJ	1100 UJ	190 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	310 J	180 J	400 J	440 J	3300 J	480 J
BUTYL BENZYL PHTHALATE	71 U	72 U	77 U	68 U	430 U	76 U
CARBAZOLE	93 J	53 J	54 J	68 U	14000	290 J
DIBENZOFURAN	130 J	62 J	77 U	68 U	21000	180 J
DIETHYL PHTHALATE	71 U	72 U	77 U	68 U	430 U	76 U
DIMETHYL PHTHALATE	71 U	72 U	77 U	68 U	430 U	76 U
DI-N-BUTYL PHTHALATE	71 U	72 U	77 U	68 U	830 J	76 U
DI-N-OCTYL PHTHALATE	71 UJ	72 U	77 U	68 U	430 U	76 U
HEXACHLOROBUTADIENE	71 U	72 U	77 U	68 U	430 U	76 U
HEXACHLOROCYCLOPENTADIENE	350 UJ	360 U	390 U	340 U	2200 U	380 U
HEXACHLOROETHANE	71 UJ	72 U	77 U	68 U	430 U	76 U
ISOPHORONE	71 U	72 U	77 U	68 U	430 U	76 U
NITROBENZENE	71 U	72 UJ	77 UJ	68 UJ	430 UJ	76 UJ
N-NITROSO-DI-N-PROPYLAMINE	180 UJ	180 U	200 U	170 U	1100 U	190 U
N-NITROSODIPHENYLAMINE	71 U	72 U	77 U	68 U	430 U	76 U

TABLE 3-1

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**ANALYTICAL RESULTS - RESIDUAL MATERIAL
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 4 OF 6**

LOCATION	QF-RS01	QF-RS01-D	QF-RS02	QF-RS03	QF-RS04	QF-RS05
SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
% MOISTURE	8.2	9.1	16	2.5	25	13
QC IDENTIFIER	DUPLICATE	DUPLICATE				
CATCH BASIN	CB-2	CB-2	CB-3	CB-9	CB-5	NA
SEMIVOLATILES (UG/KG)						
PENTACHLOROPHENOL	350 U	360 UJ	390 UJ	340 UJ	2200 UJ	380 UJ
PHENOL	71 U	72 U	77 U	68 U	430 U	76 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)						
2-METHYLNAPHTHALENE	1000 J	340 J	72 J	34 U	29000 J	38 U
ACENAPHTHENE	130 J	73 J	74 J	34 U	31000	250
ACENAPHTHYLENE	28 J	36 UJ	50 J	34 U	22 U	72
ANTHRACENE	130 J	73 J	80 J	43	25000	430
BENZO(A)ANTHRACENE	240	250	980 J	230	50000	1900
BENZO(A)PYRENE	200	210	880 J	260	33000	1800
BENZO(B)FLUORANTHENE	320	380	1400 J	380	33000	2600
BENZO(G,H,I)PERYLENE	120	170	570 J	220	20000	1200
BENZO(K)FLUORANTHENE	120	170	510 J	210	26000	1300
CHRYSENE	460	350	1100 J	300	52000	2200
DIBENZO(A,H)ANTHRACENE	32	39	120 J	43	9000	300
FLUORANTHENE	830	530	1200 J	460	160000	3400
FLUORENE	230 J	92 J	78 J	34 U	32000	270
INDENO(1,2,3-CD)PYRENE	100	120 J	540 J	190 J	20000	1000 J
NAPHTHALENE	510 J	180 J	39 UJ	34 U	12000	38 U
PHENANTHRENE	780 J	360 J	320 J	200	160000	2600
PYRENE	630	390	1200 J	340	90000	2400
HIGH MOLECULAR WEIGHT PAHS	3050	2610 J	8500 J	2630 J	493000	18100 J
LOW MOLECULAR WEIGHT PAHS	2810 J	1120 J	674 J	243	289000 J	3620
TOTAL PAHS	5860 J	3730 J	9170 J	2880 J	782000 J	21700 J
PCBS (UG/KG)						
AROCLOR-1016	8.7 U	9 U	9.8 U	8.5 U	11 UJ	9.5 UJ
AROCLOR-1221	17 U	18 U	20 U	17 U	22 UJ	19 UJ
AROCLOR-1232	8.7 U	9 U	9.8 U	8.5 U	11 UJ	9.5 UJ

TABLE 3-1

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**ANALYTICAL RESULTS - RESIDUAL MATERIAL
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
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LOCATION	QF-RS01	QF-RS01-D	QF-RS02	QF-RS03	QF-RS04	QF-RS05
SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
% MOISTURE	8.2	9.1	16	2.5	25	13
QC IDENTIFIER	DUPLICATE	DUPLICATE				
CATCH BASIN	CB-2	CB-2	CB-3	CB-9	CB-5	NA
PCBS (UG/KG)						
AROCLOR-1242	8.7 U	9 U	9.8 U	8.5 U	11 UJ	9.5 UJ
AROCLOR-1248	8.7 U	9 U	9.8 U	8.5 U	11 UJ	9.5 UJ
AROCLOR-1254	61	83	31 J	46 J	350 J	85 J
AROCLOR-1260	120 J	9 UJ	74	120	11 UJ	9.5 UJ
AROCLOR-1262	8.7 U	9 U	9.8 U	8.5 U	11 UJ	9.5 UJ
AROCLOR-1268	8.7 U	9 U	9.8 U	8.5 U	11 UJ	9.5 UJ
TOTAL AROCLOR	181 J	83 J	105 J	166 J	350 J	85 J
METALS (MG/KG)						
ALUMINUM	2990	3090	4570	4500	4710	4490
ANTIMONY	0.82 J	0.44 U	6.1 J	1.5 U	1.7 U	0.68 U
ARSENIC	0.9	1.1	1.8	1.2	1.9	1.9
BARIUM	24.1 J	30.1 J	106 J	47 J	161 J	47.9 J
BERYLLIUM	0.55	0.25	1.1	0.56	0.43	0.4
CADMIUM	0.95 J	1 J	3.8 J	1.1 J	2.1 J	1.4 J
CALCIUM	3720 J	9010 J	4090 J	1180 J	5490 J	1370 J
CHROMIUM	19.1 J	9.3 J	154 J	33.3 J	27.3 J	13.9 J
COBALT	3.4 J	2 J	3.8 J	3.4 J	3 J	3.8 J
COPPER	62.1 J	24.7 J	432 J	117 J	200 J	69.8 J
IRON	10000 J	8010 J	103000 J	13000 J	13100 J	11400 J
LEAD	90.6 J	56.6 J	774 J	224 J	325 J	302 J
MAGNESIUM	1150 J	1170 J	2150 J	1570 J	1420 J	1470 J
MANGANESE	106 J	97 J	510 J	122 J	138 J	128 J
MERCURY	0.027 J	0.016 J	0.12 J	0.14 J	0.13 J	0.24 J
NICKEL	20.6 J	6.3 J	214 J	32.6 J	14.8 J	11 J
POTASSIUM	430 J	399 J	1140 J	603 J	842 J	535 J
SELENIUM	0.38 UJ	0.49 J	0.45 UJ	0.54 UJ	0.58 UJ	0.56 UJ
SILVER	0.34 U	0.46 U	0.39 U	0.52 U	0.44 U	0.47 U

TABLE 3-1

DRAFT

**ANALYTICAL RESULTS - RESIDUAL MATERIAL
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 6 OF 6**

LOCATION	QF-RS01	QF-RS01-D	QF-RS02	QF-RS03	QF-RS04	QF-RS05
SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
% MOISTURE	8.2	9.1	16	2.5	25	13
QC IDENTIFIER	DUPLICATE	DUPLICATE				
CATCH BASIN	CB-2	CB-2	CB-3	CB-9	CB-5	NA
METALS (MG/KG)						
SODIUM	78.3	70.9	296 J	105	181	48.2 J
THALLIUM	0.34 U	0.46 U	0.39 U	0.52 U	0.44 U	0.47 U
VANADIUM	12.6 J	6.1 J	12 J	9.7 J	11.5 J	9 J
ZINC	354 J	211 J	1210 J	608 J	229 J	502 J
PETROLEUM HYDROCARBONS (MG/KG)						
EXTRACTABLE PETROLEUM HYDROCARBONS	2500	1500	1800 J	1600	18000	960
GASOLINE RANGE ORGANICS	25 J	91 J	30	2.2 U	390	2.7 U

Notes:

1. No PSLs established for residual material samples . Results qualitatively compared against soil/sediment results in Section 3 of report.

TABLE 3-2

DRAFT

ANALYTICAL RESULTS - CONFIRMATORY SOILS
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 1 OF 6

PARAMETER	LOCATION	QF-CS01	QF-CS02	QF-CS03	QF-CS04	QF-CS04-D	QF-CS05
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	8.8	9.9	5.1	29	24	25
	QC IDENTIFIER				DUPLICATE	DUPLICATE	
	PSL						
VOLATILES (UG/KG)							
1,1,1-TRICHLOROETHANE	29800	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
1,1,2,2-TETRACHLOROETHANE	127	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
1,1,2-TRICHLOROETHANE	1100	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
1,1-DICHLOROETHANE	3300	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
1,1-DICHLOROETHENE	8280	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
1,2,4-TRICHLOROBENZENE	6200	1.6 UJ	1.2 UJ	1.2 U	190 U	150 U	1.2 U
1,2,4-TRIMETHYLBENZENE	6200	1.6 U	1.2 UJ	1.2 U	72000 J	33000 J	1.2 U
1,2-DICHLOROBENZENE	2960	1.6 UJ	1.2 UJ	1.2 U	8300 J	350 J	1.2 U
1,2-DICHLOROETHANE	430	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
1,2-DICHLOROPROPANE	890	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
1,3,5-TRIMETHYLBENZENE	78000	1.6 U	1.2 UJ	1.2 U	17000 J	8100 J	1.2 U
1,3-DICHLOROBENZENE	37700	1.6 UJ	1.2 UJ	1.2 U	10000 J	430 J	1.2 U
1,4-DICHLOROBENZENE	546	1.6 UJ	5.4 J	1.2 U	5600 J	3100 J	1.2 U
2-BUTANONE	89600	3.3 UR	2.5 UR	2.3 UR	190 UR	150 UR	2.4 UR
2-HEXANONE	12600	3.3 U	2.5 UJ	2.3 U	190 U	150 U	2.4 U
4-METHYL-2-PENTANONE	443000	3.3 U	2.5 UJ	2.3 U	190 U	150 U	2.4 U
ACETONE	2500	10 J	36 J	3.4 J	190 UR	150 UR	9.8 J
BENZENE	255	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
BROMODICHLOROMETHANE	270	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
BROMOFORM	15900	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
BROMOMETHANE	235	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
CARBON DISULFIDE	94	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
CARBON TETRACHLORIDE	610	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
CHLOROBENZENE	13100	1.6 U	1.2 UJ	1.2 U	54000	34000	1.2 U
CHLORODIBROMOMETHANE	680	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
CHLOROETHANE	1500000	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
CHLOROFORM	290	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U

TABLE 3-2

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ANALYTICAL RESULTS - CONFIRMATORY SOILS
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
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PARAMETER	LOCATION	QF-CS01	QF-CS02	QF-CS03	QF-CS04	QF-CS04-D	QF-CS05
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	8.8	9.9	5.1	29	24	25
	QC IDENTIFIER				DUPLICATE	DUPLICATE	
	PSL						
VOLATILES (UG/KG)							
CHLOROMETHANE	10400	1.6 U	1.2 UJ	1.2 U	190 UJ	150 UJ	1.2 U
CIS-1,2-DICHLOROETHENE	784	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
CIS-1,3-DICHLOROPROPENE	398	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
ETHYLBENZENE	5160	1.6 U	1.2 UJ	1.2 U	1300 J	730 J	1.2 U
METHYLENE CHLORIDE	4050	2.2 U	1.2 UJ	1.2 UJ	190 U	150 U	1.2 UJ
STYRENE	4690	1.6 UJ	1.2 UJ	1.2 U	190 U	150 U	1.2 U
TETRACHLOROETHENE	550	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
TOLUENE	5450	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
TOTAL XYLENES	10000	1.6 UJ	1.2 UJ	1.2 U	4000 J	2200 J	1.2 U
TRANS-1,2-DICHLOROETHENE	784	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
TRANS-1,3-DICHLOROPROPENE	398	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
TRICHLOROETHENE	2800	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
TRICHLOROFLUOROMETHANE	16400	1.6 U	1.2 UJ	1.2 U	190 U	150 U	1.2 U
VINYL CHLORIDE	60	1.6 UJ	1.2 UJ	1.2 UJ	190 U	150 U	1.2 U
SEMIVOLATILES (UG/KG)							
2,4,5-TRICHLOROPHENOL	4000	71 U	72 U	68 U	93 UJ	87 UJ	87 U
2,4,6-TRICHLOROPHENOL	6100	71 U	72 U	68 U	93 UJ	87 UJ	87 U
2,4-DICHLOROPHENOL	18000	71 U	72 U	68 U	93 UJ	87 UJ	87 U
2,4-DIMETHYLPHENOL	10	71 U	72 U	68 U	93 UJ	87 UJ	87 U
2,4-DINITROPHENOL	61	360 UJ	360 UJ	340 UJ	460 UJ	430 UJ	440 UJ
2,4-DINITROTOLUENE	1280	71 U	72 U	68 U	93 UJ	87 U	87 U
2,6-DINITROTOLUENE	33	71 U	72 U	68 U	93 UJ	87 U	87 U
2-CHLORONAPHTHALENE	12	71 U	72 U	68 U	93 UJ	87 U	87 U
2-CHLOROPHENOL	243	71 U	72 U	68 U	93 UJ	87 UJ	87 U
2-METHYLPHENOL	40400	71 U	72 U	68 U	93 UJ	87 UJ	87 U
2-NITROANILINE	61000	71 UJ	72 UJ	68 UJ	93 UJ	87 UJ	87 UJ
2-NITROPHENOL	1600	71 U	72 U	68 U	93 UJ	87 UJ	87 U

TABLE 3-2

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ANALYTICAL RESULTS - CONFIRMATORY SOILS
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
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PARAMETER	LOCATION	QF-CS01	QF-CS02	QF-CS03	QF-CS04	QF-CS04-D	QF-CS05
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	8.8	9.9	5.1	29	24	25
	QC IDENTIFIER				DUPLICATE	DUPLICATE	
	PSL						
SEMIVOLATILES (UG/KG)							
3,3'-DICHLOROBENZIDINE	646	71 U	72 U	68 U	93 UJ	87 U	87 U
3-NITROANILINE	3160	71 UJ	72 UJ	68 UJ	93 UJ	87 UJ	87 UJ
4,6-DINITRO-2-METHYLPHENOL	144	71 U	72 U	68 U	93 UJ	87 UJ	87 U
4-BROMOPHENYL PHENYL ETHER	--	180 U	180 U	170 U	230 UJ	220 U	220 U
4-CHLORO-3-METHYLPHENOL	7950	71 U	72 U	68 U	93 UJ	87 UJ	87 U
4-CHLOROANILINE	1100	71 UJ	72 UJ	68 UJ	93 UJ	87 UJ	87 UJ
4-CHLOROPHENYL PHENYL ETHER	--	71 U	72 U	68 U	93 UJ	87 U	87 U
4-METHYLPHENOL	31000	71 U	72 U	68 U	93 UJ	87 UJ	87 U
4-NITROANILINE	21900	71 UJ	72 UJ	68 UJ	93 UJ	87 UJ	87 UJ
4-NITROPHENOL	5120	71 U	72 U	68 U	93 UJ	87 UJ	87 U
BIS(2-CHLOROETHOXY)METHANE	302	71 U	72 U	68 U	93 UJ	87 U	87 U
BIS(2-CHLOROETHYL)ETHER	210	180 U	180 U	170 U	230 UJ	220 U	220 U
BIS(2-ETHYLHEXYL)PHTHALATE	925	71 U	2300	2000	1800 J	1700	230 J
BUTYL BENZYL PHTHALATE	239	71 U	72 U	68 U	93 UJ	87 U	87 U
CARBAZOLE	--	71 U	72 U	68 U	93 UJ	87 U	87 U
DIBENZOFURAN	7800	71 U	72 U	68 U	1100 J	1400	87 U
DIETHYL PHTHALATE	24800	71 U	72 U	68 U	93 UJ	87 U	87 U
DIMETHYL PHTHALATE	734000	71 U	72 U	68 U	93 UJ	87 U	87 U
DI-N-BUTYL PHTHALATE	150	71 U	72 U	68 U	93 UJ	87 U	87 U
DI-N-OCTYL PHTHALATE	709000	71 UJ	72 UJ	68 UJ	93 UJ	87 UJ	87 UJ
HEXACHLOROBUTADIENE	40	71 U	72 U	68 U	93 UJ	87 U	87 U
HEXACHLOROCYCLOPENTADIENE	755	360 U	360 U	340 U	460 UJ	430 U	440 U
HEXACHLOROETHANE	596	71 UJ	72 UJ	68 UJ	93 UJ	87 UJ	87 UJ
ISOPHORONE	139000	71 U	72 U	68 U	93 UJ	87 U	87 U
NITROBENZENE	1310	71 U	72 U	68 U	93 UJ	87 U	87 U
N-NITROSO-DI-N-PROPYLAMINE	69	180 UJ	180 UJ	170 UJ	230 UJ	220 UJ	220 UJ
N-NITROSODIPHENYLAMINE	545	71 U	72 U	68 U	93 UJ	87 U	87 U

TABLE 3-2

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ANALYTICAL RESULTS - CONFIRMATORY SOILS
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
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PARAMETER	LOCATION	QF-CS01	QF-CS02	QF-CS03	QF-CS04	QF-CS04-D	QF-CS05
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	8.8	9.9	5.1	29	24	25
	QC IDENTIFIER				DUPLICATE	DUPLICATE	
	PSL						
SEMIVOLATILES (UG/KG)							
PENTACHLOROPHENOL	2100	360 U	360 U	340 U	460 UJ	430 UJ	440 U
PHENOL	30000	71 U	72 U	68 U	93 UJ	87 UJ	87 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)							
2-METHYLNAPHTHALENE	29000	3.6 U	3.6 U	3.4 U	2400 J	4000	4.4 U
ACENAPHTHENE	20000	3.6 U	3.6 U	3.4 U	1500 J	1800	4.4 U
ACENAPHTHYLENE	29000	3.6 U	3.6 U	3.4 U	59 J	58 J	4.4 UJ
ANTHRACENE	29000	3.6 U	3.6 U	3.4 U	430 J	380 J	200
BENZO(A)ANTHRACENE	150	5.5	330 J	150 J	9600 J	360 J	310 J
BENZO(A)PYRENE	15	6.1	600	210 J	6500 J	5700	360 J
BENZO(B)FLUORANTHENE	150	11	670	310 J	14000 J	23000 J	520
BENZO(G,H,I)PERYLENE	1100	6.4	200 J	97 J	3600 J	2900	210 J
BENZO(K)FLUORANTHENE	1100	5	500	250 J	2400 J	5100 J	430 J
CHRYSENE	1100	8.2	290 J	380	460 J	300 J	820
DIBENZO(A,H)ANTHRACENE	15	3.6 U	56 J	28 J	240 J	1400 J	56 J
FLUORANTHENE	29000	9	730	680	20000 J	36000 J	1400
FLUORENE	29000	3.6 U	3.6 U	3.4 U	1800 J	1400	150 J
INDENO(1,2,3-CD)PYRENE	150	5.6	180 J	87 J	3700 J	2800	190 J
NAPHTHALENE	3600	3.6 U	3.6 U	3.4 U	280 J	690 J	4.4 U
PHENANTHRENE	29000	3.6	3.6 U	3.4 U	5500 J	4700	550
PYRENE	1100	7.2	1500	1500	22000 J	38000 J	1700
HIGH MOLECULAR WEIGHT PAHS	--	64	5060 J	3690 J	82500 J	116000 J	6000 J
LOW MOLECULAR WEIGHT PAHS	--	3.6	3.6 U	3.4 U	12000 J	13000 J	900 J
TOTAL PAHS	--	67.6	5060 J	3690 J	94500 J	129000 J	6900 J
PCBS (UG/KG)							
AROCLOR-1016	0.3	9 U	9.2 U	8.6 U	12 U	11 U	11 U
AROCLOR-1221	0.3	18 U	18 U	17 U	23 U	22 U	22 U
AROCLOR-1232	0.3	9 U	9.2 U	8.6 U	12 U	11 U	11 U

TABLE 3-2

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ANALYTICAL RESULTS - CONFIRMATORY SOILS
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
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PARAMETER	LOCATION	QF-CS01	QF-CS02	QF-CS03	QF-CS04	QF-CS04-D	QF-CS05
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	8.8	9.9	5.1	29	24	25
	QC IDENTIFIER				DUPLICATE	DUPLICATE	
	PSL						
PCBS (UG/KG)							
AROCLOR-1242	0.3	9 U	9.2 U	8.6 U	12 U	11 U	11 U
AROCLOR-1248	0.3	9 U	9.2 U	8.6 U	12 U	11 U	11 U
AROCLOR-1254	0.3	9 U	9.2 U	8.6 U	270 J	240 J	11 U
AROCLOR-1260	0.3	9 U	330	210	12 UJ	500 J	290
AROCLOR-1262	0.3	9 U	9.2 U	8.6 U	12 U	11 U	11 U
AROCLOR-1268	0.3	9 U	9.2 U	8.6 U	12 U	11 U	11 U
TOTAL AROCLOR	0.3	10 U	330	210	270 J	740 J	290
ALUMINUM	50	7110	6460	5470	8970	7250	6480
ANTIMONY	0.27	0.26 UJ	2.1 J	2 J	6.4 J	2.2 J	1.5 J
ARSENIC	0.39	1.9	2.3	2	3.2	3.1	1.9
BARIUM	330	16.2	89.9	64.3	136	99.5	57.6
BERYLLIUM	10	0.51	1.4	1.1	0.82	0.81	0.89
CADMIUM	0.36	0.01 UJ	1.5 J	1.3 J	5.2 J	2.4 J	1.9 J
CALCIUM	--	247 J	1820 J	1640 J	2100 J	1770 J	1250 J
CHROMIUM	0.29	6.8 J	61.4 J	34.9 J	196 J	51.9 J	39.8 J
COBALT	2.3	2.1	7.9	5	5.7	4.3	4.3
COPPER	28	12.8 J	238 J	181 J	382 J	222 J	206 J
IRON	200	13000	15700	11400	17800	14900	14100
LEAD	11	12.1	418	264	531	350	333
MAGNESIUM	--	1110	1460	1030	2710	2020	1670
MANGANESE	180	98.2	112	79	157	121	107
MERCURY	0.1	0.021 J	0.12	0.066	0.22	0.15	0.056
NICKEL	38	7.7	67.5	47.3	28.9	31.8	34.6
POTASSIUM	--	200	811	644	954	683	635
SELENIUM	0.52	0.8 J	1 J	0.85 J	1.2 J	0.95 J	1.1 J
SILVER	4.2	0.42 U	0.23 J	0.36 U	0.65 U	0.46 U	0.51 U
SODIUM	--	19.7 J	361	282	129	107	167

TABLE 3-2

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**ANALYTICAL RESULTS - CONFIRMATORY SOILS
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
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PARAMETER	LOCATION	QF-CS01	QF-CS02	QF-CS03	QF-CS04	QF-CS04-D	QF-CS05
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	8.8	9.9	5.1	29	24	25
	QC IDENTIFIER				DUPLICATE	DUPLICATE	
	PSL						
METALS (MG/KG)							
THALLIUM	1	0.42 U	0.44 U	0.36 U	0.65 U	0.46 U	0.51 U
VANADIUM	2	11.8	15.6	12.2	28.8	20	14.8
ZINC	46	45.3 J	520 J	415 J	985 J	442 J	374 J
PETROLEUM HYDROCARBONS (MG/KG)							
EXTRACTABLE PETROLEUM HYDROCARBONS	500	23	13000	6800	12000	14000	6600
GASOLINE RANGE ORGANICS	500	1.9 U	55	35	1400 J	550 J	2.5 U

Notes:

1. The PSLs for confirmatory soils are the lower of the EPA RSL (Residential Soil value) or the selected ecological soil screening level (SSL) from Appendix H of the SAP.

TABLE 3-3

**ANALYTICAL RESULTS - TEST PIT SOIL
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 1 OF 4**

PARAMETER	LOCATION	QF-TP01
	SAMPLE DATE	12/8/2010
	% MOISTURE	6.1
	PSL	
VOLATILES (UG/KG)		
1,1,1-TRICHLOROETHANE	870000	1.5 U
1,1,2,2-TETRACHLOROETHANE	560	1.5 U
1,1,2-TRICHLOROETHANE	1100	1.5 U
1,1-DICHLOROETHANE	3300	1.5 U
1,1-DICHLOROETHENE	24000	1.5 U
1,2,4-TRICHLOROBENZENE	6200	1.5 U
1,2,4-TRIMETHYLBENZENE	6200	1.5 U
1,2-DICHLOROBENZENE	190000	1.5 U
1,2-DICHLOROETHANE	430	1.5 U
1,2-DICHLOROPROPANE	890	1.5 U
1,3,5-TRIMETHYLBENZENE	78000	1.5 U
1,3-DICHLOROBENZENE	--	1.5 U
1,4-DICHLOROBENZENE	2400	1.5 U
2-BUTANONE	2800000	3.1 UR
2-HEXANONE	21000	3.1 U
4-METHYL-2-PENTANONE	530000	3.1 U
ACETONE	6100000	1.5 J
BENZENE	1100	1.5 U
BROMODICHLOROMETHANE	270	1.5 U
BROMOFORM	61000	1.5 U
BROMOMETHANE	730	1.5 U
CARBON DISULFIDE	82000	1.5 U
CARBON TETRACHLORIDE	610	1.5 U
CHLOROBENZENE	29000	1.5 U
CHLORODIBROMOMETHANE	680	1.5 U
CHLOROETHANE	1500000	1.5 U
CHLOROFORM	290	1.5 U
CHLOROMETHANE	12000	1.5 U
CIS-1,2-DICHLOROETHENE	78000	1.5 U
CIS-1,3-DICHLOROPROPENE	1700	1.5 U
ETHYLBENZENE	5400	1.5 U
METHYLENE CHLORIDE	11000	1.5 UJ
STYRENE	630000	1.5 U
TETRACHLOROETHENE	550	1.5 U
TOLUENE	500000	1.5 U
TOTAL XYLENES	63000	1.5 U
TRANS-1,2-DICHLOROETHENE	15000	1.5 U
TRANS-1,3-DICHLOROPROPENE	1700	1.5 U
TRICHLOROETHENE	2800	1.5 U
TRICHLOROFLUOROMETHANE	79000	1.5 U
VINYL CHLORIDE	60	1.5 U

TABLE 3-3

**ANALYTICAL RESULTS - TEST PIT SOIL
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 2 OF 4**

PARAMETER	LOCATION	QF-TP01
	SAMPLE DATE	12/8/2010
	% MOISTURE	6.1
	PSL	
SEMIVOLATILES (UG/KG)		
2,4,5-TRICHLOROPHENOL	610000	70 U
2,4,6-TRICHLOROPHENOL	6100	70 U
2,4-DICHLOROPHENOL	18000	70 U
2,4-DIMETHYLPHENOL	120000	70 U
2,4-DINITROPHENOL	12000	350 UJ
2,4-DINITROTOLUENE	1600	70 U
2,6-DINITROTOLUENE	6100	70 U
2-CHLORONAPHTHALENE	630000	70 U
2-CHLOROPHENOL	39000	70 U
2-METHYLPHENOL	310000	70 U
2-NITROANILINE	61000	70 UJ
2-NITROPHENOL	12000	70 U
3,3'-DICHLOROBENZIDINE	1100	70 U
3-NITROANILINE	--	70 UJ
4,6-DINITRO-2-METHYLPHENOL	490	70 U
4-BROMOPHENYL PHENYL ETHER	--	180 U
4-CHLORO-3-METHYLPHENOL	610000	70 U
4-CHLOROANILINE	2400	70 UJ
4-CHLOROPHENYL PHENYL ETHER	--	70 U
4-METHYLPHENOL	31000	70 U
4-NITROANILINE	24000	70 UJ
4-NITROPHENOL	--	70 U
BIS(2-CHLOROETHOXY)METHANE	18000	70 U
BIS(2-CHLOROETHYL)ETHER	210	180 U
BIS(2-ETHYLHEXYL)PHTHALATE	35000	70 U
BUTYL BENZYL PHTHALATE	260000	70 U
CARBAZOLE	--	70 U
DIBENZOFURAN	7800	70 U
DIETHYL PHTHALATE	4900000	70 U
DIMETHYL PHTHALATE	4900000	70 U
DI-N-BUTYL PHTHALATE	610000	70 U
DI-N-OCTYL PHTHALATE	--	70 UJ
HEXACHLOROBUTADIENE	6100	70 U
HEXACHLOROCYCLOPENTADIENE	37000	350 U
HEXACHLOROETHANE	6100	70 UJ
ISOPHORONE	510000	70 U
NITROBENZENE	4800	70 U
N-NITROSO-DI-N-PROPYLAMINE	69	180 UJ
N-NITROSODIPHENYLAMINE	99000	70 U
PENTACHLOROPHENOL	3000	350 U
PHENOL	1800000	70 U

TABLE 3-3

**ANALYTICAL RESULTS - TEST PIT SOIL
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 3 OF 4**

PARAMETER	LOCATION	QF-TP01
	SAMPLE DATE	12/8/2010
	% MOISTURE	6.1
	PSL	
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)		
2-METHYLNAPHTHALENE	31000	3.5 U
ACENAPHTHENE	340000	3.5 U
ACENAPHTHYLENE	340000	3.5 U
ANTHRACENE	1700000	3.5 U
BENZO(A)ANTHRACENE	150	3.5 U
BENZO(A)PYRENE	15	3.5 U
BENZO(B)FLUORANTHENE	150	3.7
BENZO(G,H,I)PERYLENE	170000	3.5 U
BENZO(K)FLUORANTHENE	1500	3.5 U
CHRYSENE	15000	3.5 U
DIBENZO(A,H)ANTHRACENE	15	3.5 U
FLUORANTHENE	230000	3.5 U
FLUORENE	230000	3.5 U
INDENO(1,2,3-CD)PYRENE	150	3.5 U
NAPHTHALENE	3600	3.5 U
PHENANTHRENE	170000	3.5 U
PYRENE	170000	3.5 U
HIGH MOLECULAR WEIGHT PAHS	--	3.7
LOW MOLECULAR WEIGHT PAHS	--	3.5 U
TOTAL PAHS	--	3.7
PCBS (UG/KG)		
AROCLOR-1016	390	8.8 U
AROCLOR-1221	140	18 U
AROCLOR-1232	140	8.8 U
AROCLOR-1242	220	8.8 U
AROCLOR-1248	220	8.8 U
AROCLOR-1254	110	8.8 U
AROCLOR-1260	220	8.8 U
AROCLOR-1262	220	8.8 U
AROCLOR-1268	220	8.8 U
TOTAL AROCLOR	--	9.82 U
METALS (MG/KG)		
ALUMINUM	7700	4260
ANTIMONY	3.1	0.55 J
ARSENIC	0.39	2
BARIUM	1500	7.5 J
BERYLLIUM	16	0.34
CADMIUM	7	0.015 UJ
CALCIUM	--	251 J
CHROMIUM	0.29	5.3 J
COBALT	2.3	2.6
COPPER	310	11.4 J

DARK SHADING - CRITERIA EXCEEDED; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - ESTIMATED VALUE; R- REJECTED

TABLE 3-3

**ANALYTICAL RESULTS - TEST PIT SOIL
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 4 OF 4**

PARAMETER	LOCATION	QF-TP01
	SAMPLE DATE	12/8/2010
	% MOISTURE	6.1
	PSL	
METALS (MG/KG)		
IRON	5500	10100
LEAD	400	6.4
MAGNESIUM	--	1500
MANGANESE	180	90.8
MERCURY	2.3	0.0053 J
NICKEL	150	6.7
POTASSIUM	--	307
SELENIUM	39	0.96 U
SILVER	39	0.38 U
SODIUM	--	15.5 J
THALLIUM	--	0.38 U
VANADIUM	39	8.2
ZINC	2300	17.2 J
PETROLEUM HYDROCARBONS (MG/KG)		
EXTRACTABLE PETROLEUM HYDROCARBONS	500	13 U
GASOLINE RANGE ORGANICS	500	2.2 U

Notes:

- The PSLs for test pit soil are the EPA Regions 3, 6, and 9 RSLs for Chemical Contaminants at Superfund Sites, Residential Soil value, May 2010 (USEPA, 2010) except for GRO and ExTPH.
- The PSL for GRO and ExTPH is the RIDEM Residential TPH DEC (RIDEM, 2004).

TABLE 3-4

DRAFT

**ANALYTICAL RESULTS - SEDIMENT
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 1 OF 5**

PARAMETER	LOCATION	QF-SD01	QF-SD02	QF-SD03	QF-SD04	QF-SD05	QF-SD06	QF-SD07	QF-SD08	QF-SD09	QF-SD09-D
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	49	33	46	48	41	35	41	42	65	56
	QC IDENTIFIER									DUPLICATE	DUPLICATE
	PSL										
VOLATILES (UG/KG)											
1,1,1-TRICHLOROETHANE	30.2	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,1,2,2-TETRACHLOROETHANE	1360	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,1,2-TRICHLOROETHANE	1240	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,1-DICHLOROETHANE	27	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,1-DICHLOROETHENE	31	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 UJ	4.1 UJ	4.1 UJ
1,2,4-TRICHLOROBENZENE	16.5	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,2,4-TRIMETHYLBENZENE	250	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,2-DICHLOROBENZENE	--	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,2-DICHLOROETHANE	2100	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,2-DICHLOROPROPANE	--	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,3,5-TRIMETHYLBENZENE	--	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,3-DICHLOROBENZENE	4430	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
1,4-DICHLOROBENZENE	599	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
2-BUTANONE	270	7.1 UR	3.9 UR	6.6 UR	4.9 UR	5.6 UR	4.3 UR	5.2 UR	4.8 UR	8.2 UR	8.1 UR
2-HEXANONE	22	7.1 UJ	3.9 U	6.6 U	4.9 U	5.6 U	4.3 U	5.2 U	4.8 U	8.2 U	8.1 U
4-METHYL-2-PENTANONE	33	7.1 U	3.9 U	6.6 U	4.9 U	5.6 U	4.3 U	5.2 U	4.8 U	8.2 U	8.1 U
ACETONE	8.7	75 J	13 J	18 J	27 J	67 J	90 J	20 J	13 J	46 J	26 J
BENZENE	160	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
BROMODICHLOROMETHANE	--	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
BROMOFORM	654	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
BROMOMETHANE	--	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
CARBON DISULFIDE	0.851	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
CARBON TETRACHLORIDE	64.2	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
CHLOROBENZENE	8.42	3.6 UJ	1.9 U	3.3 U	2.2 J	2.8 U	1.3 J	2.6 U	2.4 U	4.1 U	4.1 U
CHLORODIBROMOMETHANE	--	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
CHLOROETHANE	22	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
CHLOROFORM	--	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
CHLOROMETHANE	400	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
CIS-1,2-DICHLOROETHENE	0.051	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
CIS-1,3-DICHLOROPROPENE	--	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
ETHYLBENZENE	1100	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
METHYLENE CHLORIDE	370	3.6 UJ	1.9 UJ	3.3 UJ	2.5 UJ	2.8 UJ	2.1 UJ	2.6 UJ	2.4 UJ	4.1 UJ	4.1 UJ
STYRENE	559	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U

DARK SHADING - CRITERIA EXCEEDED; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - ESTIMATED VALUE; R - REJECTED

TABLE 3-4

DRAFT

**ANALYTICAL RESULTS - SEDIMENT
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 2 OF 5**

PARAMETER	LOCATION	QF-SD01	QF-SD02	QF-SD03	QF-SD04	QF-SD05	QF-SD06	QF-SD07	QF-SD08	QF-SD09	QF-SD09-D
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	49	33	46	48	41	35	41	42	65	56
	QC IDENTIFIER									DUPLICATE	DUPLICATE
	PSL										
VOLATILES (UG/KG)											
TETRACHLOROETHENE	468	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
TOLUENE	50	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
TOTAL XYLENES	160	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
TRANS-1,2-DICHLOROETHENE	1050	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
TRANS-1,3-DICHLOROPROPENE	0.051	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
TRICHLOROETHENE	96.9	3.6 UJ	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
TRICHLOROFLUOROMETHANE	--	3.6 U	1.9 U	3.3 U	2.5 U	2.8 U	2.1 U	2.6 U	2.4 U	4.1 U	4.1 U
VINYL CHLORIDE	--	3.6 U	1.9 U	3.3 U	2.5 UJ	2.8 U	2.1 UJ	2.6 UJ	2.4 U	4.1 U	4.1 U
SEMIVOLATILES (UG/KG)											
2,4,5-TRICHLOROPHENOL	3	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
2,4,6-TRICHLOROPHENOL	213	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
2,4-DICHLOROPHENOL	117	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
2,4-DIMETHYLPHENOL	29	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
2,4-DINITROPHENOL	--	640 UR	490 UJ	600 UJ	630 UJ	550 UJ	510 UJ	550 UJ	560 UJ	940 UJ	750 UJ
2,4-DINITROTOLUENE	41.6	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
2,6-DINITROTOLUENE	--	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
2-CHLORONAPHTHALENE	--	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
2-CHLOROPHENOL	31.2	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
2-METHYLPHENOL	12	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
2-NITROANILINE	--	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
2-NITROPHENOL	--	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
3,3'-DICHLOROBENZIDINE	127	130 UR	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
3-NITROANILINE	--	130 UR	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
4,6-DINITRO-2-METHYLPHENOL	--	130 UR	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
4-BROMOPHENYL PHENYL ETHER	1230	330 UJ	250 U	310 U	320 UJ	280 U	260 U	280 U	280 U	470 U	380 U
4-CHLORO-3-METHYLPHENOL	--	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
4-CHLOROANILINE	--	130 UR	99 UJ	120 UJ	130 UJ	110 UJ	100 UJ	110 UJ	110 UJ	190 UJ	150 UJ
4-CHLOROPHENYL PHENYL ETHER	--	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
4-METHYLPHENOL	670	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
4-NITROANILINE	--	130 UR	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
4-NITROPHENOL	--	130 UJ	99 UJ	120 UJ	130 UJ	110 UJ	100 UJ	110 UJ	110 UJ	190 UJ	150 UJ
BIS(2-CHLOROETHOXY)METHANE	--	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
BIS(2-CHLOROETHYL)ETHER	--	330 UJ	250 U	310 U	320 UJ	280 U	260 U	280 U	280 U	470 U	380 U

DARK SHADING - CRITERIA EXCEEDED; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - ESTIMATED VALUE; R - REJECTED

TABLE 3-4

DRAFT

**ANALYTICAL RESULTS - SEDIMENT
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 3 OF 5**

PARAMETER	LOCATION	QF-SD01	QF-SD02	QF-SD03	QF-SD04	QF-SD05	QF-SD06	QF-SD07	QF-SD08	QF-SD09	QF-SD09-D
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	49	33	46	48	41	35	41	42	65	56
	QC IDENTIFIER									DUPLICATE	DUPLICATE
	PSL										
SEMIVOLATILES (UG/KG)											
BIS(2-ETHYLHEXYL)PHTHALATE	180	340 J	410 J	550 J	420 J	280 J	610	190 J	410 J	670 J	670 J
BUTYL BENZYL PHTHALATE	10900	74 J	99 U	120 U	130 UJ	110 U	120 J	110 U	110 U	190 U	150 U
CARBAZOLE	--	130 UJ	90 J	86 J	74 J	73 J	320 J	80 J	89 J	160 J	110 J
DIBENZOFURAN	415	130 UJ	99 U	120 U	130 UJ	110 U	65 J	110 U	110 U	190 U	150 U
DIETHYL PHTHALATE	603	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
DIMETHYL PHTHALATE	6	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
DI-N-BUTYL PHTHALATE	6470	130 UJ	54 J	90 J	130 J	110 U	63 J	110 U	130 J	190 U	150 U
DI-N-OCTYL PHTHALATE	61	130 UJ	99 UJ	120 UJ	130 UJ	110 UJ	100 UJ	110 UJ	110 UJ	190 UJ	150 UJ
HEXACHLOROBUTADIENE	1.3	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
HEXACHLOROCYCLOPENTADIENE	--	640 UR	490 UJ	600 UJ	630 UJ	550 UJ	510 UJ	550 UJ	560 UJ	940 UJ	750 UJ
HEXACHLOROETHANE	1027	130 UJ	99 UJ	120 UJ	130 UJ	110 UJ	100 UJ	110 UJ	110 UJ	190 UJ	150 UJ
ISOPHORONE	--	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
NITROBENZENE	21	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
N-NITROSO-DI-N-PROPYLAMINE	--	330 UJ	250 UJ	310 UJ	320 UJ	280 UJ	260 UJ	280 UJ	280 UJ	470 UJ	380 UJ
N-NITROSODIPHENYLAMINE	2680	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
PENTACHLOROPHENOL	504	640 UJ	490 U	600 U	630 UJ	550 U	510 U	550 U	560 U	940 U	750 U
PHENOL	420	130 UJ	99 U	120 U	130 UJ	110 U	100 U	110 U	110 U	190 U	150 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)											
2-METHYLNAPHTHALENE	20.2	26 J	18	9.4	15	15	18	13	9.8	17	14
ACENAPHTHENE	6.7	23 J	20	21	23	13	130	25	17	35	21
ACENAPHTHYLENE	5.9	44 J	77	69	69	61	59	100	100	200	150
ANTHRACENE	57.2	120 J	210	200	170	150	470	180	180	280	210
BENZO(A)ANTHRACENE	108	340 J	480	470	450	210 J	1700	360	320	450	270
BENZO(A)PYRENE	150	380 J	490	470	470 J	270 J	1300	490	430	780	480
BENZO(B)FLUORANTHENE	130	770 J	610	850	810 J	470 J	1700	530	660	970	750
BENZO(G,H,I)PERYLENE	170	340 J	360	330	410 J	310 J	880	440	410	560	370
BENZO(K)FLUORANTHENE	240	340 J	490	560	370	260 J	1400	520 J	490	830	560
CHRYSENE	166	580 J	640	800	860 J	400	2200	490	630	810	730 J
DIBENZO(A,H)ANTHRACENE	33	73 J	75	89	96 J	54 J	170	90	77	140	99
FLUORANTHENE	423	780 J	1000	1100	1000 J	440	4000	720	870	900	590
FLUORENE	77.4	65 J	50	61	58	37	200	33	27	61 J	28 J
INDENO(1,2,3-CD)PYRENE	17	260 J	320	310	320 J	230 J	820	430	410	420	300
NAPHTHALENE	176	6.4 UJ	12	10	10	9.9	10	8.9	7.4	12	13

DARK SHADING - CRITERIA EXCEEDED; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - ESTIMATED VALUE; R - REJECTED

TABLE 3-4

DRAFT

**ANALYTICAL RESULTS - SEDIMENT
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 4 OF 5**

PARAMETER	LOCATION	QF-SD01	QF-SD02	QF-SD03	QF-SD04	QF-SD05	QF-SD06	QF-SD07	QF-SD08	QF-SD09	QF-SD09-D
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	49	33	46	48	41	35	41	42	65	56
	QC IDENTIFIER									DUPLICATE	DUPLICATE
	PSL										
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)											
PHENANTHRENE	204	290 J	350	350	290	180	2100	230	260	400 J	230 J
PYRENE	195	590 J	770	860	610	370	2900	740	800	1400 J	720 J
HIGH MOLECULAR WEIGHT PAHS	--	4450 J	5240	5840	5400 J	3010 J	17100	4810 J	5100	7260 J	4870 J
LOW MOLECULAR WEIGHT PAHS	--	568 J	737	720	635	466	2990	590	601	1000 J	666 J
TOTAL PAHS	--	5020 J	5970	6560	6030 J	3480 J	20100	5400 J	5700	8260 J	5540 J
PCBS (UG/KG)											
AROCLOR-1016	59.8	16 U	12 U	15 U	16 U	14 U	13 U	14 U	14 U	23 U	19 U
AROCLOR-1221	59.8	33 U	25 U	31 U	32 U	28 U	26 U	27 U	28 U	47 U	38 U
AROCLOR-1232	59.8	16 U	12 U	15 U	16 U	14 U	13 U	14 U	14 U	23 U	19 U
AROCLOR-1242	59.8	16 U	12 U	15 U	16 U	14 U	13 U	14 U	14 U	23 U	19 U
AROCLOR-1248	59.8	16 U	12 U	15 U	16 U	14 U	13 U	14 U	14 U	23 U	19 U
AROCLOR-1254	59.8	160 J	180 J	130 J	130 J	140 J	120 J	180 J	190 J	440 J	270 J
AROCLOR-1260	59.8	680	610	460	480	470	450	660	680	1400 J	790 J
AROCLOR-1262	59.8	16 U	12 U	15 U	16 U	14 U	13 U	14 U	14 U	23 U	19 U
AROCLOR-1268	59.8	16 U	12 U	15 U	16 U	14 U	13 U	14 U	14 U	23 U	19 U
TOTAL AROCLOR	--	840 J	790 J	590 J	610 J	610 J	570 J	840 J	870 J	1840 J	1060 J
METALS (MG/KG)											
ALUMINUM	25500	10300	10200	10300	15100	8650	8410	12600	10400	17500	11100
ANTIMONY	2	2.7 J	2.6 J	1.9 J	2.9 J	1.8 J	2.3 J	2.9 J	3.4 J	2.7 J	2.2 J
ARSENIC	9.8	1.9	4.4	2.7	3	2	1.9	3.8	3.2	1.9	2.1
BARIUM	48	109	105	75.8	140	105	87.9	102	126	112	102
BERYLLIUM	--	0.98	0.98	0.9	1.3	0.79	0.94	1.1	1	1.4	0.97
CADMIUM	0.99	6.6	9.2	4.3	10.5	9.9	4.5	8.7	11.8	13	13.9
CALCIUM	--	1700	1440	1360	1650	1300	1420	1280	1450	1630	1260
CHROMIUM	43.4	65.3	72.5	51.4	83.3	63.3	55	77.3	96.3	64.6	55.3
COBALT	50	4.7	4.8	4.2	6.3	4.1	3.6	5.2	4.9	5.7	4.4
COPPER	31.6	224	175	140	219	170	155	201	231	167	154
IRON	20000	16000	19100	16300	22600	17000	17600	19900	21700	19600	13300
LEAD	35.8	646	534	435	622	460	424	545	599	453	386
MAGNESIUM	--	2530	2510	2570	3510	2230	2040	2800	2430	3830	2480
MANGANESE	460	142	157	131	182	139	134	153	125	186	126
MERCURY	0.18	0.33	0.22	0.28	0.29	0.15	0.24	0.21	0.25	0.18	0.22
NICKEL	22.7	20.9	22.9	16.7	26.6	22.7	22.2	23	28.7	29.8	22.4
POTASSIUM	--	906	917	849	1150	621	922	1140	893	1200	837

DARK SHADING - CRITERIA EXCEEDED; LIGHT SHADING - DETECTED; U - NOT DETECTED;
UJ - DETECTION LIMIT APPROXIMATE; J - ESTIMATED VALUE; R - REJECTED

TABLE 3-4

DRAFT

**ANALYTICAL RESULTS - SEDIMENT
QDC OUTFALL 001
FORMER NCBC DAVISVILLE, NORTH KINGSTOWN, RHODE ISLAND
PAGE 5 OF 5**

PARAMETER	LOCATION	QF-SD01	QF-SD02	QF-SD03	QF-SD04	QF-SD05	QF-SD06	QF-SD07	QF-SD08	QF-SD09	QF-SD09-D
	SAMPLE DATE	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010	12/8/2010
	% MOISTURE	49	33	46	48	41	35	41	42	65	56
	QC IDENTIFIER									DUPLICATE	DUPLICATE
	PSL										
METALS (MG/KG)											
SELENIUM	2	1.8 J	1.3 J	1.3 J	1.5 J	0.97 J	1.2 J	1.4 J	1.3 J	1.4 J	1.3 J
SILVER	1	0.82 U	0.67 U	0.58 U	0.37 J	0.8 U	0.54 U	0.61 U	0.75 U	1.2 U	0.27 J
SODIUM	--	116	125	89.4	141	122	138	107	130	136	140
THALLIUM	--	0.82 U	0.67 U	0.58 U	0.85 U	0.8 U	0.54 U	0.61 U	0.75 U	1.2 U	0.6 U
VANADIUM	57	28.9	29.1	28.2	39.4	25.1	23.6	32.2	28.7	36.2	25.5
ZINC	121	662	597	430	624	484	509	512	499	660	499
PETROLEUM HYDROCARBONS (MG/KG)											
EXTRACTABLE PETROLEUM HYDROCARBONS	--	3100	4400	2800	4500	3000	2400	5700	6000	12000 J	11000
GASOLINE RANGE ORGANICS	--	6.9 U	3.7 U	7.4 U	6.9 U	5.0 U	4.0 U	5.0 U	4.5 U	12 U	8.3 U

Notes:

- PSLs represent the lowest criteria from the following (see Appendix H of the SAP):
 - USEPA Region 3 BTAG, 2006. Region 3 Freshwater Sediment Screening Benchmarks.
 - ORNL, 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota.
 - USEPA SQB, 1996. ECO Update, Ecotox Thresholds. U.S. Environmental Protection Agency.
 - NOAA SQuiRT Sediment Benchmarks; Buchman, M. F., 2008.

FIGURES



BASE MAP IS A PORTION OF THE FOLLOWING 7.5 X 15 MINUTE USGS QUADRANGLE:
 WICKFORD, RHODE ISLAND,
 DRAWING NOT TO SCALE

RHODE ISLAND



QUADRANGLE LOCATION



TETRA TECH

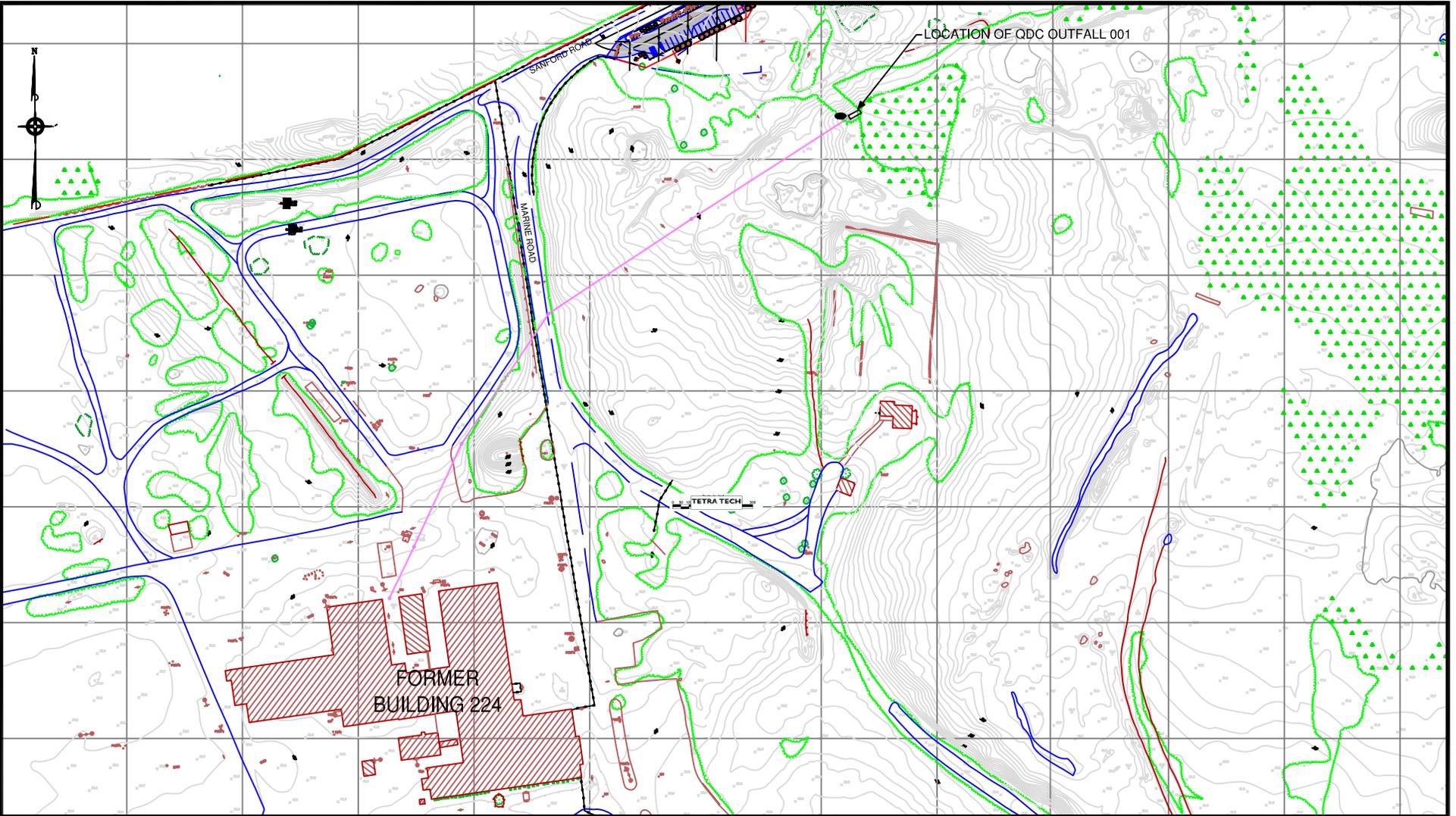
SITE LOCUS
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE
 AS NOTED

FILE

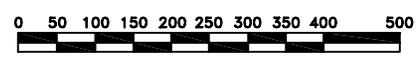
REV	DATE
0	03/28/11

FIGURE NUMBER
 1-1



Scale:

Scale in feet



TETRA TECH NUS, INC.

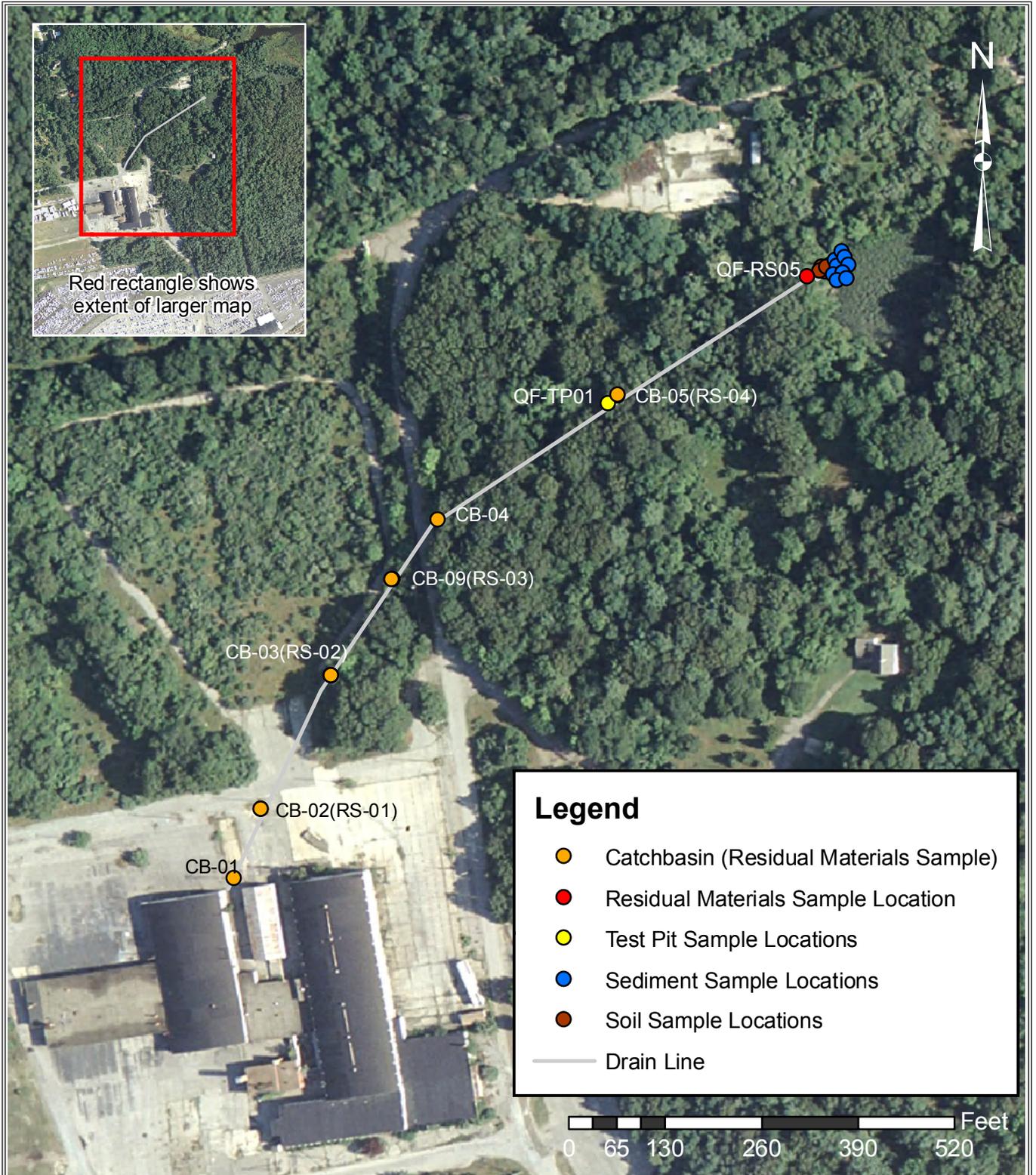
FORMER BUILDING 224 DRAIN LINE AND QDC OUTFALL LOCATION
 CED AREA/QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE AS NOTED

FILE
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REV	DATE
0	04/21/11

FIGURE NUMBER
1-2



TETRA TECH

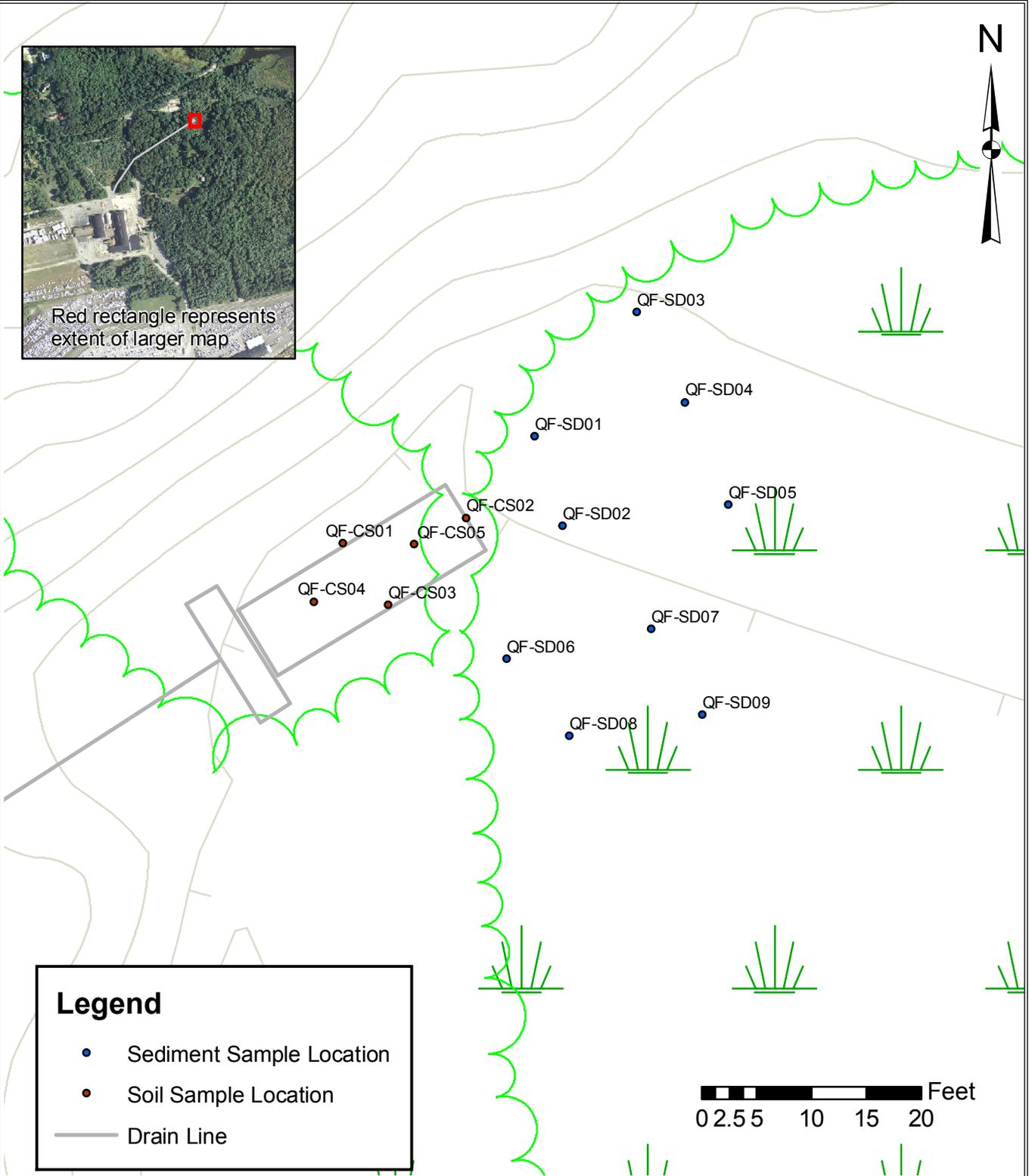
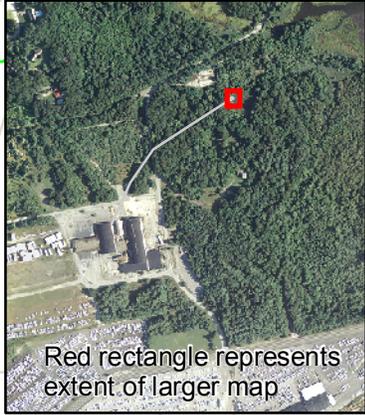
RESIDUAL MATERIAL AND TEST PIT SAMPLE LOCATIONS
QDC OUTFALL 001
FORMER NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

SCALE
As Shown

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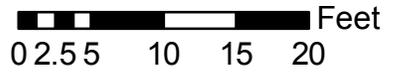
REV 0	DATE 3/14/2011
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FIGURE NUMBER
FIGURE 2-1



Legend

- Sediment Sample Location
- Soil Sample Location
- Drain Line



SOIL AND SEDIMENT SAMPLE LOCATIONS
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
G:\GIS_arc\PROJECTS\ CLEAN\Davisville\QDC_Outfall\ Soil_Sed_Locations.mxd	
REV 0	DATE 3/14/11
FIGURE NUMBER FIGURE 2-2	



QF-RS01
 1,2,4-TRICHLORO BENZENE 1.3 J
 1,2,4-TRIMETHYL BENZENE 59*
 1,2-DICHLORO BENZENE 22*
 1,3,5-TRIMETHYL BENZENE 16*
 1,3-DICHLORO BENZENE 5.4*
 1,4-DICHLORO BENZENE 49*
 2-BUTANONE 4.7 J
 CHLORO BENZENE 2100 J*
 CIS-1,2-DICHLOROETHENE 2.8 J*
 ETHYL BENZENE 53*
 TOLUENE 13*
 TOTAL XYLENES 280*
 TRANS-1,2-DICHLOROETHENE 1.7 J*
 VINYL CHLORIDE 1.2 J

QF-RS01 DUP
 1,2,4-TRICHLORO BENZENE 2.7 J*
 1,2,4-TRIMETHYL BENZENE 46*
 1,2-DICHLORO BENZENE 21*
 1,3,5-TRIMETHYL BENZENE 15*
 1,3-DICHLORO BENZENE 3.7*
 1,4-DICHLORO BENZENE 32*
 CHLORO BENZENE 1100 J*
 CIS-1,2-DICHLOROETHENE 2 J*
 ETHYL BENZENE 39*
 METHYLENE CHLORIDE 4.1 J*
 TOLUENE 8.6*
 TOTAL XYLENES 240*
 VINYL CHLORIDE 0.93 J

QF-TP01
 ACETONE 1.5 J

QF-RS03
 1,2,4-TRIMETHYL BENZENE 0.88 J
 CHLORO BENZENE 2.4 J*
 METHYLENE CHLORIDE 1.6 J*

QF-RS02
 1,2,4-TRICHLORO BENZENE 3.7 J*
 1,2,4-TRIMETHYL BENZENE 97*
 1,2-DICHLORO BENZENE 42*
 1,3,5-TRIMETHYL BENZENE 38*
 1,3-DICHLORO BENZENE 6.2*
 1,4-DICHLORO BENZENE 32*
 BENZENE 1.5 J
 CHLORO BENZENE 3000 J*
 ETHYL BENZENE 6.9*
 TOLUENE 4.9*
 TOTAL XYLENES 44*

QF-RS05
 1,2,4-TRIMETHYL BENZENE 3.7 J*
 1,2-DICHLORO BENZENE 1.3 J
 1,3,5-TRIMETHYL BENZENE 1.3 J
 1,4-DICHLORO BENZENE 1.4 J
 CHLORO BENZENE 4 J*

QF-RS04
 1,2,4-TRICHLORO BENZENE 440 J*
 1,2,4-TRIMETHYL BENZENE 39000*
 1,2-DICHLORO BENZENE 7400 J*
 1,3,5-TRIMETHYL BENZENE 15000*
 1,3-DICHLORO BENZENE 530 J*
 1,4-DICHLORO BENZENE 6100 J*
 CHLORO BENZENE 25000*
 ETHYL BENZENE 1200 J*
 TOLUENE 660 J*
 TOTAL XYLENES 8100 J*

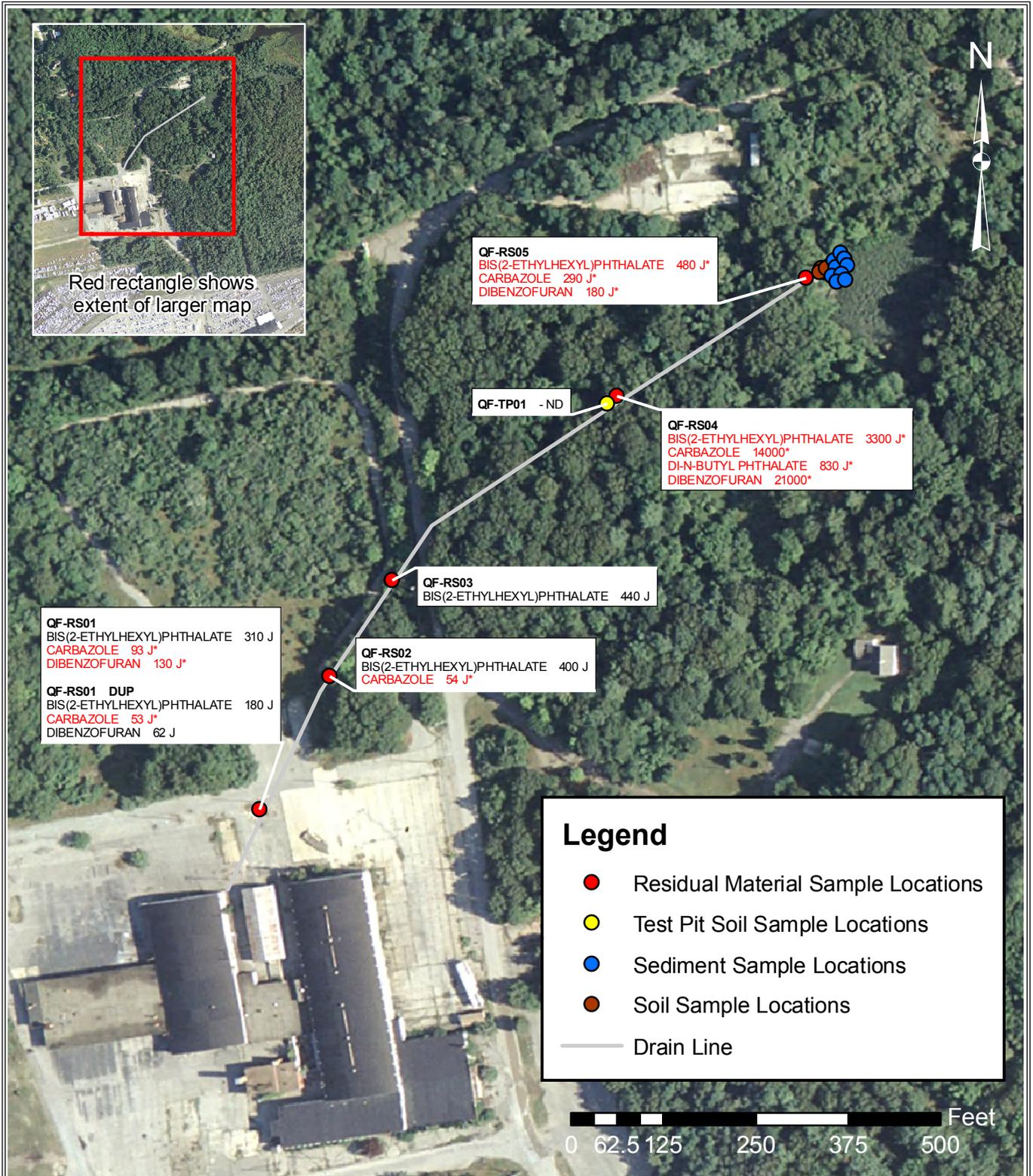
Legend

- Residual Material Sample Locations
- Test Pit Soil Sample Locations
- Sediment Sample Locations
- Soil Sample Locations
- Drain Line



RESIDUAL MATERIAL AND TEST PIT
 SOIL SAMPLE RESULTS - VOC (in µg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
G:\GIS_arc\PROJECTS\ CLEAN\Davisville\QDC_Outfall\ Catchment_VOC	
REV 0	DATE 3/14/2011
FIGURE NUMBER FIGURE 3-1	



TETRA TECH

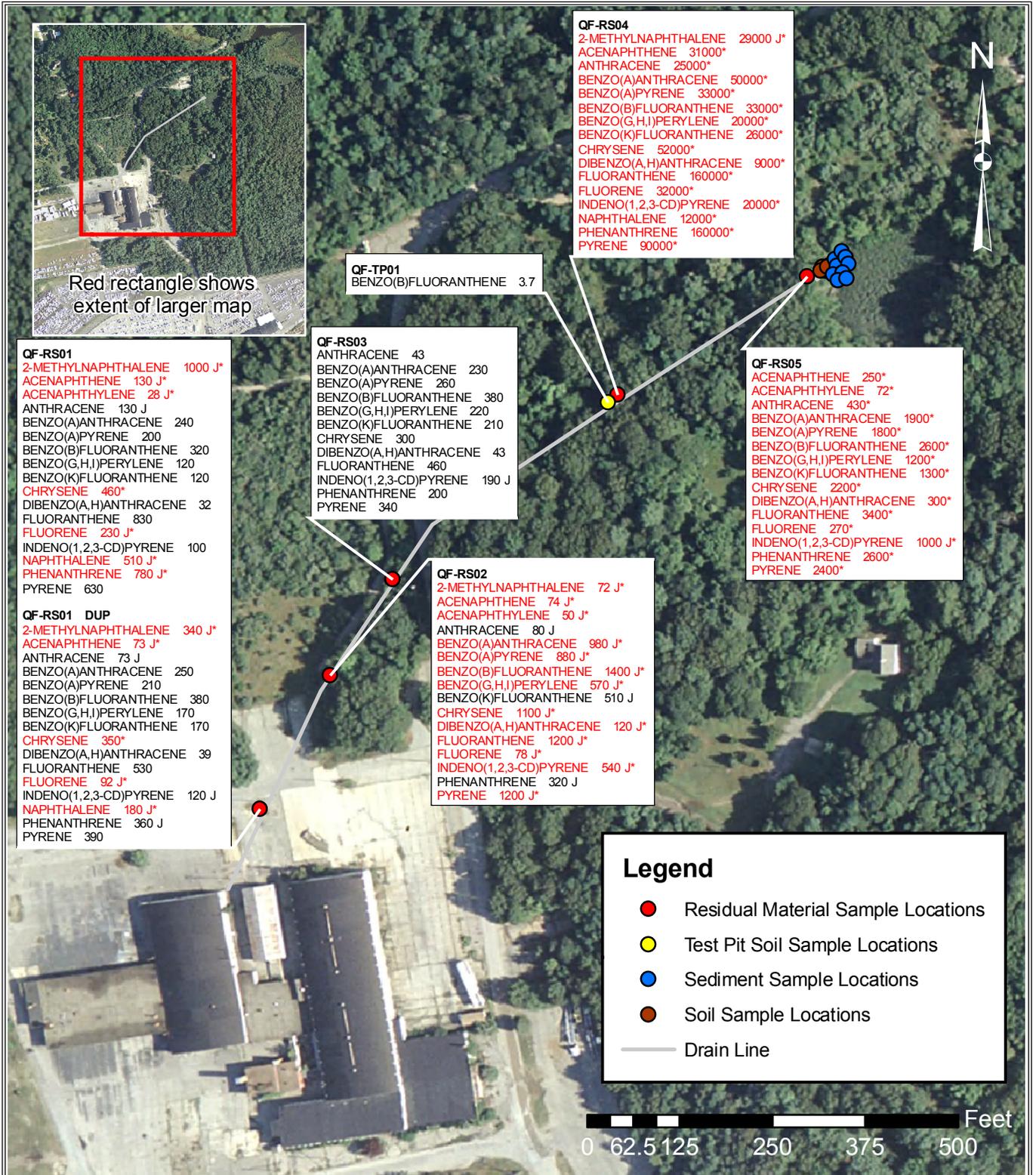
RESIDUAL MATERIAL AND TEST PIT
 SOIL SAMPLE RESULTS - SVOC (in µg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE
 As Shown

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 Catchment_SVOC

REV DATE
 0 3/14/2011

FIGURE NUMBER
 FIGURE 3-2



TETRA TECH

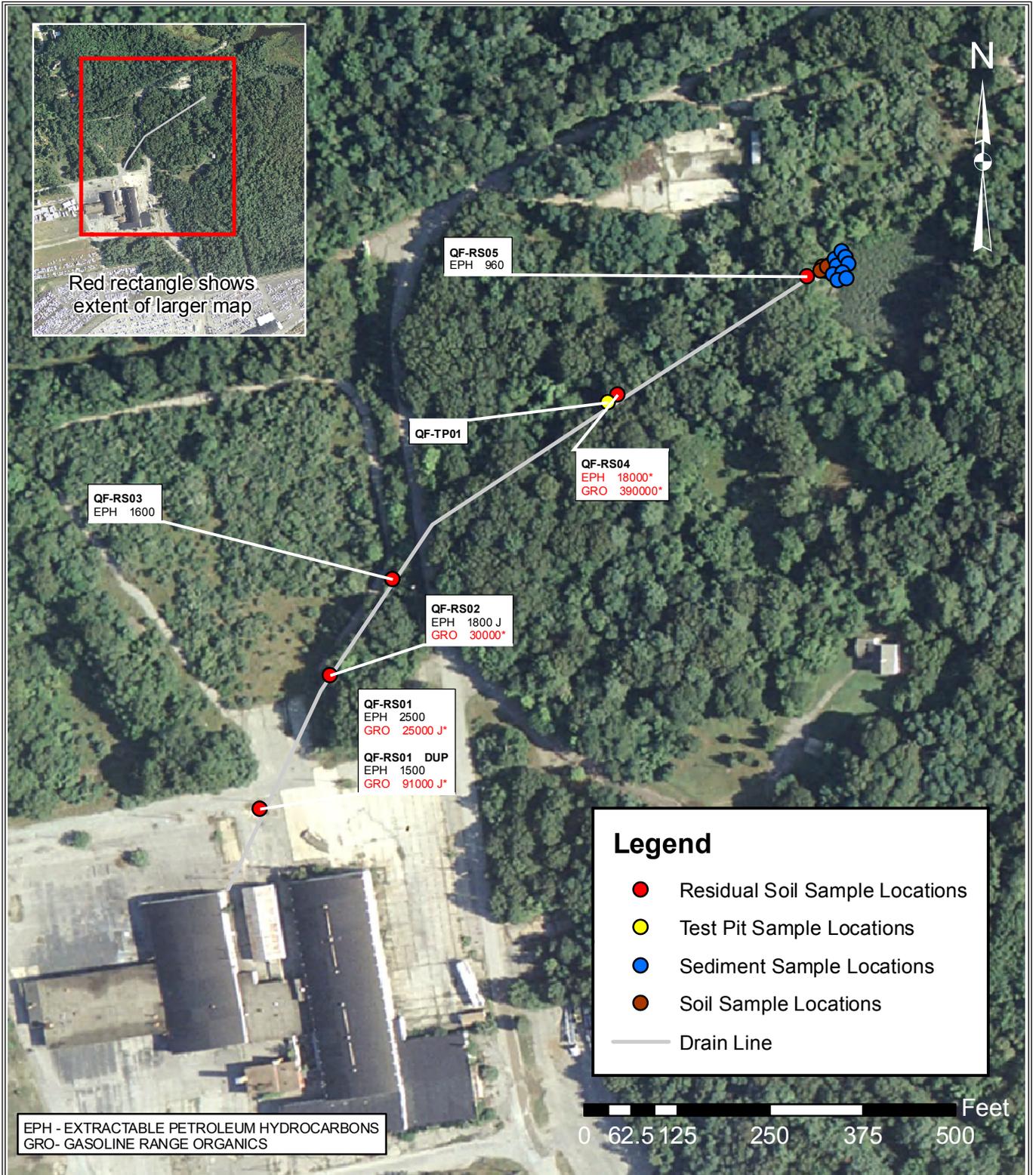
RESIDUAL MATERIAL AND TEST PIT
 SOIL SAMPLE RESULTS - PAH (in µg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE
 As Shown

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 CLEAN\Davisville\QDC_Outfall\
 Catchment_PAH

REV DATE
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FIGURE NUMBER
 FIGURE 3-3



TETRA TECH

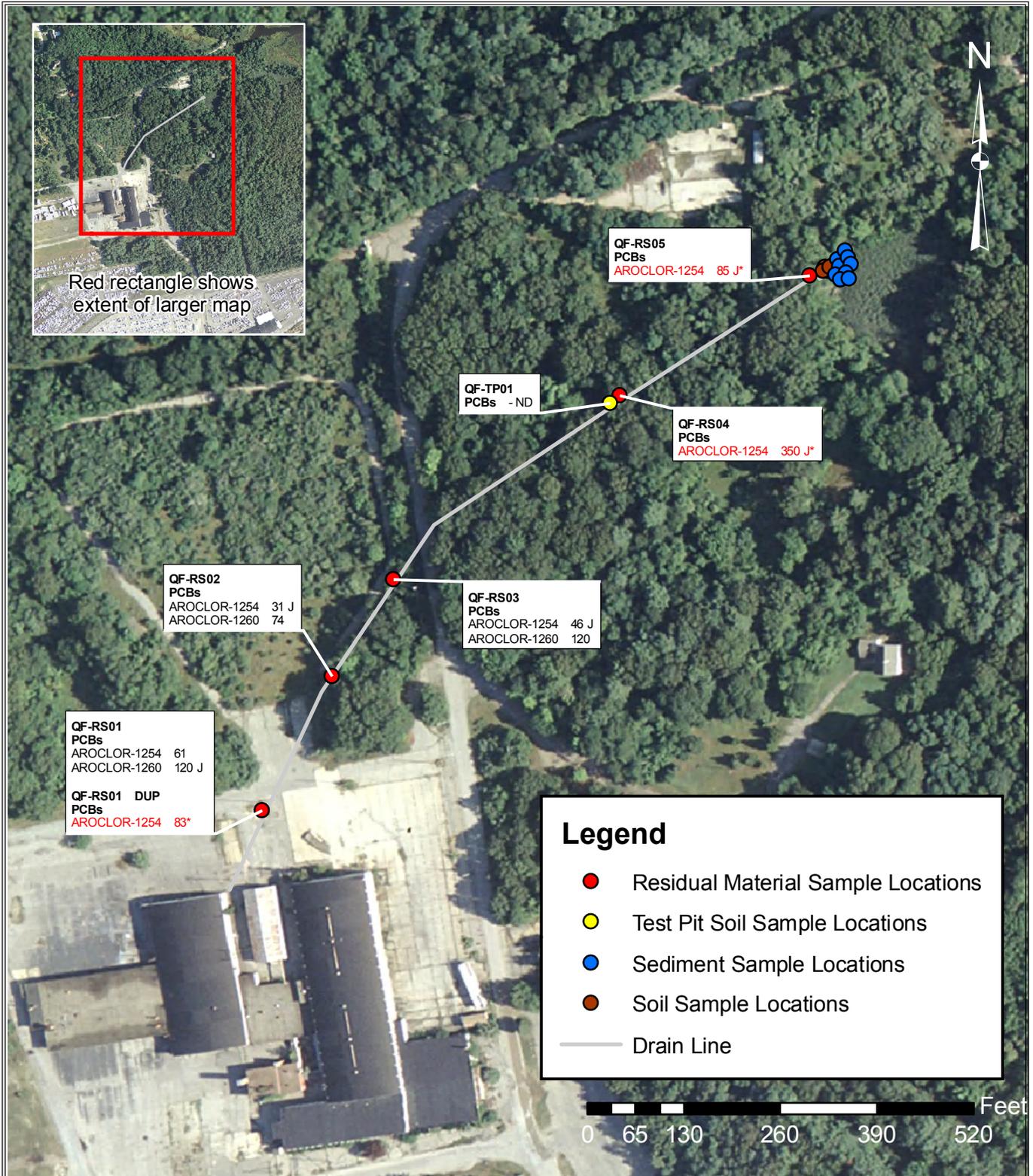
RESIDUAL MATERIAL AND TEST PIT
 SOIL SAMPLE RESULTS - EPH (in mg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE
 As Shown

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 Catchment_EPH1.mxd

REV 0 DATE 3/14/2011

FIGURE NUMBER
 FIGURE 3-4



TETRA TECH

RESIDUAL MATERIAL AND TEST PIT
 SOIL SAMPLE RESULTS - PCBs (in $\mu\text{g}/\text{Kg}$)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE
 As Shown

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 CLEAN\Davisville\QDC_Outfall\
 Catchment_PEST_PCB

REV DATE
 0 3/14/2011

FIGURE NUMBER
 FIGURE 3-5

Red rectangle shows extent of larger map

QF-RS01
 PCBs
 AROCLOR-1254 61
 AROCLOR-1260 120 J

QF-RS01 DUP
 PCBs
 AROCLOR-1254 83*

QF-RS02
 PCBs
 AROCLOR-1254 31 J
 AROCLOR-1260 74

QF-RS03
 PCBs
 AROCLOR-1254 46 J
 AROCLOR-1260 120

QF-TP01
 PCBs - ND

QF-RS04
 PCBs
 AROCLOR-1254 350 J*

QF-RS05
 PCBs
 AROCLOR-1254 85 J*



QF-RS01
 ALUMINUM 2990
 ANTIMONY 0.82 J
 ARSENIC 0.9
 BARIUM 24.1 J
 BERYLLIUM 0.55
 CADMIUM 0.95 J
 CALCIUM 3720 J*
 CHROMIUM 19.1 J
 COBALT 3.4 J
 COPPER 62.1 J
 IRON 10000 J
 LEAD 90.6 J
 MAGNESIUM 1150 J
 MANGANESE 106 J
 MERCURY 0.027 J
 NICKEL 20.6 J
 POTASSIUM 430 J
 SODIUM 78.3
 VANADIUM 12.6 J
 ZINC 354 J

QF-RS01 DUP
 ALUMINUM 3090
 ARSENIC 1.1
 BARIUM 30.1 J
 BERYLLIUM 0.25
 CADMIUM 1 J
 CALCIUM 9010 J*
 CHROMIUM 9.3 J
 COBALT 2 J
 COPPER 24.7 J
 IRON 8010 J
 LEAD 56.6 J
 MAGNESIUM 1170 J
 MANGANESE 97 J
 MERCURY 0.016 J
 NICKEL 6.3 J
 POTASSIUM 399 J
 SELENIUM 0.49 J
 SODIUM 70.9
 VANADIUM 6.1 J
 ZINC 211 J

QF-RS03
 ALUMINUM 4500
 ARSENIC 1.2
 BARIUM 47 J
 BERYLLIUM 0.56
 CADMIUM 1.1 J
 CALCIUM 1180 J
 CHROMIUM 33.3 J
 COBALT 3.4 J
 COPPER 117 J
 IRON 13000 J
 LEAD 224 J
 MAGNESIUM 1570 J
 MANGANESE 122 J*
 MERCURY 0.14 J*
 NICKEL 32.6 J*
 POTASSIUM 603 J
 SODIUM 105
 VANADIUM 9.7 J
 ZINC 608 J*

QF-RS02
 ALUMINUM 4570
 ANTIMONY 6.1 J*
 ARSENIC 1.8
 BARIUM 106 J*
 BERYLLIUM 1.1*
 CADMIUM 3.8 J*
 CALCIUM 4090 J*
 CHROMIUM 154 J*
 COBALT 3.8 J
 COPPER 432 J*
 IRON 103000 J*
 LEAD 774 J*
 MAGNESIUM 2150 J*
 MANGANESE 510 J*
 MERCURY 0.12 J*
 NICKEL 214 J*
 POTASSIUM 1140 J*
 SODIUM 296 J*
 VANADIUM 12 J
 ZINC 1210 J*

QF-RS04
 ALUMINUM 4710
 ARSENIC 1.9
 BARIUM 161 J*
 BERYLLIUM 0.43
 CADMIUM 2.1 J*
 CALCIUM 5490 J*
 CHROMIUM 27.3 J
 COBALT 3 J
 COPPER 200 J*
 IRON 13100 J
 LEAD 325 J*
 MAGNESIUM 1420 J
 MANGANESE 138 J*
 MERCURY 0.13 J*
 NICKEL 14.8 J
 POTASSIUM 842 J*
 SODIUM 181*
 VANADIUM 11.5 J
 ZINC 229 J

QF-TP01
 ALUMINUM 4260
 ANTIMONY 0.55 J
 ARSENIC 2*
 BARIUM 7.5 J
 BERYLLIUM 0.34
 CALCIUM 251 J
 CHROMIUM 5.3 J*
 COBALT 2.6*
 COPPER 11.4 J
 IRON 10100*
 LEAD 6.4
 MAGNESIUM 1500
 MANGANESE 90.8
 MERCURY 0.0053 J
 NICKEL 6.7
 POTASSIUM 307
 SODIUM 15.5 J
 VANADIUM 8.2
 ZINC 17.2 J

QF-RS05
 ALUMINUM 4490
 ARSENIC 1.9
 BARIUM 47.9 J
 BERYLLIUM 0.4
 CADMIUM 1.4 J
 CALCIUM 1370 J*
 CHROMIUM 13.9 J
 COBALT 3.8 J
 COPPER 69.8 J
 IRON 11400 J
 LEAD 302 J*
 MAGNESIUM 1470 J
 MANGANESE 128 J*
 MERCURY 0.24 J*
 NICKEL 11 J
 POTASSIUM 535 J
 SODIUM 48.2 J
 VANADIUM 9 J
 ZINC 502 J*

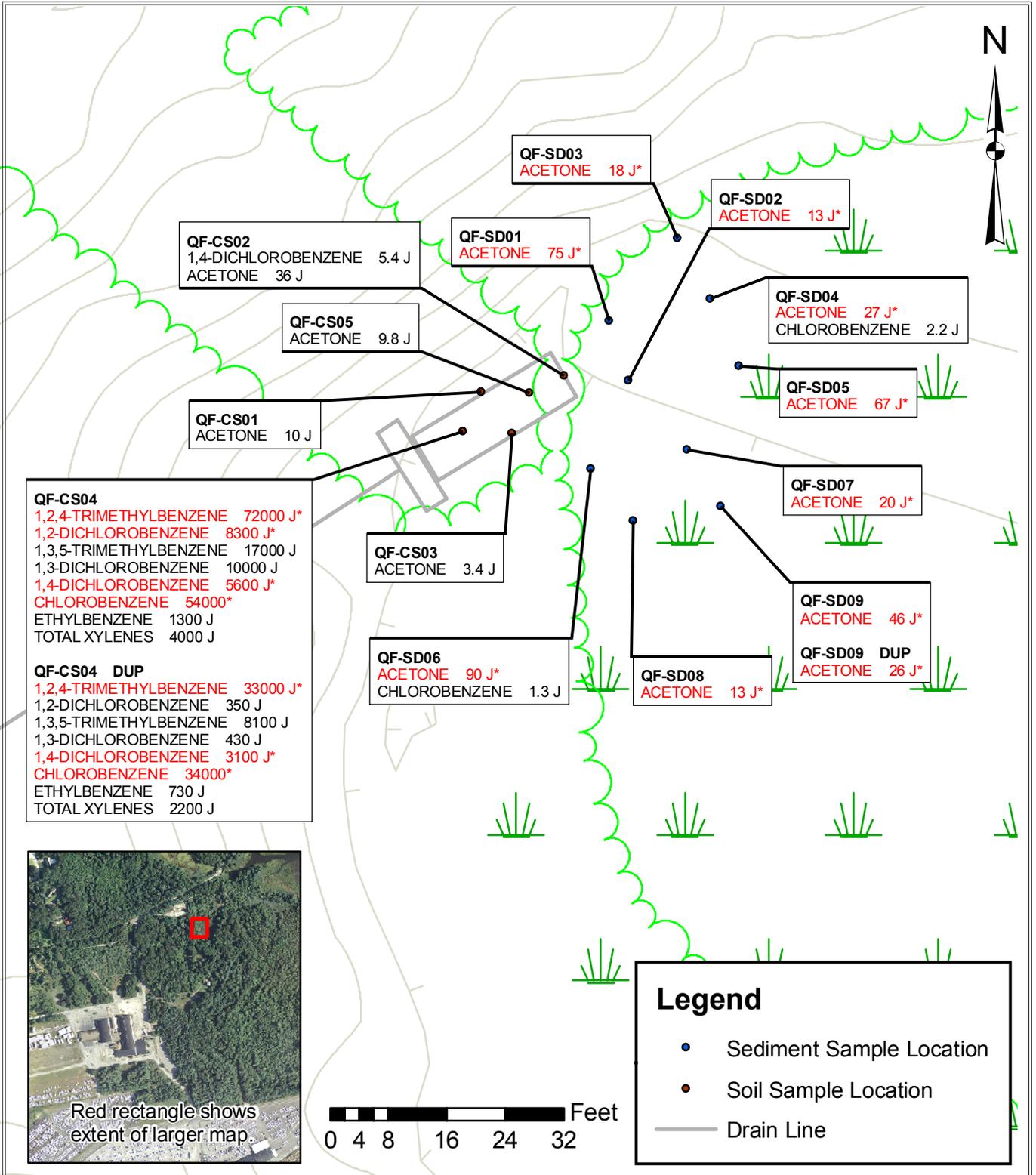
Legend

- Residual Soil Sample Locations
- Test Pit Sample Locations
- Sediment Sample Locations
- Soil Sample Locations
- Drain Line



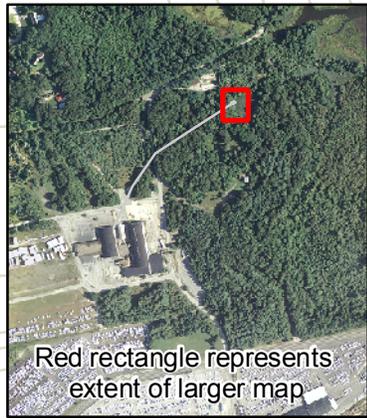
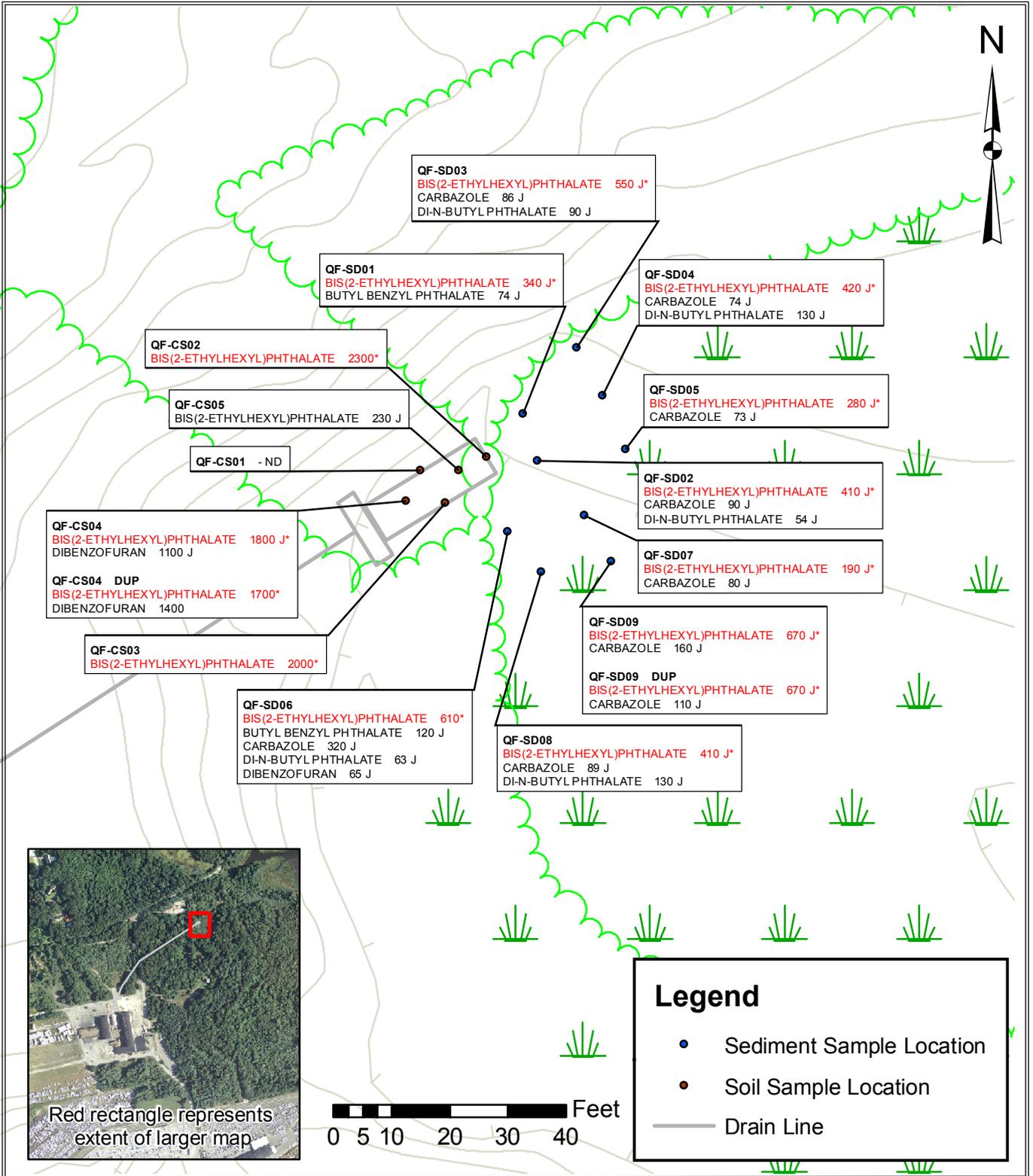
RESIDUAL MATERIAL AND TEST PIT
 SOIL SAMPLE RESULTS - METALS (in mg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
G:\GIS_arc\PROJECTS\ CLEAN\Davisville\QDC_Outfall\ Catchment_Metal.mxd	
REV 0	DATE 3/14/2011
FIGURE NUMBER FIGURE 3-6	



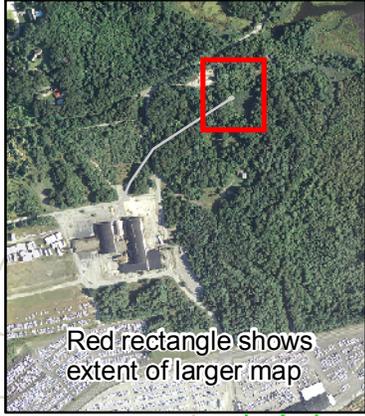
SOIL AND SEDIMENT SAMPLE RESULTS - VOC (in µg/Kg)
QDC OUTFALL 001
FORMER NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
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REV 0	DATE 3/11/2011
FIGURE NUMBER FIGURE 3-7	



SOIL AND SEDIMENT SAMPLE RESULTS - SVOC (in µg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
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REV 0	DATE 3/14/2011
FIGURE NUMBER FIGURE 3-8	



QF-CS01

BENZO(A)ANTHRACENE	5.5
BENZO(A)PYRENE	6.1
BENZO(B)FLUORANTHENE	11
BENZO(G,H,I)PERYLENE	6.4
BENZO(K)FLUORANTHENE	5
CHRYSENE	8.2
FLUORANTHENE	9
INDENO(1,2,3-CD)PYRENE	5.6
PHENANTHRENE	3.6
PYRENE	7.2

QF-CS05

ANTHRACENE	200
BENZO(A)ANTHRACENE	310 J*
BENZO(A)PYRENE	360 J*
BENZO(B)FLUORANTHENE	520*
BENZO(G,H,I)PERYLENE	210 J
BENZO(K)FLUORANTHENE	430 J
CHRYSENE	820
DIBENZO(A,H)ANTHRACENE	56 J*
FLUORANTHENE	1400
FLUORENE	150 J
INDENO(1,2,3-CD)PYRENE	190 J*
PHENANTHRENE	550
PYRENE	1700*

QF-CS04

2-METHYLNAPHTHALENE	2400 J
ACENAPHTHENE	1500 J
ACENAPHTHYLENE	59 J
ANTHRACENE	430 J
BENZO(A)ANTHRACENE	9600 J*
BENZO(A)PYRENE	6500 J*
BENZO(B)FLUORANTHENE	14000 J*
BENZO(G,H,I)PERYLENE	3600 J*
BENZO(K)FLUORANTHENE	2400 J*
CHRYSENE	460 J
DIBENZO(A,H)ANTHRACENE	240 J*
FLUORANTHENE	20000 J
FLUORENE	1800 J
INDENO(1,2,3-CD)PYRENE	3700 J*
NAPHTHALENE	280 J
PHENANTHRENE	5500 J
PYRENE	22000 J*

QF-CS04 DUP

2-METHYLNAPHTHALENE	4000
ACENAPHTHENE	1800
ACENAPHTHYLENE	58 J
ANTHRACENE	380 J
BENZO(A)ANTHRACENE	360 J*
BENZO(A)PYRENE	5700*
BENZO(B)FLUORANTHENE	23000 J*
BENZO(G,H,I)PERYLENE	2900*
BENZO(K)FLUORANTHENE	5100 J*
CHRYSENE	300 J
DIBENZO(A,H)ANTHRACENE	1400 J*
FLUORANTHENE	36000 J*
FLUORENE	1400
INDENO(1,2,3-CD)PYRENE	2800*
NAPHTHALENE	690 J
PHENANTHRENE	4700
PYRENE	38000 J*

QF-CS03

BENZO(A)ANTHRACENE	150 J
BENZO(A)PYRENE	210 J*
BENZO(B)FLUORANTHENE	310 J*
BENZO(G,H,I)PERYLENE	97 J
BENZO(K)FLUORANTHENE	250 J
CHRYSENE	380
DIBENZO(A,H)ANTHRACENE	28 J*
FLUORANTHENE	680
INDENO(1,2,3-CD)PYRENE	87 J
PYRENE	1500*

QF-CS02

BENZO(A)ANTHRACENE	330 J*
BENZO(A)PYRENE	600*
BENZO(B)FLUORANTHENE	670*
BENZO(G,H,I)PERYLENE	200 J
BENZO(K)FLUORANTHENE	500
CHRYSENE	290 J
DIBENZO(A,H)ANTHRACENE	56 J*
FLUORANTHENE	730
INDENO(1,2,3-CD)PYRENE	180 J*
PYRENE	1500*

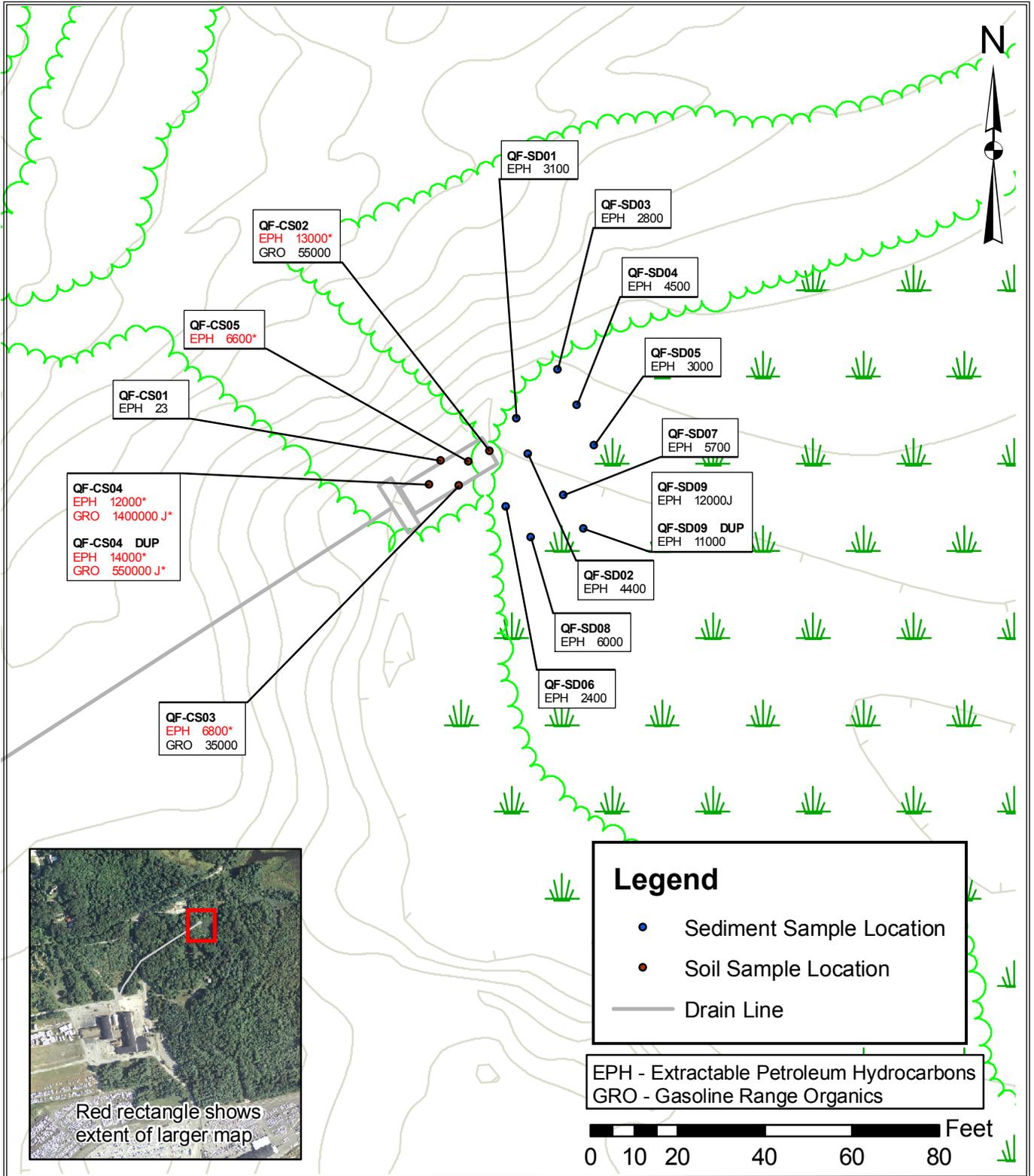
Legend

- Sediment Sample Location
- Soil Sample Location
- Drain Line



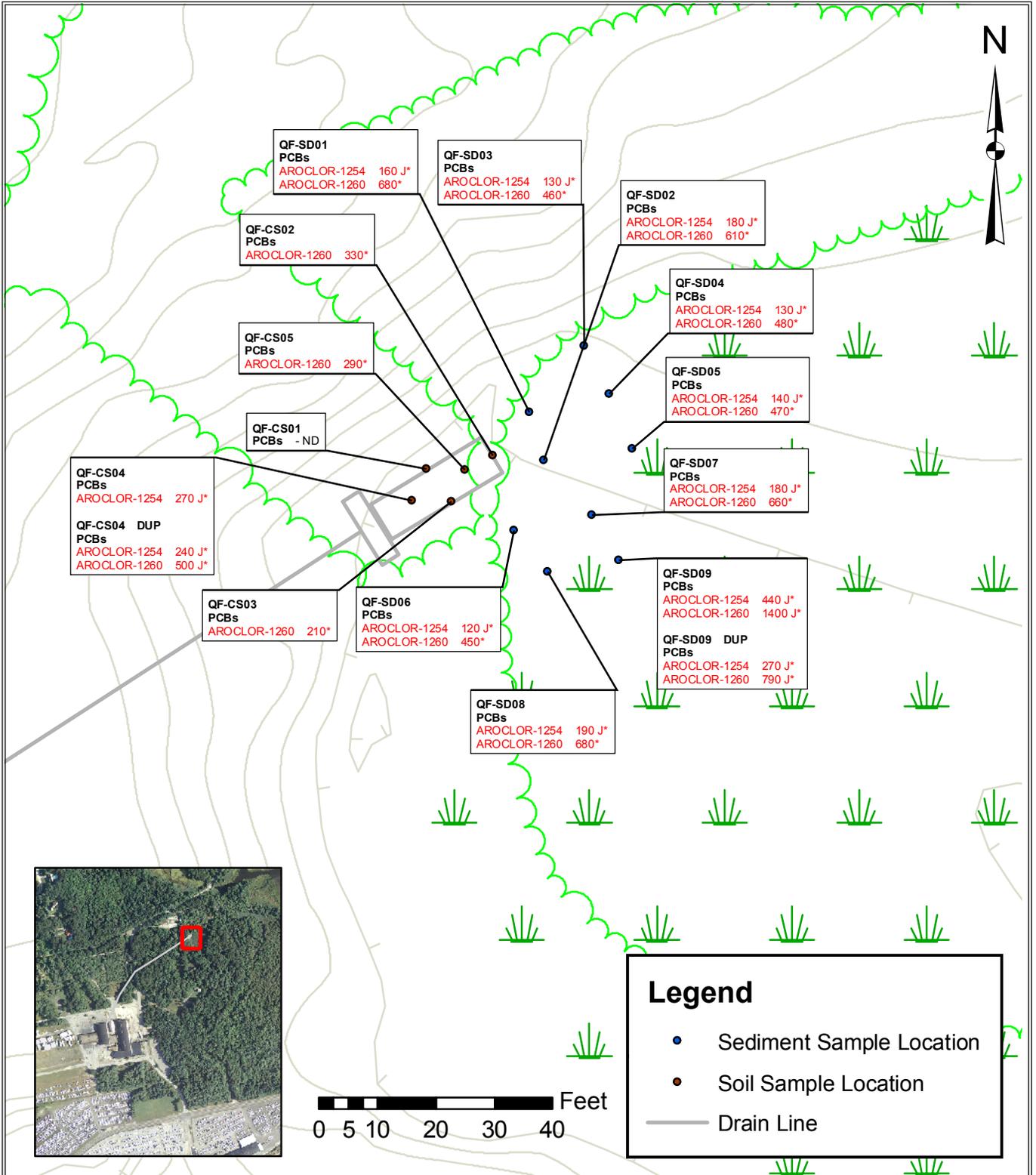
SOIL SAMPLE RESULTS - PAH (in µg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
G:\GIS_arcv\PROJECTS\ CLEAN\Davisville\QDC_Outfall\ Wet_Land_PAH_Soils.mxd	
REV 0	DATE 3/14/2011
FIGURE NUMBER FIGURE 3-9	



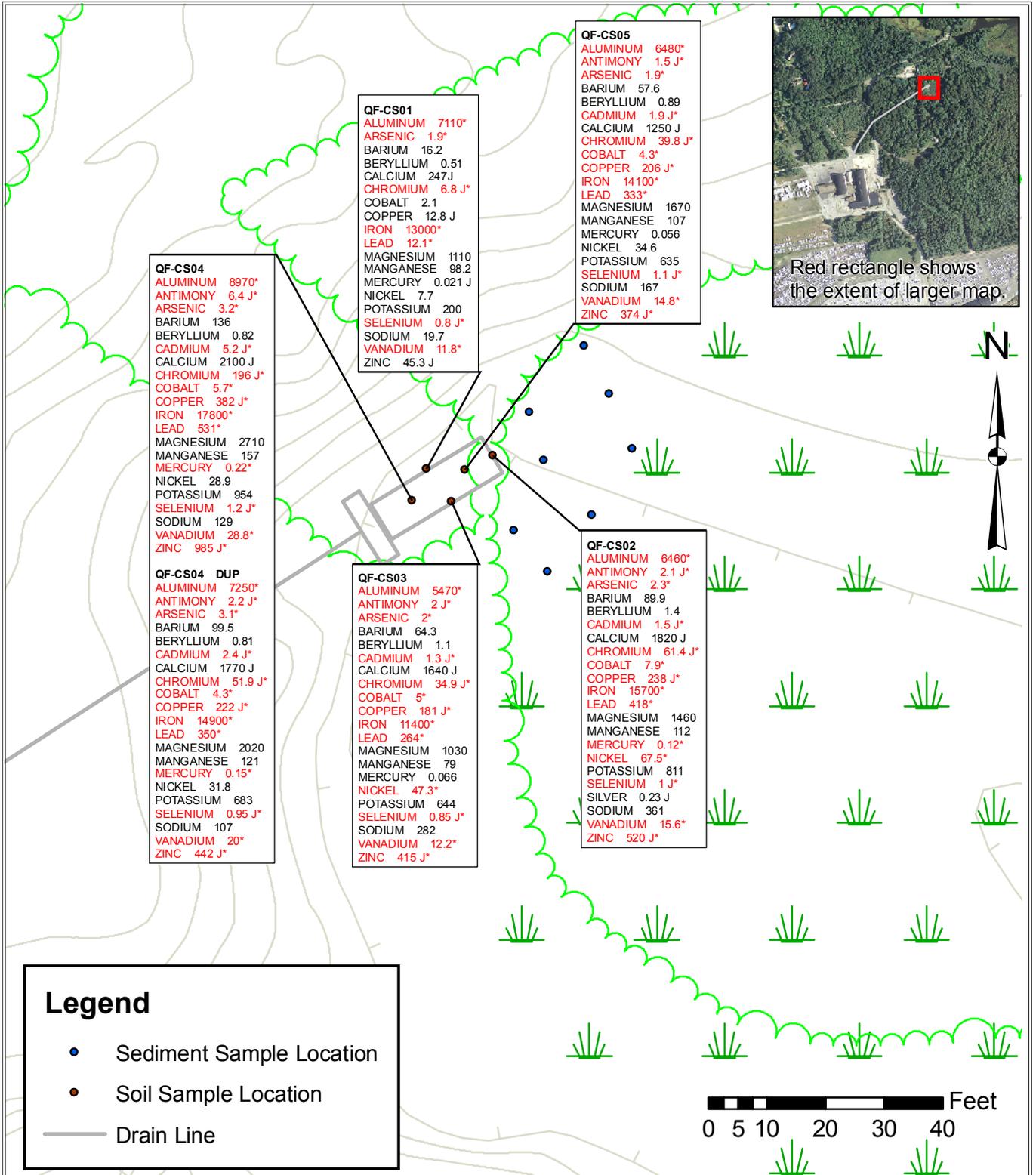
SOIL AND SEDIMENT SAMPLE RESULTS - EPH (in mg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
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REV 0	DATE 3/14/2011
FIGURE NUMBER FIGURE 3-10	



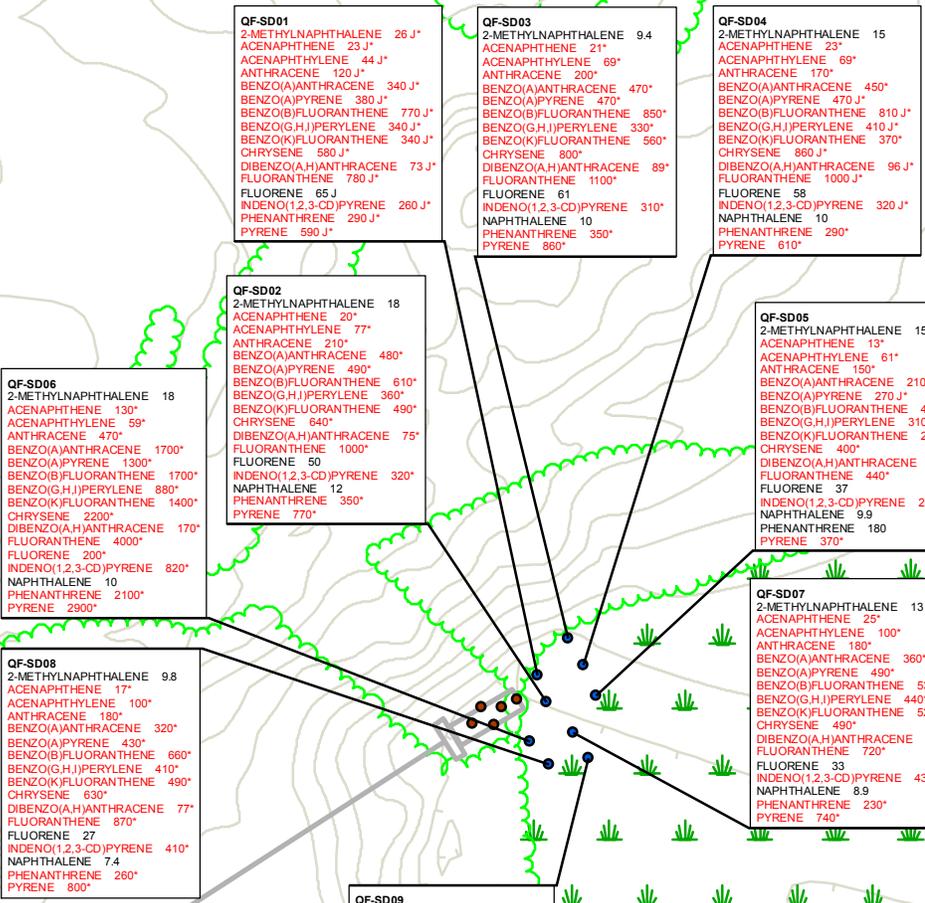
SOIL AND SEDIMENT SAMPLE RESULTS - PCBs (in µg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
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REV 0	DATE 3/14/2011
FIGURE NUMBER FIGURE 3-11	



SOIL SAMPLE RESULTS - METALS (in mg/Kg)
QDC OUTFALL 001
FORMER NCBC DAVISVILLE
NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
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REV 0	DATE 3/14/11
FIGURE NUMBER FIGURE 3-12	



QF-SD06
 2-METHYLNAPHTHALENE 18
 ACENAPHTHENE 130°
 ACENAPHTHYLENE 59°
 ANTHRACENE 470°
 BENZO(A)ANTHRACENE 1700°
 BENZO(A)PYRENE 1300°
 BENZO(B)FLUORANTHENE 1700°
 BENZO(G,H,I)PERYLENE 880°
 BENZO(K)FLUORANTHENE 1400°
 CHRYSENE 2200°
 DIBENZO(A,H)ANTHRACENE 170°
 FLUORANTHENE 4000°
 FLUORENE 200°
 INDENO(1,2,3-CD)PYRENE 820°
 NAPHTHALENE 10
 PHENANTHRENE 2100°
 PYRENE 2900°

QF-SD08
 2-METHYLNAPHTHALENE 9.8
 ACENAPHTHENE 17°
 ACENAPHTHYLENE 100°
 ANTHRACENE 180°
 BENZO(A)ANTHRACENE 320°
 BENZO(A)PYRENE 430°
 BENZO(B)FLUORANTHENE 660°
 BENZO(G,H,I)PERYLENE 410°
 BENZO(K)FLUORANTHENE 490°
 CHRYSENE 630°
 DIBENZO(A,H)ANTHRACENE 77°
 FLUORANTHENE 870°
 FLUORENE 27°
 INDENO(1,2,3-CD)PYRENE 410°
 NAPHTHALENE 7.4
 PHENANTHRENE 260°
 PYRENE 800°

QF-SD01
 2-METHYLNAPHTHALENE 26 J°
 ACENAPHTHENE 23 J°
 ACENAPHTHYLENE 44 J°
 ANTHRACENE 120 J°
 BENZO(A)ANTHRACENE 340 J°
 BENZO(A)PYRENE 380 J°
 BENZO(B)FLUORANTHENE 770 J°
 BENZO(G,H,I)PERYLENE 340 J°
 BENZO(K)FLUORANTHENE 340 J°
 CHRYSENE 580 J°
 DIBENZO(A,H)ANTHRACENE 73 J°
 FLUORANTHENE 780 J°
 FLUORENE 65 J°
 INDENO(1,2,3-CD)PYRENE 260 J°
 PHENANTHRENE 290 J°
 PYRENE 590 J°

QF-SD03
 2-METHYLNAPHTHALENE 9.4
 ACENAPHTHENE 21°
 ACENAPHTHYLENE 69°
 ANTHRACENE 200°
 BENZO(A)ANTHRACENE 470°
 BENZO(A)PYRENE 470°
 BENZO(B)FLUORANTHENE 850°
 BENZO(G,H,I)PERYLENE 330°
 BENZO(K)FLUORANTHENE 560°
 CHRYSENE 800°
 DIBENZO(A,H)ANTHRACENE 89°
 FLUORANTHENE 1100°
 FLUORENE 61°
 INDENO(1,2,3-CD)PYRENE 310°
 NAPHTHALENE 10
 PHENANTHRENE 350°
 PYRENE 860°

QF-SD04
 2-METHYLNAPHTHALENE 15
 ACENAPHTHENE 23°
 ACENAPHTHYLENE 69°
 ANTHRACENE 170°
 BENZO(A)ANTHRACENE 450°
 BENZO(A)PYRENE 470 J°
 BENZO(B)FLUORANTHENE 810 J°
 BENZO(G,H,I)PERYLENE 410 J°
 BENZO(K)FLUORANTHENE 370°
 CHRYSENE 860 J°
 DIBENZO(A,H)ANTHRACENE 96 J°
 FLUORANTHENE 1000 J°
 FLUORENE 58
 INDENO(1,2,3-CD)PYRENE 320 J°
 NAPHTHALENE 10
 PHENANTHRENE 290°
 PYRENE 610°

QF-SD02
 2-METHYLNAPHTHALENE 18
 ACENAPHTHENE 20°
 ACENAPHTHYLENE 77°
 ANTHRACENE 210°
 BENZO(A)ANTHRACENE 480°
 BENZO(A)PYRENE 490°
 BENZO(B)FLUORANTHENE 610°
 BENZO(G,H,I)PERYLENE 360°
 BENZO(K)FLUORANTHENE 490°
 CHRYSENE 640°
 DIBENZO(A,H)ANTHRACENE 75°
 FLUORANTHENE 1000°
 FLUORENE 50
 INDENO(1,2,3-CD)PYRENE 320°
 NAPHTHALENE 12
 PHENANTHRENE 350°
 PYRENE 770°

QF-SD05
 2-METHYLNAPHTHALENE 15
 ACENAPHTHENE 13°
 ACENAPHTHYLENE 61°
 ANTHRACENE 150°
 BENZO(A)ANTHRACENE 210 J°
 BENZO(A)PYRENE 270 J°
 BENZO(B)FLUORANTHENE 470 J°
 BENZO(G,H,I)PERYLENE 310 J°
 BENZO(K)FLUORANTHENE 260 J°
 CHRYSENE 400°
 DIBENZO(A,H)ANTHRACENE 54 J°
 FLUORANTHENE 440°
 FLUORENE 37
 INDENO(1,2,3-CD)PYRENE 230 J°
 NAPHTHALENE 9.9
 PHENANTHRENE 180
 PYRENE 370°

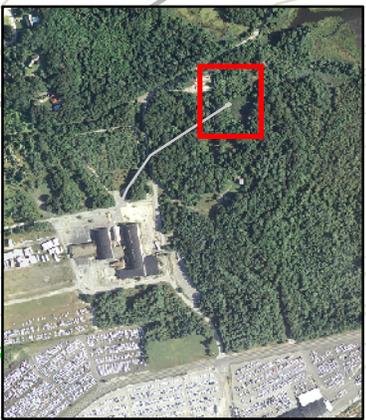
QF-SD07
 2-METHYLNAPHTHALENE 13
 ACENAPHTHENE 25°
 ACENAPHTHYLENE 100°
 ANTHRACENE 180°
 BENZO(A)ANTHRACENE 360°
 BENZO(A)PYRENE 490°
 BENZO(B)FLUORANTHENE 530°
 BENZO(G,H,I)PERYLENE 440°
 BENZO(K)FLUORANTHENE 520 J°
 CHRYSENE 490°
 DIBENZO(A,H)ANTHRACENE 90°
 FLUORANTHENE 720°
 FLUORENE 33
 INDENO(1,2,3-CD)PYRENE 430°
 NAPHTHALENE 8.9
 PHENANTHRENE 230°
 PYRENE 740°

QF-SD09
 2-METHYLNAPHTHALENE 17
 ACENAPHTHENE 35°
 ACENAPHTHYLENE 200°
 ANTHRACENE 280°
 BENZO(A)ANTHRACENE 450°
 BENZO(A)PYRENE 780°
 BENZO(B)FLUORANTHENE 970°
 BENZO(G,H,I)PERYLENE 560°
 BENZO(K)FLUORANTHENE 830°
 CHRYSENE 810°
 DIBENZO(A,H)ANTHRACENE 140°
 FLUORANTHENE 900°
 FLUORENE 61°
 INDENO(1,2,3-CD)PYRENE 420°
 NAPHTHALENE 12
 PHENANTHRENE 400 J°
 PYRENE 1400 J°

QF-SD09 DUP
 2-METHYLNAPHTHALENE 14
 ACENAPHTHENE 21°
 ACENAPHTHYLENE 150°
 ANTHRACENE 210°
 BENZO(A)ANTHRACENE 270°
 BENZO(A)PYRENE 480°
 BENZO(B)FLUORANTHENE 750°
 BENZO(G,H,I)PERYLENE 370°
 BENZO(K)FLUORANTHENE 560°
 CHRYSENE 730 J°
 DIBENZO(A,H)ANTHRACENE 99°
 FLUORANTHENE 590°
 FLUORENE 28 J°
 INDENO(1,2,3-CD)PYRENE 300°
 NAPHTHALENE 13
 PHENANTHRENE 230 J°
 PYRENE 720 J°

Legend

- Sediment Sample Location
- Soil Sample Location
- Drain Line



SEDIMENT SAMPLE RESULTS - PAH (in µg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
G:\GIS_arcv\PROJECTS\CLEAN\Davisville\QDC_Outfall\Wet_Land_PAH_Sed	
REV 0	DATE 3/14/2011
FIGURE NUMBER FIGURE 3-13	



Red rectangle shows the extent of larger map.

QF-SD01

ALUMINUM	10300
ANTIMONY	2.7 J*
ARSENIC	1.9
BARIIUM	109*
BERYLLIUM	0.98
CADMIUM	6.6*
CALCIUM	1700
CHROMIUM	65.3*
COBALT	4.7
COPPER	224*
IRON	16000
LEAD	646*
MAGNESIUM	2530
MANGANESE	142
MERCURY	0.33*
NICKEL	20.9
POTASSIUM	906
SELENIUM	1.8 J
SODIUM	116
VANADIUM	28.9
ZINC	662*

QF-SD03

ALUMINUM	10300
ANTIMONY	1.9 J
ARSENIC	2.7
BARIIUM	75.8*
BERYLLIUM	0.9
CADMIUM	4.3*
CALCIUM	1360
CHROMIUM	51.4*
COBALT	4.2
COPPER	140*
IRON	16300
LEAD	435*
MAGNESIUM	2570
MANGANESE	131
MERCURY	0.28*
NICKEL	16.7
POTASSIUM	849
SELENIUM	1.3 J
SODIUM	8904
VANADIUM	28.2
ZINC	430*

QF-SD04

ALUMINUM	15100
ANTIMONY	2.9 J*
ARSENIC	3
BARIIUM	
BERYLLIUM	1.3
LEAD	140*
CADMIUM	10.5*
CALCIUM	1650
CHROMIUM	83.3*
COBALT	6.3
COPPER	219*
IRON	22600*
LEAD	622*
MAGNESIUM	3510
MANGANESE	182
MERCURY	0.29*
NICKEL	26.6*
POTASSIUM	1150
SELENIUM	1.5 J
SILVER	0.37 J
VANADIUM	39.4
SODIUM	141
ZINC	624*

QF-SD05

ALUMINUM	8650
ANTIMONY	1.8 J
ARSENIC	2
BARIIUM	105*
BERYLLIUM	0.79
CADMIUM	9.9*
CALCIUM	1300
CHROMIUM	63.3*
COBALT	4.1
COPPER	170*
IRON	17000
LEAD	460*
MAGNESIUM	2230
MANGANESE	139
MERCURY	0.15
NICKEL	22.7
POTASSIUM	621
SELENIUM	0.97 J
SODIUM	122
VANADIUM	25.1
ZINC	484*

QF-SD02

ALUMINUM	10200
ANTIMONY	2.6 J*
ARSENIC	4.4
BARIIUM	105*
BERYLLIUM	0.98
CADMIUM	9.2*
CALCIUM	1440
CHROMIUM	72.5*
COBALT	4.8
COPPER	175*
IRON	19100
LEAD	534*
MAGNESIUM	2510
MANGANESE	157
MERCURY	0.22*
NICKEL	22.9*
POTASSIUM	917
SELENIUM	1.3 J
SODIUM	125
VANADIUM	29.1
ZINC	597*

QF-SD06

ALUMINUM	8410
ANTIMONY	2.3 J*
ARSENIC	1.9
BARIIUM	87.9*
BERYLLIUM	0.94
CADMIUM	4.5*
CALCIUM	1420
CHROMIUM	55*
COBALT	3.6
COPPER	155*
IRON	17600
LEAD	424*
MAGNESIUM	2040
MANGANESE	134
MERCURY	0.24*
NICKEL	22.2
POTASSIUM	922
SELENIUM	1.2 J
SODIUM	138
VANADIUM	23.6
ZINC	509*

QF-SD08

ALUMINUM	10400
ANTIMONY	3.4 J*
ARSENIC	3.2
BARIIUM	126*
BERYLLIUM	1
CADMIUM	11.8*
CALCIUM	1450
CHROMIUM	96.3*
COBALT	4.9
COPPER	231*
IRON	21700*
LEAD	599*
MAGNESIUM	2430
MANGANESE	125
MERCURY	0.25*
NICKEL	28.7*
POTASSIUM	893
SELENIUM	1.3 J
SODIUM	130
VANADIUM	28.7
ZINC	499*

QF-SD09

ALUMINUM	17500
ANTIMONY	2.7 J*
ARSENIC	1.9
BARIIUM	112*
BERYLLIUM	1.4
CADMIUM	13*
CALCIUM	1630
CHROMIUM	64.6*
COBALT	5.7
COPPER	167*
IRON	19600
LEAD	453*
MAGNESIUM	3830
MANGANESE	186
MERCURY	0.18
NICKEL	29.8*
POTASSIUM	1200
SELENIUM	1.4 J
SODIUM	136
VANADIUM	36.2
ZINC	660*

QF-SD09 DUP

ALUMINUM	11100
ANTIMONY	2.2 J*
ARSENIC	2.1
BARIIUM	102*
BERYLLIUM	0.97
CADMIUM	13.9*
CALCIUM	1260
CHROMIUM	55.3*
COBALT	4.4
COPPER	154*
IRON	13300
LEAD	386*
MAGNESIUM	2480
MANGANESE	126
MERCURY	0.22*
NICKEL	22.4
POTASSIUM	837
SELENIUM	1.3 J
SILVER	0.27 J
SODIUM	140
VANADIUM	25.5
ZINC	499*

QF-SD07

ALUMINUM	12600
ANTIMONY	2.9 J*
ARSENIC	3.8
BARIIUM	102*
BERYLLIUM	1.1
CADMIUM	8.7*
CALCIUM	1280
CHROMIUM	77.3*
COBALT	5.2
COPPER	201*
IRON	19900
LEAD	545*
MAGNESIUM	2800
MANGANESE	153
MERCURY	0.21*
NICKEL	23*
POTASSIUM	1140
SELENIUM	1.4 J
SODIUM	107
VANADIUM	32.2
ZINC	512*



Legend

- Sediment Sample Location
- Soil Sample Location
- Drain Line



SEDIMENT SAMPLE RESULTS - METALS (in mg/Kg)
 QDC OUTFALL 001
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND

SCALE As Shown	
G:\GIS_arc\PROJECTS\CLEAN\Davisville\QDC_Outfall\Wet_Land_Metals_Sed.mxd	
REV 0	DATE 3/14/2011
FIGURE NUMBER FIGURE 3-14	

REFERENCES

REFERENCES

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APPENDIX A
PIPE INSPECTION NOTES

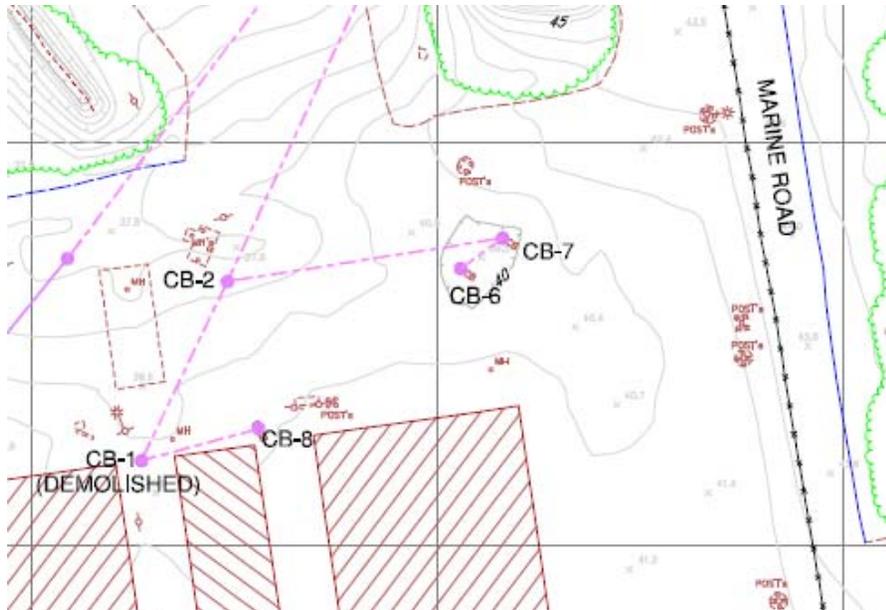
APPENDIX A-1
CATCH BASIN RECONNAISSANCE LOGS



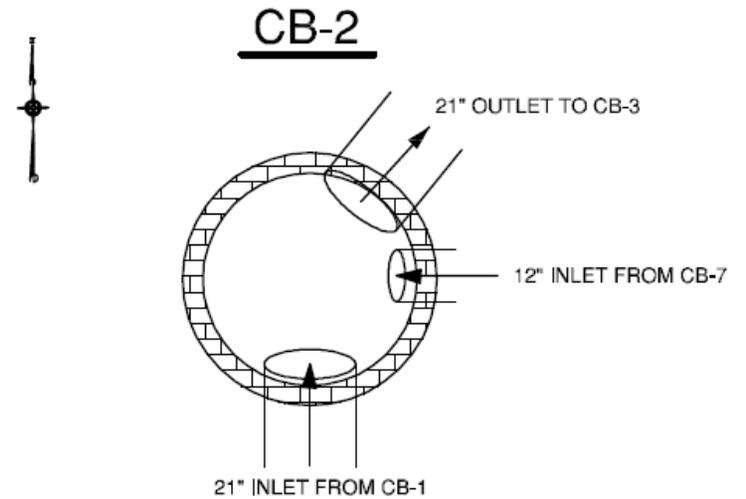
Date: 10/26/10 Picture No. A-1 Location: QDC Outfall 001
 Comment: Catch basin CB-2 (facing north)



Date: 10/26/10 Picture No. A-2 Location: QDC Outfall 001
 Comment: Catch Basin CB-2



Date: 10/26/10 Picture No. A-3 Location: QDC Outfall 001
 Comment: Catch Basin CB-2 LOCATION ON SITE PLAN

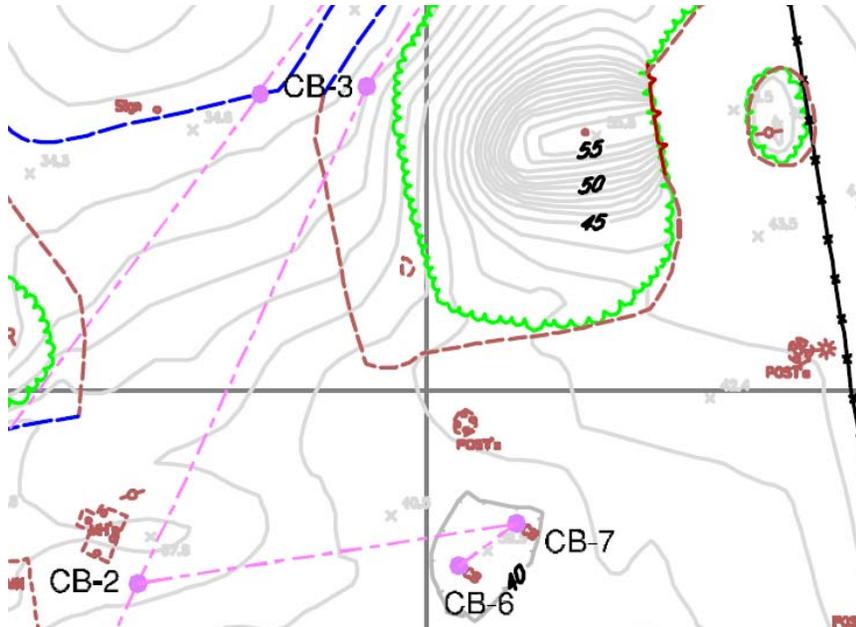


Date: 10/26/10 Picture No. A-4 Location: QDC Outfall 001
 Comment: CB-2 - DETAIL

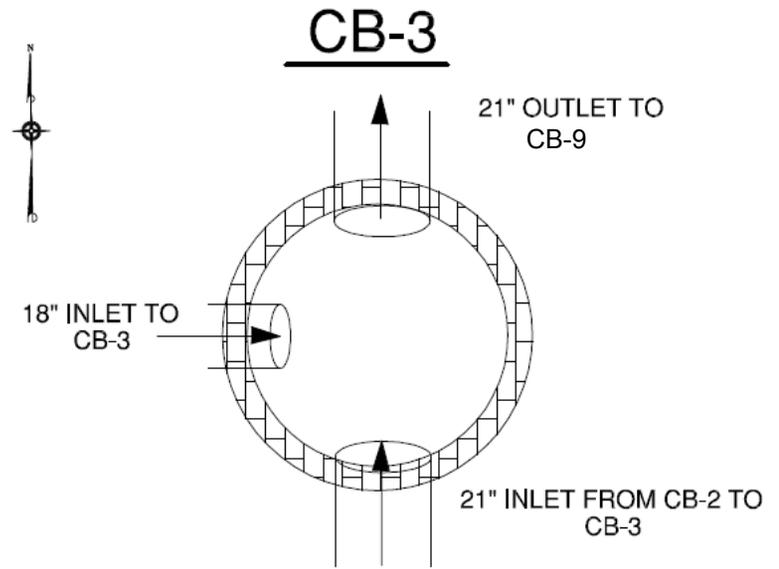


Date: 12/6/10 Picture No. A-5 Location: QDC Outfall 001
 Comment: Catch basin CB-3 (facing east)

Date: 12/6/10 Picture No. A-6 Location: QDC Outfall 001
 Comment: Catch Basin CB-3



Date: N/A Picture No. A-7 Location: QDC Outfall 001
 Comment: Catch Basin CB-3 LOCATION ON SITE PLAN



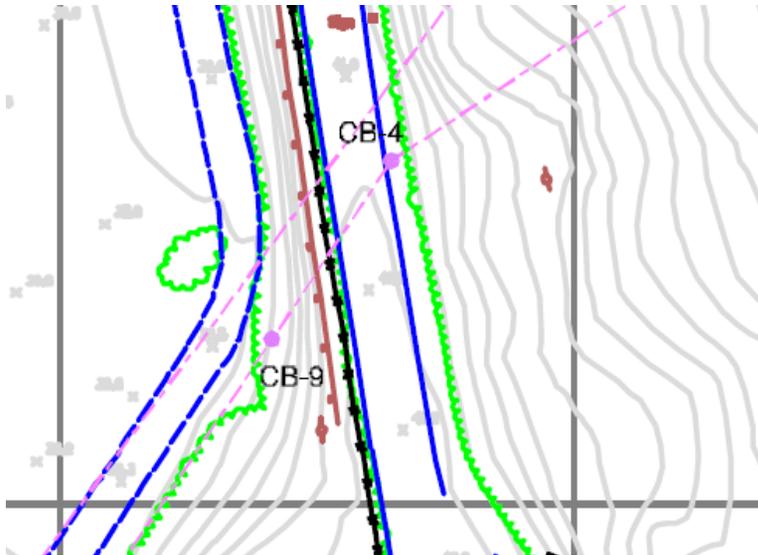
Date: N/A Picture No. A-8 Location: QDC Outfall 001
 Comment: Catch Basin CB-3 - DETAIL



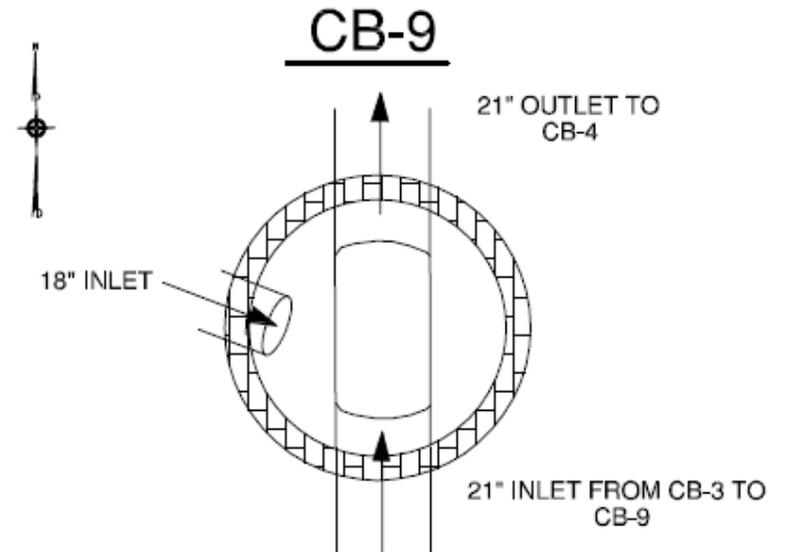
Date: 12/6/10 Picture No. A-9 Location: QDC Outfall 001
 Comment: Catch basin CB-9 (facing north east)



Date: 12/6/10 Picture No. A-10 Location: QDC Outfall 001
 Comment: Catch basin CB-9



Date: N/A Picture No. A-11 Location: QDC Outfall 001
 Comment: Catch Basin CB-9 LOCATION ON SITE PLAN



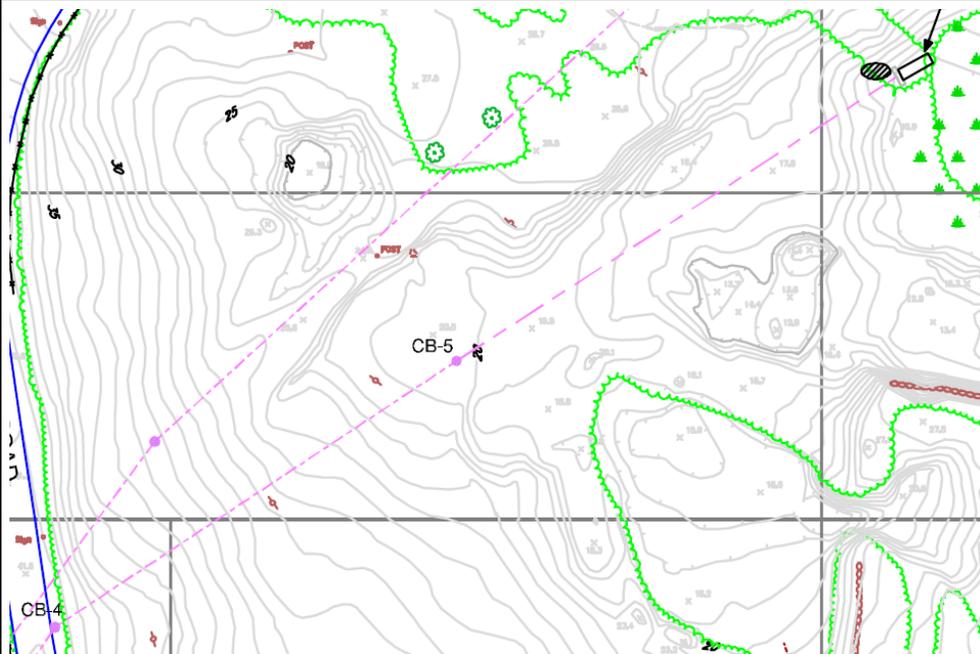
Date: N/A Picture No. A-12 Location: QDC Outfall 001
 Comment: CB-9 - DETAIL



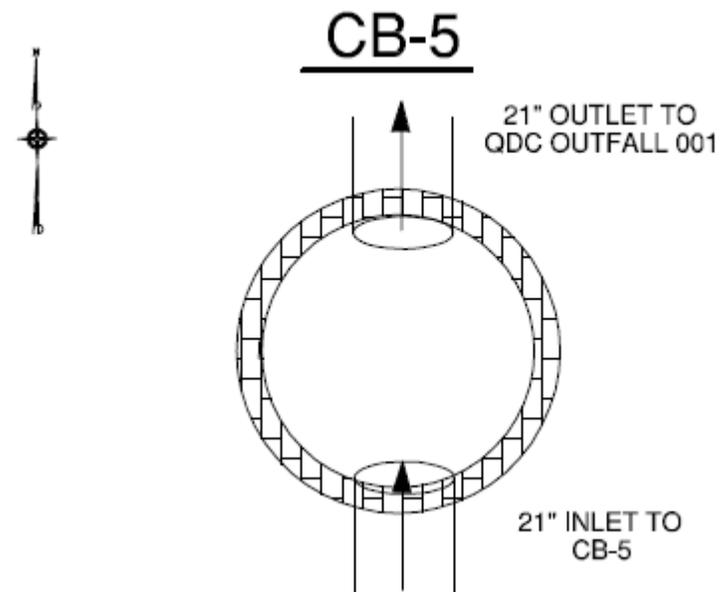
Date: 12/7/10 Picture No. A-13 Location: QDC Outfall 001
 Comment: Catch basin CB-5 (facing east)



Date: 12/7/10 Picture No. A-14 Location: QDC Outfall 001
 Comment: Catch Basin CB-5



Date: N/A Picture No. A-15 Location: QDC Outfall 001
 Comment: Catch Basin CB-5 LOCATION ON SITE PLAN



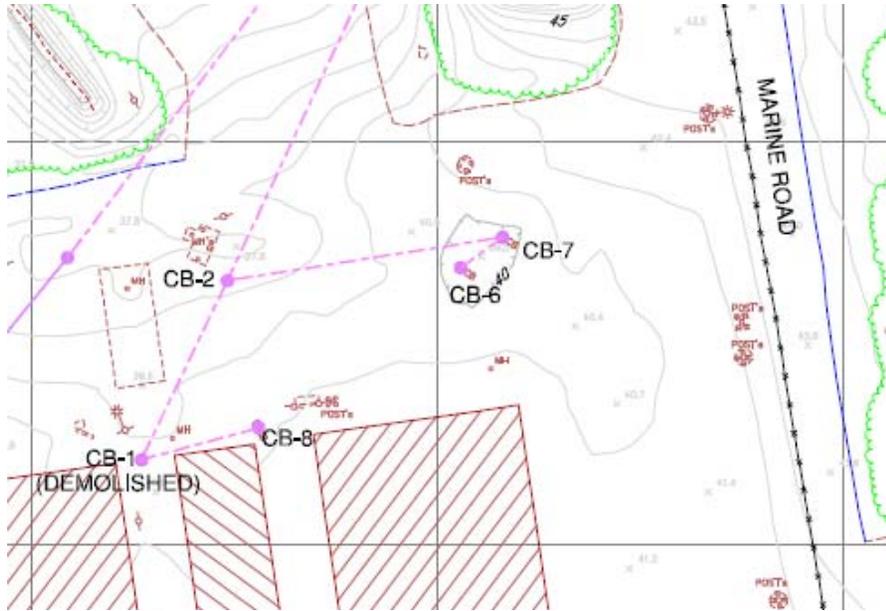
Date: N/A Picture No. A-16 Location: QDC Outfall 001
 Comment: Catch Basin CB-5 - DETAIL



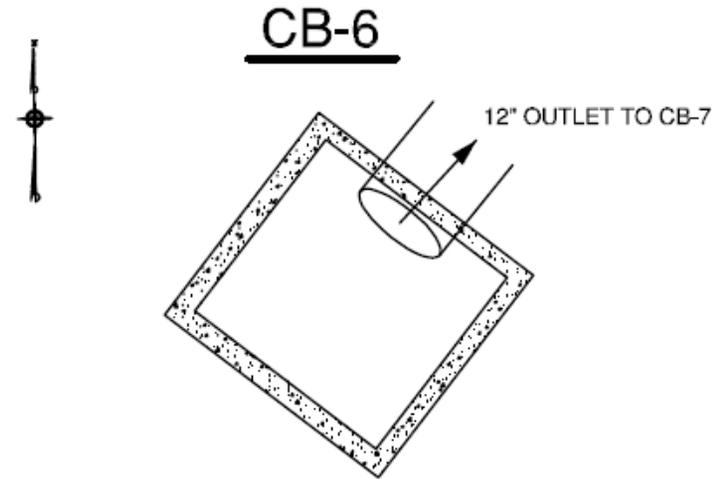
Date: 10/26/10 Picture No. A-17 Location: QDC Outfall 001
 Comment: Catch basin CB-6 (facing north east)



Date: 10/26/10 Picture No. A-18 Location: QDC Outfall 001
 Comment: Catch Basin CB-6



Date: N/A Picture No. A-19 Location: QDC Outfall 001
 Comment: Catch Basin CB-6 LOCATION ON SITE PLAN



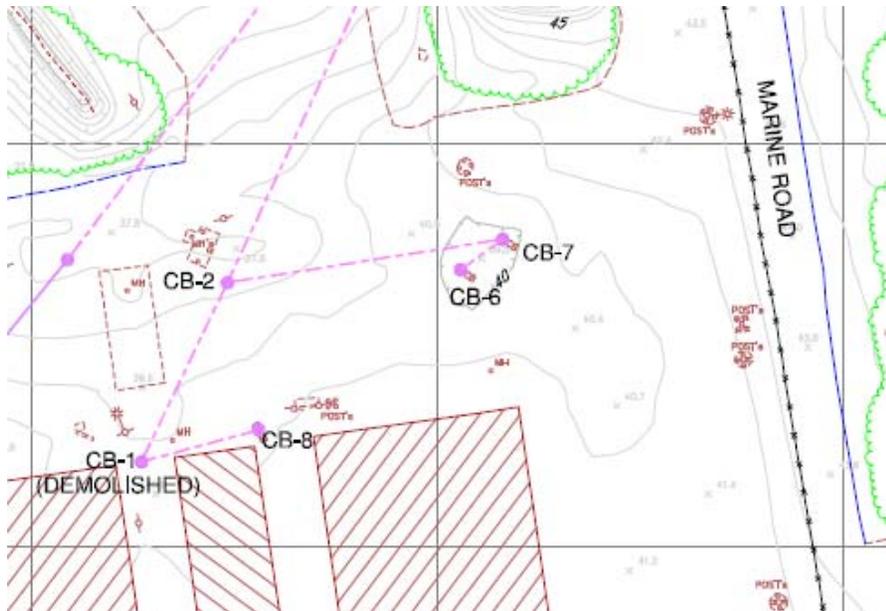
Date: N/A Picture No. A-20 Location: QDC Outfall 001
 Comment: Catch Basin CB-6 - DETAIL



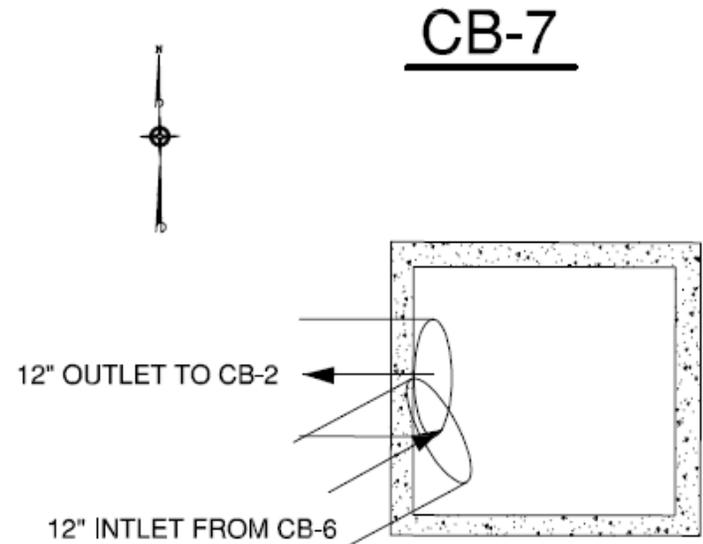
Date: 10/26/10 Picture No. A-21 Location: QDC Outfall 001
 Comment: Catch basin CB-7 (facing west)



Date: 10/26/10 Picture No. A-22 Location: QDC Outfall 001
 Comment: Catch Basin CB-7



Date: N/A Picture No. A-23 Location: QDC Outfall 001
 Comment: Catch Basin CB-7 LOCATION ON SITE PLAN



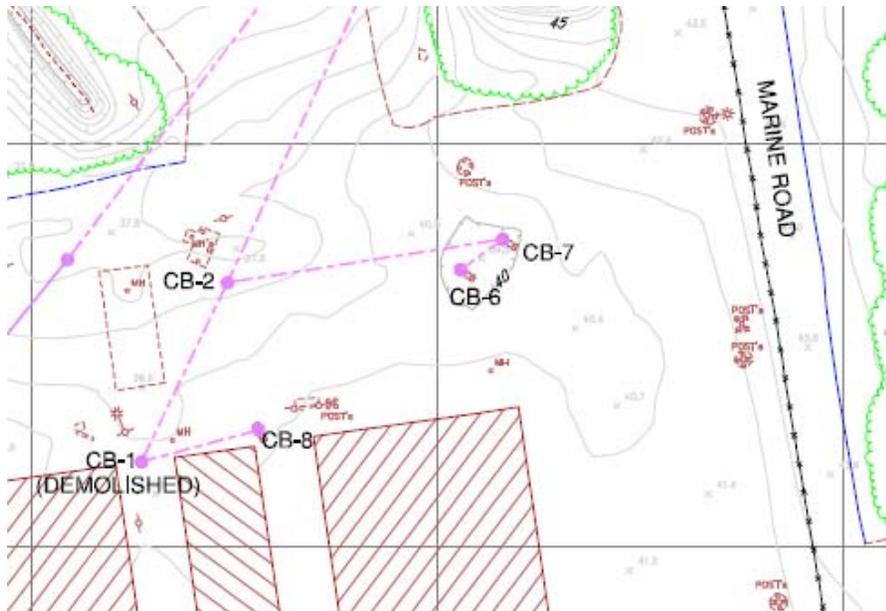
Date: N/A Picture No. A-24 Location: QDC Outfall 001
 Comment: Catch Basin CB-7 - DETAIL



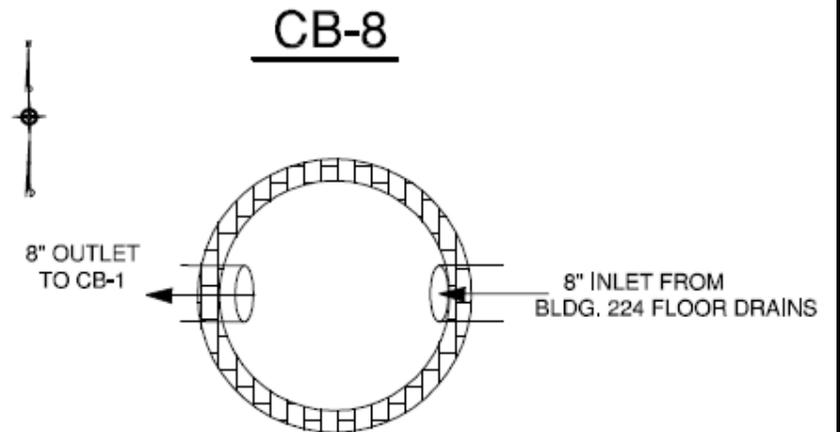
Date: 10/26/10 Picture No. A-25 Location: QDC Outfall 001
 Comment: Catch basin CB-8



Date: 10/26/10 Picture No. A-26 Location: QDC Outfall 001
 Comment: Catch Basin CB-8



Date: N/A Picture No. A-27 Location: QDC Outfall 001
 Comment: Catch Basin CB-8 LOCATION ON SITE PLAN



Date: N/A Picture No. A-28 Location: QDC Outfall 001
 Comment: Catch Basin CB-8 - DETAIL

APPENDIX A-2

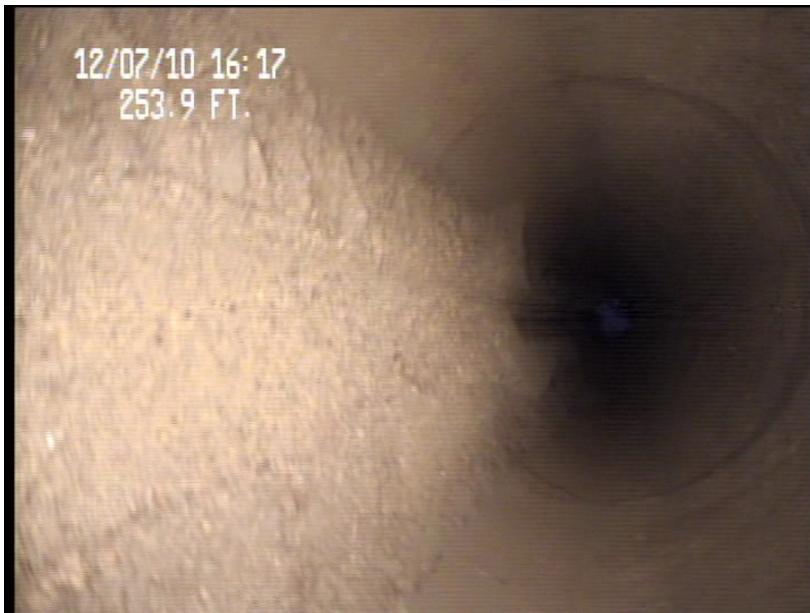
PHOTOGRAPHS FROM REMOTE VIDEO INSPECTION



Date: 12/7/10 Picture No. 1 Location: QDC Outfall 001
Comment: Looking upstream, 30 feet from outfall



Date: 12/7/10 Picture No. 2 Location: QDC Outfall 001
Comment: Drain line between CB-5 and Outfall 001, looking downstream



Date: 12/7/10 Picture No. 3 Location: QDC Outfall 001
Comment: Drain line between CB-5 and Outfall 001, looking downstream

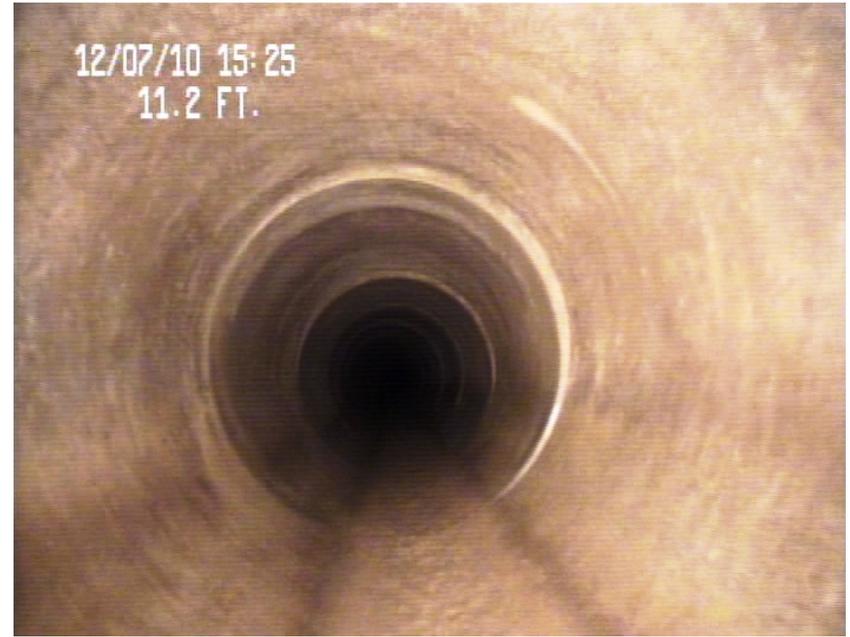


Date: 12/7/10 Picture No. 4 Location: QDC Outfall 001
Comment: Drain line between CB-5 and Outfall 001, looking downstream



12/07/10 15:27
108.0 FT.

Date: 12/7/10 Picture No. 5 Location: QDC Outfall 001
Comment: Wet concrete intrusion between CB-5 and CB-4



12/07/10 15:25
11.2 FT.

Date: 12/7/10 Picture No. 6 Location: QDC Outfall 001
Comment: Drain line between CB-5 and CB-4, note little residual material



12/07/10 13:40
5.0 FT.

Date: 12/7/10 Picture No. 7 Location: QDC Outfall 001
Comment: CB-3 at invert looking downstream, approximately 3 inches of res. mat'l



12/07/10 13:42
50.1 FT.

Date: 12/7/10 Picture No. 8 Location: QDC Outfall 001
Comment: Root penetration in line between CB-3 and CB-4



Date: 12/7/10 Picture No. 9 Location: QDC Outfall 001
Comment: Drain line between CB-9 and CB-4



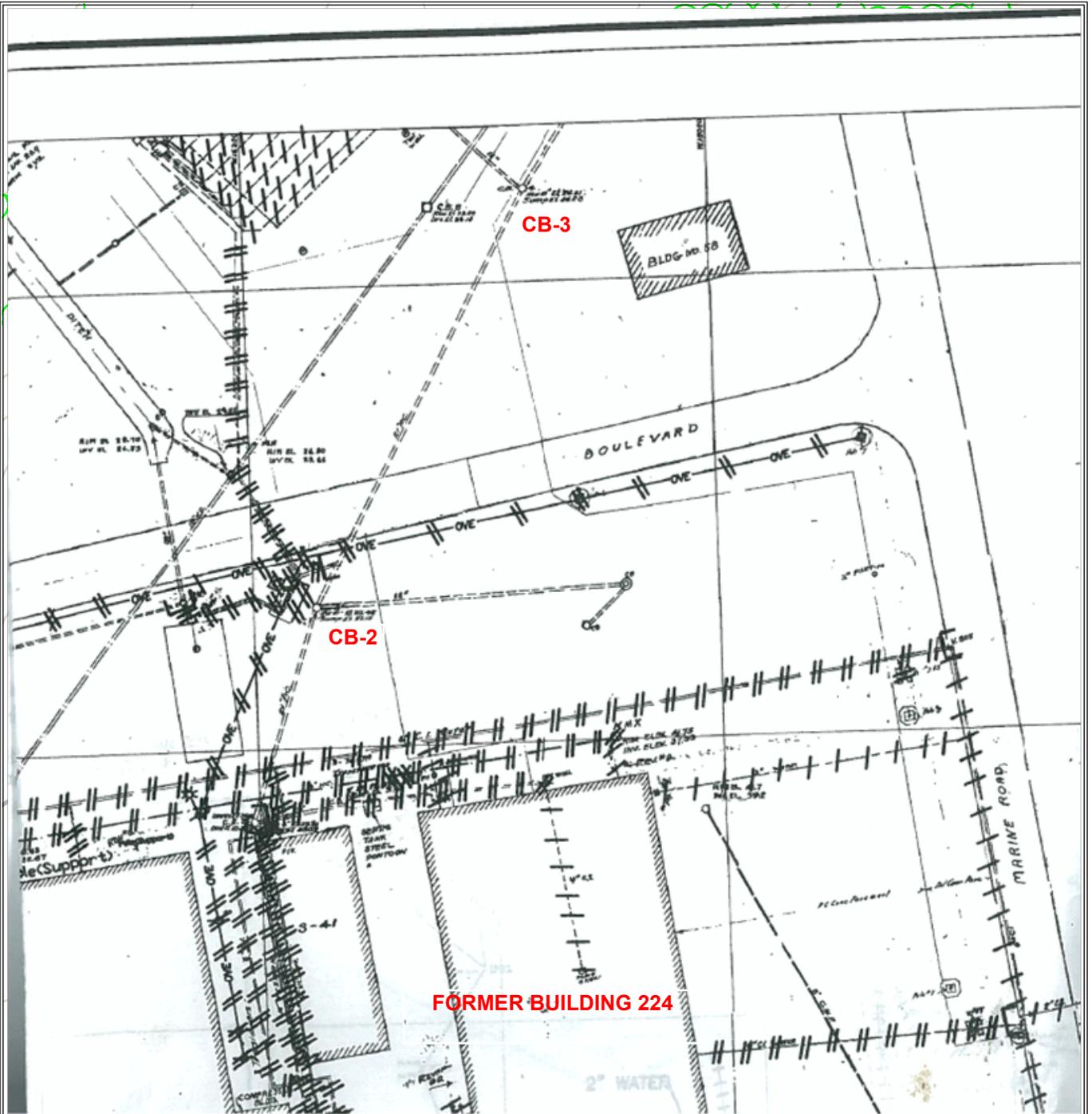
Date: 12/6/10 Picture No. 10 Location: QDC Outfall 001
Comment: Drain line between CB-2 and CB-3



Date: 12/6/10 Picture No. 11 Location: QDC Outfall 001
Comment: Drain line between CB-2 and CB-3, lateral line from O-W separator

(intentionally left blank)

Date: _____ Picture No. _____ Location: _____
Comment: _____



SOURCE: "DEMOLITION AND ASSOCIATED WORK, PHASE 9" ENGINEERING DRAWINGS PREPARED MAY 2006 BY QUONSET DEVELOPMENT CORPORATION



TETRA TECH

**HISTORICAL DRAWING OF BUILDING 224 DRAINAGE SYSTEM
 FORMER CONSTRUCTION EQUIPMENT DEPARTMENT
 FORMER NCBC DAVISVILLE
 NORTH KINGSTOWN, RHODE ISLAND**

SCALE
 As Shown

REV 0 DATE 3/28/2011

FIGURE NUMBER
 FIGURE A-1

APPENDIX B
FIELD DATA FORMS



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: SO QF-~~CS01~~ CS01
Sample Location: North Side Wall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
Subsurface Soil
Sediment
Other:
QA Sample Type:

Type of Sample:
Low Concentration
High Concentration

GRAB SAMPLE DATA:

Table with columns: Date, Depth Interval, Color, Description. Includes handwritten entries for Date (12/8/2010), Time (0900), Method (Hand Auger Metal Trowel), and Description (Sand (F), little silt, some roots, dry).

COMPOSITE SAMPLE DATA:

Table with columns: Date, Time, Depth Interval, Color, Description. Includes rows for Method and Monitor Readings.

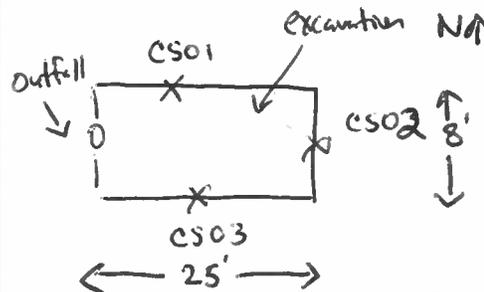
SAMPLE COLLECTION INFORMATION:

Table with columns: Analysis, Container Requirements, Collected, Other. Lists analyses like VOCs, GRO, EXPH, SVOCs, PAHs, PCBs, TAL Metals.

OBSERVATIONS / NOTES:

MAP:

Sample collected 2.5' from surface



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Handwritten signature



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-50-C502
Sample Location: East Side Wall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0905	-	Dr. Gray/Black	Sand(F-c), T-Silt, Moist, etc.
Method: Hand Auger Metal Trowel			
Monitor Reading (ppm): 5.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

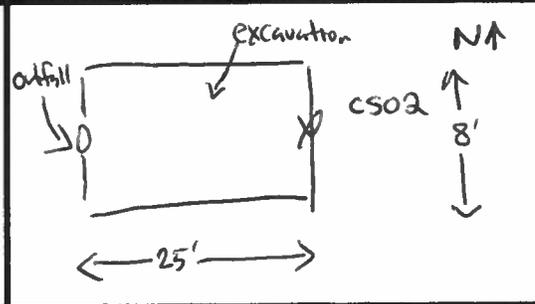
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCS	2-VOA(Water) 1-VOA(MeOH)	yes	
GRO	2 1-VOA(MeOH)		
ExTPH	8 oz. Jar		
SVOCs	↓		
PAHs			
PCBs	↓		
TAL Metals	4 oz Jar	↓	

OBSERVATIONS / NOTES:

Petroleum odor -
Sample collected 2.5' From Surface

MAP:



Circle if Applicable:

MS/MSD Duplicate ID No.:

Signature(s):

B. Geringer



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-50-C503
Sample Location: South Side Wall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/8/2010	-	Gray/Black Dr. Br	Silt(F-m), T-Silt, Dry
Time: 0910			
Method: Hand Auger (rawl)			
Monitor Reading (ppm): 2.5			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

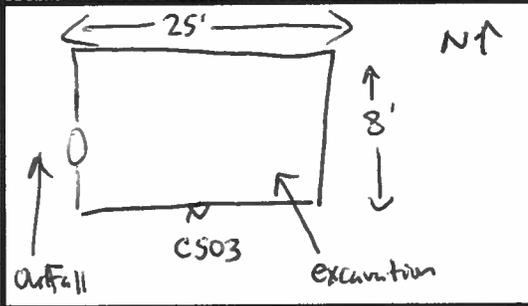
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOLs	2-VOA (Water) 1-VOA (MeOH)	YES	
GRD	1-VOA (MeOH)	↓	
EXTPH	8 oz. Jar	↓	
SVOCs	↓	↓	
PAHs	↓	↓	
PCBs	↓	↓	
TAL Metals	4 oz Jar	↓	

OBSERVATIONS / NOTES:

Slight Petroleum odor, Sample collected 2.5' from surface.

MAP:



Circle if Applicable:

MS/MSD Duplicate ID No.:

Signature(s):

B. Geringer



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-SO-CS04
Sample Location: Bottom - West End
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/8/2010	6-12"	Dk. Gray/Black	Sand (F-m), some silt, wet
Time: 0915			
Method: Hand Auger			
Monitor Reading (ppm): 50.5			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

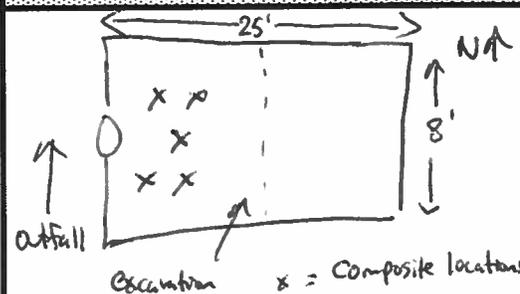
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCS	2-VOA (Water) 1-VOA (MeOH)	YES	
GRO	1-VOA (MeOH)		
ExTPH	8 oz. Jar		
SVOCs	↓		
PAHs	↓		
PCBs	↓		
TAL Metals	4 oz. Jar	↓	

OBSERVATIONS / NOTES:

Petroleum odor, 5 point Composite Sample

MAP:



Circle if Applicable:

MS/MSD

Duplicate ID No.:

QF-SO-DUP01-120810

Signature(s):

B. Geringer



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-50-C505
Sample Location: Bottom-East End
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
Subsurface Soil
Sediment
Other:
QA Sample Type:

- Type of Sample:
Low Concentration
High Concentration

GRAB SAMPLE DATA:

Table with 4 columns: Date, Depth Interval, Color, Description. Includes handwritten entries for date (12/8/2010), depth (06-12"), color (Dk. gray/Black), and description (Silty (c), Some silt, wet, Petroleum odor).

COMPOSITE SAMPLE DATA:

Table with 5 columns: Date, Time, Depth Interval, Color, Description. Includes a section for Monitor Readings (Range in ppm).

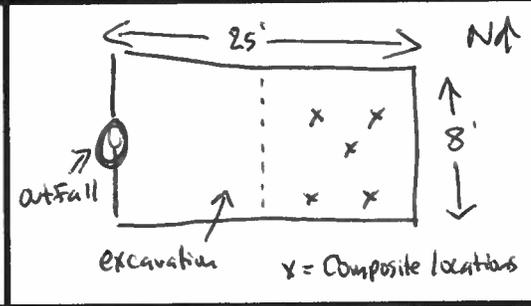
SAMPLE COLLECTION INFORMATION:

Table with 4 columns: Analysis, Container Requirements, Collected, Other. Lists various analyses like VOCs, GRO, EXTPH, SVOCs, PAHs, PCBs, TAL Metals and their respective container requirements.

OBSERVATIONS / NOTES:

5 point Composite Sample, Petroleum odor

MAP:



Circle if Applicable:

MS/MSD Duplicate ID No.:

Signature(s):

Handwritten signature: B. Geringer



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-SD01-0006
Sample Location: Wetland - East of Outfall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/8/2010 Time: 0925 Method: Hand Auger Monitor Reading (ppm): 0.0	0-6"	Black	Silt, T-Sand(f), some roots, wood, moist.

Organic Rich

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)

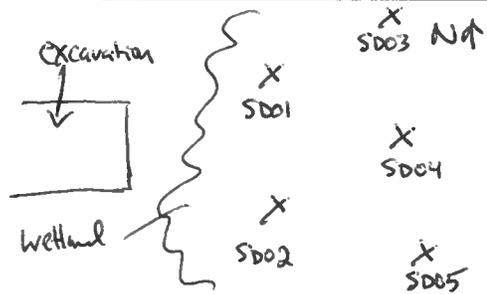
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCS	2-VOA (Water) 1-VOA (MeOH)	YES	
GRO	1-VOA (MeOH)		
ExTPH	3 oz. Jar		
SVOCs			
PAHs			
PCBs			
TAL Metals	4 oz. Jar		

OBSERVATIONS / NOTES:

MAP:

No Standing Water, Cat tails in Area



Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Bi Shi



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-SD02-0006
Sample Location: Wetland East of Outfall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0930	0-6"	Black	Silt, T-Sand(F), some roots, wood, moist, organic
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCS	2 VOA (Water) 1 - VOA (MeOH)	yes	
GRO	1 - VOA (MeOH)	↓	
EXTPH	8 - oz. Jar		
SVOCs	↓		
PAHs	↓		
PCBs	↓		
TAL Metals	4 oz. Jar	↓	

OBSERVATIONS / NOTES:

MAP:

NO Standing water, cat tails in Area.

Refer to SDO1 log

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:

B. Geringer



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-SD03-0006
Sample Location: Wetland East of Outfall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/8/2010	0-6"	Black	Silt, little sand (F-m), moist, some roots, wood, org. m/c
Time: 0935			
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCS	2-VOA (Water) 1-VOA (MeOH)	YES	
GRO	1-VOA (MeOH)		
EXTPH	8-oz. Jar		
SVOCs	↓		
PAHs			
PCBs	↓		
TAL Metals	4-oz. Jar	↓	

OBSERVATIONS / NOTES:

MAP:

NO Standing water, cat tails in Area.

Refer to SDO1 log

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:

Bri Yi



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-SD04-0006
Sample Location: Wetland - East of Outfall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0940	0-6"	Black	Silt, T-Sand (F), some roots, wood, moist organic
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCS	2-VOA (Water) 1-VOA (MeOH)	Yes	
GRO	1-VOA (MeOH)	↓	
EXTPH	8-oz Jar	↓	
SVOCs	↓	↓	
PAHs	↓	↓	
PCBs	↓	↓	
TAL Metals	4-oz. Jar	↓	

OBSERVATIONS / NOTES:

MAP:

No standing water, Cut-Tails in area.

Refer to SD01 log

Circle if Applicable:

Signature(s):

MS/MSD	Duplicate ID No.:
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B. Geringer



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-SD05-0006
Sample Location: Wetland - East of Outfall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0945	80-6"	Black	Silt, T-Sand(F), roots, little wood, moist organic
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCS	2-VOA(Water) 1-VOA(MEOH)	YES	
GR0	1-VOA(ME0H)		
EXTPH	8 oz. Jar		
SV0CS	↓		
PAHs			
PCBs	↓		
TAL Metals	4 oz. Jar	↓	

OBSERVATIONS / NOTES:

MAP:

NO Standing Water, Cat tails in Area.

Refer to SD01 log.

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:

B. Geringer



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-SD06-0006
Sample Location: Wetland East of Outfall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 0950	0-6"	Black	Silt, some sand (f-m), little roots, moist, organic
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

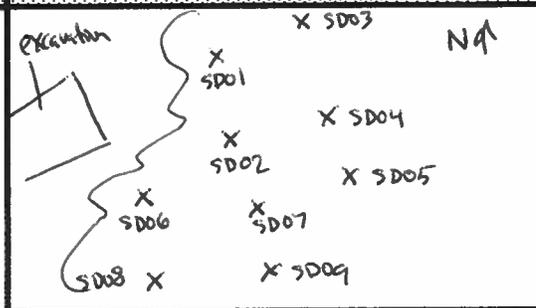
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	2-VOA (Water) 1-VOA (MeOH)	Yes	
GR0	1-VOA (MeOH)	↓	
EXTPH	8 oz. Jar	↓	
SVOCs	↓	↓	
PAHs	↓	↓	
PCBs	↓	↓	
TAL Metals	4 oz. Jar	↓	

OBSERVATIONS / NOTES:

No standing water, cut tails in Area.

MAP:



Circle if Applicable:

MS/MSD Duplicate ID No.:

Signature(s):

Ben Geringer



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-SD07-0006
Sample Location: Wetland - East of outfall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/8/2010	0-6"	Black	Silt, T-Sand, little roots, moist, organic
Time: 0955			
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	2-VOA(Water) 1-VOA(MEOH)	Yes	
GRO	1-VOA(MEOH)	↓	
EXTPH	8 oz. Jar	↓	
SVOCs	↓	↓	
PAHs	↓	↓	
PCBs	↓	↓	
TAL Metals	4-oz. Jar	↓	

OBSERVATIONS / NOTES:

MAP:

NO Standing Water, Cat tails in Area.

Refer to SDOG log.

Circle if Applicable:

Signature(s):

MS/MSD	Duplicate ID No.:
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B. Geringer



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-SD08-0006
Sample Location: Wetland - East of Outfall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 1000	0-6"	Black	Silt, T-Sand(F), T.roots, moist, organic
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCS	2-VOA(Water) 1-VOA(MEON)	YES	
GRO	1-VOA(MEON)	↓	
EXTPH	8 OZ Jar		
SVOCs	↓	↓	
PAHs			
PCBs			
TAL Metals	4 OZ Jar		

OBSERVATIONS / NOTES:

MAP:

No standing water, cat tails in Area.

Refer to SD06 log

Circle if Applicable:

Signature(s):

MS/MSD Duplicate ID No.:

B. Geringer



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-SD09-0006
Sample Location: Wetland East of Outfall
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date:	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
12/8/2010	0-6"	Black	Silt, T-Sand(F), roots, wood, moist, organic
Time: 1005			
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	2 UOA (Water) 1 WA (Meth)	Yes	
GR0	1- UOA (Meth)		
EXTPH	3 02 Jar		
SVOCs	↓		
PAHs			
PCBs	↓		
TAL Metals	4 02 Jar	✓	

OBSERVATIONS / NOTES:

MAP:

No standing water, cut tails in Area.

Refer to SD06 log.

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:

QF-SD-DUP01-120810

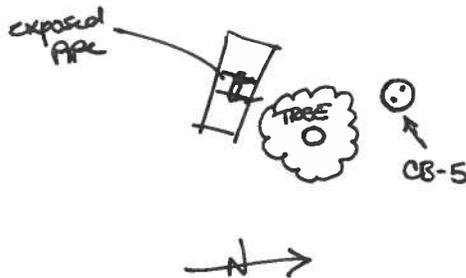
Signature



PROJECT NAME: QDC Outfall 001 TEST PIT No.: QF-TP01
 PROJECT NUMBER: 112G01813.0000.2221 DATE: 12/8/2010
 LOCATION: Fmr. NCBC Davisville GEOLOGIST: M. Alroy

Depth (Ft.)	Lithology Change (Depth/Ft.)	MATERIAL DESCRIPTION Soil/Waste Characteristics (lithology, density, color, etc.)	U S C S	Remarks	PID/FID READING	
					Source (ppm)	BZ (ppm)
0		0'-0.75' TOPSOIL			0.0	
1		0.75'-4.5' Brown Dry f-c SAND, some Silt, trace Gravel			0.0	
2					0.0	
3					0.0	
4					0.0	
5	Top of PIPE				0.0	
6	Bottom of PIPE	Bottom of TP. 5'8"			0.0	

TEST PIT CROSS SECTION AND / OR PLAN VIEW



REMARKS: SAMPLE COLLECTED ALONG THE SIDE OF THE DRAIN LINE FROM
5.5'-6.5'

PHOTO LOG: _____



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-RS01-
Sample Location: CB-2
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

- Type of Sample:
- Low Concentration
 - High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 12:00	N/A	DARK Brown/BLACK	f. c SAND, little Gravel trace Silt
Method: Hand Auger			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm): 42 ppm				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	2 - VOA (water) / VOA (meat)	Yes	
SVOC	1 - VOA (meat)		
GRO	8 oz jar		
PCR	↓		
PAH	↓		
TAL METALS	4 oz jar		
EXT TPH	8 oz jar		

OBSERVATIONS / NOTES:

MAP:

SEE PHOTO LOG

Circle if Applicable:

Signature(s):

MS/MSD Duplicate ID No.:
QF-RS-DUP01-120810

M. Alroy



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-2502
Sample Location: C8-3
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

Type of Sample:
 Low Concentration
 High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 12:05	N/A	DARK BROWN	f-c SAND, little Gravel, little Silt WET
Method: Hand Auger			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				
39 ppm				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	2 VOC (water) 1 VOC (metal)	Yes	
SVOC	1 VOC (metal)	↓	
ERO	8oz jar	↓	
PCR	↓	↓	
PAH	↓	↓	
TAL METALS	4oz jar	↓	
EXT PH	8oz jar	↓	

OBSERVATIONS / NOTES:

MAP:

SEE PHOTO LOG

Circle if Applicable:

Signature(s):

MS/MSD

Duplicate ID No.:

YES

M. Alroy



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-PS-03
Sample Location: UNKNOWN CB
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

Type of Sample:
 Low Concentration
 High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 12:10	N/A	Brown	f.c SAND, some silt, little Gravel DRY
Method: Hand Auger			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	2 (vial water) 1 vial (ncsth)	yes	
SVOC	8oz jar	↓	
GP0	1 vial (ncsth)		
PCB	8oz jar		
PAH	↓		
TOTAL METALS	4oz jar		
EXT TPH	8oz jar	✓	

OBSERVATIONS / NOTES:

MAP:

SEE PHOTO LOG

Circle if Applicable:

Signature(s):

MS/MSD Duplicate ID No.:

M. Alroy



Project Site Name: QDC Outfall 001
Project No.: 112G01813.0000.2221

Sample ID No.: QF-R504
Sample Location: CB-5
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

Type of Sample:
 Low Concentration
 High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 12:15			WET f-c SAND, some Silt, little Gravel
Method: Hand Auger			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm): 640 ppm				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	2 vOA (water) 1 meth vOA	Yes ↓	
SVOC	8 oz jar		
OPRO	1 vOA (meth)		
PCB	8 oz jar		
PdH	↓		
TAL METALS	4 oz jar		
EXT TPH	8 oz jar		

OBSERVATIONS / NOTES:

MAP:

SEE PHOTO LOG

Circle if Applicable:

Signature(s):

MS/MSD Duplicate ID No.:

M. Alroy



Project Site Name: QDC Outfall 001
Project No.:

Sample ID No.: QF- R505
Sample Location:
Sampled By: M. Alroy/B. Geringer
C.O.C. No.:

- Surface Soil
- Subsurface Soil
- Sediment
- Other:
- QA Sample Type:

Type of Sample:
 Low Concentration
 High Concentration

GRAB SAMPLE DATA:

Date: 12/8/2010	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Time: 12:20	N/A	D. Brown	Dry, SILT, 1% H ₂ O f-c Sand trace Gravel
Method:			
Monitor Reading (ppm):			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm): 0.0				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	2 VOA (meth) VOA (meth)	Yes ↓ ↓	
SROL	8 oz jar		
GR0	1 VOA (meth)		
PCB	8 oz jar		
PAH	↓		
TDL METALS	4 oz jar		
EXT TPT	8 oz jar		

OBSERVATIONS / NOTES:

MAP:

SEE PHOTO LOG

Circle if Applicable:

Signature(s):

MS/MSD Duplicate ID No.:

M. Alroy

APPENDIX C
DATA VALIDATION MEMOS

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- Laboratory Method and Field Blank Results
- Initial and Continuing Calibration
- Surrogate Spike Recoveries
- Internal Standard Recoveries
- Blank Spike Results
- Matrix Spike/Matrix Spike Duplicate Results
- Field Duplicate Precision
- * • Detection Limits
- Compound Identification and Quantification

The asterisk (*) indicates that all quality control criteria were met for this parameter. Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region I worksheets, and Appendix D contains the documentation to support the findings as discussed in this data validation report. . An EPA Region 1 tier III validation was performed on the data in this SDG. The text of this report has been formulated to address only those problem areas affecting data quality.

HOLDING TIMES

Samples QF-SO-CS04, QF-SO-DUP01-120810, QF-SD01-0006, QF-SD04-0006, and QF-SD-DUP01-120810 were re-extracted outside of the 14 day holding time criterion for semi-volatile organic compounds. These samples were re-extracted and reanalyzed at a 5X dilution; elevating detection levels. The results from the re-extractions of samples QF-SO-CS04 and QF-SO-DUP01-120810 for target compounds that exceeded the instrument's linear calibration range in the initial analyses of these samples were used in the data validation. These positive results were qualified as estimated, (J), for holding time noncompliances. No action was taken in the remaining samples because these re-extraction results were not used in the validation of the data.

INITIAL AND CONTINUING CALIBRATION

All of the initial and continuing calibrations performed on instruments V2, V6 and V10 in this SDG had Relative Response Factors (RRFs) for acetone and 2-butanone lower than the 0.05 quality control limit. All samples were affected. The positive and non-detected results reported for these compounds not qualified for trip blank contamination were qualified as estimated, (J), and rejected (UR), respectively for calibration noncompliance.

The initial calibration performed on instrument V2 on 12/09/10 had Percent Relative Standard Deviations (%RSDs) for acetone and chloromethane which exceeded the 15% quality control limit. Samples QF-SO-CS04, QF-SO-DUP01-120810, and the medium level soil analysis of QF-RS02 were affected. No action was taken for acetone since these results were previously rejected for a more severe calibration noncompliance. In addition, no action was taken in sample QF-RS02 since this chloromethane result was not used in the data validation. The non-detected results reported for chloromethane in the remaining affected samples were qualified as estimated, (UJ).

The %RSDs for acetone and methylene chloride were greater than the 15% quality control limit for the initial calibration performed on V6 on 12/09/10. The non-detected results reported for methylene chloride, were qualified as estimated, (UJ), in samples QF-SD09-0006, QF-SD-DUP01-120810, QF-SD-TB01-120810, QF-SD01-0006, QF-SD02-0006, QF-SD03-0006, QF-SD04-0006, QF-SD05-0006, QF-SD06-0006, QF-SD07-0006, QF-SD08-0006, QF-RS-DUP01-120810, QF-RS-TB01-120810, QF-RS02, QF-RS03, QF-RS05, QF-RS01, QF-SO-CS01, QF-SO-CS02, QF-SO-CS03, QF-SO-CS05, QF-SO-TB01-120810, QF-TP01-5 SC 5.

The initial calibration performed on instrument V10 on 12/15/10 had %RSDs for bromomethane and

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1,2,4-trichlorobenzene above the 15% quality control criteria. The medium level soil analysis of samples QF-SO-TB01-120810, QF-RS-TB01-120810, QF-SO-CS04DL, QF-SO-DUP01-120810DL, QF-RS01 ME, and QF-RS04 were affected. The positive and non-detected results used in the data validation reported for these compounds in the affected samples were qualified as estimated, (J) and (UJ), respectively.

The %RSDs for bromomethane, acetone, 2-butanone, ethylbenzene, and 1,2,4-trichlorobenzene exceeded 15% for the initial calibration performed on instrument V10 on 12/19/10. Samples QF-RS-DUP01-120810 and QF-RS04DL were affected. No action was taken for the diluted analysis of sample QF-RS04DL since the results for these compounds were not used in the data validation. The acetone and 2-butanone results were previously qualified for a more severe calibration noncompliance. The non-detected results reported for bromomethane, ethylbenzene, and 1,2,4-trichlorobenzene in the affected sample were qualified as estimated, (UJ).

The %RSD for 2,4-dinitrophenol was greater than the 15% quality control limit for the initial calibration performed on instrument S3 on 11/21/10. All samples were affected with the exception of the reanalyses of samples QF-SD01-0006, QF-SD04-0006, QF-SO-CS04, and QF-SO-DUP01-120810. The non-detected results reported for this compound in the affected samples were qualified as estimated, (UJ).

The continuing calibration performed on instrument V6 on 12/13/10 @ 10:13 had Percent Differences (%Ds) greater than 20% for acetone and vinyl chloride. No action was taken for acetone since these results were previously rejected for a more severe calibration noncompliance. The non-detected results reported for vinyl chloride in the affected samples, QF-SO-TB01-120810, QF-SO-CS01, QF-SO-CS01, QF-SO-CS03, QF-SD04-0006, QF-SD06-0006, and QF-SD07-0006, were qualified as estimated, (UJ).

The %Ds for acetone and 1,1-dichloroethene were greater than the 20% quality control limit for the continuing calibration performed on instrument V6 on 12/14/10 @ 07:59. Samples QF-SD09-0006, QF-SD-DUP01-120810, QF-SD-TB01-120810, QF-SD08-0006, QF-RS-DUP01-120810, QF-RS-TB01-120810, QF-RS02, QF-RS03, QF-RS05, and QF-RS01 were affected. The non-detected results reported for 1,1-dichloroethene in these samples were qualified as estimated, (UJ).

The continuing calibration performed on instrument S3 on 12/29/10 @ 11:00 had %Ds for n-nitroso-di-n-propylamine, hexachloroethane, 4-chloroaniline, 2-nitroaniline, 3-nitroaniline, 4-nitroaniline, and di-n-octylphthalate greater than the 20% quality control limit. Samples QF-SO-CS01, QF-SO-CS02, QF-SO-CS03, QF-SO-CS04, QF-SO-CS05, QF-TP01-5 SC 5, QF-SO-DUP01-120810 and QF-SD01-0006 were affected. Only non-detected results were reported for these compounds in these samples and these non-detects were qualified as estimated, (UJ).

The %Ds for n-nitroso-di-n-propylamine, hexachloroethane, 4-chloroaniline, 2-methylnaphthalene, hexachloropentadiene, 2,4-dinitrophenol, 4-nitrophenol, and di-n-octylphthalate exceeded the 20% quality control limit for the continuing calibration performed on instrument S3 on 12/30/10 @ 11:13. The positive and non-detected results reported for these compounds in the affected samples, QF-SD09-0006, QF-SD-DUP01-120810, QF-SD02-0006, QF-SD03-0006, QF-SD04-0006, QF-SD05-0006, QF-SD06-0006, QF-SD07-0006, QF-SD08-0006, and QF-RS01, were qualified as estimated, (J) and (UJ), respectively.

The continuing calibration %Ds for bis(2-chloroethyl)ether, nitrobenzene, 4-chloroaniline, 2-methylnaphthalene, 2,4-dinitrophenol, 4-nitroaniline, 4,6-dinitro-2-methylphenol, pentachlorophenol and bis(2-ethylhexyl)phthalate from the calibration performed on instrument S3 on 12/31/10 @ 13:45 were greater than the 20% quality control limits. Samples QF-RS-DUP01-120810, QF-RS02, QF-RS03, QF-RS04, and QF-RS05 were affected.

LABORATORY AND FIELD BLANK RESULTS

The following analytes were detected in the associated method blank and the trip blanks at the maximum concentrations as indicated below:

<u>Compound</u>	<u>Maximum Conc. (µg/Kg)</u>	<u>Action Level (µg/Kg)</u>
Methylene Chloride ⁽¹⁾	2.9	29.0
Methylene Chloride ⁽²⁾	3.2	32.0
Acetone ⁽³⁾	2.7	27.0

- ¹ Maximum concentration detected in laboratory method blank MB-56265, batch #56265, affecting samples QF-SO-TB01-120810, QF-SO-CS01, QF-SO-CS02, QF-SO-CS03, QF-SD04-0006, QF-SD06-0006, and QF-SD07-0006.
- ² Maximum concentration detected in laboratory method blank MB-56335, batch # 56335, affecting samples QF-SO-CS05, QF-SO-TP01 5 CS 5, QF-SD01-0006, QF-SD02-0006, and QF-SD05-0006.
- ³ Maximum concentration detected in trip blank, QF-RS-TB01-120810, affecting samples QF-RS01, QF-RS02, QF-RS03, QF-RS04, QF-RS05, QF-RS-DUP01-120810.

An action level of 10X the maximum concentration of common laboratory contaminants, acetone and methylene chloride, was established in order to evaluate samples for laboratory method and trip blank contamination. Dilution factors, percent solids and sample aliquots were taken in to consideration when applying the action level. Positive results less than the action level were qualified as (U) due to trip blank contamination.

SURROGATE SPIKE RECOVERIES

The Percent Recovery (%R) for the surrogate spike compound, bromofluorobenzene, was below the lower quality control limit in sample QF-SO-CS02. Although the reanalysis of this sample yielded acceptable results, these results were not used in the data validation due to an internal standard noncompliance. The positive and non-detected results reported for the volatile compounds in this sample were qualified as estimated, (J) and (UJ), respectively.

The %R for bromofluorobenzene was above the upper quality control limit in sample QF-RS04. The sample was reanalyzed at a dilution with acceptable surrogate %Rs. No action was necessary for the positive results used from the dilution. The remaining positive results reported for the volatile compounds from the initial analysis of this sample were qualified as estimated, (J).

The %Rs for the base/neutral fraction surrogates, nitrobenzene (NBZ) and 2-fluorobiphenyl (FPB), and the acid fraction surrogates, phenol-d5 (PHL) and 2-fluorophenol (2FP) were below the lower quality control limits in sample QF-SO-CS04 and QF-SD04-0006. The re-extraction and reanalyses of these samples yielded acceptable surrogate recoveries, however, these samples were re-extracted outside of extraction holding times. The initial analyses results were used in the data validation with the exception of the compounds that exceeded the instrument's linear calibration range in sample QF-SO-CS04. The positive and non-detected results in these samples were qualified as estimated, (J) and (UJ).

The acid fraction surrogates, PHL, 2FP, and 2,4,6-tribromophenol (TBP), had %Rs below the lower quality control limit in sample QF-SO-DUP01-120810. This sample was re-extracted outside of the extraction holding time and reanalyzed. The initial analysis was used in the data validation with the exception of the compounds that exceeded the instrument's linear calibration range. Only non-detected results were reported for the semi-volatile acid fraction compounds and these non-detects were qualified as estimated, (UJ).

The %Rs for all the semi-volatile surrogate compounds were below the lower quality control limits in sample QF-SD01-0006. Although the reanalysis of this sample was had acceptable %Rs, the sample was re-extracted outside of the extraction holding time, therefore, not used in the data validation. The positive and non-detected results, not rejected for a more severe noncompliance, reported for the semi-volatile compounds in this sample were qualified as estimated, (J) and (UJ), respectively.

The PCB surrogate spike compound, decachlorobiphenyl, yielded %Rs on both GC columns outside the quality control limits for samples QF-RS04 and QF-RS05. Column 1 had %Rs above the quality control limit and Column 2 had %Rs below the lower quality control limit. The positive and non-detected results reported for PCBs in these samples were qualified as estimated, (J) and (UJ), respectively.

INTERNAL STANDARD RESULTS

The internal standard areas for 1,4-dichlorobenzene-d4 were below the lower quality control limits in samples QF-SO-CS02 and QF-SO-CS04. The reanalysis of sample QF-SO-CS02 had all the internal standards below the lower quality control limits, therefore, the initial analysis was used in the data validation. Sample QF-SO-CS04 was reanalyzed at a dilution. The diluted internal standard areas were within the quality control limits. No action was necessary for the positive results used from the dilution. The positive and non-detected results reported for the volatile compounds associated with the internal standard, 1,4-dichlorobenzene-d4, were qualified as estimated, (J) and (UJ), respectively.

The internal standard areas for acenaphthene-d10, phenanthrene-d10, chrysene-d12, and perylene-d12 were above the upper quality control limit in samples QF-RS04, QF-SO-CS04, and QF-SO-DUP01-120810 in the PAH analyses. These samples were not reanalyzed. The positive and non-detected results reported for the PAH target compounds associated with these internal standards that were used in the data validation were qualified as estimated, (J) and (UJ), respectively.

The PAH analyses of samples QF-SD05-0006, QF-SO-CS02, and QF-SO-CS03 yielded internal standard areas for chrysene-d12 and perylene-d12 above the upper quality control limit. These samples were not reanalyzed. The positive results reported for the PAH target compounds associated with these internal standards were qualified as estimated, (J).

Sample QF-SD04-0006 had an internal standard area for perylene-d12 above the upper quality control limit in the PAH analysis. The laboratory did not reanalyze this sample. The positive PAH target compound results associated with this internal standard were qualified as estimated, (J).

The PAH analysis of sample QF-SO-CS05 had internal standard areas for acenaphthene-d10, chrysene-d12, and perylene-d12 above the upper quality control limits. A reanalysis was not performed on this sample. The positive and non-detected results used in the data validation associated with these internal standards were qualified as estimated, (J) and (UJ), respectively.

BLANK SPIKE RESULTS

The SVOC laboratory blank spike sample, LCS-56712, associated with batch #56712 had %Rs below the lower quality control limits for n-nitrosodiphenylamine, phenanthrene, anthracene, di-n-butylphthalate and fluoranthene. This quality control sample is associated with the re-extraction/reanalyses of samples QF-SD01-0006, QF-SD04-0006, QF-SO-CS04, and QF-SO-DUP01-120810. The positive results for fluoranthene in samples QF-SO-CS04 and QF-SO-DUP01-120810 and the positive result for anthracene in sample QF-SO-DUP01-120810 were used in the data validation and these results were qualified as estimated, (J).

The PAH laboratory blank spike sample, LCS-56548, associated with batch #56548, had a %R for indeno(1,2,3-cd)pyrene above the upper quality control limit. Samples QF-RS04, QF-RS02, QF-RS03, QF-

RS05, and QF-RS-DUP01-120810 were affected. The positive results reported for this compound in the affected samples were qualified as estimated, (J).

MATRIX SPIKE (MS) / MATRIX SPIKE DUPLICATE (MSD)

The %Rs for the volatile compounds xylenes, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, and 1,2,4 trichlorobenzene were below the lower quality control limit in the Matrix Spike (MS) and Matrix Spike Duplicate (MSD) sample. In addition, the %R for styrene was also low in the MSD sample. The non-detected results reported for these compounds in the associated environmental sample, QF-SO-CS01, were qualified as estimated, (UJ).

The volatile MS/MSD %Rs for trichloroethene, toluene, tetrachloroethene, chlorobenzene, ethylbenzene, xylenes, styrene, 1,2,4-trichlorobenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene were below the lower quality control limits. The MSD %Rs also had 1,1-dichloroethene, 1,1-dichloroethane, chloroform, 1,1,1-tetrachloroethane, carbon tetrachloride, benzene, 1,2-dichloropropane, bromodichloromethane, cis-1,3-dichloropropane, trans-1,3-dichloropropane, dibromochloromethane, and bromoform below the lower quality control limits. In addition, the Relative Percent Differences (RPDs) for 2-hexanone, bromoform and 1,2,4-trichlorobenzene exceeded the laboratory's 40% quality control limit. The non-detected results for the aforementioned compounds were qualified as estimated, (UJ), in the environmental sample, QF-SD01-0006.

The semi-volatile MS/MSD analyses of sample QF-SD01-0006 yielded %Rs for 2,4-dinitrophenol, 3,3'dichlorobenzidine, 3-nitroaniline, 4-chloroaniline, 4-nitroaniline, hexachloropentadiene, and 4,6-dinitro-2-methylphenol that were below 10%. In addition, RPDs exceed the laboratory's 40% quality control limit for some of these compounds. The non-detected results reported for these compounds were qualified as rejected, (UR).

The %Rs for fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)anthracene, and benzo(a)pyrene were above the upper quality control limits in the MS and MSD samples of QF-SD01-0006. In addition, the MSD %Rs for bis(2-ethylhexyl)phthalate, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene exceeded the upper quality control limit. The positive results reported for these compounds in the environmental sample were qualified as estimated, (J).

The MS/MSD sample results for the volatile medium level soil analyses of sample QF-RS02 had several %Rs and RPDs outside the laboratory's quality control limits. Only the chlorobenzene result was used from the medium level soil analysis of the environmental sample in the data validation. Because the MSD %R was above the quality control limit, this positive result was qualified as estimated, (J), in the environmental sample. No action was necessary for the remaining noncompliant %Rs and RPDs.

The %Rs for the semi-volatile compounds fluoranthene, pyrene, benzo(a)anthracene, and bis(2-ethylhexyl)phthalate were above the upper quality control limits in the MS sample of QF-RS02. The MSD %Rs for fluoranthene and bis(2ethylhexyl)phthalate exceeded the upper quality control limits. The RPD for benzo(a)anthracene exceeded 40%. The positive results reported for these compounds in the environmental sample were qualified as estimated, (J).

The PAH MS/MSD analyses of sample QF-RS02 yielded %Rs and RPDs grossly outside of the quality control limits for almost all of the PAH target compounds. After review of the sample data, the results were viewed with uncertainty, due to the high concentration of target compounds in the environmental sample. In addition, the environmental sample was analyzed at a 10X dilution, however, the MS/MSD analyses were not analyzed at a dilution. The positive and non-detected results reported for the PAH target compounds in the environmental sample were qualified as estimated, (J) and (UJ), respectively.

The PAH MS/MSD analyses of sample QF-SD01-0006 yielded MS %Rs for phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene which grossly exceeded the upper quality control limits. The MSD %Rs had the similar results with the exception of anthracene and dibenzo(a,h)anthracene. Several RPDs exceeded the 40% quality control limit. Due to the high concentration of PAH compounds in the environmental sample and the lack of a diluted analyses of the MS, MSD, and environmental sample; the MS/MSD results were viewed with uncertainty. The positive results reported in the environmental sample that did not exceed the instrument's linear calibration range were qualified as estimated, (J). The non-detected result for naphthalene was qualified as estimated, (UJ).

The %R for the MS sample was zero in the TPH fraction for sample QF-SD01-0006. In addition, the MS sample analysis for the environmental sample QF-RS02 had a %R for TPH that grossly exceeded the upper quality control limit. The MSD samples had acceptable %Rs. The environmental samples contained a high concentration of TPH which possibly interfered with the MS/MSD results. The positive results for TPH were qualified as estimated, (J), in the environmental samples.

FIELD DUPLICATE PRECISION

Field duplicate imprecision was noted for the field duplicate sample pair, QF-RS01/QF-RS-DUP120811. The Relative Percent Differences (RPDs) were greater than the 50% quality control criteria for 2-methylnaphthalene, acenaphthene, anthracene, chlorobenzene, fluorene, naphthalene, phenanthrene, and GRO. The positive results reported for these compounds in the field duplicate pair were qualified as estimated, (J).

Acenaphthylene and Aroclor-1260 were detected in sample QF-RS01 but not in the field duplicate pair sample, QF-RS-DUP01-120810. Because the difference between the non-detected results and the positive results were 2X greater than the Limit of Quantitation (LOQ) for these compounds, the positive and non-detected results were qualified as estimated, (J) and (UJ), respectively, in the field duplicate pair.

The RPDs for acetone, Aroclor-1260, fluorene, phenanthrene, and pyrene were greater than the 50% quality control criteria in the field duplicate pair QF-SD09-0006/QF-SD-DUP120810. The positive results reported for these compounds in the field duplicate pair were qualified as estimated, (J)

Field duplicate imprecision was noted for the field duplicate pair, QF-SO-CS04/QF-SO-DUP120811. The RPDs were greater than the 50% quality control criteria for 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, benzo(a)anthracene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, ethylbenzene, fluoranthene, pyrene, xylenes and GRO. The positive results reported for these compounds in the field duplicate pair were qualified as estimated, (J).

Aroclor-1260 was detected in sample QF-SO-DUP120810 but not in the environmental sample QF-SO-CS04. Because the difference between the non-detected result and the positive result was 2X greater than the Limit of Quantitation (LOQ) for these compounds, the positive and non-detected results were qualified as estimated, (J) and (UJ), respectively, in the field duplicate pair.

The compound, 1,2-dichlorobenzene, was detected above the LOQ in sample QF-SO-CS04 but below the LOQ in the field duplicate sample, QF-SO-DUP120810. Because difference between the results were 2X greater than the LOQ the positive results were qualified as estimated, (J), in the field duplicate pair.

COMPOUND IDENTIFICATION AND QUANTITATION

The RPD between columns exceeded 40%, for the following PCBs. The positive results were qualified as estimated, (J), for the PCBs below:

<u>Sample</u>	<u>Compound</u>	<u>RPD(%)</u>
QF-SO-CS04	Aroclor 1254	50.3
QF-SO-DUP01-120810	Aroclor 1254	62.3
QF-SD01-0006	Aroclor 1254	82.0
QF-SD02-0006	Aroclor 1254	93.2
QF-SD03-0006	Aroclor 1254	75.5
QF-SD04-0006	Aroclor 1254	68.1
QF-SD05-0006	Aroclor 1254	82.9
QF-SD06-0006	Aroclor 1254	81.4
QF-SD07-0006	Aroclor 1254	105.6
QF-SD08-0006	Aroclor 1254	88.6
QF-SD09-0006	Aroclor 1254	90.5
QF-SD-DUP01-120810	Aroclor 1254	81.2
QF-RS02	Aroclor 1254	66.1
QF-RS03	Aroclor 1254	50.4

NOTES

The %RSDs for 2,4-dimethylphenol, 2,4-dinitrophenol, 4-nitrophenol, and 4,6-dinitro-2-methylphenol were greater than 15% for the initial calibration performed on instrument S3 on 01/06/10. No qualification was necessary because these compound results from affected samples were not used in the validation of the data.

A %D acetone was greater than the 20% quality control limit for the continuing calibration performed on instrument V6 on 12/15/10 @ 08:34. No action was necessary in the associated samples since the acetone results were previously qualified for a more severe calibration noncompliance.

The semi-volatile continuing calibrations performed on instrument S3 on 01/01/11 @ 17:11, 01/06/11 @ 10:30, and 01/10/11 @ 10:03 had several %Ds that exceeded the 20% quality control limit. No action was necessary because the noncompliant compounds in the affected samples were not used in the data validation.

The %Rs for the acid fraction surrogate spike compound, PHL, were below the lower quality control limit in samples QF-SD-DUP01-120810 and QF-RS01. No action was necessary because only one acid fraction surrogate was noncompliant.

The PAH surrogate spike compound, benzo(e)pyrene-d12, was not recovered in samples QF-RS02, QF-RS03, QF-RS05 and QF-RS-DUP01-120810. These samples were initially analyzed at a 10X dilution. No action was taken given that the surrogate was diluted below the reporting limit.

GC column 2 had %Rs for the surrogate spike compound, decachlorobiphenyl, below the lower quality control limit in samples QF-SO-CS05, QF-SO-DUP01-120810, QF-SD-DUP01-120810, and QF-RS-DUP01-120810. No action was necessary in the affected samples because only one surrogate was noncompliant and the %Rs were above 10%.

The PAH analysis of sample QF-SD06-0006 yielded a high internal standard area for chrysene-d12. No action was taken in the associated PAH target compounds because these results were not used in the data validation.

The MSD %R for hexachloroethane was slightly below the lower quality control limit in the MS/MSD analyses of sample QF-SD01-0006. No action was taken because the %R in the MS sample was acceptable. In addition, the RPD for di-n-octylphthalate was greater than the 40% quality control limit. The MS/MSD %Rs were acceptable therefore no action was taken.

The MSD %Rs for 3-nitroaniline, 4-nitroaniline, 4,6-dinitro-2-methylphenol, and n-nitrosodiphenylamine were below the lower quality control limit in the MS/MSD analyses of sample QF-RS02. The RPDs for 4-chloroaniline, hexachloropentadiene, 2,4-dinitrophenol, and 4,6-dinitro-2-methylphenol were also outside the quality control limit. No action was taken because the MS %Rs and some MSD %Rs were acceptable.

The MS %Rs for the PAH compounds, chrysene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene were slightly above the upper quality control limits. No action was taken because the MSD %Rs and RPDs were acceptable.

1,2,4-trichlorobenzene, bis(2-ethylhexyl)phthalate, carbazole, and dibenzofuran were detected below the LOQ in the field duplicate pair QF-RS01/QF-RS-DUP120811. The RPDs for these compounds were greater than 50%. In addition, 2-butanone, methylene chloride, and trans-1,2-dichloroethene were detected in one sample but not in the other sample. Because the difference between the results for the aforementioned compounds were not greater than 2X the LOQ, no action was necessary for field duplicate imprecision.

The trip blank samples, QF-SO-TB01-120810 and QF-RS-TB01-120810, were analyzed as low and medium level soils for the VOC fraction. Only the low level soil analyses were used in the data validation.

The volatile compound, chlorobenzene, exceeded the instrument's linear calibration range in samples QF-RS-DUP01-120810, QF-RS02, and QF-RS01. The samples were reanalyzed as medium level soils. The chlorobenzene results from these analyses were used in the data validation.

Samples QF-RS04, QF-SO-CS04, and QF-SO-DUP01-120810 were initially analyzed by the laboratory as medium level soils for the VOC fraction. Some volatile compounds exceeded the instrument's linear calibration range in the initial medium level soil analyses and required a dilution. The diluted results for these compounds were used in the data validation.

Samples QF-RS04, QF-SO-CS04, and QF-SO-DUP01-120810 were analyzed at 10X, 5X, and 10X dilutions, respectively, because several compounds exceeded the instrument's linear calibration range for the SVOC fraction.

Sample QF-RS04 was initially analyzed at a 5X dilution for the PAH fraction.

All samples were analyzed at a 10X dilution for the TPH fraction with the exception of sample QF-SO-CS01.

All samples in the PAH fraction had target compounds that exceeded the instrument's linear calibration range with the exception of samples QF-SD05-0006, QF-SO-CS01, QF-SO-TP01-5 CS 5, QF-RS02, QF-RS03, QF-RS05, and QF-RS-DUP01-120810. The samples were not diluted and reanalyzed. The results for the PAH target compounds that exceeded the instrument's linear calibration range were taken from the SVOC fraction.

Duplicate results were noted for target compounds between the PAH and SVOC fractions. Only one result was used for target PAH compounds per sample in the data validation. Unless the PAH fraction target compound result exceeded the instrument's linear calibration range, the result from the PAH analysis was used in the data validation.

The laboratory reported the lowest concentration of the two GC columns for positive PCB results with the exception of samples QF-SO-DUP01-120810, QF-SD08-0006, QF-SD09-0006, and QF-SD-DUP01-120810. The results for Aroclor 1254 and Aroclor 1260 were reported from GC column 1 for these samples, regardless of the concentration, because the laboratory chose the same chromatographic peak in identifying Aroclor 1254 and Aroclor 1260 from GC column 2.

Positive results reported below the LOQ but above the Method Detection Limit (MDL) were qualified as estimated, (J). Non-detected results are reported to the Limit of Detection (LOD).

EXECUTIVE SUMMARY

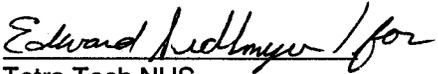
Laboratory Performance: Extraction holding times were exceeded in the SVOC fraction for samples that required reanalyses. RRFs for acetone and 2-butanone were below the quality control limit resulting in rejection and estimation of some environmental sample results. Several noncompliant initial calibration %RSDs and continuing calibration %Ds were noted in the VOC and SVOC fractions. Common laboratory contaminants were detected in the laboratory method blanks in the VOC fraction. Some SVOC and PAH blank spike results were outside of quality control criteria. RPDs between GC columns exceeded 25% for several samples in the PCB fraction. PAH samples were not analyzed at dilutions after exceeding the instrument's linear calibration range.

Other Factors Affecting Data Quality: Surrogate noncompliances were noted in the VOC, SVOC, PAH, and PCB fractions. The MS/MSD samples yielded several %Rs and RPDs outside the quality control limits in the VOC, SVOC, and PAH fractions. Field duplicate imprecision was noted in both field duplicate pairs. Many sample required dilutions in the VOC, SVOC, PAH, and TPH fractions. Field duplicate imprecision was noted in all three field duplicate pairs. Many samples were analyzed at dilutions. Positive results reported below the LOQ but above the MDL were qualified as estimated, (J). Non-detected results were reported to the LOD.

The data for these analyses were reviewed with reference to the criteria for SW-846 Methods 8260C, 8270D, 8270D SIM, 8082A, and 8015D listed in the project specific SAP, the "USEPA Region 1 Laboratory Data Validation Functional Guidelines – Part II" (12/96), and the Department of Defense (DOD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).



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Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C – Regional Worksheets
4. Appendix D - Support Documentation

APPENDIX A

QUALIFIED LABORATORY RESULTS

Data Validation Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS - GFAA MSA's $r < 0.995$ / ICP PDS Recovery Noncompliance
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (e.g. base-line drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $< CRQL$ for organics)
- Q = Other problems (can encompass a number of issues; e.g. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = % Difference between columns/detectors $> 25\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SEDIMENT	NSAMPLE	QF-SD01-0006			QF-SD02-0006			QF-SD03-0006			QF-SD04-0006		
	LAB_ID	J2571-09D			J2571-10D			J2571-11D			J2571-12D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	51.0			67.0			54.0			52.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2,4,5-TRICHLOROPHENOL	130	UJ	R	99	U		120	U		130	UJ	R	
2,4,6-TRICHLOROPHENOL	130	UJ	R	99	U		120	U		130	UJ	R	
2,4-DICHLOROPHENOL	130	UJ	R	99	U		120	U		130	UJ	R	
2,4-DIMETHYLPHENOL	130	UJ	R	99	U		120	U		130	UJ	R	
2,4-DINITROPHENOL	640	UR	D	490	UJ	C	600	UJ	C	630	UJ	CR	
2,4-DINITROTOLUENE	130	UJ	R	99	U		120	U		130	UJ	R	
2,6-DINITROTOLUENE	130	UJ	R	99	U		120	U		130	UJ	R	
2-CHLORONAPHTHALENE	130	UJ	R	99	U		120	U		130	UJ	R	
2-CHLOROPHENOL	130	UJ	R	99	U		120	U		130	UJ	R	
2-METHYLPHENOL	130	UJ	R	99	U		120	U		130	UJ	R	
2-NITROANILINE	130	UJ	CR	99	U		120	U		130	UJ	R	
2-NITROPHENOL	130	UJ	R	99	U		120	U		130	UJ	R	
3,3'-DICHLOROBENZIDINE	130	UR	D	99	U		120	U		130	UJ	R	
3-NITROANILINE	130	UR	D	99	U		120	U		130	UJ	R	
4,6-DINITRO-2-METHYLPHENOL	130	UR	D	99	U		120	U		130	UJ	R	
4-BROMOPHENYL PHENYL ETHER	330	UJ	R	250	U		310	U		320	UJ	R	
4-CHLORO-3-METHYLPHENOL	130	UJ	R	99	U		120	U		130	UJ	R	
4-CHLOROANILINE	130	UR	D	99	UJ	C	120	UJ	C	130	UJ	CR	
4-CHLOROPHENYL PHENYL ETHER	130	UJ	R	99	U		120	U		130	UJ	R	
4-METHYLPHENOL	130	UJ	R	99	U		120	U		130	UJ	R	
4-NITROANILINE	130	UR	D	99	U		120	U		130	UJ	R	
4-NITROPHENOL	130	UJ	CR	99	UJ	C	120	UJ	C	130	UJ	CR	
BENZO(A)ANTHRACENE													
BENZO(A)PYRENE													
BENZO(B)FLUORANTHENE	770	J	DR	610			850			810	J	R	
BENZO(G,H,I)PERYLENE													
BENZO(K)FLUORANTHENE													
BIS(2-CHLOROETHOXY)METHANE	130	UJ	R	99	U		120	U		130	UJ	R	
BIS(2-CHLOROETHYL)ETHER	330	UJ	R	250	U		310	U		320	UJ	R	
BIS(2-ETHYLHEXYL)PHTHALATE	340	J	DPR	410	J	P	550	J	P	420	J	PR	
BUTYL BENZYL PHTHALATE	74	J	PR	99	U		120	U		130	UJ	R	
CARBAZOLE	130	UJ	R	90	J	P	86	J	P	74	J	PR	
CHRYSENE				640			800			860	J	R	
DIBENZOFURAN	130	UJ	R	99	U		120	U		130	UJ	R	
DIETHYL PHTHALATE	130	UJ	R	99	U		120	U		130	UJ	R	

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SEDIMENT	NSAMPLE	QF-SD05-0006			QF-SD06-0006			QF-SD07-0006			QF-SD08-0006		
	LAB_ID	J2571-13D			J2571-14D			J2571-15D			J2571-16D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	59.0			65.0			59.0			58.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2,4,5-TRICHLOROPHENOL	110	U		100	U		110	U		110	U		
2,4,6-TRICHLOROPHENOL	110	U		100	U		110	U		110	U		
2,4-DICHLOROPHENOL	110	U		100	U		110	U		110	U		
2,4-DIMETHYLPHENOL	110	U		100	U		110	U		110	U		
2,4-DINITROPHENOL	550	UJ	C	510	UJ	C	550	UJ	C	560	UJ	C	
2,4-DINITROTOLUENE	110	U		100	U		110	U		110	U		
2,6-DINITROTOLUENE	110	U		100	U		110	U		110	U		
2-CHLORONAPHTHALENE	110	U		100	U		110	U		110	U		
2-CHLOROPHENOL	110	U		100	U		110	U		110	U		
2-METHYLPHENOL	110	U		100	U		110	U		110	U		
2-NITROANILINE	110	U		100	U		110	U		110	U		
2-NITROPHENOL	110	U		100	U		110	U		110	U		
3,3'-DICHLOROBENZIDINE	110	U		100	U		110	U		110	U		
3-NITROANILINE	110	U		100	U		110	U		110	U		
4,6-DINITRO-2-METHYLPHENOL	110	U		100	U		110	U		110	U		
4-BROMOPHENYL PHENYL ETHER	280	U		260	U		280	U		280	U		
4-CHLORO-3-METHYLPHENOL	110	U		100	U		110	U		110	U		
4-CHLOROANILINE	110	UJ	C	100	UJ	C	110	UJ	C	110	UJ	C	
4-CHLOROPHENYL PHENYL ETHER	110	U		100	U		110	U		110	U		
4-METHYLPHENOL	110	U		100	U		110	U		110	U		
4-NITROANILINE	110	U		100	U		110	U		110	U		
4-NITROPHENOL	110	UJ	C	100	UJ	C	110	UJ	C	110	UJ	C	
BENZO(A)ANTHRACENE				1700									
BENZO(A)PYRENE				1300									
BENZO(B)FLUORANTHENE				1700						660			
BENZO(G,H,I)PERYLENE				880									
BENZO(K)FLUORANTHENE				1400			520	J	P				
BIS(2-CHLOROETHOXY)METHANE	110	U		100	U		110	U		110	U		
BIS(2-CHLOROETHYL)ETHER	280	U		260	U		280	U		280	U		
BIS(2-ETHYLHEXYL)PHTHALATE	280	J	P	610			190	J	P	410	J	P	
BUTYL BENZYL PHTHALATE	110	U		120	J	P	110	U		110	U		
CARBAZOLE	73	J	P	320	J	P	80	J	P	89	J	P	
CHRYSENE				2200						630			
DIBENZOFURAN	110	U		65	J	P	110	U		110	U		
DIETHYL PHTHALATE	110	U		100	U		110	U		110	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SEDIMENT	NSAMPLE	QF-SD-09-0006			QF-SD-DUP01-120810		
	LAB_ID	J2571-17D			J2571-18D		
	SAMP_DATE	12/8/2010			12/8/2010		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	35.0			44.0		
	DUP_OF				QF-SD-09-0006		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2,4,5-TRICHLOROPHENOL	190 U			150 U			
2,4,6-TRICHLOROPHENOL	190 U			150 U			
2,4-DICHLOROPHENOL	190 U			150 U			
2,4-DIMETHYLPHENOL	190 U			150 U			
2,4-DINITROPHENOL	940 UJ		C	750 UJ		C	
2,4-DINITROTOLUENE	190 U			150 U			
2,6-DINITROTOLUENE	190 U			150 U			
2-CHLORONAPHTHALENE	190 U			150 U			
2-CHLOROPHENOL	190 U			150 U			
2-METHYLPHENOL	190 U			150 U			
2-NITROANILINE	190 U			150 U			
2-NITROPHENOL	190 U			150 U			
3,3'-DICHLOROBENZIDINE	190 U			150 U			
3-NITROANILINE	190 U			150 U			
4,6-DINITRO-2-METHYLPHENOL	190 U			150 U			
4-BROMOPHENYL PHENYL ETHER	470 U			380 U			
4-CHLORO-3-METHYLPHENOL	190 U			150 U			
4-CHLOROANILINE	190 UJ		C	150 UJ		C	
4-CHLOROPHENYL PHENYL ETHER	190 U			150 U			
4-METHYLPHENOL	190 U			150 U			
4-NITROANILINE	190 U			150 U			
4-NITROPHENOL	190 UJ		C	150 UJ		C	
BENZO(A)ANTHRACENE							
BENZO(A)PYRENE							
BENZO(B)FLUORANTHENE	970						
BENZO(G,H,I)PERYLENE							
BENZO(K)FLUORANTHENE							
BIS(2-CHLOROETHOXY)METHANE	190 U			150 U			
BIS(2-CHLOROETHYL)ETHER	470 U			380 U			
BIS(2-ETHYLHEXYL)PHTHALATE	670 J		P	670 J		P	
BUTYL BENZYL PHTHALATE	190 U			150 U			
CARBAZOLE	160 J		P	110 J		P	
CHRYSENE				730 J		P	
DIBENZOFURAN	190 U			150 U			
DIETHYL PHTHALATE	190 U			150 U			

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SEDIMENT	NSAMPLE	QF-SD01-0006			QF-SD02-0006			QF-SD03-0006			QF-SD04-0006		
	LAB_ID	J2571-09D			J2571-10D			J2571-11D			J2571-12D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	51.0			67.0			54.0			52.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
DIMETHYL PHTHALATE	130	UJ	R	99	U		120	U		130	UJ	R	
DI-N-BUTYL PHTHALATE	130	UJ	R	54	J	P	90	J	P	130	J	PR	
DI-N-OCTYL PHTHALATE	130	UJ	CR	99	UJ	C	120	UJ	C	130	UJ	CR	
FLUORANTHENE	780	J	DR	1000			1100			1000	J	R	
HEXACHLOROBUTADIENE	130	UJ	R	99	U		120	U		130	UJ	R	
HEXACHLOROCYCLOPENTADIENE	640	UR	D	490	UJ	C	600	UJ	C	630	UJ	CR	
HEXACHLOROETHANE	130	UJ	CR	99	UJ	C	120	UJ	C	130	UJ	CR	
INDENO(1,2,3-CD)PYRENE													
ISOPHORONE	130	UJ	R	99	U		120	U		130	UJ	R	
NITROBENZENE	130	UJ	R	99	U		120	U		130	UJ	R	
N-NITROSO-DI-N-PROPYLAMINE	330	UJ	CR	250	UJ	C	310	UJ	C	320	UJ	CR	
N-NITROSODIPHENYLAMINE	130	UJ	R	99	U		120	U		130	UJ	R	
PENTACHLOROPHENOL	640	UJ	R	490	U		600	U		630	UJ	R	
PHENANTHRENE													
PHENOL	130	UJ	R	99	U		120	U		130	UJ	R	
PYRENE				770			860						

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SEDIMENT	NSAMPLE	QF-SD05-0006			QF-SD06-0006			QF-SD07-0006			QF-SD08-0006		
	LAB_ID	J2571-13D			J2571-14D			J2571-15D			J2571-16D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	59.0			65.0			59.0			58.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
DIMETHYL PHTHALATE	110	U		100	U		110	U		110	U		
DI-N-BUTYL PHTHALATE	110	U		63	J	P	110	U		130	J	P	
DI-N-OCTYL PHTHALATE	110	UJ	C	100	UJ	C	110	UJ	C	110	UJ	C	
FLUORANTHENE				4000			720			870			
HEXACHLOROBUTADIENE	110	U		100	U		110	U		110	U		
HEXACHLOROCYCLOPENTADIENE	550	UJ	C	510	UJ	C	550	UJ	C	560	UJ	C	
HEXACHLOROETHANE	110	UJ	C	100	UJ	C	110	UJ	C	110	UJ	C	
INDENO(1,2,3-CD)PYRENE				820									
ISOPHORONE	110	U		100	U		110	U		110	U		
NITROBENZENE	110	U		100	U		110	U		110	U		
N-NITROSO-DI-N-PROPYLAMINE	280	UJ	C	260	UJ	C	280	UJ	C	280	UJ	C	
N-NITROSODIPHENYLAMINE	110	U		100	U		110	U		110	U		
PENTACHLOROPHENOL	550	U		510	U		550	U		560	U		
PHENANTHRENE				2100									
PHENOL	110	U		100	U		110	U		110	U		
PYRENE				2900			740			800			

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SEDIMENT	NSAMPLE	QF-SD-09-0006			QF-SD-DUP01-120810		
	LAB_ID	J2571-17D			J2571-18D		
	SAMP_DATE	12/8/2010			12/8/2010		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	35.0			44.0		
	DUP_OF				QF-SD-09-0006		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
DIMETHYL PHTHALATE	190	U		150	U		
DI-N-BUTYL PHTHALATE	190	U		150	U		
DI-N-OCTYL PHTHALATE	190	UJ	C	150	UJ	C	
FLUORANTHENE							
HEXACHLOROBUTADIENE	190	U		150	U		
HEXACHLOROCYCLOPENTADIENE	940	UJ	C	750	UJ	C	
HEXACHLOROETHANE	190	UJ	C	150	UJ	C	
INDENO(1,2,3-CD)PYRENE							
ISOPHORONE	190	U		150	U		
NITROBENZENE	190	U		150	U		
N-NITROSO-DI-N-PROPYLAMINE	470	UJ	C	380	UJ	C	
N-NITROSODIPHENYLAMINE	190	U		150	U		
PENTACHLOROPHENOL	940	U		750	U		
PHENANTHRENE							
PHENOL	190	U		150	U		
PYRENE	1400	J	G				

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SOIL	NSAMPLE	QF-RS01			QF-RS02			QF-RS03			QF-RS04		
	LAB_ID	J2571-20D			J2571-21D			J2571-22D			J2571-23D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.0			84.0			97.0			75.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2,4,5-TRICHLOROPHENOL	71	U		77	U		68	U		430	U		
2,4,6-TRICHLOROPHENOL	71	U		77	U		68	U		430	U		
2,4-DICHLOROPHENOL	71	U		77	U		68	U		430	U		
2,4-DIMETHYLPHENOL	71	U		77	U		68	U		430	U		
2,4-DINITROPHENOL	350	UJ	C	390	UJ	C	340	UJ	C	2200	UJ	C	
2,4-DINITROTOLUENE	71	U		77	U		68	U		430	U		
2,6-DINITROTOLUENE	71	U		77	U		68	U		430	U		
2-CHLORONAPHTHALENE	71	U		77	U		68	U		430	U		
2-CHLOROPHENOL	71	U		77	U		68	U		430	U		
2-METHYLNAPHTHALENE	1000	J	CG							29000	J	C	
2-METHYLPHENOL	71	U		77	U		68	U		430	U		
2-NITROANILINE	71	U		77	U		68	U		430	U		
2-NITROPHENOL	71	U		77	U		68	U		430	U		
3,3'-DICHLOROBENZIDINE	71	U		77	U		68	U		430	U		
3-NITROANILINE	71	U		77	U		68	U		430	U		
4,6-DINITRO-2-METHYLPHENOL	71	U		77	UJ	C	68	UJ	C	430	UJ	C	
4-BROMOPHENYL PHENYL ETHER	180	U		200	U		170	U		1100	U		
4-CHLORO-3-METHYLPHENOL	71	U		77	U		68	U		430	U		
4-CHLOROANILINE	71	UJ	C	77	UJ	C	68	UJ	C	430	UJ	C	
4-CHLOROPHENYL PHENYL ETHER	71	U		77	U		68	U		430	U		
4-METHYLPHENOL	71	U		77	U		68	U		430	U		
4-NITROANILINE	71	U		77	UJ	C	68	UJ	C	430	UJ	C	
4-NITROPHENOL	71	UJ	C	77	U		68	U		430	U		
ACENAPHTHENE										31000			
ANTHRACENE										25000			
BENZO(A)ANTHRACENE													
BENZO(A)PYRENE													
BENZO(B)FLUORANTHENE										33000			
BENZO(G,H,I)PERYLENE										20000			
BENZO(K)FLUORANTHENE										26000			
BIS(2-CHLOROETHOXY)METHANE	71	U		77	U		68	U		430	U		
BIS(2-CHLOROETHYL)ETHER	180	U		200	UJ	C	170	UJ	C	1100	UJ	C	
BIS(2-ETHYLHEXYL)PHTHALATE	310	J	P	400	J	CD	440	J	C	3300	J	C	
BUTYL BENZYL PHTHALATE	71	U		77	U		68	U		430	U		
CARBAZOLE	93	J	P	54	J	P	68	U		14000			

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SOIL	NSAMPLE	QF-RS04DL			QF-RS05			QF-RS-DUP01-120810			QF-SO-CS01		
	LAB_ID	J2571-23DDL			J2571-24D			J2571-25D			J2571-01D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			87.0			91.0			91.0		
	DUP_OF							QF-RS01					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2,4,5-TRICHLOROPHENOL				76	U		72	U		71	U		
2,4,6-TRICHLOROPHENOL				76	U		72	U		71	U		
2,4-DICHLOROPHENOL				76	U		72	U		71	U		
2,4-DIMETHYLPHENOL				76	U		72	U		71	U		
2,4-DINITROPHENOL				380	UJ	C	360	UJ	C	360	UJ	C	
2,4-DINITROTOLUENE				76	U		72	U		71	U		
2,6-DINITROTOLUENE				76	U		72	U		71	U		
2-CHLORONAPHTHALENE				76	U		72	U		71	U		
2-CHLOROPHENOL				76	U		72	U		71	U		
2-METHYLNAPHTHALENE													
2-METHYLPHENOL				76	U		72	U		71	U		
2-NITROANILINE				76	U		72	U		71	UJ	C	
2-NITROPHENOL				76	U		72	U		71	U		
3,3'-DICHLORO BENZIDINE				76	U		72	U		71	U		
3-NITROANILINE				76	U		72	U		71	UJ	C	
4,6-DINITRO-2-METHYLPHENOL				76	UJ	C	72	UJ	C	71	U		
4-BROMOPHENYL PHENYL ETHER				190	U		180	U		180	U		
4-CHLORO-3-METHYLPHENOL				76	U		72	U		71	U		
4-CHLOROANILINE				76	UJ	C	72	UJ	C	71	UJ	C	
4-CHLOROPHENYL PHENYL ETHER				76	U		72	U		71	U		
4-METHYLPHENOL				76	U		72	U		71	U		
4-NITROANILINE				76	UUJ	C	72	UJ	C	71	UJ	C	
4-NITROPHENOL				76	U		72	U		71	U		
ACENAPHTHENE													
ANTHRACENE													
BENZO(A)ANTHRACENE	50000												
BENZO(A)PYRENE	33000												
BENZO(B)FLUORANTHENE													
BENZO(G,H,I)PERYLENE													
BENZO(K)FLUORANTHENE													
BIS(2-CHLOROETHOXY)METHANE				76	U		72	U		71	U		
BIS(2-CHLOROETHYL)ETHER				190	UJ	C	180	UJ	C	180	U		
BIS(2-ETHYLHEXYL)PHTHALATE				480	J	C	180	J	CP	71	U		
BUTYL BENZYL PHTHALATE				76	U		72	U		71	U		
CARBAZOLE				290	J	P	53	J	P	71	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SOIL	NSAMPLE	QF-SO-CS02			QF-SO-CS03			QF-SO-CS04			QF-SO-CS04RE		
	LAB_ID	J2571-02D			J2571-03D			J2571-04D			J2571-04DRE		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			1/1/1900		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.0			95.0			71.0			71.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2,4,5-TRICHLOROPHENOL	72	U		68	U		93	UJ	R				
2,4,6-TRICHLOROPHENOL	72	U		68	U		93	UJ	R				
2,4-DICHLOROPHENOL	72	U		68	U		93	UJ	R				
2,4-DIMETHYLPHENOL	72	U		68	U		93	UJ	R				
2,4-DINITROPHENOL	360	UJ	C	340	UJ	C	460	UJ	CR				
2,4-DINITROTOLUENE	72	U		68	U		93	UJ	R				
2,6-DINITROTOLUENE	72	U		68	U		93	UJ	R				
2-CHLORONAPHTHALENE	72	U		68	U		93	UJ	R				
2-CHLOROPHENOL	72	U		68	U		93	UJ	R				
2-METHYLNAPHTHALENE							2400	J	R				
2-METHYLPHENOL	72	U		68	U		93	UJ	R				
2-NITROANILINE	72	UJ	C	68	UJ	C	93	UJ	CR				
2-NITROPHENOL	72	U		68	U		93	UJ	R				
3,3'-DICHLOROBENZIDINE	72	U		68	U		93	UJ	R				
3-NITROANILINE	72	UJ	C	68	UJ	C	93	UJ	CR				
4,6-DINITRO-2-METHYLPHENOL	72	U		68	U		93	UJ	R				
4-BROMOPHENYL PHENYL ETHER	180	U		170	U		230	UJ	R				
4-CHLORO-3-METHYLPHENOL	72	U		68	U		93	UJ	R				
4-CHLOROANILINE	72	UJ	C	68	UJ	C	93	UJ	CR				
4-CHLOROPHENYL PHENYL ETHER	72	U		68	U		93	UJ	R				
4-METHYLPHENOL	72	U		68	U		93	UJ	R				
4-NITROANILINE	72	UJ	C	68	UJ	C	93	UJ	CR				
4-NITROPHENOL	72	U		68	U		93	UJ	R				
ACENAPHTHENE							1500	J	R				
ANTHRACENE													
BENZO(A)ANTHRACENE										9600	J	GH	
BENZO(A)PYRENE	600						6500	J	R				
BENZO(B)FLUORANTHENE	670									14000	J	GH	
BENZO(G,H,I)PERYLENE							3600	J	R				
BENZO(K)FLUORANTHENE	500						2400	J	GR				
BIS(2-CHLOROETHOXY)METHANE	72	U		68	U		93	UJ	R				
BIS(2-CHLOROETHYL)ETHER	180	U		170	U		230	UJ	R				
BIS(2-ETHYLHEXYL)PHTHALATE	2300			2000			1800	J	R				
BUTYL BENZYL PHTHALATE	72	U		68	U		93	UJ	R				
CARBAZOLE	72	U		68	U		93	UJ	R				

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SOIL	NSAMPLE	QF-SO-CS05			QF-SO-DUP01-120810			QF-SO-DUP01-120810RE			QF-SO-TP01-5 SC 5		
	LAB_ID	J2571-05D			J2571-06D			J2571-06DRE			J2571-08D		
	SAMP_DATE	12/8/2010			12/8/2010			1/1/1900			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			76.0			76.0			94.0		
	DUP_OF				QF-SO-CS04			QF-SO-CS04					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2,4,5-TRICHLOROPHENOL	87	U		87	UJ	R				70	U		
2,4,6-TRICHLOROPHENOL	87	U		87	UJ	R				70	U		
2,4-DICHLOROPHENOL	87	U		87	UJ	R				70	U		
2,4-DIMETHYLPHENOL	87	U		87	UJ	R				70	U		
2,4-DINITROPHENOL	440	UJ	C	430	UJ	CR				350	UJ	C	
2,4-DINITROTOLUENE	87	U		87	U					70	U		
2,6-DINITROTOLUENE	87	U		87	U					70	U		
2-CHLORONAPHTHALENE	87	U		87	U					70	U		
2-CHLOROPHENOL	87	U		87	UJ	R				70	U		
2-METHYLNAPHTHALENE				4000									
2-METHYLPHENOL	87	U		87	UJ	R				70	U		
2-NITROANILINE	87	UJ	C	87	UJ	C				70	UJ	C	
2-NITROPHENOL	87	U		87	UJ	R				70	U		
3,3'-DICHLOROENZIDINE	87	U		87	U					70	U		
3-NITROANILINE	87	UJ	C	87	UJ	C				70	UJ	C	
4,6-DINITRO-2-METHYLPHENOL	87	U		87	UJ	R				70	U		
4-BROMOPHENYL PHENYL ETHER	220	U		220	U					180	U		
4-CHLORO-3-METHYLPHENOL	87	U		87	UJ	R				70	U		
4-CHLOROANILINE	87	UJ	C	87	UJ	C				70	UJ	C	
4-CHLOROPHENYL PHENYL ETHER	87	U		87	U					70	U		
4-METHYLPHENOL	87	U		87	UJ	R				70	U		
4-NITROANILINE	87	UJ	C	87	UJ	C				70	UJ	C	
4-NITROPHENOL	87	U		87	UJ	R				70	U		
ACENAPHTHENE				1800									
ANTHRACENE													
BENZO(A)ANTHRACENE													
BENZO(A)PYRENE				5700									
BENZO(B)FLUORANTHENE	520						23000	J	H				
BENZO(G,H,I)PERYLENE				2900									
BENZO(K)FLUORANTHENE				5100	J	G							
BIS(2-CHLOROETHOXY)METHANE	87	U		87	U					70	U		
BIS(2-CHLOROETHYL)ETHER	220	U		220	U					180	U		
BIS(2-ETHYLHEXYL)PHTHALATE	230	J	P	1700						70	U		
BUTYL BENZYL PHTHALATE	87	U		87	U					70	U		
CARBAZOLE	87	U		87	U					70	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SOIL	NSAMPLE	QF-RS01			QF-RS02			QF-RS03			QF-RS04		
	LAB_ID	J2571-20D			J2571-21D			J2571-22D			J2571-23D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.0			84.0			97.0			75.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
CHRYSENE	460												
DIBENZO(A,H)ANTHRACENE										9000			
DIBENZOFURAN	130	J	P	77	U		68	U		21000			
DIETHYL PHTHALATE	71	U		77	U		68	U		430	U		
DIMETHYL PHTHALATE	71	U		77	U		68	U		430	U		
DI-N-BUTYL PHTHALATE	71	U		77	U		68	U		830	J	P	
DI-N-OCTYL PHTHALATE	71	UJ	C	77	U		68	U		430	U		
FLUORANTHENE	830												
FLUORENE													
HEXACHLOROBUTADIENE	71	U		77	U		68	U		430	U		
HEXACHLOROCYCLOPENTADIENE	350	UJ	C	390	U		340	U		2200	U		
HEXACHLOROETHANE	71	UJ	C	77	U		68	U		430	U		
INDENO(1,2,3-CD)PYRENE										20000			
ISOPHORONE	71	U		77	U		68	U		430	U		
NAPHTHALENE	510	J	G							12000			
NITROBENZENE	71	U		77	UJ	C	68	UJ	C	430	UJ	C	
N-NITROSO-DI-N-PROPYLAMINE	180	UJ	C	200	U		170	U		1100	U		
N-NITROSODIPHENYLAMINE	71	U		77	U		68	U		430	U		
PENTACHLOROPHENOL	350	U		390	UJ	C	340	UJ	C	2200	UJ	C	
PHENANTHRENE	780	J	G										
PHENOL	71	U		77	U		68	U		430	U		
PYRENE	630												

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SOIL	NSAMPLE	QF-RS04DL			QF-RS05			QF-RS-DUP01-120810			QF-SO-CS01		
	LAB_ID	J2571-23DDL			J2571-24D			J2571-25D			J2571-01D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			87.0			91.0			91.0		
	DUP_OF							QF-RS01					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
CHRYSENE	52000												
DIBENZO(A,H)ANTHRACENE													
DIBENZOFURAN				180	J	P	62	J	P	71	U		
DIETHYL PHTHALATE				76	U		72	U		71	U		
DIMETHYL PHTHALATE				76	U		72	U		71	U		
DI-N-BUTYL PHTHALATE				76	U		72	U		71	U		
DI-N-OCTYL PHTHALATE				76	U		72	U		71	UJ	C	
FLUORANTHENE	160000												
FLUORENE	32000												
HEXACHLOROBUTADIENE				76	U		72	U		71	U		
HEXACHLOROCYCLOPENTADIENE				380	U		360	U		360	U		
HEXACHLOROETHANE				76	U		72	U		71	UJ	C	
INDENO(1,2,3-CD)PYRENE													
ISOPHORONE				76	U		72	U		71	U		
NAPHTHALENE													
NITROBENZENE				76	UJ	C	72	UJ	C	71	U		
N-NITROSO-DI-N-PROPYLAMINE				190	U		180	U		180	UJ	C	
N-NITROSODIPHENYLAMINE				76	U		72	U		71	U		
PENTACHLOROPHENOL				380	UJ	C	360	UJ	C	360	U		
PHENANTHRENE	160000												
PHENOL				76	U		72	U		71	U		
PYRENE	90000												

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SOIL	NSAMPLE	QF-SO-CS02			QF-SO-CS03			QF-SO-CS04			QF-SO-CS04RE		
	LAB_ID	J2571-02D			J2571-03D			J2571-04D			J2571-04DRE		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			1/1/1900		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	90.0			95.0			71.0			71.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
CHRYSENE	290	J	P	380									
DIBENZO(A,H)ANTHRACENE													
DIBENZOFURAN	72	U		68	U		1100	J	R				
DIETHYL PHTHALATE	72	U		68	U		93	UJ	R				
DIMETHYL PHTHALATE	72	U		68	U		93	UJ	R				
DI-N-BUTYL PHTHALATE	72	U		68	U		93	UJ	R				
DI-N-OCTYL PHTHALATE	72	UJ	C	68	UJ	C	93	UJ	CR				
FLUORANTHENE	730			680						20000	J	EGH	
FLUORENE							1800	J	R				
HEXACHLOROBUTADIENE	72	U		68	U		93	UJ	R				
HEXACHLOROCYCLOPENTADIENE	360	U		340	U		460	UJ	R				
HEXACHLOROETHANE	72	UJ	C	68	UJ	C	93	UJ	CR				
INDENO(1,2,3-CD)PYRENE							3700	J	R				
ISOPHORONE	72	U		68	U		93	UJ	R				
NAPHTHALENE													
NITROBENZENE	72	U		68	U		93	UJ	R				
N-NITROSO-DI-N-PROPYLAMINE	180	UJ	C	170	UJ	C	230	UJ	CR				
N-NITROSODIPHENYLAMINE	72	U		68	U		93	UJ	R				
PENTACHLOROPHENOL	360	U		340	U		460	UJ	R				
PHENANTHRENE							5500	J	R				
PHENOL	72	U		68	U		93	UJ	R				
PYRENE	1500			1500						22000	J	GH	

PROJ_NO: 01813 SDG: J2571 FRACTION: OS MEDIA: SOIL	NSAMPLE	QF-SO-CS05			QF-SO-DUP01-120810			QF-SO-DUP01-120810RE			QF-SO-TP01-5 SC 5		
	LAB_ID	J2571-05D			J2571-06D			J2571-06DRE			J2571-08D		
	SAMP_DATE	12/8/2010			12/8/2010			1/1/1900			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			76.0			76.0			94.0		
	DUP_OF				QF-SO-CS04			QF-SO-CS04					
	PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHRYSENE	820												
DIBENZO(A,H)ANTHRACENE				1400	J	G							
DIBENZOFURAN	87	U		1400						70	U		
DIETHYL PHTHALATE	87	U		87	U					70	U		
DIMETHYL PHTHALATE	87	U		87	U					70	U		
DI-N-BUTYL PHTHALATE	87	U		87	U					70	U		
DI-N-OCTYL PHTHALATE	87	UJ	C	87	UJ	C				70	UJ	C	
FLUORANTHENE	1400						36000	J	EGH				
FLUORENE				1400									
HEXACHLOROBUTADIENE	87	U		87	U					70	U		
HEXACHLOROCYCLOPENTADIENE	440	U		430	U					350	U		
HEXACHLOROETHANE	87	UJ	C	87	UJ	C				70	UJ	C	
INDENO(1,2,3-CD)PYRENE				2800									
ISOPHORONE	87	U		87	U					70	U		
NAPHTHALENE				690	J	G							
NITROBENZENE	87	U		87	U					70	U		
N-NITROSO-DI-N-PROPYLAMINE	220	UJ	C	220	UJ	C				180	UJ	C	
N-NITROSODIPHENYLAMINE	87	U		87	U					70	U		
PENTACHLOROPHENOL	440	U		430	UJ	R				350	U		
PHENANTHRENE	550			4700									
PHENOL	87	U		87	UJ	R				70	U		
PYRENE	1700						38000	J	GH				

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SEDIMENT	NSAMPLE	QF-SD01-0006			QF-SD02-0006			QF-SD03-0006			QF-SD04-0006		
	LAB_ID	J2571-09A			J2571-10A			J2571-11A			J2571-12A		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	51.0			67.0			54.0			52.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1-TRICHLOROETHANE	3.6	U	D	1.9	U		3.3	U		2.5	U		
1,1,2,2-TETRACHLOROETHANE	3.6	U		1.9	U		3.3	U		2.5	U		
1,1,2-TRICHLOROETHANE	3.6	U		1.9	U		3.3	U		2.5	U		
1,1-DICHLOROETHANE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
1,1-DICHLOROETHENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
1,2,4-TRICHLOROBENZENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
1,2,4-TRIMETHYLBENZENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
1,2-DICHLOROBENZENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
1,2-DICHLOROETHANE	3.6	U		1.9	U		3.3	U		2.5	U		
1,2-DICHLOROPROPANE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
1,3,5-TRIMETHYLBENZENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
1,3-DICHLOROBENZENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
1,4-DICHLOROBENZENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
2-BUTANONE	7.1	UR	C	3.9	UR	C	6.6	UR	C	4.9	UR	C	
2-HEXANONE	7.1	UJ	D	3.9	U		6.6	U		4.9	U		
4-METHYL-2-PENTANONE	7.1	U		3.9	U		6.6	U		4.9	U		
ACETONE	75	J	C	13	J	C	18	J	C	27	J	C	
BENZENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
BROMODICHLOROMETHANE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
BROMOFORM	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
BROMOMETHANE	3.6	U		1.9	U		3.3	U		2.5	U		
CARBON DISULFIDE	3.6	U		1.9	U		3.3	U		2.5	U		
CARBON TETRACHLORIDE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
CHLOROBENZENE	3.6	UJ	D	1.9	U		3.3	U		2.2	J	P	
CHLORODIBROMOMETHANE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
CHLOROETHANE	3.6	U		1.9	U		3.3	U		2.5	U		
CHLOROFORM	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
CHLOROMETHANE	3.6	U		1.9	U		3.3	U		2.5	U		
CIS-1,2-DICHLOROETHENE	3.6	U		1.9	U		3.3	U		2.5	U		
CIS-1,3-DICHLOROPROPENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
ETHYLBENZENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
METHYLENE CHLORIDE	3.6	UJ	C	1.9	UJ	C	3.3	UJ	C	2.5	UJ	C	
STYRENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
TETRACHLOROETHENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
TOLUENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SEDIMENT	NSAMPLE	QF-SD05-0006			QF-SD06-0006			QF-SD07-0006			QF-SD08-0006		
	LAB_ID	J2571-13A			J2571-14A			J2571-15A			J2571-16A		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	59.0			65.0			59.0			58.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1-TRICHLOROETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
1,1,2,2-TETRACHLOROETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
1,1,2-TRICHLOROETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
1,1-DICHLOROETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
1,1-DICHLOROETHENE	2.8	U		2.1	U		2.6	U		2.4	UJ	C	
1,2,4-TRICHLOROBENZENE	2.8	U		2.1	U		2.6	U		2.4	U		
1,2,4-TRIMETHYLBENZENE	2.8	U		2.1	U		2.6	U		2.4	U		
1,2-DICHLOROBENZENE	2.8	U		2.1	U		2.6	U		2.4	U		
1,2-DICHLOROETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
1,2-DICHLOROPROPANE	2.8	U		2.1	U		2.6	U		2.4	U		
1,3,5-TRIMETHYLBENZENE	2.8	U		2.1	U		2.6	U		2.4	U		
1,3-DICHLOROBENZENE	2.8	U		2.1	U		2.6	U		2.4	U		
1,4-DICHLOROBENZENE	2.8	U		2.1	U		2.6	U		2.4	U		
2-BUTANONE	5.6	UR	C	4.3	UR	C	5.2	UR	C	4.8	UR	C	
2-HEXANONE	5.6	U		4.3	U		5.2	U		4.8	U		
4-METHYL-2-PENTANONE	5.6	U		4.3	U		5.2	U		4.8	U		
ACETONE	67	J	C	90	J	C	20	J	C	13	J	C	
BENZENE	2.8	U		2.1	U		2.6	U		2.4	U		
BROMODICHLOROMETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
BROMOFORM	2.8	U		2.1	U		2.6	U		2.4	U		
BROMOMETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
CARBON DISULFIDE	2.8	U		2.1	U		2.6	U		2.4	U		
CARBON TETRACHLORIDE	2.8	U		2.1	U		2.6	U		2.4	U		
CHLOROBENZENE	2.8	U		1.3	J	P	2.6	U		2.4	U		
CHLORODIBROMOMETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
CHLOROETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
CHLOROFORM	2.8	U		2.1	U		2.6	U		2.4	U		
CHLOROMETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
CIS-1,2-DICHLOROETHENE	2.8	U		2.1	U		2.6	U		2.4	U		
CIS-1,3-DICHLOROPROPENE	2.8	U		2.1	U		2.6	U		2.4	U		
ETHYLBENZENE	2.8	U		2.1	U		2.6	U		2.4	U		
METHYLENE CHLORIDE	2.8	UJ	C	2.1	UJ	C	2.6	UJ	C	2.4	UJ	C	
STYRENE	2.8	U		2.1	U		2.6	U		2.4	U		
TETRACHLOROETHENE	2.8	U		2.1	U		2.6	U		2.4	U		
TOLUENE	2.8	U		2.1	U		2.6	U		2.4	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SEDIMENT	NSAMPLE	QF-SD-09-0006			QF-SD-DUP01-120810			QF-SD-TB01-120810		
	LAB_ID	J2571-17A			J2571-18A			J2571-19A		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	35.0			44.0			100.0		
	DUP_OF				QF-SD-09-0006					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1-TRICHLOROETHANE	4.1	U		4.1	U		2	U		
1,1,2,2-TETRACHLOROETHANE	4.1	U		4.1	U		2	U		
1,1,2-TRICHLOROETHANE	4.1	U		4.1	U		2	U		
1,1-DICHLOROETHANE	4.1	U		4.1	U		2	U		
1,1-DICHLOROETHENE	4.1	UJ	C	4.1	UJ	C	2	UJ	C	
1,2,4-TRICHLOROBENZENE	4.1	U		4.1	U		2	U		
1,2,4-TRIMETHYLBENZENE	4.1	U		4.1	U		2	U		
1,2-DICHLOROBENZENE	4.1	U		4.1	U		2	U		
1,2-DICHLOROETHANE	4.1	U		4.1	U		2	U		
1,2-DICHLOROPROPANE	4.1	U		4.1	U		2	U		
1,3,5-TRIMETHYLBENZENE	4.1	U		4.1	U		2	U		
1,3-DICHLOROBENZENE	4.1	U		4.1	U		2	U		
1,4-DICHLOROBENZENE	4.1	U		4.1	U		2	U		
2-BUTANONE	8.2	UR	C	8.1	UR	C	4	UR	C	
2-HEXANONE	8.2	U		8.1	U		4	U		
4-METHYL-2-PENTANONE	8.2	U		8.1	U		4	U		
ACETONE	46	J	CG	26	J	CG	4	UR	C	
BENZENE	4.1	U		4.1	U		2	U		
BROMODICHLOROMETHANE	4.1	U		4.1	U		2	U		
BROMOFORM	4.1	U		4.1	U		2	U		
BROMOMETHANE	4.1	U		4.1	U		2	U		
CARBON DISULFIDE	4.1	U		4.1	U		2	U		
CARBON TETRACHLORIDE	4.1	U		4.1	U		2	U		
CHLOROBENZENE	4.1	U		4.1	U		2	U		
CHLORODIBROMOMETHANE	4.1	U		4.1	U		2	U		
CHLOROETHANE	4.1	U		4.1	U		2	U		
CHLOROFORM	4.1	U		4.1	U		2	U		
CHLOROMETHANE	4.1	U		4.1	U		2	U		
CIS-1,2-DICHLOROETHENE	4.1	U		4.1	U		2	U		
CIS-1,3-DICHLOROPROPENE	4.1	U		4.1	U		2	U		
ETHYLBENZENE	4.1	U		4.1	U		2	U		
METHYLENE CHLORIDE	4.1	UJ	C	4.1	UJ	C	2	UJ	C	
STYRENE	4.1	U		4.1	U		2	U		
TETRACHLOROETHENE	4.1	U		4.1	U		2	U		
TOLUENE	4.1	U		4.1	U		2	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SEDIMENT	NSAMPLE	QF-SD01-0006			QF-SD02-0006			QF-SD03-0006			QF-SD04-0006		
	LAB_ID	J2571-09A			J2571-10A			J2571-11A			J2571-12A		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	51.0			67.0			54.0			52.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
TOTAL XYLENES	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
TRANS-1,2-DICHLOROETHENE	3.6	U		1.9	U		3.3	U		2.5	U		
TRANS-1,3-DICHLOROPROPENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
TRICHLOROETHENE	3.6	UJ	D	1.9	U		3.3	U		2.5	U		
TRICHLOROFLUOROMETHANE	3.6	U		1.9	U		3.3	U		2.5	U		
VINYL CHLORIDE	3.6	U		1.9	U		3.3	U		2.5	UJ	C	

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SEDIMENT	NSAMPLE	QF-SD05-0006			QF-SD06-0006			QF-SD07-0006			QF-SD08-0006		
	LAB_ID	J2571-13A			J2571-14A			J2571-15A			J2571-16A		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	59.0			65.0			59.0			58.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
TOTAL XYLENES	2.8	U		2.1	U		2.6	U		2.4	U		
TRANS-1,2-DICHLOROETHENE	2.8	U		2.1	U		2.6	U		2.4	U		
TRANS-1,3-DICHLOROPROPENE	2.8	U		2.1	U		2.6	U		2.4	U		
TRICHLOROETHENE	2.8	U		2.1	U		2.6	U		2.4	U		
TRICHLOROFLUOROMETHANE	2.8	U		2.1	U		2.6	U		2.4	U		
VINYL CHLORIDE	2.8	U		2.1	UJ	C	2.6	UJ	C	2.4	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SEDIMENT	NSAMPLE	QF-SD-09-0006			QF-SD-DUP01-120810			QF-SD-TB01-120810		
	LAB_ID	J2571-17A			J2571-18A			J2571-19A		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	35.0			44.0			100.0		
	DUP_OF				QF-SD-09-0006					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
TOTAL XYLENES	4.1	U		4.1	U		2	U		
TRANS-1,2-DICHLOROETHENE	4.1	U		4.1	U		2	U		
TRANS-1,3-DICHLOROPROPENE	4.1	U		4.1	U		2	U		
TRICHLOROETHENE	4.1	U		4.1	U		2	U		
TRICHLOROFLUOROMETHANE	4.1	U		4.1	U		2	U		
VINYL CHLORIDE	4.1	U		4.1	U		2	U		

PROJ_NO: 01813	NSAMPLE	QF-RS01			QF-RS02			QF-RS03			QF-RS04		
SDG: J2571	LAB_ID	J2571-20A			J2571-21A			J2571-22A			J2571-23B		
FRACTION: OV	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.0			84.0			97.0			75.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1-TRICHLOROETHANE	1.4	U		1.5	U		1.5	U		140	U		
1,1,2,2-TETRACHLOROETHANE	1.4	U		1.5	U		1.5	U		140	UJ	N	
1,1,2-TRICHLOROETHANE	1.4	U		1.5	U		1.5	U		140	U		
1,1-DICHLOROETHANE	1.4	U		1.5	U		1.5	U		140	U		
1,1-DICHLOROETHENE	1.4	UJ	C	1.5	UJ	C	1.5	UJ	C	140	U		
1,2,4-TRICHLOROBENZENE	1.3	J	P	3.7	J	P	1.5	U		440	J	CNR	
1,2,4-TRIMETHYLBENZENE	59			97			0.88	J	P				
1,2-DICHLOROBENZENE	22			42			1.5	U		7400	J	NR	
1,2-DICHLOROETHANE	1.4	U		1.5	U		1.5	U		140	U		
1,2-DICHLOROPROPANE	1.4	U		1.5	U		1.5	U		140	U		
1,3,5-TRIMETHYLBENZENE	16			38			1.5	U					
1,3-DICHLOROBENZENE	5.4			6.2			1.5	U		530	J	NR	
1,4-DICHLOROBENZENE	49			32			1.5	U		6100	J	NR	
2-BUTANONE	4.7	J	C	3	UR	C	3	UR	C	140	UR	C	
2-HEXANONE	2.9	U		3	U		3	U		140	U		
4-METHYL-2-PENTANONE	2.9	U		3	U		3	U		140	U		
ACETONE	16	UR	C	9.8	UR	C	3	U	B	140	UR	C	
BENZENE	1.4	U		1.5	J	P	1.5	U		140	U		
BROMODICHLOROMETHANE	1.4	U		1.5	U		1.5	U		140	U		
BROMOFORM	1.4	U		1.5	U		1.5	U		140	U		
BROMOMETHANE	1.4	U		1.5	U		1.5	U		140	UJ	C	
CARBON DISULFIDE	1.4	U		1.5	U		1.5	U		140	U		
CARBON TETRACHLORIDE	1.4	U		1.5	U		1.5	U		140	U		
CHLOROBENZENE	2100	J	G	3000	J	D	2.4	J	P				
CHLORODIBROMOMETHANE	1.4	U		1.5	U		1.5	U		140	U		
CHLOROETHANE	1.4	U		1.5	U		1.5	U		140	U		
CHLOROFORM	1.4	U		1.5	U		1.5	U		140	U		
CHLOROMETHANE	1.4	U		1.5	U		1.5	U		140	U		
CIS-1,2-DICHLOROETHENE	2.8	J	P	1.5	U		1.5	U		140	U		
CIS-1,3-DICHLOROPROPENE	1.4	U		1.5	U		1.5	U		140	U		
ETHYLBENZENE	53			6.9			1.5	U		1200	J	R	
METHYLENE CHLORIDE	1.4	UJ	C	1.5	UJ	C	1.6	J	CP	140	U		
STYRENE	1.4	U		1.5	U		1.5	U		140	U		
TETRACHLOROETHENE	1.4	U		1.5	U		1.5	U		140	U		
TOLUENE	13			4.9			1.5	U		660	J	R	

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SOIL	NSAMPLE	QF-RS04DL			QF-RS05			QF-RS-DUP01-120810			QF-RS-TB01-120810		
	LAB_ID	J2571-23BDL			J2571-24A			J2571-25A			J2571-26A		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			87.0			91.0			100.0		
	DUP_OF							QF-RS01					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1-TRICHLOROETHANE				1.9 U			1.4 U			2 U			
1,1,2,2-TETRACHLOROETHANE				1.9 U			1.4 U			2 U			
1,1,2-TRICHLOROETHANE				1.9 U			1.4 U			2 U			
1,1-DICHLOROETHANE				1.9 U			1.4 U			2 U			
1,1-DICHLOROETHENE				1.9 UJ	C		1.4 UJ	C		2 UJ	C		
1,2,4-TRICHLOROBENZENE				1.9 U			2.7 J	P		2 U			
1,2,4-TRIMETHYLBENZENE	39000			3.7 J	P		46			2 U			
1,2-DICHLOROBENZENE				1.3 J	P		21			2 U			
1,2-DICHLOROETHANE				1.9 U			1.4 U			2 U			
1,2-DICHLOROPROPANE				1.9 U			1.4 U			2 U			
1,3,5-TRIMETHYLBENZENE	15000			1.3 J	P		15			2 U			
1,3-DICHLOROBENZENE				1.9 U			3.7			2 U			
1,4-DICHLOROBENZENE				1.4 J	P		32			2 U			
2-BUTANONE				3.7 UR	C		2.8 UR	C		4 UR	C		
2-HEXANONE				3.7 U			2.8 U			4 U			
4-METHYL-2-PENTANONE				3.7 U			2.8 U			4 U			
ACETONE				3.7 U	B		18 U	B		2.7 J	CP		
BENZENE				1.9 U			1.4 U			2 U			
BROMODICHLOROMETHANE				1.9 U			1.4 U			2 U			
BROMOFORM				1.9 U			1.4 U			2 U			
BROMOMETHANE				1.9 U			1.4 U			2 U			
CARBON DISULFIDE				1.9 U			1.4 U			2 U			
CARBON TETRACHLORIDE				1.9 U			1.4 U			2 U			
CHLOROBENZENE	25000			4 J	P		1100 J	G		2 U			
CHLORODIBROMOMETHANE				1.9 U			1.4 U			2 U			
CHLOROETHANE				1.9 U			1.4 U			2 U			
CHLOROFORM				1.9 U			1.4 U			2 U			
CHLOROMETHANE				1.9 U			1.4 U			2 U			
CIS-1,2-DICHLOROETHENE				1.9 U			2 J	P		2 U			
CIS-1,3-DICHLOROPROPENE				1.9 U			1.4 U			2 U			
ETHYLBENZENE				1.9 U			39			2 U			
METHYLENE CHLORIDE				1.9 UJ	C		4.1 J	C		2 UJ	C		
STYRENE				1.9 U			1.4 U			2 U			
TETRACHLOROETHENE				1.9 U			1.4 U			2 U			
TOLUENE				1.9 U			8.6			2 U			

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SOIL	NSAMPLE	QF-SO-CS01			QF-SO-CS02			QF-SO-CS03			QF-SO-CS04		
	LAB_ID	J2571-01A			J2571-02A			J2571-03A			J2571-04B		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.0			90.0			95.0			71.0		
	DUP_OF												
	PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE	1.6	U		1.2	UJ	R	1.2	U		190	U		
1,1,2,2-TETRACHLOROETHANE	1.6	U		1.2	UJ	NR	1.2	U		190	U		
1,1,2-TRICHLOROETHANE	1.6	U		1.2	UJ	R	1.2	U		190	U		
1,1-DICHLOROETHANE	1.6	U		1.2	UJ	R	1.2	U		190	U		
1,1-DICHLOROETHENE	1.6	U		1.2	UJ	R	1.2	U		190	U		
1,2,4-TRICHLOROBENZENE	1.6	UJ	D	1.2	UJ	NR	1.2	U		190	U		
1,2,4-TRIMETHYLBENZENE	1.6	U		1.2	UJ	NR	1.2	U					
1,2-DICHLOROBENZENE	1.6	UJ	D	1.2	UJ	R	1.2	U		8300	J	G	
1,2-DICHLOROETHANE	1.6	U		1.2	UJ	NR	1.2	U		190	U		
1,2-DICHLOROPROPANE	1.6	U		1.2	UJ	R	1.2	U		190	U		
1,3,5-TRIMETHYLBENZENE	1.6	U		1.2	UJ	NR	1.2	U					
1,3-DICHLOROBENZENE	1.6	UJ	D	1.2	UJ	NR	1.2	U		10000	J	G	
1,4-DICHLOROBENZENE	1.6	UJ	D	5.4	J	NR	1.2	U					
2-BUTANONE	3.3	UR	C	2.5	UR	C	2.3	UR	C	190	UR	C	
2-HEXANONE	3.3	U		2.5	UJ	R	2.3	U		190	U		
4-METHYL-2-PENTANONE	3.3	U		2.5	UJ	R	2.3	U		190	U		
ACETONE	10	J	C	36	J	CR	3.4	J	C	190	UR	C	
BENZENE	1.6	U		1.2	UJ	R	1.2	U		190	U		
BROMODICHLOROMETHANE	1.6	U		1.2	UJ	R	1.2	U		190	U		
BROMOFORM	1.6	U		1.2	UJ	R	1.2	U		190	U		
BROMOMETHANE	1.6	U		1.2	UJ	R	1.2	U		190	U		
CARBON DISULFIDE	1.6	U		1.2	UJ	R	1.2	U		190	U		
CARBON TETRACHLORIDE	1.6	U		1.2	UJ	R	1.2	U		190	U		
CHLOROBENZENE	1.6	U		1.2	UJ	R	1.2	U					
CHLORODIBROMOMETHANE	1.6	U		1.2	UJ	R	1.2	U		190	U		
CHLOROETHANE	1.6	U		1.2	UJ	R	1.2	U		190	U		
CHLOROFORM	1.6	U		1.2	UJ	R	1.2	U		190	U		
CHLOROMETHANE	1.6	U		1.2	UJ	R	1.2	U		190	UJ	C	
CIS-1,2-DICHLOROETHENE	1.6	U		1.2	UJ	R	1.2	U		190	U		
CIS-1,3-DICHLOROPROPENE	1.6	U		1.2	UJ	R	1.2	U		190	U		
ETHYLBENZENE	1.6	U		1.2	UJ	R	1.2	U		1300	J	G	
METHYLENE CHLORIDE	2.2	U	B	1.2	UJ	CR	1.2	UJ	C	190	U		
STYRENE	1.6	UJ	D	1.2	UJ	R	1.2	U		190	U		
TETRACHLOROETHENE	1.6	U		1.2	UJ	R	1.2	U		190	U		
TOLUENE	1.6	U		1.2	UJ	R	1.2	U		190	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SOIL	NSAMPLE	QF-SO-CS04DL			QF-SO-CS05			QF-SO-DUP01-120810			QF-SO-DUP01-120810DL		
	LAB_ID	J2571-04BDL			J2571-05A			J2571-06B			J2571-06BDL		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	71.0			75.0			76.0			76.0		
	DUP_OF							QF-SO-CS04			QF-SO-CS04		
	PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE				1.2	U		150	U					
1,1,2,2-TETRACHLOROETHANE				1.2	U		150	U					
1,1,2-TRICHLOROETHANE				1.2	U		150	U					
1,1-DICHLOROETHANE				1.2	U		150	U					
1,1-DICHLOROETHENE				1.2	U		150	U					
1,2,4-TRICHLOROBENZENE				1.2	U		150	U					
1,2,4-TRIMETHYLBENZENE	72000	J	G	1.2	U					33000	J	G	
1,2-DICHLOROBENZENE				1.2	U		350	J	GP				
1,2-DICHLOROETHANE				1.2	U		150	U					
1,2-DICHLOROPROPANE				1.2	U		150	U					
1,3,5-TRIMETHYLBENZENE	17000	J	G	1.2	U		8100	J	G				
1,3-DICHLOROBENZENE				1.2	U		430	J	G				
1,4-DICHLOROBENZENE	5600	J	G	1.2	U		3100	J	G				
2-BUTANONE				2.4	UR	C	150	UR	C				
2-HEXANONE				2.4	U		150	U					
4-METHYL-2-PENTANONE				2.4	U		150	U					
ACETONE				9.8	J	C	150	UR	C				
BENZENE				1.2	U		150	U					
BROMODICHLOROMETHANE				1.2	U		150	U					
BROMOFORM				1.2	U		150	U					
BROMOMETHANE				1.2	U		150	U					
CARBON DISULFIDE				1.2	U		150	U					
CARBON TETRACHLORIDE				1.2	U		150	U					
CHLOROBENZENE	54000			1.2	U					34000			
CHLORODIBROMOMETHANE				1.2	U		150	U					
CHLOROETHANE				1.2	U		150	U					
CHLOROFORM				1.2	U		150	U					
CHLOROMETHANE				1.2	U		150	UJ	C				
CIS-1,2-DICHLOROETHENE				1.2	U		150	U					
CIS-1,3-DICHLOROPROPENE				1.2	U		150	U					
ETHYLBENZENE				1.2	U		730	J	G				
METHYLENE CHLORIDE				1.2	UJ	C	150	U					
STYRENE				1.2	U		150	U					
TETRACHLOROETHENE				1.2	U		150	U					
TOLUENE				1.2	U		150	U					

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SOIL	NSAMPLE	QF-SO-TB01-120810			QF-SO-TP01-5 SC 5		
	LAB_ID	J2571-07A			J2571-08A		
	SAMP_DATE	12/8/2010			12/8/2010		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	100.0			94.0		
	DUP_OF						
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
1,1,1-TRICHLOROETHANE	2 U			1.5 U			
1,1,2,2-TETRACHLOROETHANE	2 U			1.5 U			
1,1,2-TRICHLOROETHANE	2 U			1.5 U			
1,1-DICHLOROETHANE	2 U			1.5 U			
1,1-DICHLOROETHENE	2 U			1.5 U			
1,2,4-TRICHLOROBENZENE	2 U			1.5 U			
1,2,4-TRIMETHYLBENZENE	2 U			1.5 U			
1,2-DICHLOROBENZENE	2 U			1.5 U			
1,2-DICHLOROETHANE	2 U			1.5 U			
1,2-DICHLOROPROPANE	2 U			1.5 U			
1,3,5-TRIMETHYLBENZENE	2 U			1.5 U			
1,3-DICHLOROBENZENE	2 U			1.5 U			
1,4-DICHLOROBENZENE	2 U			1.5 U			
2-BUTANONE	4 UR		C	3.1 UR		C	
2-HEXANONE	4 U			3.1 U			
4-METHYL-2-PENTANONE	4 U			3.1 U			
ACETONE	4 UR		C	1.5 J		C	
BENZENE	2 U			1.5 U			
BROMODICHLOROMETHANE	2 U			1.5 U			
BROMOFORM	2 U			1.5 U			
BROMOMETHANE	2 U			1.5 U			
CARBON DISULFIDE	2 U			1.5 U			
CARBON TETRACHLORIDE	2 U			1.5 U			
CHLOROBENZENE	2 U			1.5 U			
CHLORODIBROMOMETHANE	2 U			1.5 U			
CHLOROETHANE	2 U			1.5 U			
CHLOROFORM	2 U			1.5 U			
CHLOROMETHANE	2 U			1.5 U			
CIS-1,2-DICHLOROETHENE	2 U			1.5 U			
CIS-1,3-DICHLOROPROPENE	2 U			1.5 U			
ETHYLBENZENE	2 U			1.5 U			
METHYLENE CHLORIDE	2 UJ		C	1.5 UJ		C	
STYRENE	2 U			1.5 U			
TETRACHLOROETHENE	2 U			1.5 U			
TOLUENE	2 U			1.5 U			

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SOIL	NSAMPLE	QF-RS01			QF-RS02			QF-RS03			QF-RS04		
	LAB_ID	J2571-20A			J2571-21A			J2571-22A			J2571-23B		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.0			84.0			97.0			75.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
TOTAL XYLENES	280			44			1.5	U		8100	J	NR	
TRANS-1,2-DICHLOROETHENE	1.7	J	P	1.5	U		1.5	U		140	U		
TRANS-1,3-DICHLOROPROPENE	1.4	U		1.5	U		1.5	U		140	U		
TRICHLOROETHENE	1.4	U		1.5	U		1.5	U		140	U		
TRICHLOROFLUOROMETHANE	1.4	U		1.5	U		1.5	U		140	U		
VINYL CHLORIDE	1.2	J	P	1.5	U		1.5	U		140	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SOIL	NSAMPLE	QF-RS04DL			QF-RS05			QF-RS-DUP01-120810			QF-RS-TB01-120810		
	LAB_ID	J2571-23BDL			J2571-24A			J2571-25A			J2571-26A		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	75.0			87.0			91.0			100.0		
	DUP_OF							QF-RS01					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
TOTAL XYLENES				1.9	U		240			2	U		
TRANS-1,2-DICHLOROETHENE				1.9	U		1.4	U		2	U		
TRANS-1,3-DICHLOROPROPENE				1.9	U		1.4	U		2	U		
TRICHLOROETHENE				1.9	U		1.4	U		2	U		
TRICHLOROFLUOROMETHANE				1.9	U		1.4	U		2	U		
VINYL CHLORIDE				1.9	U		0.93	J	P	2	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SOIL	NSAMPLE	QF-SO-CS01			QF-SO-CS02			QF-SO-CS03			QF-SO-CS04		
	LAB_ID	J2571-01A			J2571-02A			J2571-03A			J2571-04B		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	91.0			90.0			95.0			71.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
TOTAL XYLENES	1.6	UJ	D	1.2	UJ	NR	1.2	U		4000	J	G	
TRANS-1,2-DICHLOROETHENE	1.6	U		1.2	UJ	R	1.2	U		190	U		
TRANS-1,3-DICHLOROPROPENE	1.6	U		1.2	UJ	R	1.2	U		190	U		
TRICHLOROETHENE	1.6	U		1.2	UJ	R	1.2	U		190	U		
TRICHLOROFLUOROMETHANE	1.6	U		1.2	UJ	R	1.2	U		190	U		
VINYL CHLORIDE	1.6	UJ	C	1.2	UJ	CR	1.2	UJ	C	190	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SOIL	NSAMPLE	QF-SO-CS04DL			QF-SO-CS05			QF-SO-DUP01-120810			QF-SO-DUP01-120810DL		
	LAB_ID	J2571-04BDL			J2571-05A			J2571-06B			J2571-06BDL		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	71.0			75.0			76.0			76.0		
	DUP_OF							QF-SO-CS04			QF-SO-CS04		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
TOTAL XYLENES				1.2	U		2200	J	G				
TRANS-1,2-DICHLOROETHENE				1.2	U		150	U					
TRANS-1,3-DICHLOROPROPENE				1.2	U		150	U					
TRICHLOROETHENE				1.2	U		150	U					
TRICHLOROFLUOROMETHANE				1.2	U		150	U					
VINYL CHLORIDE				1.2	U		150	U					

PROJ_NO: 01813 SDG: J2571 FRACTION: OV MEDIA: SOIL	NSAMPLE	QF-SO-TB01-120810			QF-SO-TP01-5 SC 5		
	LAB_ID	J2571-07A			J2571-08A		
	SAMP_DATE	12/8/2010			12/8/2010		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	100.0			94.0		
	DUP_OF						
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
TOTAL XYLENES	2 U			1.5 U			
TRANS-1,2-DICHLOROETHENE	2 U			1.5 U			
TRANS-1,3-DICHLOROPROPENE	2 U			1.5 U			
TRICHLOROETHENE	2 U			1.5 U			
TRICHLOROFLUOROMETHANE	2 U			1.5 U			
VINYL CHLORIDE	2 UJ		C	1.5 U			

PROJ_NO: 01813 SDG: J2571 FRACTION: PAH MEDIA: SEDIMENT	NSAMPLE	QF-SD01-0006			QF-SD02-0006			QF-SD03-0006			QF-SD04-0006		
	LAB_ID	J2571-09D			J2571-10D			J2571-11D			J2571-12D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	51.0			67.0			54.0			52.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2-METHYLNAPHTHALENE	26	J	D	18			9.4			15			
ACENAPHTHENE	23	J	D	20			21			23			
ACENAPHTHYLENE	44	J	D	77			69			69			
ANTHRACENE	120	J	D	210			200			170			
BENZO(A)ANTHRACENE	340	J	D	480			470			450			
BENZO(A)PYRENE	380	J	D	490			470			470	J	N	
BENZO(B)FLUORANTHENE													
BENZO(G,H,I)PERYLENE	340	J	D	360			330			410	J	N	
BENZO(K)FLUORANTHENE	340	J	D	490			560			370			
CHRYSENE	580	J	D										
DIBENZO(A,H)ANTHRACENE	73	J	D	75			89			96	J	N	
FLUORANTHENE													
FLUORENE	65	J	D	50			61			58			
INDENO(1,2,3-CD)PYRENE	260	J	D	320			310			320	J	N	
NAPHTHALENE	6.4	UJ	D	12			10			10			
PHENANTHRENE	290	J	D	350			350			290			
PYRENE	590	J	D							610			

PROJ_NO: 01813 SDG: J2571 FRACTION: PAH MEDIA: SEDIMENT	NSAMPLE	QF-SD05-0006			QF-SD06-0006			QF-SD07-0006			QF-SD08-0006		
	LAB_ID	J2571-13D			J2571-14D			J2571-15D			J2571-16D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	59.0			65.0			59.0			58.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2-METHYLNAPHTHALENE	15			18			13			9.8			
ACENAPHTHENE	13			130			25			17			
ACENAPHTHYLENE	61			59			100			100			
ANTHRACENE	150			470			180			180			
BENZO(A)ANTHRACENE	210	J	N				360			320			
BENZO(A)PYRENE	270	J	N				490			430			
BENZO(B)FLUORANTHENE	470	J	N				530						
BENZO(G,H,I)PERYLENE	310	J	N				440			410			
BENZO(K)FLUORANTHENE	260	J	N							490			
CHRYSENE	400						490						
DIBENZO(A,H)ANTHRACENE	54	J	N	170			90			77			
FLUORANTHENE	440												
FLUORENE	37			200			33			27			
INDENO(1,2,3-CD)PYRENE	230	J	N				430			410			
NAPHTHALENE	9.9			10			8.9			7.4			
PHENANTHRENE	180						230			260			
PYRENE	370												

PROJ_NO: 01813 SDG: J2571 FRACTION: PAH MEDIA: SEDIMENT	NSAMPLE	QF-SD-09-0006			QF-SD-DUP01-120810		
	LAB_ID	J2571-17D			J2571-18D		
	SAMP_DATE	12/8/2010			12/8/2010		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	35.0			44.0		
	DUP_OF				QF-SD-09-0006		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2-METHYLNAPHTHALENE	17			14			
ACENAPHTHENE	35			21			
ACENAPHTHYLENE	200			150			
ANTHRACENE	280			210			
BENZO(A)ANTHRACENE	450			270			
BENZO(A)PYRENE	780			480			
BENZO(B)FLUORANTHENE				750			
BENZO(G,H,I)PERYLENE	560			370			
BENZO(K)FLUORANTHENE	830			560			
CHRYSENE	810						
DIBENZO(A,H)ANTHRACENE	140			99			
FLUORANTHENE	900			590			
FLUORENE	61	J	G	28	J	G	
INDENO(1,2,3-CD)PYRENE	420			300			
NAPHTHALENE	12			13			
PHENANTHRENE	400	J	G	230	J	G	
PYRENE				720	J	G	

PROJ_NO: 01813 SDG: J2571 FRACTION: PAH MEDIA: SOIL	NSAMPLE	QF-RS01			QF-RS02			QF-RS03			QF-RS04		
	LAB_ID	J2571-20D			J2571-21D			J2571-22D			J2571-23D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.0			84.0			97.0			75.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2-METHYLNAPHTHALENE				72	J	D	34	U					
ACENAPHTHENE	130	J	G	74	J	D	34	U					
ACENAPHTHYLENE	28	J	G	50	J	D	34	U		22	U	N	
ANTHRACENE	130	J	G	80	J	D	43						
BENZO(A)ANTHRACENE	240			980	J	D	230						
BENZO(A)PYRENE	200			880	J	D	260						
BENZO(B)FLUORANTHENE	320			1400	J	D	380						
BENZO(G,H,I)PERYLENE	120			570	J	D	220						
BENZO(K)FLUORANTHENE	120			510	J	D	210						
CHRYSENE				1100	J	D	300						
DIBENZO(A,H)ANTHRACENE	32			120	J	D	43						
FLUORANTHENE				1200	J	D	460						
FLUORENE	230	J	G	78	J	D	34	U					
INDENO(1,2,3-CD)PYRENE	100			540	J	D	190	J	E				
NAPHTHALENE				39	UJ	D	34	U					
PHENANTHRENE				320	J	D	200						
PYRENE				1200	J	D	340						

PROJ_NO: 01813 SDG: J2571 FRACTION: PAH MEDIA: SOIL	NSAMPLE	QF-RS05			QF-RS-DUP01-120810			QF-SO-CS01			QF-SO-CS02		
	LAB_ID	J2571-24D			J2571-25D			J2571-01D			J2571-02D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			91.0			91.0			90.0		
	DUP_OF				QF-RS01								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2-METHYLNAPHTHALENE	38	U		340	J	G	3.6	U		3.6	U		
ACENAPHTHENE	250			73	J	G	3.6	U		3.6	U		
ACENAPHTHYLENE	72			36	UJ	G	3.6	U		3.6	U		
ANTHRACENE	430			73	J	G	3.6	U		3.6	U		
BENZO(A)ANTHRACENE	1900			250			5.5			330	J	N	
BENZO(A)PYRENE	1800			210			6.1						
BENZO(B)FLUORANTHENE	2600			380			11						
BENZO(G,H,I)PERYLENE	1200			170			6.4			200	J	N	
BENZO(K)FLUORANTHENE	1300			170			5						
CHRYSENE	2200			350			8.2						
DIBENZO(A,H)ANTHRACENE	300			39			3.6	U		56	J	N	
FLUORANTHENE	3400			530			9						
FLUORENE	270			92	J	G	3.6	U		3.6	U		
INDENO(1,2,3-CD)PYRENE	1000	J	E	120	J	E	5.6			180	J	N	
NAPHTHALENE	38	U		180	J	G	3.6	U		3.6	U		
PHENANTHRENE	2600			360	J	G	3.6			3.6	U		
PYRENE	2400			390			7.2						

PROJ_NO: 01813	NSAMPLE	QF-SO-CS03			QF-SO-CS04			QF-SO-CS05			QF-SO-DUP01-120810		
SDG: J2571	LAB_ID	J2571-03D			J2571-04D			J2571-05D			J2571-06D		
FRACTION: PAH	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.0			71.0			75.0			76.0		
	DUP_OF										QF-SO-CS04		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
2-METHYLNAPHTHALENE	3.4	U					4.4	U					
ACENAPHTHYLENE	3.4	U					4.4	U					
ACENAPHTHENE	3.4	U		59	J	N	4.4	UJ	N	58	J	N	
ANTHRACENE	3.4	U		430	J	N	200			380	J	N	
BENZO(A)ANTHRACENE	150	J	N				310	J	N	360	J	N	
BENZO(A)PYRENE	210	J	N				360	J	N				
BENZO(B)FLUORANTHENE	310	J	N										
BENZO(G,H,I)PERYLENE	97	J	N				210	J	N				
BENZO(K)FLUORANTHENE	250	J	N				430	J	N				
CHRYSENE				460	J	N				300	J	N	
DIBENZO(A,H)ANTHRACENE	28	J	N	240	J	N	56	J	N				
FLUORANTHENE													
FLUORENE	3.4	U					150	J	N				
INDENO(1,2,3-CD)PYRENE	87	J	N				190	J	N				
NAPHTHALENE	3.4	U		280	J	GN	4.4	U					
PHENANTHRENE	3.4	U											
PYRENE													

PROJ_NO: 01813 SDG: J2571 FRACTION: PAH MEDIA: SOIL	NSAMPLE	QF-SO-TP01-5 SC 5		
	LAB_ID	J2571-08D		
	SAMP_DATE	12/8/2010		
	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	94.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
2-METHYLNAPHTHALENE	3.5	U		
ACENAPHTHENE	3.5	U		
ACENAPHTHYLENE	3.5	U		
ANTHRACENE	3.5	U		
BENZO(A)ANTHRACENE	3.5	U		
BENZO(A)PYRENE	3.5	U		
BENZO(B)FLUORANTHENE	3.7			
BENZO(G,H,I)PERYLENE	3.5	U		
BENZO(K)FLUORANTHENE	3.5	U		
CHRYSENE	3.5	U		
DIBENZO(A,H)ANTHRACENE	3.5	U		
FLUORANTHENE	3.5	U		
FLUORENE	3.5	U		
INDENO(1,2,3-CD)PYRENE	3.5	U		
NAPHTHALENE	3.5	U		
PHENANTHRENE	3.5	U		
PYRENE	3.5	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PCB MEDIA: SEDIMENT	NSAMPLE	QF-SD01-0006			QF-SD02-0006			QF-SD03-0006			QF-SD04-0006		
	LAB_ID	J2571-09D			J2571-10D			J2571-11D			J2571-12D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	51.0			67.0			54.0			52.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
AROCLOR-1016	16	U		12	U		15	U		16	U		
AROCLOR-1221	33	U		25	U		31	U		32	U		
AROCLOR-1232	16	U		12	U		15	U		16	U		
AROCLOR-1242	16	U		12	U		15	U		16	U		
AROCLOR-1248	16	U		12	U		15	U		16	U		
AROCLOR-1254	160	J	U	180	J	U	130	J	U	130	J	U	
AROCLOR-1260	680			610			460			480			
AROCLOR-1262	16	U		12	U		15	U		16	U		
AROCLOR-1268	16	U		12	U		15	U		16	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PCB MEDIA: SEDIMENT	NSAMPLE	QF-SD05-0006			QF-SD06-0006			QF-SD07-0006			QF-SD08-0006		
	LAB_ID	J2571-13D			J2571-14D			J2571-15D			J2571-16D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	59.0			65.0			59.0			58.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
AROCLOR-1016	14	U		13	U		14	U		14	U		
AROCLOR-1221	28	U		26	U		27	U		28	U		
AROCLOR-1232	14	U		13	U		14	U		14	U		
AROCLOR-1242	14	U		13	U		14	U		14	U		
AROCLOR-1248	14	U		13	U		14	U		14	U		
AROCLOR-1254	140	J	U	120	J	U	180	J	U	190	J	U	
AROCLOR-1260	470			450			660			680			
AROCLOR-1262	14	U		13	U		14	U		14	U		
AROCLOR-1268	14	U		13	U		14	U		14	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PCB MEDIA: SEDIMENT	NSAMPLE	QF-SD-09-0006			QF-SD-DUP01-120810		
	LAB_ID	J2571-17D			J2571-18D		
	SAMP_DATE	12/8/2010			12/8/2010		
	QC_TYPE	NM			NM		
	UNITS	UG/KG			UG/KG		
	PCT_SOLIDS	35.0			44.0		
	DUP_OF				QF-SD-09-0006		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
AROCLOR-1016	23	U		19	U		
AROCLOR-1221	47	U		38	U		
AROCLOR-1232	23	U		19	U		
AROCLOR-1242	23	U		19	U		
AROCLOR-1248	23	U		19	U		
AROCLOR-1254	440	J	U	270	J	U	
AROCLOR-1260	1400	J	G	790	J	G	
AROCLOR-1262	23	U		19	U		
AROCLOR-1268	23	U		19	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PCB MEDIA: SOIL	NSAMPLE	QF-RS01			QF-RS02			QF-RS03			QF-RS04		
	LAB_ID	J2571-20D			J2571-21D			J2571-22D			J2571-23D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	92.0			84.0			97.0			75.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
AROCLOR-1016	8.7	U		9.8	U		8.5	U		11	UJ	R	
AROCLOR-1221	17	U		20	U		17	U		22	UJ	R	
AROCLOR-1232	8.7	U		9.8	U		8.5	U		11	UJ	R	
AROCLOR-1242	8.7	U		9.8	U		8.5	U		11	UJ	R	
AROCLOR-1248	8.7	U		9.8	U		8.5	U		11	UJ	R	
AROCLOR-1254	61			31	J	U	46	J	U	350	J	R	
AROCLOR-1260	120	J	G	74			120			11	UJ	R	
AROCLOR-1262	8.7	U		9.8	U		8.5	U		11	UJ	R	
AROCLOR-1268	8.7	U		9.8	U		8.5	U		11	UJ	R	

PROJ_NO: 01813 SDG: J2571 FRACTION: PCB MEDIA: SOIL	NSAMPLE	QF-RS05			QF-RS-DUP01-120810			QF-SO-CS01			QF-SO-CS02		
	LAB_ID	J2571-24D			J2571-25D			J2571-01D			J2571-02D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	87.0			91.0			91.0			90.0		
	DUP_OF				QF-RS01								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
AROCLOR-1016	9.5	UJ	R	9	U		9	U		9.2	U		
AROCLOR-1221	19	UJ	R	18	U		18	U		18	U		
AROCLOR-1232	9.5	UJ	R	9	U		9	U		9.2	U		
AROCLOR-1242	9.5	UJ	R	9	U		9	U		9.2	U		
AROCLOR-1248	9.5	UJ	R	9	U		9	U		9.2	U		
AROCLOR-1254	85	J	R	83			9	U		9.2	U		
AROCLOR-1260	9.5	UJ	R	9	UJ	G	9	U		330			
AROCLOR-1262	9.5	UJ	R	9	U		9	U		9.2	U		
AROCLOR-1268	9.5	UJ	R	9	U		9	U		9.2	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PCB MEDIA: SOIL	NSAMPLE	QF-SO-CS03			QF-SO-CS04			QF-SO-CS05			QF-SO-DUP01-120810		
	LAB_ID	J2571-03D			J2571-04D			J2571-05D			J2571-06D		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/KG			UG/KG			UG/KG			UG/KG		
	PCT_SOLIDS	95.0			71.0			75.0			76.0		
	DUP_OF										QF-SO-CS04		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
AROCLOR-1016	8.6	U		12	U		11	U		11	U		
AROCLOR-1221	17	U		23	U		22	U		22	U		
AROCLOR-1232	8.6	U		12	U		11	U		11	U		
AROCLOR-1242	8.6	U		12	U		11	U		11	U		
AROCLOR-1248	8.6	U		12	U		11	U		11	U		
AROCLOR-1254	8.6	U		270	J	U	11	U		240	J	U	
AROCLOR-1260	210			12	UJ	G	290			500	J	G	
AROCLOR-1262	8.6	U		12	U		11	U		11	U		
AROCLOR-1268	8.6	U		12	U		11	U		11	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PCB MEDIA: SOIL	NSAMPLE	QF-SO-TP01-5 SC 5		
	LAB_ID	J2571-08D		
	SAMP_DATE	12/8/2010		
	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	94.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
AROCLOR-1016	8.8	U		
AROCLOR-1221	18	U		
AROCLOR-1232	8.8	U		
AROCLOR-1242	8.8	U		
AROCLOR-1248	8.8	U		
AROCLOR-1254	8.8	U		
AROCLOR-1260	8.8	U		
AROCLOR-1262	8.8	U		
AROCLOR-1268	8.8	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SEDIMENT	NSAMPLE	QF-SD01-0006						QF-SD02-0006					
	LAB_ID	J2571-09B						J2571-10B					
	SAMP_DATE	12/8/2010						12/8/2010					
	QC_TYPE	NM						NM					
	UNITS	MG/KG			UG/KG			MG/KG			UG/KG		
	PCT_SOLIDS	51.0			51.0			67.0			67.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
EXTRACTABLE PETROLEUM HYDROCARBONS	3100						4400						
GASOLINE RANGE ORGANICS				6900	U					3700	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SEDIMENT	NSAMPLE	QF-SD03-0006						QF-SD04-0006					
	LAB_ID	J2571-11B						J2571-12B					
	SAMP_DATE	12/8/2010						12/8/2010					
	QC_TYPE	NM						NM					
	UNITS	MG/KG			UG/KG			MG/KG			UG/KG		
	PCT_SOLIDS	54.0			54.0			52.0			52.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
EXTRACTABLE PETROLEUM HYDROCARBONS	2800						4500						
GASOLINE RANGE ORGANICS				7400	U					6900	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SEDIMENT	NSAMPLE	QF-SD05-0006						QF-SD06-0006					
	LAB_ID	J2571-13B						J2571-14B					
	SAMP_DATE	12/8/2010						12/8/2010					
	QC_TYPE	NM						NM					
	UNITS	MG/KG			UG/KG			MG/KG			UG/KG		
	PCT_SOLIDS	59.0			59.0			65.0			65.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
EXTRACTABLE PETROLEUM HYDROCARBONS	3000						2400						
GASOLINE RANGE ORGANICS				5000	U					4000	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SEDIMENT	NSAMPLE	QF-SD07-0006						QF-SD08-0006					
	LAB_ID	J2571-15B						J2571-16B					
	SAMP_DATE	12/8/2010						12/8/2010					
	QC_TYPE	NM						NM					
	UNITS	MG/KG			UG/KG			MG/KG			UG/KG		
	PCT_SOLIDS	59.0			59.0			58.0			58.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
EXTRACTABLE PETROLEUM HYDROCARBONS	5700						6000						
GASOLINE RANGE ORGANICS				5000	U					4500	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SEDIMENT	NSAMPLE	QF-SD-09-0006						QF-SD-DUP01-120810					
	LAB_ID	J2571-17B						J2571-18B					
	SAMP_DATE	12/8/2010						12/8/2010					
	QC_TYPE	NM						NM					
	UNITS	MG/KG			UG/KG			MG/KG			UG/KG		
	PCT_SOLIDS	35.0			35.0			44.0			44.0		
	DUP_OF							QF-SD-09-0006					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
EXTRACTABLE PETROLEUM HYDROCARBONS	12000	J	D				11000						
GASOLINE RANGE ORGANICS				12000	U					8300	U		

PROJ_NO: 01813	NSAMPLE	QF-SD-TB01-120810		
SDG: J2571	LAB_ID	J2571-19B		
FRACTION: PET	SAMP_DATE	12/8/2010		
MEDIA: SEDIMENT	QC_TYPE	NM		
	UNITS	UG/KG		
	PCT_SOLIDS	100.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
EXTRACTABLE PETROLEUM HYDROCARBONS				
GASOLINE RANGE ORGANICS	2500	U		

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SOIL	NSAMPLE	QF-RS01						QF-RS02					
	LAB_ID	J2571-20B						J2571-21B					
	SAMP_DATE	12/8/2010						12/8/2010					
	QC_TYPE	NM						NM					
	UNITS	MG/KG			UG/KG			MG/KG			UG/KG		
	PCT_SOLIDS	92.0			92.0			84.0			84.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
EXTRACTABLE PETROLEUM HYDROCARBONS	2500						1800	J	D				
GASOLINE RANGE ORGANICS				25000	J	G				30000			

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SOIL	NSAMPLE	QF-RS03						QF-RS04					
	LAB_ID	J2571-22B						J2571-23B					
	SAMP_DATE	12/8/2010						12/8/2010					
	QC_TYPE	NM						NM					
	UNITS	MG/KG			UG/KG			MG/KG			UG/KG		
	PCT_SOLIDS	97.0			97.0			75.0			75.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
EXTRACTABLE PETROLEUM HYDROCARBONS	1600						18000						
GASOLINE RANGE ORGANICS				2200	U					390000			

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SOIL	NSAMPLE	QF-RS05						QF-RS-DUP01-120810					
	LAB_ID	J2571-24B						J2571-25B					
	SAMP_DATE	12/8/2010						12/8/2010					
	QC_TYPE	NM						NM					
	UNITS	MG/KG			UG/KG			MG/KG			UG/KG		
	PCT_SOLIDS	87.0			87.0			91.0			91.0		
	DUP_OF							QF-RSO1					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
EXTRACTABLE PETROLEUM HYDROCARBONS	960						1500						
GASOLINE RANGE ORGANICS				2700	U					91000	J	G	

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SOIL	NSAMPLE	QF-RS-TB01-120810			QF-SO-CS01			QF-SO-CS02				
	LAB_ID	J2571-26B			J2571-01B			J2571-02B				
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010				
	QC_TYPE	NM			NM			NM				
	UNITS	UG/KG			MG/KG			UG/KG				
	PCT_SOLIDS	100.0			91.0			91.0				
	DUP_OF											
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS				23						13000		
GASOLINE RANGE ORGANICS	2500	U					1900	U				

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SOIL	NSAMPLE	QF-SO-CS02			QF-SO-CS03			QF-SO-CS04				
	LAB_ID	J2571-02B			J2571-03B			J2571-04B				
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010				
	QC_TYPE	NM			NM			NM				
	UNITS	UG/KG			MG/KG			UG/KG				
	PCT_SOLIDS	90.0			95.0			95.0				
	DUP_OF											
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS				6800						12000		
GASOLINE RANGE ORGANICS	55000						35000					

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SOIL	NSAMPLE	QF-SO-CS04			QF-SO-CS05			QF-SO-DUP01-120810				
	LAB_ID	J2571-04B			J2571-05B			J2571-06B				
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010				
	QC_TYPE	NM			NM			NM				
	UNITS	UG/KG			MG/KG			UG/KG				
	PCT_SOLIDS	71.0			75.0			75.0				
	DUP_OF							QF-SO-CS04				
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
EXTRACTABLE PETROLEUM HYDROCARBONS				6600						14000		
GASOLINE RANGE ORGANICS	1400000	J	G				2500	U				

PROJ_NO: 01813 SDG: J2571 FRACTION: PET MEDIA: SOIL	NSAMPLE	QF-SO-DUP01-120810			QF-SO-TB01-120810			QF-SO-TP01-5 SC 5					
	LAB_ID	J2571-06B			J2571-07B			J2571-08B					
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010					
	QC_TYPE	NM			NM			NM					
	UNITS	UG/KG			UG/KG			MG/KG			UG/KG		
	PCT_SOLIDS	76.0			100.0			94.0			94.0		
	DUP_OF	QF-SO-CS04											
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
EXTRACTABLE PETROLEUM HYDROCARBONS							13	U					
GASOLINE RANGE ORGANICS	550000	J	G	2500	U					2200	U		



Tetra Tech NUS

INTERNAL CORRESPONDENCE

TO: S. ANDERSON DATE: MARCH 9, 2011

FROM: TERRI L. SOLOMON COPIES: DV FILE

**SUBJECT: INORGANIC DATA VALIDATION – TAL METALS
CTO WE01 FRMR NCBC DAVISVILLE
SAMPLE DELIVERY GROUP (SDG) – J2571**

SAMPLES: 13/Soil

QF-RS02	QF-RS03	QF-RS04
QF-RS05	QF-RS-DUP01-120810	QF-RS01
QF-SO-CS01	QF-SO-CS02	QF-SO-CS03
QF-SO-CS04	QF-SO-CS05	QF-SO-DUP01-120810
QF-SO-TP01-5 SC 5		

10/Sediment		
QF-SD01-0006	QF-SD02-0006	QF-SD03-0006
QF-SD04-0006	QF-SD05-0006	QF-SD06-0006
QF-SD07-0006	QF-SD08-0006	QF-SD-09-0006
QF-SD-DUP01-120810		

Overview

The sample set for FRMR NCBC Davisville, CTO WE01, SDG J2571, consists of thirteen (13) soil and ten (10) sediment environmental samples. Three field duplicate pairs (QF-RS01 / QF-RS-DUP01-120810, QF-SD-09-0006 / QF-SD-DUP01-120810 and QF-SO-CS04 / QF-SO-DUP01-120810) are included within this SDG.

The samples were analyzed for target analyte list (TAL) metals. The samples were collected by Tetra Tech on December 8, 2010 and all analytes with the exception of mercury were analyzed by Mitkem Corporation under Naval Facilities Engineering Service Center (NFESC) Quality Assurance / Quality Control (QA/QC) criteria. Mercury was analyzed by Rhode Island Analytical Laboratories under NFESC QA/QC criteria. Metals analyses, with the exception of arsenic, cobalt, silver and thallium were conducted using SW-846 method 6010C. Mercury analyses were conducted using SW-846 method 7471B. Arsenic, cobalt, silver and thallium analyses were conducted using SW-846 method 6020A.

Samples were validated to Tier III protocol.

These data were evaluated based on the following parameters:

- * • Data Completeness
- * • Holding Times
- * • Initial and Continuing Calibrations
- * • ICP MS Tune
- Laboratory Method / Preparation Blanks
- ICP Interference Analysis
- * • Laboratory Control Sample Recoveries

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- Matrix Spike Recoveries
- Laboratory Duplicate Results
- ICP Serial Dilution Results
- Field Duplicate Results
- * • Internal Standard Recoveries
- * • Detection Limits
- * • Analyte Quantitation

* - All quality control criteria were met for this parameter.

Qualified (if applicable) analytical results are summarized in Appendix A. Results as reported by the laboratory are presented in Appendix B. Appendix C contains Region I worksheets. Appendix D contains the documentation to support the findings as discussed in this validation report.

Laboratory Method / Preparation Blanks

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Affects samples QF-RS02, QF-RS03, QF-RS04, QF-RS05 and QF-RS-DUP01-120810:

<u>Analyte</u>	<u>Maximum Concentration</u>	<u>Action Level</u>
Aluminum ⁽¹⁾	6.955 mg/kg	34.775 mg/kg
Antimony ⁽¹⁾	0.457 mg/kg	2.285 mg/kg
Barium	3.2 ug/L	0.8 mg/kg
Beryllium ⁽¹⁾	0.006 mg/kg	0.03 mg/kg
Cobalt	0.116 ug/L	0.058 mg/kg
Iron ⁽¹⁾	2.221 mg/kg	11.105 mg/kg
Magnesium ⁽¹⁾	2.561 mg/kg	12.8 mg/kg
Nickel	1.1 ug/L	0.275 mg/kg
Potassium ⁽¹⁾	4.405 mg/kg	22.025 mg/kg
Silver	0.077 ug/L	0.0385 ug/L
Sodium ⁽¹⁾	1.275 mg/kg	6.375 mg/kg
Thallium	0.130 ug/L	0.065 ug/L
Vanadium	1.4 ug/L	0.35 mg/kg
Zinc	6.0 ug/L	1.5 mg/kg

Affects samples QF-RS01, QF-SO-CS01, QF-SO-CS02, QF-SO-CS03, QF-SO-CS04, QF-SO-CS05, QF-SO-DUP01-120810, QF-SO-TP01-5 SC 5, QF-SD01-0006, QF-SD02-0006, QF-SD03-0006, QF-SD04-0006, QF-SD05-0006, QF-SD06-0006, QF-SD07-0006, QF-SD08-0006, QF-SD-09-0006 and QF-SD-DUP01-120810:

<u>Analyte</u>	<u>Maximum Concentration</u>	<u>Action Level</u>
Aluminum ⁽¹⁾	5.713 mg/kg	28.565 mg/kg
Barium	2.9 ug/L	0.725 mg/kg
Beryllium ⁽¹⁾	0.007 mg/kg	0.035 mg/kg
Cobalt	0.116 ug/L	0.058 mg/kg
Calcium ⁽¹⁾	7.164 mg/kg	35.82 mg/kg
Chromium ⁽¹⁾	0.023 mg/kg	0.115 mg/kg
Iron ⁽²⁾	3.620 mg/kg	18.1 mg/kg
Magnesium ⁽¹⁾	11.522 mg/kg	57.61 mg/kg
Potassium	85.2 ug/L	21.3 mg/kg

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Silver	0.077 ug/L	0.0385 ug/L
Thallium	0.130 ug/L	0.065 ug/L
Sodium ⁽¹⁾	1.628 mg/kg	8.14 mg/kg
Zinc	5.8 ug/L	1.45 mg/kg

(1) Maximum concentration present in a soil preparation blank.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot, percent solids and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results less than the blank action level reported for antimony, silver and thallium were qualified "U" as a result of laboratory blank contamination.

ICP Interference Analysis

The interfering analyte iron was present in sample QF-RS-02 at a concentration that was greater than 50% of the iron concentration in the Interference Check Sample (ICS) solution. Several analytes, namely, barium, cadmium, chromium, copper, lead, manganese, nickel, potassium, selenium, sodium and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the Method Detection Limit (MDL). Interference effects exist for cadmium and sodium in the affected sample. The positive results reported for cadmium and sodium were qualified as estimated, "J".

The interfering analyte iron was present in sample QF-RS-03 at a concentration that was greater than 50% of the iron concentration in the Interference Check Sample (ICS) solution. Several analytes, namely, barium, cadmium, chromium, copper, lead, manganese, nickel, potassium, selenium, sodium and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the Method Detection Limit (MDL). Interference effects exist for cadmium in the affected sample. The positive result reported for cadmium was qualified as estimated, "J".

The interfering analyte iron was present in sample QF-RS-05 at a concentration that was greater than 50% of the iron concentration in the Interference Check Sample (ICS) solution. Several analytes, namely, barium, cadmium, chromium, copper, lead, manganese, nickel, potassium, selenium, sodium and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the Method Detection Limit (MDL). Interference effects exist for sodium in the affected sample. The positive result reported for sodium was qualified as estimated, "J".

The interfering analyte iron was present in sample QF-RS-DUP01-120810 at a concentration that was greater than 50% of the iron concentration in the Interference Check Sample (ICS) solution. Several analytes, namely, barium, cadmium, chromium, copper, lead, manganese, nickel, potassium, selenium, sodium and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the Method Detection Limit (MDL). Interference effects exist for selenium in the affected sample. The positive result reported for selenium was qualified as estimated, "J".

The interfering analyte iron was present in samples QF-SO-CS01 and QF-SO-TP01-5 SC 5 at a concentration that was greater than 50% of the iron concentration in the Interference Check Sample (ICS) solution. Several analytes, namely, barium, cadmium, copper, lead, nickel, potassium, sodium, vanadium and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the Method Detection Limit (MDL). Interference effects exist for sodium in the affected samples. The positive results reported for sodium were qualified as estimated, "J".

The interfering analyte iron was present in sample QF-SO-CS02 and QF-RS01 at a concentration that was greater than 50% of the iron concentration in the Interference Check Sample (ICS) solution. Several analytes, namely, barium, cadmium, copper, lead, nickel, potassium, sodium,

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vanadium and zinc were present in the ICS solution at a concentration that exceeded the absolute value of the Method Detection Limit (MDL). Interference effects exist for cadmium in the affected samples. The positive results reported for cadmium were qualified as estimated, "J".

Matrix Spike Recoveries

The matrix spike percent recoveries for antimony and selenium were < 75% quality control limit and the matrix spike percent recoveries for magnesium, nickel and potassium < 30% quality control limit affecting samples QF-RS01, QF-RS02, QF-RS03, QF-RS04, QF-RS05 and QF-RS-DUP01-120810. The post digestion spike recoveries for magnesium, nickel and potassium were within the quality control limits. The positive results reported for the aforementioned analytes in the affected samples were qualified as estimated, "J". The nondetected results reported for selenium in the affected samples were qualified as estimated, "J".

The matrix spike percent recovery for barium was > 125% quality control limit affecting samples QF-RS01, QF-RS02, QF-RS03, QF-RS04, QF-RS05 and QF-RS-DUP01-120810. The positive results reported for barium in the affected samples were qualified as estimated, "J".

The matrix spike percent recovery for antimony was < 75% quality control limit affecting samples QF-SD01-0006, QF-SD02-0006, QF-SD03-0006, QF-SD04-0006, QF-SD05-0006, QF-SD06-0006, QF-SD07-0006, QF-SD08-0006, QF-SD-09-0006 and QF-SD-DUP01-120810. The positive results reported for antimony in the affected samples were qualified as estimated, "J".

The matrix spike percent recovery for antimony was < 75% quality control limit affecting samples QF-SO-CS01, QF-SO-CS02, QF-SO-CS03, QF-SO-CS04, QF-SO-CS05, QF-SO-DUP01-120810 and, QF-SO-TP01-5 SC 5. The positive results reported for antimony in the affected samples were qualified as estimated, "J".

Laboratory Duplicate Results

Laboratory duplicate imprecision (> 35%) was noted for antimony, barium, cadmium, calcium, chromium, iron, lead, magnesium, manganese, nickel, potassium and mercury affecting samples QF-RS01, QF-RS02, QF-RS03, QF-RS04, QF-RS05 and QF-RS-DUP01-120810. The positive results reported for the aforementioned analytes were qualified as estimated, "J".

ICP Serial Dilution Results

The ICP serial dilution percent difference (results > 50X method detection limit) for calcium was > 10% quality control limit affecting samples QF-SO-CS01, QF-SO-CS02, QF-SO-CS03, QF-SO-CS04, QF-SO-CS05, QF-SO-DUP01-120810 and, QF-SO-TP01-5 SC 5. The positive results reported for calcium in the affected samples were qualified as estimated, "J".

The ICP serial dilution percent difference (results > 50X method detection limit) for cadmium, lead, magnesium and nickel were > 10% quality control limit affecting samples QF-RS01, QF-RS02, QF-RS03, QF-RS04, QF-RS05 and QF-RS-DUP01-120810. The positive results reported for the aforementioned analytes in the affected samples were qualified as estimated, "J".

Field Duplicate Results

Field duplicate imprecision (> 50%) was noted for calcium, chromium, cobalt, copper, nickel, vanadium and zinc for sample pair QF-RS01 / QF-RS-DUP01-120810. The positive results reported for the aforementioned analytes for samples QF-RS01, QF-RS02, QF-RS03, QF-RS04, QF-RS05 and QF-RS-DUP01-120810 were qualified as estimated, "J".

Field duplicate imprecision (> 50%) was noted for cadmium, chromium, copper and zinc for sample pair QF-SO-CS04 / QF-SO-DUP01-120810. The positive and nondetected results

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reported for the aforementioned analytes for samples QF-SO-CS01, QF-SO-CS02, QF-SO-CS03, QF-SO-CS04, QF-SO-CS05, QF-SO-DUP01-120810 and, QF-SO-TP01-5 SC 5 were qualified as estimated, "J" and "UJ", respectively.

Notes

All mercury samples including initial calibrations, method blanks and all quality control samples were prepped at Mitkem Laboratories. Due to instrument problems the digestions were sent to Rhode Island Analytical Laboratories (RI Analytical). RI Analytical did not analyze any continuing calibrations or method blanks after every 10 samples. No qualifications were warranted as the beginning and ending calibrations were within quality control limits and no contamination was present in either the ending calibration blank or the prep blanks.

The Contract Required Detection Limit (CRDL) percent recoveries were not included within the data package. Therefore, validation compliances could not be evaluated.

Nondetected results are reported to the method detection limit (MDL).

All ICP MS samples were analyzed at a 5X dilution.

The interfering analyte iron was present in samples QF-RS04, QF-SO-CS03, QF-SO-CS04, QF-SO-CS05, QF-SO-DUP01-120810, QF-SD01-0006, QF-SD02-0006, QF-SD03-0006, QF-SD04-0006, QF-SD05-0006, QF-SD06-0006, QF-SD07-0006, QF-SD08-0006, QF-SD09-0006 and QF-SD-DUP01-120810 at a concentration that was greater than 50% of the iron concentration in the Interference Check Sample (ICS) solution. Several analytes, namely, barium, cadmium, chromium, copper, lead, manganese, nickel, potassium, selenium, sodium, vanadium and/or zinc were present in the ICS solution at a concentration that exceeded the absolute value of the Method Detection Limit (MDL). No interference effects were present in the aforementioned samples.

Executive Summary

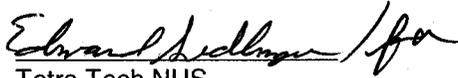
Laboratory Performance: Several contaminants were detected in the laboratory method/preparation blanks. Laboratory duplicate imprecision (> 35%) was noted for several analytes.

Other Factors Affecting Data Quality: The interfering analyte iron was present in many samples. Several matrix spike percent recoveries were outside the 75-125% quality control limits. The ICP serial dilution percent differences were > 10% quality control limits affecting several samples. Field duplicate imprecision (> 50%) was noted for calcium, chromium, cobalt, copper, nickel, vanadium and zinc for sample pair QF-RS01 / QF-RS-DUP01-120810. Field duplicate imprecision (> 50%) was noted for cadmium, chromium, copper and zinc for sample pair QF-SO-CS04 / QF-SO-DUP01-120810.

The data for these analyses were reviewed with reference to the Region 1 EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, Part VI, November 2008 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", January 2006.

The text of this report has been formulated to address only those problem areas affecting data quality.

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Tetra Tech NUS
Terri L. Solomon
Environmental Scientist



Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Region I Worksheets
4. Appendix D - Support Documentation

APPENDIX A
QUALIFIED ANALYTICAL RESULTS

Data Validation Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = GFAA PDS-GFAA MSA's $r < 0.995$ / ICP PDS Recovery Noncompliance
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (e.g. base-line drifting)
- P = Uncertainty near detection limit ($< 2 \times$ IDL for inorganics and $<$ CRQL for organics)
- Q = Other problems (can encompass a number of issues; e.g. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DOT and Endrin
- U = % Difference between columns/detectors $>25\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $<30\%$
- Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 01813 SDG: J2571 FRACTION: M MEDIA: SEDIMENT	NSAMPLE	QF-SD01-0006			QF-SD02-0006			QF-SD03-0006			QF-SD04-0006		
	LAB_ID	J2571-09C			J2571-10C			J2571-11C			J2571-12C		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	51.0			67.0			54.0			52.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
ALUMINUM	10300			10200			10300			15100			
ANTIMONY	2.7	J	D	2.6	J	D	1.9	J	D	2.9	J	D	
ARSENIC	1.9			4.4			2.7			3			
BARIUM	109			105			75.8			140			
BERYLLIUM	0.98			0.98			0.9			1.3			
CADMIUM	6.6			9.2			4.3			10.5			
CALCIUM	1700			1440			1360			1650			
CHROMIUM	65.3			72.5			51.4			83.3			
COBALT	4.7			4.8			4.2			6.3			
COPPER	224			175			140			219			
IRON	16000			19100			16300			22600			
LEAD	646			534			435			622			
MAGNESIUM	2530			2510			2570			3510			
MANGANESE	142			157			131			182			
MERCURY	0.33			0.22			0.28			0.29			
NICKEL	20.9			22.9			16.7			26.6			
POTASSIUM	906			917			849			1150			
SELENIUM	1.8	J	P	1.3	J	P	1.3	J	P	1.5	J	P	
SILVER	0.82	U	A	0.67	U	A	0.58	U	A	0.37	J	P	
SODIUM	116			125			89.4			141			
THALLIUM	0.82	U	A	0.67	U	A	0.58	U	A	0.85	U	A	
VANADIUM	28.9			29.1			28.2			39.4			
ZINC	662			597			430			624			

PROJ_NO: 01813 SDG: J2571 FRACTION: M MEDIA: SEDIMENT	NSAMPLE	QF-SD05-0006			QF-SD06-0006			QF-SD07-0006			QF-SD08-0006		
	LAB_ID	J2571-13C			J2571-14C			J2571-15C			J2571-16C		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	59.0			65.0			59.0			58.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
ALUMINUM	8650			8410			12600			10400			
ANTIMONY	1.8	J	D	2.3	J	D	2.9	J	D	3.4	J	D	
ARSENIC	2			1.9			3.8			3.2			
BARIUM	105			87.9			102			126			
BERYLLIUM	0.79			0.94			1.1			1			
CADMIUM	9.9			4.5			8.7			11.8			
CALCIUM	1300			1420			1280			1450			
CHROMIUM	63.3			55			77.3			96.3			
COBALT	4.1			3.6			5.2			4.9			
COPPER	170			155			201			231			
IRON	17000			17600			19900			21700			
LEAD	460			424			545			599			
MAGNESIUM	2230			2040			2800			2430			
MANGANESE	139			134			153			125			
MERCURY	0.15			0.24			0.21			0.25			
NICKEL	22.7			22.2			23			28.7			
POTASSIUM	621			922			1140			893			
SELENIUM	0.97	J	P	1.2	J	P	1.4	J	P	1.3	J	P	
SILVER	0.8	U	A	0.54	U	A	0.61	U	A	0.75	U	A	
SODIUM	122			138			107			130			
THALLIUM	0.8	U	A	0.54	U	A	0.61	U	A	0.75	U	A	
VANADIUM	25.1			23.6			32.2			28.7			
ZINC	484			509			512			499			

PROJ_NO: 01813 SDG: J2571 FRACTION: M MEDIA: SEDIMENT	NSAMPLE	QF-SD-09-0006			QF-SD-DUP01-120810		
	LAB_ID	J2571-17C			J2571-18C		
	SAMP_DATE	12/8/2010			12/8/2010		
	QC_TYPE	NM			NM		
	UNITS	MG/KG			MG/KG		
	PCT_SOLIDS	35.0			44.0		
	DUP_OF				QF-SD-09-0006		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
ALUMINUM	17500			11100			
ANTIMONY	2.7	J	D	2.2	J	D	
ARSENIC	1.9			2.1			
BARIUM	112			102			
BERYLLIUM	1.4			0.97			
CADMIUM	13			13.9			
CALCIUM	1630			1260			
CHROMIUM	64.6			55.3			
COBALT	5.7			4.4			
COPPER	167			154			
IRON	19600			13300			
LEAD	453			386			
MAGNESIUM	3830			2480			
MANGANESE	186			126			
MERCURY	0.18			0.22			
NICKEL	29.8			22.4			
POTASSIUM	1200			837			
SELENIUM	1.4	J	P	1.3	J	P	
SILVER	1.2	U	A	0.27	J	P	
SODIUM	136			140			
THALLIUM	1.2	U	A	0.6	U	A	
VANADIUM	36.2			25.5			
ZINC	660			499			

PROJ_NO: 01813 SDG: J2571 FRACTION: M MEDIA: SOIL	NSAMPLE	QF-RS01			QF-RS02			QF-RS03			QF-RS04		
	LAB_ID	J2571-20C			J2571-21C			J2571-22C			J2571-23C		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	92.0			84.0			97.0			75.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
ALUMINUM	2990			4570			4500			4710			
ANTIMONY	0.82	J	DF	6.1	J	DF	1.5	U	A	1.7	U	A	
ARSENIC	0.9			1.8			1.2			1.9			
BARIUM	24.1	J	DF	106	J	DF	47	J	DF	161	J	DF	
BERYLLIUM	0.55			1.1			0.56			0.43			
CADMIUM	0.95	J	FIK	3.8	J	IJK	1.1	J	IJK	2.1	J	FI	
CALCIUM	3720	J	FG	4090	J	FG	1180	J	FG	5490	J	FG	
CHROMIUM	19.1	J	FG	154	J	FG	33.3	J	FG	27.3	J	FG	
COBALT	3.4	J	G	3.8	J	G	3.4	J	G	3	J	G	
COPPER	62.1	J	G	432	J	G	117	J	G	200	J	G	
IRON	10000	J	F	103000	J	F	13000	J	F	13100	J	F	
LEAD	90.6	J	FI	774	J	FI	224	J	FI	325	J	FI	
MAGNESIUM	1150	J	DFI	2150	J	DFI	1570	J	DFI	1420	J	DFI	
MANGANESE	106	J	F	510	J	F	122	J	F	138	J	F	
MERCURY	0.027	J	FP	0.12	J	F	0.14	J	F	0.13	J	F	
NICKEL	20.6	J	DFGI	214	J	DFGI	32.6	J	DFGI	14.8	J	DFGI	
POTASSIUM	430	J	DF	1140	J	DF	603	J	DF	842	J	DF	
SELENIUM	0.38	UJ	D	0.45	UJ	D	0.54	UJ	D	0.58	UJ	D	
SILVER	0.34	U	A	0.39	U	A	0.52	U	A	0.44	U	A	
SODIUM	78.3			296	J	K	105			181			
THALLIUM	0.34	U	A	0.39	U	A	0.52	U	A	0.44	U	A	
VANADIUM	12.6	J	G	12	J	G	9.7	J	G	11.5	J	G	
ZINC	354	J	G	1210	J	G	608	J	G	229	J	G	

PROJ_NO: 01813 SDG: J2571 FRACTION: M MEDIA: SOIL	NSAMPLE	QF-RS05			QF-RS-DUP01-120810			QF-SO-CS01			QF-SO-CS02		
	LAB_ID	J2571-24C			J2571-25C			J2571-01C			J2571-02C		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	87.0			91.0			91.0			90.0		
	DUP_OF				QF-RS01								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
ALUMINUM	4490			3090			7110			6460			
ANTIMONY	0.68	U	A	0.44	U	A	0.26	UJ	D	2.1	J	D	
ARSENIC	1.9			1.1			1.9			2.3			
BARIUM	47.9	J	DF	30.1	J	DF	16.2			89.9			
BERYLLIUM	0.4			0.25			0.51			1.4			
CADMIUM	1.4	J	FI	1	J	FI	0.01	UJ	G	1.5	J	GK	
CALCIUM	1370	J	FG	9010	J	FG	247	J	I	1820	J	I	
CHROMIUM	13.9	J	FG	9.3	J	FG	6.8	J	G	61.4	J	G	
COBALT	3.8	J	G	2	J	G	2.1			7.9			
COPPER	69.8	J	G	24.7	J	G	12.8	J	G	238	J	G	
IRON	11400	J	F	8010	J	F	13000			15700			
LEAD	302	J	FI	56.6	J	FI	12.1			418			
MAGNESIUM	1470	J	DFI	1170	J	DFI	1110			1460			
MANGANESE	128	J	F	97	J	F	98.2			112			
MERCURY	0.24	J	F	0.016	J	FP	0.021	J	P	0.12			
NICKEL	11	J	DFGI	6.3	J	DFGI	7.7			67.5			
POTASSIUM	535	J	DF	399	J	DF	200			811			
SELENIUM	0.56	UJ	D	0.49	J	DKP	0.8	J	P	1	J	P	
SILVER	0.47	U	A	0.46	U		0.42	U	A	0.23	J	P	
SODIUM	48.2	J	K	70.9			19.7	J	KP	361			
THALLIUM	0.47	U	A	0.46	U		0.42	U	A	0.44	U	A	
VANADIUM	9	J	G	6.1	J	G	11.8			15.6			
ZINC	502	J	G	211	J	G	45.3	J	G	520	J	G	

PROJ_NO: 01813 SDG: J2571 FRACTION: M MEDIA: SOIL	NSAMPLE	QF-SO-CS03			QF-SO-CS04			QF-SO-CS05			QF-SO-DUP01-120810		
	LAB_ID	J2571-03C			J2571-04C			J2571-05C			J2571-06C		
	SAMP_DATE	12/8/2010			12/8/2010			12/8/2010			12/8/2010		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	95.0			71.0			75.0			76.0		
	DUP_OF										QF-SO-CS04		
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
ALUMINUM	5470			8970			6480			7250			
ANTIMONY	2	J	D	6.4	J	D	1.5	J	D	2.2	J	D	
ARSENIC	2			3.2			1.9			3.1			
BARIUM	64.3			136			57.6			99.5			
BERYLLIUM	1.1			0.82			0.89			0.81			
CADMIUM	1.3	J	G	5.2	J	G	1.9	J	G	2.4	J	G	
CALCIUM	1640	J	I	2100	J	I	1250	J	I	1770	J	I	
CHROMIUM	34.9	J	G	196	J	G	39.8	J	G	51.9	J	G	
COBALT	5			5.7			4.3			4.3			
COPPER	181	J	G	382	J	G	206	J	G	222	J	G	
IRON	11400			17800			14100			14900			
LEAD	264			531			333			350			
MAGNESIUM	1030			2710			1670			2020			
MANGANESE	79			157			107			121			
MERCURY	0.066			0.22			0.056			0.15			
NICKEL	47.3			28.9			34.6			31.8			
POTASSIUM	644			954			635			683			
SELENIUM	0.85	J	P	1.2	J	P	1.1	J	P	0.95	J	P	
SILVER	0.36	U	A	0.65	U	A	0.51	U	A	0.46	U	A	
SODIUM	282			129			167			107			
THALLIUM	0.36	U	A	0.65	U	A	0.51	U	A	0.46	U	A	
VANADIUM	12.2			28.8			14.8			20			
ZINC	415	J	G	985	J	G	374	J	G	442	J	G	

PROJ_NO: 01813	NSAMPLE	QF-SO-TP01-5 SC 5		
SDG: J2571	LAB_ID	J2571-08C		
FRACTION: M	SAMP_DATE	12/8/2010		
MEDIA: SOIL	QC_TYPE	NM		
	UNITS	MG/KG		
	PCT_SOLIDS	94.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
ALUMINUM	4260			
ANTIMONY	0.55	J	DP	
ARSENIC	2			
BARIUM	7.5	J	P	
BERYLLIUM	0.34			
CADMIUM	0.015	UJ	G	
CALCIUM	251	J	I	
CHROMIUM	5.3	J	G	
COBALT	2.6			
COPPER	11.4	J	G	
IRON	10100			
LEAD	6.4			
MAGNESIUM	1500			
MANGANESE	90.8			
MERCURY	0.0053	J	P	
NICKEL	6.7			
POTASSIUM	307			
SELENIUM	0.96	U		
SILVER	0.38	U		
SODIUM	15.5	J	KP	
THALLIUM	0.38	U	A	
VANADIUM	8.2			
ZINC	17.2	J	G	