

**Supplemental Phase II Environmental Site
Assessment
Ellisport Creek Greenspace Project Site
Vashon Island, Washington**

December 21, 2006

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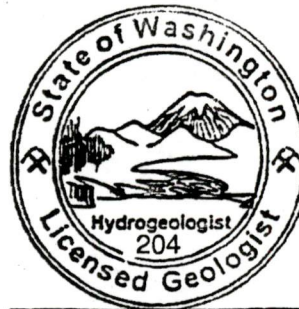
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**SUPPLEMENTAL PHASE II ENVIRONMENTAL SITE ASSESSMENT
ELLISPORT CREEK GREENSPACE PROJECT SITE
VASHON ISLAND, WASHINGTON**

December 21, 2006



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Executive Summary

This report summarizes supplemental Phase II environmental site assessment activities performed by Camp Dresser & McKee Inc. (CDM) at the Ellisport Creek Greenspace project site on Vashon Island, Washington. The assessment was conducted on behalf of King County to collect supplemental environmental information at the site. Specifically, sediments, near surface soil, surface water, and groundwater quality was investigated. Information from this study and previous site sampling will be used by CDM to perform a site specific Terrestrial Ecological Evaluation (TEE).

CDM's field investigation was performed on July 25, 26, 27, and 28, and August 17, 2006. Activities included collecting three marine sediment samples from the intertidal zone near the Ellisport Creek discharge point to Tramp Harbor (Puget Sound), two freshwater sediment samples from the bed of Ellisport Creek, two core sediment samples from the banks of Ellisport Creek, four discrete near-surface soil samples from the estimated periphery of the concentrated Bunker C oil area identified in previous investigation, three composite soils samples from the footprint of a former greenhouse and the areas to the north and south of this footprint, a surface water sample from standing water, and groundwater samples from four monitoring wells installed as part of the investigation.

The marine sediment samples were submitted for analytical testing for semivolatile organic compounds by EPA method 8270C using selected ion monitoring (SIM); polychlorinated biphenyls (PCBs) by EPA method 8082; selected total metals by EPA method 6010B; and total organic carbon (TOC) by EPA method 9060. The freshwater sediments were submitted for analytical testing for butyl tins referencing Krone, 1988; semivolatiles by EPA method 8270C with SIM; organochlorine pesticides by EPA method 8081A; PCBs by EPA method 8082; selected total metals by EPA Methods 6010B, 6020, and 7471A; sulfide by EPA method 376.2; and TOC by EPA method 9060. The core sediments collected from the banks of Ellisport Creek were submitted for analytical testing for polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270C/SIM, total petroleum hydrocarbons (TPH) quantified as Bunker C oil by Northwest Method NWTPH-Dx, and TOC by EPA method 9060. Discrete near-surface soil samples were submitted for analytical testing for total petroleum hydrocarbons (TPH) quantified as Bunker C oil and the composite soil samples were submitted for analytical testing for selected total metals by EPA method 6010B. In addition, the composite soil sample collected from the footprint of the former greenhouse was submitted for analytical testing for organochlorine pesticides by EPA Method 8081A and organophosphorous pesticides by EPA method 8141A with GC/MS. The surface water sample and groundwater samples were submitted for analytical testing for TPH quantified as Bunker C oil and PAHs by EPA method 8270C/SIM.

The analytical testing identified the presence of semivolatile compounds and metals in the marine sediments. The analytical laboratory data for the marine sediments were screened against tabulated Marine Sediment Quality Standards (Ecology, 1995).

The analytical testing identified the presence of semivolatile compounds, sulfide, and metals in the freshwater sediments samples collected from the bed of Ellisport Creek and PAHs and TPH as Bunker C in the core sediment samples collected from the banks of Ellisport Creek. The analytical laboratory data for the near-surface samples were screened against the 2003 Lowest Apparent Effects Threshold (LAET) values for freshwater sediments (Michelsen, 2003) to evaluate if the identified contaminant concentrations exceed levels that are considered protective of freshwater aquatic organisms. The analytical laboratory data for the core sediments from Ellisport Creek were also screened against the 2003 LAET criteria.

The analytical data for the discrete and composite near-surface soil samples and the groundwater samples were screened against the MTCA Method A and B cleanup levels. The analytical data for the soils (where applicable) were also compared to tabulated Ecological Soil Indicator Concentrations available in MTCA to evaluate if there is a potential for adverse effects to ecological receptors (soil biota, plants, and wildlife) from exposure to contaminants of concern identified at this site.

The results of this investigation indicate Bunker C and PAHs are present in groundwater at concentrations exceeding human health-based cleanup levels (MTCA Method A and Method B) and are present in surface water on the site. Marine sediments in Puget Sound adjacent to the upland portion of the site and freshwater sediments in Ellisport Creek are not adversely impacted by the Bunker C release. The analytical results of the soil samples confirm earlier estimates concerning the distribution of Bunker C contamination at the site. Following is a summary of the results for the media investigated.

Marine Sediments

All of the detected analytes in the marine sediments were at concentrations well below the Marine Sediment Quality Standards.

Ellisport Creek Freshwater Sediments

All of the detected analytes in the freshwater sediments and creek bank core samples were at concentrations well below the 2003 LAET criteria.

Discrete and Composite Near-Surface Soils

Detections of TPH as Bunker C in the discrete near-surface soil samples were at concentrations below the MTCA Method A cleanup level. No organochlorine or organophosphorous pesticides were detected in a composite sample collected from within the footprint of the former greenhouse. Lead was detected in all three of the composite samples at concentrations that exceeded the Ecological Indicator Soil Concentrations, but not the MTCA Method A cleanup level. Arsenic and cadmium were also detected in one of the three samples analyzed. The concentration of arsenic exceeded both the MTCA Method A cleanup level and the Ecological Indicator Soil Concentration value. The concentration of cadmium did not exceed either regulatory criteria.

Surface Water

No surface water criteria were available for screening the surface water analytical data. Bunker C-range hydrocarbons were detected in the sample at a concentration of 5,600 micrograms per liter ($\mu\text{g}/\text{L}$) and eight PAH compounds were detected above the laboratory's reporting limits at concentrations ranging from 0.020 to 0.40 $\mu\text{g}/\text{L}$.

Groundwater

Four groundwater monitoring wells were installed in the inferred hydraulically upgradient (MW-1) and downgradient MW-3 and MW-4 areas from the concentrated Bunker C area as well as within the concentrated Bunker C area (MW-2). Bunker C-range hydrocarbons were detected in two water samples (from wells MW-2 and MW-3) at concentrations that exceeded the MTCA Method A cleanup level. Concentrations of six of the PAH compounds detected in the sample from MW-3 exceeded their individual MTCA Method A and/or B cleanup levels and the calculated cPAH Toxic Equivalency (TEQ) for the carcinogenic PAHs exceeded the MTCA Method A cleanup level. The water sample from the downgradient well (MW-4) contained one PAH (chrysene) exceeding the MTCA Method B cleanup level, but the calculated cPAH TEQ did not exceed the MTCA Method A cleanup level.

Section 1

Introduction

This report summarizes supplemental Phase II environmental site assessment (ESA) activities performed by Camp Dresser & McKee Inc. (CDM) on behalf of King County (the County) at the Ellisport Creek Greenspace Project site (the site) located on Vashon Island, Washington. **Figure 1** shows the site location and **Figure 2** shows a site plan. CDM's services were performed in accordance with our April 25, 2006 proposal, Work Order No. 20, Contract No. E23023E. In addition, a May 23, 2006 Sampling and Quality Assurance Plan (SQAP) prepared by CDM was used to direct field activities.

1.1 Purpose and Scope

The purpose of this supplemental Phase II ESA was to assess shallow soil and groundwater contamination on upland portions of the site and of sediments in Ellisport Creek and the intertidal zone adjacent to Chautauqua Beach Road SW. The information gathered for this investigation will be evaluated by the Washington State Department of Ecology (Ecology) for impacts to sediments and used by CDM to support development of a site-specific Terrestrial Ecological Evaluation (TEE).

Three general areas were identified for further investigation. These areas, shown on the site plan (**Figure 2**) and discussed in greater detail in Section 2, include:

1. The area of the former greenhouse.
2. The area of the concentrated Bunker C identified during a September 2005 Phase II investigation at the site.
3. The intertidal zone sediments near the Ellisport Creek discharge point to Tramp Harbor (Puget Sound) and Ellisport creek sediments.

CDM's scope of services for this investigation included:

- Developing a project Sampling and Quality Assurance Plan (SQAP) for review and approval by U.S. Environmental Protection Agency (EPA) Region 10 as part of Brownfields' grant funding. The SQAP describes the project scope/objectives, field sampling procedures and analytical methods, and laboratory information (reporting limits, Quality Assurance/Quality Control (QA/QC) protocol, etc.).
- Collecting three sediment samples from the beach adjacent to Chautauqua Beach Road for chemical analysis for semivolatiles by EPA method 8270C/SIM; PCBs by EPA method 8082; metals on a total basis by EPA methods 6010B, 6020, and 7471A; and TOC by EPA method 9060.
- Collecting two near-surface sediment samples from bed of Ellisport Creek for laboratory chemical analysis for semivolatiles by EPA method 8270C/SIM; polychlorinated biphenyls (PCBs) by EPA method 8082; organochlorine pesticides

by EPA method 8081A; butyl tins referencing Krone, 1988; TOC by EPA method 9060; and sulfide by EPA method 376.2.

- Collecting two core sediment samples from the banks of Ellisport Creek for laboratory chemical analysis for PAHs by EPA method 8270C/SIM, total petroleum hydrocarbons (TPH) quantified as Bunker C by Northwest Method NWTPH-Dx, and TOC by EPA method 9060.
- Collecting seven surface soil samples (4 discrete and 3 composite) for laboratory chemical analysis. Discrete soil samples were analyzed for TPH quantified as Bunker C (Northwest Method NWTPH-Dx) and the composite soil samples were analyzed for metals on the total basis (EPA methods 6010B, 6020, and 7471A). The composite sample collected from within the footprint of the former greenhouse was also analyzed for organophosphorous pesticides (EPA method 8141A-GC/MS), and organochlorine pesticides (EPA method 8081A).
- Collecting one surface water sample for laboratory chemical analysis for TPH quantified as Bunker C (Northwest Method NWTPH-Dx) and PAHs (EPA Method 8270C/SIM).
- Installing four temporary drive-point monitoring wells and collecting a groundwater sample from each well for laboratory chemical analysis for TPH quantified as Bunker C (Northwest Method NWTPH-Dx), and PAHs by EPA Method 8270C/SIM.
- Conducting a data analysis on the analytical results and a performing a regulatory evaluation using tabulated criteria appropriate for the media in question.
- Preparing this report documenting the field activities and analytical laboratory sample results.

1.2 Site Background

Between about 1920 and 1940, the site housed a lumber mill, millpond, and greenhouses for growing vegetables. The mill was located on the east side of Ellisport Creek while the greenhouses were located on the west side (see **Figure 2**). Based on a review of King County assessor records dated 1938 and aerial photos for 1936 and 1960, three above-ground storage tanks (ASTs) were located on the property. Two of the ASTs had capacities of approximately 8,000 gallons while the third had a capacity of approximately 48,000 gallons. Several concrete blocks/foundations have been identified on the west side of Ellisport Creek that likely are support structures for the former ASTs (see **Figure 2**). It is believed the tanks were used to store fuel for a boiler that heated the greenhouses as part of a Bunker C fuel oil transfer facility. Oil was moved by barge to tank to truck to heat off-site greenhouses. Fuel transfer operations were terminated around 1960. The above-ground storage tanks were reportedly removed in the early 1960's.

1.3 Site Location and Description

The site is located where Ellisport Creek discharges into Tramp Harbor on the east coast of Vashon Island (**Figure 1**). Elevations on the site are estimated to range from near sea level along the banks of Ellisport Creek to 40 feet above Mean Sea Level along the northwest and northeast margins of the site. The site consists of four privately owned contiguous parcels totaling 8.66 acres of which 5.65 acres are tide land (**Figure 2**). The remaining 3.01 acres are mostly wetland bisected by Ellisport Creek. The upland portion of the site carries King County Assessment Parcel Nos. 15352040-015, -065, and -115. The tideland portion of the site carries Parcel No. 0522039048. Chautauqua Beach Drive S.W., a paved two-lane road, crosses the site and separates the upland and tideland areas. A gravel road leads northwest along the western edge of the site to a house on a parcel located immediately to the north. Photographs taken during the supplemental Phase II ESA are included in **Appendix A**.

An approximately 250-foot-wide wetland area bisected by Ellisport Creek encompasses the center of the site. Wooded slopes border both sides of the wetland to the east and the west. The site slopes to the southeast and is vegetated with Alder, salmonberries, English ivy, and blackberries. Horsetail and various grasses and ferns are common in and near wet areas and areas of standing water. This supplemental Phase II ESA was conducted near the end of a dry summer (late July 2006) and several areas of standing water were still present as noted during CDM's September 2005 investigation as shown on **Figure 2**. Because the site contains a wetland, groundwater is found at a very shallow depth below the land surface. The creek branches into several channels through the wetland, and two 3-foot-diameter pipe culverts beneath Chautauqua Beach Drive S.W. drain the creek to Tramp Harbor. The level of water in Ellisport Creek an estimated one to two feet higher than in September of 2005, when CDM was last onsite. The ends of the culvert under Chautauqua Beach Drive SW were completely buried by sand and cobbles restricting flow to Puget Sound.

1.4 Previous Environmental Assessment Work

Two previous environmental assessments were performed at the site, one in 1999 and the other in 2005. The assessments are presented in the following reports:

Limited Phase II Environmental Site Assessment, Ellisport Creek Acquisition Site, Vashon Island, Washington, September 17, 1999

Phase II Site Assessment, Ellisport Creek Greenspace Project Site, Vashon Island, Washington, December 23, 2005.

The 1999 investigation was performed by AGI Technologies (now CDM) on behalf of the Vashon Park District. Soil samples were collected at 17 hand auger drill sites denoted S1 through S17 on **Figure 3**. In addition six test pits (denoted TP1 through TP6 on **Figure 3**) were excavated using hand tools. Soil samples were collected from each hand auger site at a depth of 6 inches. The test pits were dug up to 5 feet deep to make observations of groundwater conditions. Groundwater depths were from several inches to 3 feet bgs. One groundwater samples was also collected for

analytical testing from a test pit excavated at the location of the most contaminated soil sample (S7). The analytical data for the 1999 investigation are summarized in **Table 1** and **Table 2**. The principal contaminants at the site, TPH and PAHs, were attributed to the presence of Bunker C Oil.

The September 2005 investigation was conducted under the King County Brownfield's program. The investigation focused on developing a more refined estimate of the extent of contamination on the property from the storage of Bunker C at the site. Ten surface soil samples were collected at depths of 0.1 to 0.9 feet after clearing vegetation from the ground surface and one sediment sample was collected at the location of the most pronounced surface water discharge to Ellisport Creek from the site. In addition, eight test pits were excavated using a small backhoe to depths 2.3 to 6 feet bgs. The surface soil sample and test pit locations for the 2005 investigation are shown on **Figure 4**. Soils in the test pits consisted primarily of silty sand. The analytical data for the 2005 investigation are summarized in **Table 3** through **Table 5**. Lube oil and Bunker C-range TPH was present in soil samples from below laboratory detection limits to 44,000 milligrams per kilogram (mg/kg). The investigation identified an area of concentrated Bunker C soil contamination in the general center of the site. **Figure 5** shows all exploration locations for the 1999 and 2005 investigations and an estimate of the concentrated Bunker C-contaminated soil area.

The King County Roads Services Division performed a subsurface exploration in February 2004 in the area of the culverts below Chautauqua Beach Drive SW (King County, 2005). The County investigation was performed to support planning for a project to replace the Ellisport Creek Culverts with a box culvert. Replacement of existing drainage restrictions will aid in restoration of the creek to original intertidal habitat with salt marsh vegetation and eelgrass beds in the lower reaches to provide habitat for juvenile sea-run cutthroat trout and Coho salmon. A soil boring drilled 10 feet south of the southern culvert centerline encountered groundwater at about 5 feet below ground surface (bgs). This boring was completed as a groundwater monitoring well (denoted as KCB-2) screened from 11 to 21 feet bgs. Water level monitoring by the County in July and August 2004 indicates that groundwater is tidally influenced in the area of the culverts and the water level in well KCB-2 rises to within 1.5 feet of the road surface. A water sample collected from the monitoring well on July 7, 2004 identified no gasoline, diesel, or oil-range TPH at or above the laboratory detection limits.

Section 2

Field Investigation

CDM's field investigation was conducted from July 25 through July 28, 2006, and on August 17, 2006 and included collecting three sediment samples collected from the beach adjacent the Chautauqua Beach Road SW, two sediment samples from the bed of Ellisport Creek, and two soil core samples from the banks of Ellisport Creek. Activities also included collecting discrete near-surface soil samples from the estimated periphery of the concentrated Bunker C area and three near-surface 5-point composite soil samples from the former greenhouse area and the areas to the north and south of the former greenhouse. A sample was collected from standing water in the upland portion of the site. Four temporary groundwater monitoring wells were installed and sampled.

Field exploration and sampling procedures are summarized in **Appendix B**. Exploration and sampling activities for each of the sample matrices are summarized in the following sections.

2.1 Marine and Freshwater Sediments

On July 25, 2006 five sediment samples were collected within the upper 10 centimeters from the intertidal zone near the Ellisport Creek discharge point to Tramp Harbor (Puget Sound) and from the bed of Ellisport Creek. In addition, two "sediment" samples were collected from approximately 2-foot deep cores excavated by hand on the stream bank adjacent to the Ellisport Creek channel. The sediment samples were given the designations "MS" for marine samples and "FWS" for freshwater samples; their locations are shown on **Figure 6**.

The three discrete marine sediment samples, denoted MS-1 through MS-3, were collected during low tide from the intertidal zone adjacent to Chautauqua Road SW, 100 feet from the bulkhead along Chautauqua Beach Road. The purpose of the marine sediment sampling was to provide a screening-level assessment of marine sediment quality. A large intertidal area was exposed on July 25, 2006 extending an estimated 500 feet or more from the shoreline. Sample MS-1 was collected directly outward from the culvert outfall and samples MS-2 and MS-3 were collected 50 feet to either side of the first sample. The sediment encountered at the sample locations was a loose, poorly graded gray sand. The three marine sediment samples (MS-1 through MS-3) were analyzed for the full suite of chemical parameters contained in Table I of the Sediment Management Standards (Chapter 173-204 WAC). The TOC contents of the samples were also determined by the laboratory. Analytical results are discussed in Section 3.

Two discrete near-surface sediment samples were collected from the upper 10 centimeters of the bed of the creek. The purpose of the freshwater sediment sampling was to provide a screening-level assessment of marine sediment quality. These sample are denoted FWS-1 and FWS-5 on **Figure 6**. FWS-1 (and its duplicate FWS-2) was collected from the creek bed approximately 40 feet upstream from the entrance of the two culverts. A hydrocarbon-

like sheen was noted on the creek water surface near the entrance to the two culverts extending below Chautauqua Beach Road. The water in the creek had little noticeable flow due to sediment blockage within and at the Puget Sound shoreline end of the culverts. This is in contrast to conditions observed during September 2005 fieldwork there was a well defined stream channel with noticeable flow. FWS-5 was collected approximately 300 feet upstream from the culvert. The sediments encountered here were very loose gray sands.

Two core samples (denoted FWS-3 and FWS-4) were collected from the west bank of Ellisport Creek from approximately 2 to 3 ft bgs with a hand auger and a stainless steel spoon. The purpose of the two creek channel cores was to investigate for Bunker C product within a lense of sediment that could potentially be eroded into Puget Sound as a result of down cutting subsequent to the installation of the planned box culvert to replace the two existing Ellisport Creek culverts. This project will be implemented by the King County Roads Services Division potentially in the summer of 2007. FWS-3 was collected approximately 20 feet upstream from the culvert at a depth of 2.2 to 2.7 feet bgs and FWS-4 was collected approximately 100 feet upstream from the culvert at a depth of 1.8 to 2.3 feet bgs. These two samples are considered sediment in this study. The sediments encountered were dark gray sandy silt. The freshwater sediments (FWS-1 and FWS-5) were analyzed for the freshwater sediment quality parameters contained in Ecology Publication No. 03-09-088, specifically Table 3-3, Apparent Effects Thresholds. The two core samples (FWS-3 and FWS-4) were analyzed for Bunker C-range TPH by Northwest Method NWTPH-Dx, PAHs by EPA Method 8270C/SIM. Analytical results are discussed in Section 3.

2.2 Surface Soil Samples

On July 26, 2006 four discrete surface soil samples (denoted S14 and S16 through S18 on **Figure 6**) were collected from the estimated periphery of the concentrated Bunker C contaminated area identified in the September 2005 investigation. The four discrete soil samples were collected from between 1.5 and 2 feet bgs. The location of sample S17 was moved approximately 15 feet to the west of the intended location when heavily hydrocarbon stained soil was encountered at approximately 1.7 ft bgs at the intended location. The discrete soil samples were analyzed for Bunker C-range hydrocarbons by Northwest Method NWTPH-Dx.

Three composite soil samples (denoted S19, S20, and S21 on **Figure 6**) were also collected on July 26, 2006 from within the footprint of the former greenhouse and areas to the north and south of this footprint. Each of the three composite samples consisted of a homogenous mixture of five discrete samples located at the corners and center of each rectangular area (the footprint of the former greenhouse, the area north of the footprint, and the area south of the footprint). The composite sample from the footprint of the former greenhouse (S19) was analyzed for organo-phosphorous pesticides (EPA Method 8141A), organo-chlorine pesticides (8081A), and selected total metals (EPA method 6010B). The composite samples from the areas north and south

of the former greenhouse area (S20 and S21) were analyzed for selected total metals. Analytical results for the soil samples are discussed in Section 3.

2.3 Surface Water Sample

A surface water sample (denoted SW-1 on **Figure 6**) was collected on July 26, 2006 from standing water approximately 15 feet from Ellisport Creek. This standing water feeds a small drainage that discharges to Ellisport Creek which is the location of a sediment sample collected during CDM September 2005 investigation (denoted EC-S5 on **Figure 5**). Sheen was observed on the water at the location of the surface water sample. The sample was collected with a peristaltic pump and transferred directly into clean sample bottles. The surface water sample was analyzed for Bunker C-range hydrocarbons by Northwest Method NWTPH-Dx and PAHs by EPA Method 8270C/SIM. Analytical results for the surface water sample are discussed in Section 3.

2.4 Monitoring Well Installation and Groundwater Samples

On July 27, 2006 four shallow, drive-point, temporary monitoring wells were installed. The wells are denoted MW-1 through MW-4 on **Figure 6**. The drive-point wells consist of commercially available factory screened drive points constructed of 1 ¼ -inch diameter galvanized steel. The screen length is 24 inches. Sections of 2-foot-long galvanized pipe were added to achieve the desired depth. All drive points and pipe were thoroughly decontaminated prior to use. The drive points were installed by manually pounding the casing and attached pipe into the ground with a hand held steel drive head. This well installation technique prevented disruption to the wetland that would have occurred using a conventional drill rig. MW-1 is located in the inferred hydraulically upgradient location from the concentrated Bunker C area, MW-2 is located within the concentrated Bunker C area, MW-3 is located between the estimated concentrated Bunker C area and Ellisport Creek, and MW-4 is located in the inferred hydraulically downgradient area from the estimated concentrated Bunker C area as shown on **Figure 6**.

The wells were installed pursuant to a variance obtained from the Washington State Department of Ecology (Ecology). A copy of the well variance and Resource Protection Well Report forms are presented in **Appendix C**. The wells extend to depths ranging from 3.5 to 10 feet bgs. Very dense soil conditions were encountered at three feet bgs at the locations for MW-1 and MW-4 and the wells extended to 3.5 and 4 feet bgs, respectively at these locations. The wells for MW-2 and MW-3 were able to penetrate 8 and 10 feet of soil, respectively. MW-2 and MW-3 were extended deeper since groundwater did not readily enter the well screens. An area around each well was backfilled with bentonite chips to a depth of one foot bgs.

The wells were developed by surging with a plastic bailer and approximately three well volumes were purged from each well. Water samples were collected on July 27, 2006 from the wells with a peristaltic pump and transferred directly into clean sample containers. Because no duplicate water sample was collected during the initial sample

event, MW-3 was re-sampled on August 17, 2006 and a duplicate water sample was collected. The groundwater samples were analyzed for Bunker C-range hydrocarbons by Northwest Method NWTPH-Dx and PAHs by EPA Method 8270C/SIM. Analytical results are discussed in **Section 3**.

Depth-to-water measurements were collected from the four wells on July 27 and August 17, 2006 and are shown on **Table 6**. The well casings were not surveyed; hence, no groundwater flow maps are available.

Section 3

Analytical Testing Results

This section presents the analytical laboratory results for the sediment, surface soil, surface water, and groundwater samples. Copies of the laboratory reports are presented in **Appendix D**. Analytical results are summarized in **Tables 7** through **13**.

3.1 Marine Sediment

Three sediment samples (MS-1, MS-2, and MS-3) were collected from the intertidal zone adjacent to the upland portion of the site. Sample locations are shown on **Figure 6**. Analytical results for the marine sediments are summarized in **Table 7**. Some semivolatile compounds were detected in samples MS-1 and MS-3 at concentrations ranging from 0.01 to 0.031 mg/kg. No semivolatile compounds were detected in sample MS-2. Chromium, copper, and zinc were detected in all three samples at concentrations ranging from 16 to 26 mg/kg, 8.3 to 8.9 mg/kg, and at 27 mg/kg, respectively.

3.2 Freshwater Sediment and Ellisport Creek Cores

Two sediment samples (FWS-1 and FWS-5) were collected from the Ellisport Creek bed. Locations are shown on **Figure 6**. Analytical results for the freshwater sediments are summarized in **Table 8**. Some semivolatile compounds were detected in the duplicate collected for FWS-1 (duplicate sample ID is EC-FWS 2-7/06) and FWS-5 at levels ranging from 8 ug/kg to 1,200 ug/kg. Chromium, copper, nickel, and zinc were detected in samples FWS-1 and FWS-5 at concentrations ranging from 23 to 31 mg/kg, 8.1 to 14 mg/kg, 28 to 33 mg/kg, and 28 to 45 mg/kg, respectively. Lead was also detected in sample FWS-5 at 11 mg/kg. Sulfide was detected in the FWS-1 duplicate at 3.29 mg/kg.

Two core samples (FWS-3 and FWS-4) were collected from the Ellisport Creek bank and were analyzed as freshwater sediment. Locations are shown on **Figure 6**. Analytical results are summarized in **Table 9**. PAHs were detected in sample FWS-3 at concentrations of 22 to 220 ug/kg. TPH as Bunker oil was also detected in this sample at 580 mg/kg. PAHs and TPH as Bunker C oil were not detected in sample FWS-4.

3.3 Discrete Surface Soils

Four discrete surface soil samples (S14, S16, S17, and S18) were collected from the estimated periphery of the concentrated Bunker C area. Sample locations are shown on **Figure 6**. Analytical results for the discrete surface soils are summarized in **Table 10**. TPH as Bunker C oil was detected in samples S16 and S18 at concentrations of 200 and 830 mg/kg, respectively.

3.4 Composite Surface Soils

Three composite soil samples (S19, S20, and S21) were collected from the footprint of the former greenhouse area and to the north and south of this footprint. Samples locations are shown on **Figure 6**. Analytical results for the composite soil samples are summarized in **Table 11**. Organochlorine and organophosphorus pesticides were not detected above the laboratory reporting limits in the one sample (S19) analyzed for pesticides. Lead was detected in this sample at a concentration of 100 mg/kg.

Arsenic, cadmium, and lead were detected in sample S20 at concentrations of 22 mg/kg, 0.73 mg/kg, and 120 mg/kg, respectively. Only lead was detected in sample S21 at a concentration of 84 mg/kg.

3.5 Surface Water

One surface water sample (SW-1) was collected from standing water approximately 15 feet west of Ellisport Creek. The sample location is shown on **Figure 6**. Analytical results for the surface water sample are summarized in **Table 12**. Eight PAH compounds were detected in the surface water sample at levels from 0.020 to 0.16 µg/L. TPH as Bunker C oil was detected at 5,600 µg/L.

3.6 Groundwater

Groundwater samples were collected from monitoring wells installed as part of this investigation (MW-1 through MW-4). The well locations are shown on **Figure 6**. Analytical results for the groundwater samples are summarized in **Table 13**. No analytes were detected above the laboratory's reporting limits in sample from MW-1. Three PAH compounds were detected in the sample from MW-2 at concentrations ranging from 0.010 to 0.013 µg/L. TPH as Bunker C was detected in this sample at 1,200 µg/L.

Seventeen PAH compounds were detected in the sample from MW-3, collected on July 27, at concentrations ranging from 0.10 to 5.1 µg/L. and TPH as Bunker C was detected at 4,600 µg/L. Seven PAH compounds were detected in the sample collected from MW-3 on August 17 and the duplicate (EC-MW5-8/06) at concentrations ranging from 0.012 to 0.65 µg/L. TPH as Bunker C was not detected above the laboratory's reporting limits.

Three PAH compounds were detected in sample from MW-4 at concentrations ranging from 0.011 to 0.015 µg/L. TPH as Bunker C was not detected above the laboratory's reporting limit.

The significant differences in the results for the water samples collected from MW-3, on July 27 and August 17, could potentially be due to a small spot or aliquot of product being present in the July 27 sample, but not the August 8 sample. Product was observed on the gloves worn by the field sampler on July 27, 2006. A bailer used to check for the presence of product in the well on August 8, 2006 showed a small spot of product when removed after submersion in the well. A Hydrocarbon-like odor was also noted, but the water appeared clear. This suggests that small quantities

of product are intermittently present in the well. Sample preparations for the PAH and Bunker C analytical tests thoroughly remove all hydrocarbons from the sample containers with a solvent rinse of the containers. If a small quantity of product were present, it could significantly impact the sample result.

An additional round of groundwater monitoring is scheduled for January 2007.

Section 4

Regulatory Evaluation

The analytical laboratory data for the beach sediments were compared to the values in Table I; Marine Sediment Quality Standards – Chemical Criteria in Chapter 173-204-320 of the Washington Administrative Code (WAC). Detected levels of selected semivolatile compounds were normalized for the organic carbon values as described in paragraph 2 (c) of WAC 173-204-320 and described in **Appendix E**.

The analytical laboratory data for the Ellisport Creek bed and core sediments were compared to the 2003 Lowest Apparent Effects Threshold (LAET) values in Table 3-3 2003 Apparent Effects Thresholds in Ecology's publication number 03-09-088, Phase II: Development and Recommendation of Sediment Quality Values (SQVs) for Fresh-water Sediments in Washington State, September 2003.

The Model Toxics Control Act requires that soil cleanup levels be protective of human health. The analytical laboratory data for the soil and groundwater samples were compared to tabulated Method A and Method B cleanup levels. These cleanup levels are shown in **Tables 10, 11** and **13**. The tabulated Method A cleanup levels in Table 740-1 of MTCA may be based on direct contact, ingestion, and/or protection of groundwater, as appropriate (Ecology 2001a). MTCA Method B values were obtained from Ecology's Cleanup Levels and Risk Calculations (CLARC) tables and are based on protection of human health via ingestion (Ecology, 2001b).

Potential impacts from detected compounds to terrestrial ecological receptors (plants, animals, and soil biota) will be evaluated during development of a site specific TEE. Compounds identified in soil can be compared to ecological indicator concentrations contained in MTCA Table 749-3 (pp. 243-244 in MTCA) as a guide in the evaluation of whether contaminant concentrations are protective of terrestrial plants and animals. Ecological indicator soil concentrations in MTCA Table 749-3 are included in **Table 11** where they are applicable and exist. In circumstances where multiple ecological indicator concentrations occur (i.e., plants, soil biota, and wildlife), the most stringent concentration is applied. MTCA cautions that ecological indicator concentrations are not cleanup levels, and concentrations that exceed the number do not necessarily require remediation.

The possibility that fallout from the former ASARCO smelter located at Ruston, near Tacoma, contributed to the metals (arsenic, cadmium and lead) identified at the site also needs to be considered when evaluating areas for regulatory exceedances. Metals contamination is an area-wide issue in soil on Vashon Island (Public Health – Seattle & King County, 2000).

The paragraphs below compare contaminant concentrations in each of the areas of investigation against potentially applicable regulatory criteria.

4.1 Marine Sediment

PCBs were not detected above the laboratory's reporting limits. No semivolatile compounds were detected above the laboratory's reporting limits in sample MS-2. Concentrations of semivolatile compounds detected in sample MS-1 and MS-3 were all below the Marine Sediment Quality Standards. The detected concentrations of chromium, copper, and zinc in all three samples were also below the Sediment Quality Standards (see **Figure 6** and **Table 7**).

4.2 Freshwater Sediment and Ellisport Creek Cores

Butyl tins, organochlorine pesticides, and PCBs were not detected in the samples above the laboratory's respective reporting limits. Concentrations of semivolatile compounds detected in the duplicate for sample FWS-1 (denoted EC-FWS 2-7/06) and sample FWS-5 were below the 2003 LAET values. The concentrations of metals detected in both samples and the duplicate were below the 2003 LAET values and the concentration of sulfide detected in the duplicate of FWS-1 was below the 2003 LAET values (see **Figure 6** and **Table 8**).

None of the detections in sample FWS-3 exceeded the freshwater 2003 LAET criteria. No PAH compounds or TPH as Bunker C were detected in sample FWS-4 at or above the laboratory's reporting limits (see **Figure 6** and **Table 9**).

4.3 Discrete Surface Soils

Concentrations of TPH as Bunker C in samples S16 and S18 at 200 mg/kg and 830 mg/kg, respectively, were below the MTCA Method A cleanup level of 2,000 mg/kg. TPH as Bunker C was not detected above the laboratory's reporting limit in samples S14 (or its duplicate), and S17 (see **Figure 6** and **Table 10**).

4.4 Composite Surface Soils

There were no detections of organochlorine or organophosphorus pesticides above the laboratory's reporting limits in sample S19, collected from within the footprint of the former greenhouse (see **Figure 6** and **Table 11**). Lead was the only metal detected in this sample with a concentration of 100 mg/kg, which is below the MTCA Method A cleanup level. Arsenic, cadmium, and lead were detected in sample S20 collected to the north of S19. The concentration of arsenic at 22 mg/kg exceeded the MTCA Method A cleanup level and the concentrations of cadmium and lead were below the MTCA Method A cleanup levels. Lead was the only metal detected in sample S21 with a concentration of 84 mg/kg, below the MTCA Method A cleanup level. The concentrations of lead in all three samples and arsenic in sample S20 exceeded the ecological indicator concentration.

4.5 Surface Water

Surface water criteria for PAHs and TPH as Bunker C are not available for screening. Eight PAH compounds were detected in the surface water at concentrations from 0.020 to 0.40 µg/L and TPH as Bunker C were detected at 5,600 µg/L (see **Figure 6** and **Table 12**).

4.6 Groundwater

No PAH compounds or TPH as Bunker C were detected in the water sample from MW-1 above the laboratory's reporting limits (see **Figure 6** and **Table 13**). The concentrations of the three PAH compounds detected in the sample from MW-2 were below the MTCA Method A and Method B cleanup levels. The concentration of TPH as Bunker C in the sample from MW-2 at 1,200 µg/L exceeds the MTCA Method A cleanup level of 500 µg/L.

Six of the seventeen PAH compounds detected in the sample from MW-3, collected on July 27, were at concentrations exceeding the individual MTCA Method B cleanup levels. The carcinogenic polyaromatic hydrocarbon (cPAH) groundwater sample results were normalized to a Toxicity Equivalency Factor (TEF). Each cPAH has a specific TEF, and the sum of the TEF-adjusted cPAHs equals the Toxic Equivalency (TEQ) as outlined in WAC 173-340-708(8). Data for cPAHs were adjusted with the TEF only when the concentration in the sample was above the method reporting limit. The normalized cPAHs TEQ for the sample from MW-3, collected on July 27, exceeded the cPAH TEQ criteria in MTCA Method A. The concentration of TPH as Bunker C detected in this sample at 4,600 µg/L also exceeded the MTCA Method A cleanup level of 500 µg/L.

Only seven PAH compounds were detected in the sample from MW-3 and its duplicate (EC-MW5-8/06), collected on August 7, with concentrations of two PAH compounds exceeding their individual MTCA Method B cleanup levels. The cPAH TEQs were below the MTCA Method A cleanup level. TPH as Bunker C were not detected above the laboratory's reporting limits.

Three PAH compounds were detected in the sample from MW-4, with only the concentration of chrysene exceeding its individual MTCA Method B cleanup level. The cPAH TEQ for this sample was below the MTCA Method A cleanup level.

Section 5

Conclusions

The results of this supplemental Phase II ESA for the Ellisport Creek Greenspace Project Site indicate that impacts are present to the groundwater and surface water from the previously identified Bunker C release. Concentrations of TPH and PAHs in groundwater exceeded MTCA Method A cleanup levels. The results of the soil sampling are consistent with previous data on the magnitude and extent of Bunker C onsite.

Arsenic was detected above the MTCA Method A cleanup level in the composite soil sample collected north of the footprint of the former greenhouse. Lead was detected in all three of the composite soil samples from the former greenhouse area at levels below the MTCA Method A cleanup level, but above the tabulated MTCA ecological indicator concentration.

Marine sediments in the intertidal zone and freshwater sediments from Ellisport Creek do not appear to be impacted by the Bunker C release. Detected levels of contaminants were all well below the Marine Sediment Quality Standards and freshwater 2003 LAET criteria.

The results of this assessment will be used in conjunction with previously collected environmental data to support development of a site-specific TEE to evaluate cleanup levels that are protective of the environment.

Section 6

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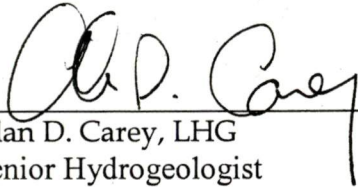
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A handwritten signature in black ink, appearing to read "Alan D. Carey", is written over a horizontal line. The signature is cursive and somewhat stylized.

Alan D. Carey, LHG
Senior Hydrogeologist

Tables

Tables

Table 1
NWTPH-HCID and WTPH-D (extended) Soil and Groundwater Sample Testing Results (AGI, 1999)
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Soil Samples

Sample No.	Sample Depth ft bgs	Washington State Test Method				
		NWTPH - HCID			WTPH-D (extended)	
		Gasoline	Diesel	Oil	Diesel	Oil
		mg/kg			mg/kg	
S1	0.5	ND	ND	D	ND	52
S2	0.5	ND	ND	D	ND	ND
S3	0.5	ND	ND	D	ND	110
S4	0.5	ND	ND	D	380	4,400
S5	0.5	ND	ND	ND	NA	NA
S6	0.5	ND	ND	D	120	420
S7	0.5	ND	ND	D	64,000	90,000
S8	0.5	ND	ND	D	ND	370
S9	0.5	ND	ND	ND	NA	NA
S10	0.5	ND	ND	ND	NA	NA
S11	0.5	ND	ND	D	32	310
S12	0.5	ND	ND	ND	NA	NA
S13	0.5	ND	ND	ND	NA	NA
S14	0.5	ND	ND	ND	NA	NA
S15	0.5	ND	ND	ND	NA	NA
S16	0.5	ND	ND	ND	NA	NA
S17	0.5	ND	ND	ND	NA	NA
Laboratory Detection Limit		20	50	100	25	50
Cleanup Level ^a		--	--	--	2,000	2,000

Groundwater Sample

Sample No.	Date Sampled	Washington State Test Method				
		NWTPH - HCID			WTPH-D (extended)	
		Gasoline	Diesel	Oil	Diesel	Oil
		µg/L			µg/L	
W1	07/14/99	NA	NA	NA	57,000	100,000
Cleanup Level ^b		--	--	--	1,000	1,000

Notes:

Soil samples were collected on 7/13/99.

Shaded value indicates that concentration exceeds cleanup level.

a) Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Method A suggested soil cleanup level for unrestricted land uses; promulgated August 15, 2001.

b) Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Method A suggested groundwater cleanup level; promulgated August 15, 2001.

HCID - Ecology Hydrocarbon Identification Method.

WTPH-D (extended) – total petroleum hydrocarbons quantified as diesel and oil.

D - detected above laboratory detection limit.

NA - not analyzed.

ND – not detected at or above laboratory detection limit.

ft bgs - feet below ground surface.

mg/kg – milligram per kilogram.

µg/L - microgram per liter.



Table 2

Summary of BETX, PCB, and PAH Detections in Soil and Groundwater (AGI, 1999)

King County/Ellisport Creek Greenspace Property Assessment

Vashon Island, Washington

Analyte	Laboratory Detection Limit Soil	Cleanup Level Soil ^a	Sample I.D. S7	Laboratory Detection Limit Groundwater	Cleanup Level Groundwater ^a	Sample I.D. W1
EPA Test Method 8021						
	<u>mg/kg</u>	<u>mg/kg</u>	<u>mg/kg</u>	<u>µg/L</u>	<u>µg/L</u>	<u>µg/L</u>
Benzene	0.4	0.03	ND	1	5	ND
Ethylbenzene	0.4	6	ND	1	700	ND
Toluene	0.4	7	ND	1	1,000	ND
Xylenes	1.2	9	ND	1	1,000	5
EPA Test Method 8082M						
	<u>mg/kg</u>	<u>mg/kg</u>	<u>mg/kg</u>			
PCB-1016	0.1	1	ND	N/A	N/A	NA
PCB-1221	0.1	1	ND	N/A	N/A	NA
PCB-1232	0.1	1	ND	N/A	N/A	NA
PCB-1242	0.1	1	ND	N/A	N/A	NA
PCB-1248	0.1	1	ND	N/A	N/A	NA
PCB-1254	0.1	1	ND	N/A	N/A	NA
PCB-1260	0.1	1	ND	N/A	N/A	NA
Polycyclic Aromatic Hydrocarbons (PAHs)						
EPA Test Method 8270						
	<u>mg/kg</u>	<u>mg/kg</u>	<u>mg/kg</u>	<u>µg/L</u>	<u>µg/L</u>	<u>µg/L</u>
Napthalene	1	5	ND	0.5	160	34
Acenaphthylene	1		ND	0.5		0.5
Acenaphathene	1	4,800 ^b	1.7	0.5	960	8.2
Fluorene	1	3,200 ^b	ND	0.5	640	10
Phenanthrene	1		2.1	0.5		37
Anthracene	1	24,000 ^b	ND	0.5	2,400	8.1
Fluoranthene	1	3,200 ^b	1.3	0.5	640	9.4
Pyrene	1	2,400 ^b	6.8	0.5	480	14
Benzo[a]anthracene*	1		1	0.5		3.6
Chrysene*	1		3.9	0.5		7.2
Benzo(b)fluoranthene*	1		ND	0.5		5.3
Benzo(k)fluoranthene*	1		ND	0.5		5.3
Benzo(a)pyrene*	1		1.4	0.5		2.7
Indeno(1,2,3-c,d)pyrene*	1		ND	0.5		ND
Dibenz(a,h)anthracene*	1		ND	0.5		ND
Benzo(g,h,i)perylene	1		1.3	0.5		1.3
TEQ cPAHs*		0.1	1.889		0.1	4.317

Notes:

*Carcinogenic polycyclic aromatic hydrocarbons (cPAHs).

Bold values exceed cleanup level.

- a) Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Method A suggested cleanup level for unrestricted land uses; promulgated August 15, 2001. Method B, CLARC tables (November 2001) used when Method A cleanup levels are not available. Risk values based on direct contact for soil and potable groundwater values for water.
- b) Method B formula value (direct contact pathway as a carcinogen or noncarcinogen) from the Department of Ecology Publication #94-145, Cleanup Levels and Risk Calculations under the Model Toxics Control Act Cleanup Level Regulation CLARC Version 3.1). Updated November 2001.

N/A - not applicable.

NA - not analyzed.

ND - not detected

mg/kg - milligrams per kilogram.

µg/L - micrograms per liter

TEQ - Toxic Equivalent value.



Table 3
Analytical Laboratory Results for Surface Soil Samples (CDM, 2005)
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	Regulatory Criteria			Sample I.D., Date Sampled, Sample Depth				
	Method A Cleanup Level ^a	Method B Cleanup Level ^b	Ecological Indicator Level ^c	EC-S1 09/21/05 0.7 foot bgs	EC-S2 09/21/05 0.7 foot bgs	EC-S3 09/21/05 0.8 foot bgs	EC-S4 09/21/05 (Dup of EC-S3)	EC-S6 09/21/05 0-0.1 foot bgs
NWTPH-Dx (mg/kg)								
Diesel	2,000	NL	200	<41	<36	<40	<40	<36
Lube Oil	2,000	NL	NL	<82	<71	<81	--	--
Oil as Bunker C	2,000	NL	NL	--	--	--	94	410
PAHs (EPA 8270C/SIM) (mg/kg)								
Naphthalene	5 ^d	1,600	NL	--	--	--	--	<0.0095
2-Methylnaphthalene		NL	NL	--	--	--	--	<0.0095
1-Methylnaphthalene		NL	NL	--	--	--	--	<0.0095
Acenaphthylene	NL	NL	NL	--	--	--	--	<0.0095
Acenaphthene	NL	4,800	20	--	--	--	--	<0.0095
Fluorene	NL	3,200	30	--	--	--	--	<0.0095
Phenanthrene	NL	NL	NL	--	--	--	--	<0.0095
Anthracene	NL	24,000	NL	--	--	--	--	<0.0095
Fluoranthene	NL	3,200	NL	--	--	--	--	0.039
Pyrene	NL	2,400	NL	--	--	--	--	0.061
Benzo(a)anthracene*		0.137	NL	--	--	--	--	0.064
Chrysene*		0.137	NL	--	--	--	--	0.057
Benzo(b)fluoranthene*		0.137	NL	--	--	--	--	0.077
Benzo(k)fluoranthene*		0.137	NL	--	--	--	--	0.025
Benzo(a)pyrene*		0.137	12	--	--	--	--	0.088
Indeno(1,2,3-c,d)pyrene*		0.137	NL	--	--	--	--	0.039
Dibenz(a,h)anthracene*		0.137	NL	--	--	--	--	0.012
Benzo(g,h,i)perylene	NL	NL	NL	--	--	--	--	0.14
TEQ cPAHs*	0.1							0.11

Table 3

Analytical Laboratory Results for Surface Soil Samples (CDM, 2005)

King County/Ellisport Creek Greenspace Property Assessment

Vashon Island, Washington

Analyte	Regulatory Criteria			Sample I.D., Date Sampled, Sample Depth				
	Method A Cleanup Level ^a	Method B Cleanup Level ^b	Ecological Indicator Level ^c	EC-S7 09/21/05 0.9 foot bgs	EC-S8 09/21/05 0.5 foot bgs	EC-S9 09/21/05 (Dup of EC-S8)	EC-S10 09/21/05 0.9 foot bgs	EC-S11 09/21/05 0.9 foot bgs
NWTPH-Dx (mg/kg)								
Diesel	2,000	NL	200	<31	<36	<39	<27	<28
Lube Oil	2,000	NL	NL	<62	--	--	--	--
Oil as Bunker C	2,000	NL	NL	--	84	110	71	59
PAHs (EPA 8270C/SIM) (mg/kg)								
Naphthalene	5 ^d	1,600	NL	--	--	--	--	--
2-Methylnaphthalene		NL	NL	--	--	--	--	--
1-Methylnaphthalene		NL	NL	--	--	--	--	--
Acenaphthylene	NL	NL	NL	--	--	--	--	--
Acenaphthene	NL	4,800	20	--	--	--	--	--
Fluorene	NL	3,200	30	--	--	--	--	--
Phenanthrene	NL	NL	NL	--	--	--	--	--
Anthracene	NL	24,000	NL	--	--	--	--	--
Fluoranthene	NL	3,200	NL	--	--	--	--	--
Pyrene	NL	2,400	NL	--	--	--	--	--
Benzo(a)anthracene*		0.137	NL	--	--	--	--	--
Chrysene*		0.137	NL	--	--	--	--	--
Benzo(b)fluoranthene*		0.137	NL	--	--	--	--	--
Benzo(k)fluoranthene*		0.137	NL	--	--	--	--	--
Benzo(a)pyrene*		0.137	12	--	--	--	--	--
Indeno(1,2,3-c,d)pyrene*		0.137	NL	--	--	--	--	--
Dibenz(a,h)anthracene*		0.137	NL	--	--	--	--	--
Benzo(g,h,i)perylene	NL	NL	NL	--	--	--	--	--
TEQ cPAHs*	0.1							

Table 3

Analytical Laboratory Results for Surface Soil Samples (CDM, 2005)

King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	Method A Cleanup Level ^a	Method B Cleanup Level ^b	Ecological Indicator Level ^c	Sample I.D., Date Sampled, Sample Depth	
				EC-S12 09/21/05 0-0.1 foot bgs	EC-S13 09/21/05 0.8 foot bgs
NWTPH-Dx (mg/kg)					
Diesel	2,000	NL	200	<27	<28
Lube Oil	2,000	NL	NL	<54	<56
Oil as Bunker C	2,000	NL	NL	--	--
PAHs (EPA 8270C/SIM) (mg/kg)					
Naphthalene	5 ^d	1,600	NL	--	--
2-Methylnaphthalene		NL	NL	--	--
1-Methylnaphthalene		NL	NL	--	--
Acenaphthylene	NL	NL	NL	--	--
Acenaphthene	NL	4,800	20	--	--
Fluorene	NL	3,200	30	--	--
Phenanthrene	NL	NL	NL	--	--
Anthracene	NL	24,000	NL	--	--
Fluoranthene	NL	3,200	NL	--	--
Pyrene	NL	2,400	NL	--	--
Benzo(a)anthracene*		0.137	NL	--	--
Chrysene*		0.137	NL	--	--
Benzo(b)fluoranthene*		0.137	NL	--	--
Benzo(k)fluoranthene*		0.137	NL	--	--
Benzo(a)pyrene*		0.137	12	--	--
Indeno(1,2,3-c,d)pyrene*		0.137	NL	--	--
Dibenz(a,h)anthracene*		0.137	NL	--	--
Benzo(g,h,i)perylene	NL	NL	NL	--	--
TEQ cPAHs*	0.1				

Notes:

Bold values exceed one or more of the regulatory criteria.

a) Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Method A suggested soil cleanup level for unrestricted land uses; promulgated August 15, 2001.

b) Method B cleanup levels based on values obtained from the Washington State Department of Ecology online CLARC database. Risk values based on direct contact.

c) Ecological indicator level based on WAC Chapter 173-340-900, Table 749-3, Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals.

d) Total for all naphthalenes.

TEQ - Toxic Equivalent value.

*Carcinogenic polycyclic aromatic hydrocarbons (cPAHs).

-- not analyzed.

mg/kg - milligrams per kilogram.

< - analyte not detected at or greater than the listed concentration.

NL - Not listed

bgs - below ground surface.

Table 4
Analytical Laboratory Results for Test Pit Soil Samples (CDM, 2005)
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	Regulatory Criteria			Sample Location, Laboratory I.D., Date Sampled, Sample Depth				
	Method A Cleanup Level ^a	Method B Cleanup Level ^b	Ecological Indicator Level ^c	TP-7 EC-S14 09/22/05 1.3 feet bgs	TP-8 EC-S16 09/22/05 6 feet bgs	TP-9 EC-S17 09/22/05 2.8 feet bgs	TP-10 EC-S18 09/22/05 2 feet bgs	TP-11 EC-S19 09/22/05 3 feet bgs
NWTPH-Dx (mg/kg)								
Diesel	2,000	NL	200	<51	<620	<41	<33	<30
Lube Oil	2,000	NL	NL	540	--	280	<65	<60
Oil as Bunker C	2,000	NL	NL	--	44,000	--	--	--
PAHs (EPA 8270C/SIM) (mg/kg)								
Naphthalene	5 ^d	1,600	NL	0.021	7.4	--	--	--
2-Methylnaphthalene		NL	NL	<0.014	60	--	--	--
1-Methylnaphthalene		NL	NL	<0.014	40	--	--	--
Acenaphthylene	NL	NL	NL	0.016	1.1	--	--	--
Acenaphthene	NL	4,800	20	0.027	6.4	--	--	--
Fluorene	NL	3,200	30	0.015	12	--	--	--
Phenanthrene	NL	NL	NL	0.098	63	--	--	--
Anthracene	NL	24,000	NL	0.026	13	--	--	--
Fluoranthene	NL	3,200	NL	0.26	6.2	--	--	--
Pyrene	NL	2,400	NL	0.27	50	--	--	--
Benzo(a)anthracene*		0.137	NL	0.099	11	--	--	--
Chrysene*		0.137	NL	0.14	15	--	--	--
Benzo(b)fluoranthene*		0.137	NL	0.15	2.8	--	--	--
Benzo(k)fluoranthene*		0.137	NL	0.049	<0.82	--	--	--
Benzo(a)pyrene*		0.137	12	0.096	7.0	--	--	--
Indeno(1,2,3-c,d)pyrene*		0.137	NL	0.065	1.3	--	--	--
Dibenz(a,h)anthracene*		0.137	NL	0.017	<0.82	--	--	--
Benzo(g,h,i)perylene	NL	NL	NL	0.085	4.6	--	--	--
TEQ cPAHs*	0.1			0.14	8.87			

Table 4

Analytical Laboratory Results for Test Pit Soil Samples (CDM, 2005)

King County/Ellisport Creek Greenspace Property Assessment

Vashon Island, Washington

Analyte	Regulatory Criteria			Sample Location, Laboratory I.D., Date Sampled, Sample Depth		
	Method A Cleanup Level ^a	Method B Cleanup Level ^b	Ecological Indicator Level ^c	TP-12 EC-S20 09/22/05 1.5 feet bgs	TP-13 EC-S21 09/22/05 1.5 feet bgs	TP-14 EC-S22 09/22/05 1.3 feet bgs
NWTPH-Dx (mg/kg)						
Diesel	2,000	NL	200	<150	<30	<63
Lube Oil	2,000	NL	NL	--	--	<130
Oil as Bunker C	2,000	NL	NL	2,200	1,100	--
PAHs (EPA 8270C/SIM) (mg/kg)						
Naphthalene	5 ^d	1,600	NL	<0.0078	<0.0080	--
2-Methylnaphthalene		NL	NL	<0.0078	0.0099	--
1-Methylnaphthalene		NL	NL	<0.0078	<0.0080	--
Acenaphthylene	NL	NL	NL	0.0087	0.0089	--
Acenaphthene	NL	4,800	20	<0.0078	<0.0080	--
Fluorene	NL	3,200	30	<0.0078	<0.0080	--
Phenanthrene	NL	NL	NL	<0.0078	0.012	--
Anthracene	NL	24,000	NL	0.015	0.013	--
Fluoranthene	NL	3,200	NL	<0.0078	0.010	--
Pyrene	NL	2,400	NL	0.019	0.032	--
Benzo(a)anthracene*		0.137	NL	0.017	0.012	--
Chrysene*		0.137	NL	0.024	0.049	--
Benzo(b)fluoranthene*		0.137	NL	0.021	0.047	--
Benzo(k)fluoranthene*		0.137	NL	<0.0078	0.014	--
Benzo(a)pyrene*		0.137	12	0.038	0.050	--
Indeno(1,2,3-c,d)pyrene*		0.137	NL	0.043	0.033	--
Dibenz(a,h)anthracene*		0.137	NL	0.027	0.018	--
Benzo(g,h,i)perylene	NL	NL	NL	0.16	0.094	--
TEQ cPAHs*	0.1			0.06	0.07	

Notes:

Bold values exceed one or more of the regulatory criteria.

a) Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Method A suggested soil cleanup level for unrestricted land uses; promulgated August 15, 2001.

b) Method B cleanup levels based on values obtained from the Washington State Department of Ecology online CLARC database. Risk values based on direct contact.

c) Ecological indicator level based on WAC Chapter 173-340-900, Table 749-3, Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals.

d) Total for all naphthalenes.

TEQ - Toxic Equivalent value.

*Carcinogenic polycyclic aromatic hydrocarbons (cPAHs).

-- not analyzed.

mg/kg - milligrams per kilogram.

< - analyte not detected at or greater than the listed concentration.

NL - Not listed

bgs - below ground surface.

Table 5
Analytical Laboratory Results - Sediment (CDM, 2005)
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	Sediment Quality Standards Chemical Criteria ^a	Sample I.D. and Date Sampled	
		EC-S5	
		09/21/05	
		Dry Weight	OC-Normalized
Total Organic Carbon (SW846 9060)			
TOC		145,000 mg/kg	
TOC Percent/Decimal Quantity		14.5% or 0.145	
PAHs (EPA 8270C/SIM) (mg/kg)			
Naphthalene ^b	99	<0.035	NA
2-Methylnaphthalene	38	<0.035	NA
1-Methylnaphthalene		<0.035	NA
Acenaphthylene ^b	66	0.058	0.4
Acenaphthene ^b	16	<0.035	NA
Fluorene ^b	23	<0.035	NA
Phenanthrene ^b	100	0.048	0.331
Anthracene ^b	220	0.053	0.366
Fluoranthene ^c	160	0.098	0.676
Pyrene ^c	1,000	1.3	8.966
Benzo(a)anthracene ^c	110	0.70	4.828
Chrysene ^c	110	1.3	8.966
Benzo(b)fluoranthene ^c	230 ^d	0.76	5.241
Benzo(k)fluoranthene ^c		0.079	0.545
Benzo(a)pyrene ^c	99	2.8	19.31
Indeno(1,2,3-c,d)pyrene ^c	34	0.80	5.517
Dibenz(a,h)anthracene ^c	12	0.56	3.862
Benzo(g,h,i)perylene ^c	31	3.1	21.379
Total LPAH	370	0.159	1.097
Total HPAH	960	11.50	79.29

Notes:

- a) Washington Administrative Code Chapter 173-204, Sediment Management Standards, Table I - Marine Sediment Quality Standards. The listed chemical parameter criteria represent concentrations in parts per million, normalized, or expressed on a total organic carbon basis. To normalize to total organic carbon, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent total organic carbon content of the sediment.
 - b) LPAH - Low molecular weight polycyclic aromatic hydrocarbons.
 - c) HPAH - High molecular weight polycyclic aromatic hydrocarbons.
 - d) Total value for all benzofluoranthenes.
- mg/kg - milligrams per kilogram.
 NA - Analytes that were not detected do not have a normalized concentration.
 OC - Organic carbon.
 TOC - Total organic carbon.
 < - analyte not detected at or greater than the listed concentration.



Table 6

Groundwater Elevation Data

King County/Ellisport Creek Greenspace Property Assessment
Vashon Island, Washington

Monitoring Well I.D.	Date Measured	Time (hours)	Well Depth (ft bgs)	Casing Stickup (feet)	Depth to Groundwater (ft below TOC)	Depth to Groundwater (ft bgs)
MW-1	07/27/06	1600	3.5	3	3.50	0.5
	08/17/06	1345			3.44	0.4
MW-2	07/27/06	1630	8	2.3	8.30	6
	08/17/06	1400			3.92	1.6
MW-3	07/27/06	1740	10	2	6.26	4.1
	08/17/06	1430			6.17	4.0
MW-4	07/27/06	1530	4	2	2.20	0.2
	08/17/06	1355			2.00	0

Notes:

- a) Casing stickup is length of well pipe from top of casing to the ground surface.
ft bgs - Feet below ground surface.



Table 7
Analytical Laboratory Results for Marine Sediment (CDM, 2006)
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	Sediment Quality Standards Chemical Criteria ^a	Sample I.D., Lab I.D., and Date Sampled					
		MS-1 EC-MS 1/7/06		MS-2 EC-MS 2/7/06		MS-3 EC-MS 3/7/06	
		07/25/06		07/25/06		07/25/06	
		Dry Weight	OC-Normalized	Dry Weight	OC-Normalized	Dry Weight	OC-Normalized
Total Metals (EPA 6010B/6020/7471A) (mg/kg)							
Arsenic	57	<13	N/A	<11	N/A	<11	N/A
Cadmium	5.1	<0.63	N/A	<0.57	N/A	<0.57	N/A
Chromium	260	16	N/A	19	N/A	26	N/A
Copper	390	8.7	N/A	8.9	N/A	8.3	N/A
Lead	450	<6.3	N/A	<5.7	N/A	<5.7	N/A
Mercury	0.41	<0.31	N/A	<0.28	N/A	<0.29	N/A
Silver	6.1	<1.9	N/A	<1.7	N/A	<1.7	N/A
Zinc	410	27	N/A	27	N/A	27	N/A
Total Organic Carbon (SW846 9060)							
TOC	NL	9,820 mg/kg		3,300 mg/kg		5,340 mg/kg	
TOC Percent/Decimal Quantity		0.982 % or 0.00982		0.330 % or 0.0033		0.534 % or 0.00534	
PAHs (EPA 8270C/SIM) (mg/kg)							
Total LPAH	370	<0.0083	NC	<0.0076	NC	<0.0077	NC
Naphthalene ^b	99	<0.0083	NC	<0.0076	NC	<0.0077	NC
Acenaphthylene ^b	66	<0.0083	NC	<0.0076	NC	<0.0077	NC
Acenaphthene ^b	16	<0.0083	NC	<0.0076	NC	<0.0077	NC
Fluorene ^b	23	<0.0083	NC	<0.0076	NC	<0.0077	NC
Phenanthrene ^b	100	<0.0083	NC	<0.0076	NC	<0.0077	NC
Anthracene ^b	220	<0.0083	NC	<0.0076	NC	<0.0077	NC
2-Methylnaphthalene	38	<0.0083	NC	<0.0076	NC	<0.0077	NC
Total HPAH	960	0.118	11.975	<0.0076	NC	0.062	11.648
Fluoranthene ^c	160	0.031	3.157	<0.0076	NC	0.025	4.682
Pyrene ^c	1,000	0.025	2.546	<0.0076	NC	0.014	2.622
Benzo(a)anthracene ^c	110	0.0086	0.876	<0.0076	NC	<0.0077	NA
Chrysene ^c	110	0.022	2.240	<0.0076	NC	0.015	2.809
Total Benzofluoranthenes	230	0.021	2.138	<0.0076	NC	0.0082	1.536
Benzo(a)pyrene ^c	99	0.010	1.02	<0.0076	NC	<0.0077	NC
Indeno(1,2,3-c,d)pyrene ^c	34	<0.0083	NC	<0.0076	NC	<0.0077	NC
Dibenz(a,h)anthracene ^c	12	<0.0083	NC	<0.0076	NC	<0.0077	NC
Benzo(g,h,i)perylene ^c	31	<0.0083	NC	<0.0076	NC	<0.0077	NC
1,2-Dichlorobenzene	2.3	<0.042	NC	<0.038	NC	<0.038	NC
1,4-Dichlorobenzene	3.1	<0.042	NC	<0.038	NC	<0.038	NC
1,2,4-Trichlorobenzene	0.81	<0.042	NC	<0.038	NC	<0.038	NC
Hexachlorobenzene	0.38	<0.042	NC	<0.038	NC	<0.038	NC
Dimethylphthalate	53	<0.042	NC	<0.038	NC	<0.038	NC
Diethylphthalate	61	<0.042	NC	<0.038	NC	<0.038	NC

Table 7
Analytical Laboratory Results for Marine Sediment (CDM, 2006)
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	Sediment Quality Standards Chemical Criteria ^a	Sample I.D., Lab I.D., and Date Sampled					
		MS-1 EC-MS 1/7/06		MS-2 EC-MS 2/7/06		MS-3 EC-MS 3/7/06	
		07/25/06		07/25/06		07/25/06	
		Dry Weight	OC-Normalized	Dry Weight	OC-Normalized	Dry Weight	OC-Normalized
Di-n-Butylphthalate	220	<0.042	NC	<0.038	NC	<0.038	NC
Butylbenzylphthalate	4.9	<0.042	NC	<0.038	NC	<0.038	NC
bis(2-Ethylhexyl)phthalate	47	<0.042	NC	<0.038	NC	<0.038	NC
Di-n-Octylphthalate	58	<0.042	NC	<0.038	NC	<0.038	NC
Dibenzofuran	15	<0.042	NC	<0.038	NC	<0.038	NC
Hexachlorobutadiene	3.9	<0.042	NC	<0.038	NC	<0.038	NC
N-Nitrosodiphenylamine	11	<0.042	NC	<0.038	NC	<0.038	NC
PCBs (EPA Method 8082) (mg/kg)							
Total PCBs	12	<0.063	NC	<0.057	NC	<0.057	NC
Phenol	420	<0.042	NC	<0.038	NC	<0.038	NC
2-Methylphenol	63	<0.042	NC	<0.038	NC	<0.038	NC
4-Methylphenol	670	<0.042	NC	<0.038	NC	<0.038	NC
2,4-Dimethylphenol	29	<0.042	NC	<0.038	NC	<0.038	NC
Pentachlorophenol	360	<0.21	NC	<0.19	NC	<0.19	NC
Benzyl alcohol	57	<0.042	NC	<0.038	NC	<0.038	NC
Benzoic acid	650	<0.042	NC	<0.038	NC	<0.038	NC

Notes:

- a) Washington Administrative Code Chapter 173-204, Sediment Management Standards, Table I - Marine Sediment Quality Standards. The listed chemical parameter criteria represent concentrations in parts per million, normalized, or expressed on a total organic carbon basis. To normalize to total organic carbon, the dry weight concentration for each parameter is divided by the decimal fraction representing the percent total organic carbon content of the sediment.
 - b) LPAH - Low molecular weight polycyclic aromatic hydrocarbons.
 - c) HPAH - High molecular weight polycyclic aromatic hydrocarbons.
 - d) Total value for all benzofluoranthenes.
- mg/kg - milligrams per kilogram.
 N/A - organic carbon normalization is not applicable for this parameter.
 NC - Analytes that were not detected do not have a normalized concentration.
 OC - Organic carbon.
 TOC - Total organic carbon.
 < - analyte not detected at or greater than the listed concentration.

Table 8
Summary of Analytical Results - Freshwater Sediment (CDM, 2006)
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	2003 LAET ^a	Sample I.D., Lab I.D., and Date Sampled		
		FWS-1		FWS-5
		EC-FWS 1-7/06 07/25/06 Dry Weight	EC-FWS 2-7/06 ^b 07/25/06 Dry Weight	EC-FWS 5-7/06 07/25/06 Dry Weight
Total Metals (EPA 6010B/6020/7471A) (mg/kg)				
Antimony	0.6	<0.35	<0.35	<0.51
Arsenic	31.4	<12	<12	<17
Beryllium	0.46	<0.29	<0.29	<0.42
Cadmium	2.39	<0.58	<0.58	<0.85
Chromium	95	23	26	31
Copper	619	8.1	8.3	14
Lead	335	<5.8	<5.8	11
Mercury	0.8	<0.29	<0.29	<0.42
Nickel	53.1	28	27	33
Silver	0.545	<0.35	<0.35	<0.51
Zinc	683	30	28	45
Tributyl Tins (Krone 1988 SIM GC/MS) (µg/kg)				
Butyl Tin Ion	98	<3.9	<3.9	<4.0
Tributyl Tin Ion	260	<3.7	<3.7	<3.7
Dibutyl Tin Ion	96	<5.5	<5.5	<5.6
PAHs (EPA 8270C/SIM) (µg/kg)				
2-Methylnaphthalene	469	<7.8	<7.8	<11
Acenaphthene ^c	1,060	<7.8	<7.8	150
Acenaphthylene ^c	470	<7.8	<7.8	<11
Anthracene ^c	1,230	<7.8	<7.8	110
Benzo(a)anthracene ^d	4,260	<7.8	11	180
Benzo(a)pyrene ^d	3,300	<7.8	8	43
Benzo(b)fluoranthene ^d	11,000 ^e	<7.8	13	96
Benzo(k)fluoranthene ^d		<7.8	<7.8	26
Benzo(g,h,i)perylene ^d	4,020	<7.8	<7.8	13
Chrysene ^d	5,940	<7.8	9.9	150
Dibenz(a,h)anthracene ^d	800	<7.8	<7.8	<11
Fluoranthene ^d	11,100	<7.8	19	1,200
Fluorene ^c	1,070	<7.8	<7.8	240
Indeno(1,2,3-c,d)pyrene ^d	4,120	<7.8	<7.8	13
Naphthalene ^c	529	<7.8	<7.8	<11
Phenanthrene ^c	6100	<7.8	<7.8	1,000
Pyrene ^d	8,790	<7.8	26	640
Total LPAH	6,590	<7.8	<7.8	1,500
Total HPAH	31,640	<7.8	86.9	2,361
4-Methylphenol	760	<39	<39	<56
Benzoic acid	2,910	<390	<390	<560
bis (2-Ethylhexyl)phthalate	2,520	<39	<39	<56
Butylbenzyl phthalate	260	<39	<39	<56
Dimethyl phthalate	311	<39	<39	<56
Di-n-butyl phthalate	103	<39	<39	<56
di-n-octyl phthalate	11	<39	<39	<56
Carbazole	923	<39	<39	<56
Dibenzofuran	399	<39	<39	120
Retene	6,020	<39	<39	<56
Organochlorine Pesticides (EPA 8081A) (µg/kg)				
4,4'-DDD	96	<12	<12	<17
4,4'-DDE	21	<12	<12	<17
4,4'-DDT	19	<12	<12	<17
PCBs (EPA Method 8082) (µg/kg)				
Aroclor 1254	230	<58	<58	<85
Aroclor 1260	138	<58	<58	<85
Total PCBs	62	<58	<58	<85

Table 8
Summary of Analytical Results - Freshwater Sediment (CDM, 2006)
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	2003 LAET ^a	Sample I.D., Lab I.D., and Date Sampled		
		FWS-1		FWS-5
		EC-FWS 1-7/06 07/25/06	EC-FWS 2-7/06 ^b 07/25/06	EC-FWS 5-7/06 07/25/06
		Dry Weight	Dry Weight	Dry Weight
Conventionals				
Sulfide (EPA 376.2) (mg/kg)	702	<1.10	3.29	<1.82
Total Solids (EPA 160.3) (%)		89.20	86.20	58.00
Preserved Total Solids (EPA 160.3) (%)		85.60	85.50	53.40
Total Organic Carbon (SW846 9060)				
TOC		4,450 mg/kg	7,530 mg/kg	4,580 mg/kg
TOC Percent/Decimal Quantity	9.82 %	0.445 % or 0.00445	0.753 % or 0.00753	0.458 % or 0.00458

Notes:

Bold value indicates detection above detection limit.

a) Avocet Consulting. Phase II Report: Development of SQVs for Freshwater Sediments in Washington State. Publication Number 03-09-088. September 2003.

Table 3-3 2003 Apparent Effects Thresholds. LAET - lowest apparent effects threshold.

b) EC-FWS 2-7/06 is a duplicate of EC-FWS 1-7/06.

c) LPAH - Low molecular weight polycyclic aromatic hydrocarbons.

d) HPAH - High molecular weight polycyclic aromatic hydrocarbons.

e) Total value for all benzofluoranthenes.

mg/kg - milligrams per kilogram.

µg/kg - micrograms per kilogram.

NA - Analytes that were not detected do not have a normalized concentration.

OC - Organic carbon.

TOC - Total organic carbon.

< - analyte not detected at or greater than the listed concentration.

Table 9

Analytical Laboratory Results for Ellisport Creek Cores (CDM, 2006)

King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	Regulatory Criteria	Sample I.D., Lab I.D., Date Sampled, Sample Depth	
	2003 LAET ^a	FWS-3 EC-FWS 3-7/06 07/25/06 1.7 ft	FWS-4 EC-FWS 4-7/06 07/25/06 2.3 ft
		Dry Weight	
		Dry Weight	Dry Weight
NWTPH-Dx (mg/kg)			
Oil as Bunker C		580	<61
PAHs (EPA 8270C/Sim) µg/kg)			
2-Methylnaphthalene	469	<10	<8.1
Acenaphthene ^b	1,060	<10	<8.1
Acenaphthylene ^b	470	<10	<8.1
Anthracene ^b	1,230	<10	<8.1
Benzo(a)anthracene ^c	4,260	23	<8.1
Benzo(a)pyrene ^c	3,300	130	<8.1
Benzo(b)fluoranthene ^c	11,000 ^d	38	<8.1
Benzo(k)fluoranthene ^c		<10	<8.1
Benzo(g,h,i)perylene ^c	4,020	220	<8.1
Chrysene ^c	5,940	49	<8.1
Dibenz(a,h)anthracene ^c	800	22	<8.1
Fluoranthene ^c	11,100	<10	<8.1
Fluorene ^b	1,070	<10	<8.1
Indeno(1,2,3-c,d)pyrene ^c	4,120	51	<8.1
Naphthalene ^b	529	<10	<8.1
Phenanthrene ^b	6,100	<10	<8.1
Pyrene ^c	8,790	52	<8.1
Total LPAH	6,590	<10	<8.1
Total HPAH	31,640	563	<8.1
Total Organic Carbon (SW846 9060)			
TOC		30,700 mg/kg	7,790 mg/kg
TOC Percent/Decimal Quantity		3.07 % or 0.0307	0.779 % or 0.00779

Note:

Bold value indicates detection above detection limit.

a) Avocet Consulting. Phase II Report: Development of SQVs for Freshwater Sediments in Washington State. Publication Number 03-09-088. September 2003. Table 3-3: 2003 Apparent Effects Thresholds. LAET - lowest apparent effects threshold.

b) LPAH - low molecular weight polycyclic aromatic hydrocarbons.

c) HPAH - high molecular weight polycyclic aromatic hydrocarbons.

d) Total value for all benzofluoranthenes.

bgs - below ground surface.

NL - not listed.

mg/kg - milligrams per kilogram.

< - analyte not detected at or greater than the listed concentration.

Table 10

Analytical Laboratory Results for Surface Soil Samples (CDM, 2006)

King County/Ellisport Creek Greenspace Property Assessment

Vashon Island, Washington

Analyte	Regulatory Criteria			Sample I.D., Lab I.D., Date Sampled, Sample Depth				
	Method A Cleanup Level ^a	Method B Cleanup Level ^b	Ecological Indicator Level ^c	S14 EC-S14-7/06 07/26/06 2 ft bgs	S15 EC-S15-7/06 ^d 07/26/06 2 ft bgs	S16 EC-S16-7/06 07/26/06 2 ft bgs	S17 EC-S17-7/06 07/26/06 2 ft bgs	S18 EC-S18-7/06 07/26/06 2 ft bgs
NWTPH-Dx (mg/kg) Oil as Bunker C	2,000	NL	NL	<59	<59	200	<66	830

Notes:

Bold value indicates detection above detection limit.

a) Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Method A suggested soil cleanup level for unrestricted land uses; promulgated August 15, 2001.

b) Method B cleanup levels based on values obtained from the Washington State Department of Ecology online CLARC database. Risk values based on direct contact.

c) Ecological indicator level based on WAC Chapter 173-340-900, Table 749-3, Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals.

d) EC-S15-7/06 is a duplicate of EC-S14-7/06.

bgs - below ground surface.

mg/kg - milligrams per kilogram.

NL - Not listed

< - analyte not detected at or greater than the listed concentration.

Table 11

Analytical Laboratory Results for Pesticides and Metals in Surface Soil Samples (CDM, 2006)

King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	Method A Cleanup Level ^a	Method B Cleanup Level ^b	Ecological Indicator Soil Concentrations ^c	Sample I.D., Lab I.D., Date Sampled, Sample Depth		
				S19	S20	S21
				EC-S19-7/06 07/26/06 0.25 foot bgs	EC-S20-7/06 07/26/06 0.25 foot bgs	EC-S21-7/06 07/26/06 0.25 foot bgs
Organochlorine Pesticides (EPA Test Method 8081A) (µg/kg)						
alpha-BHC	NL	160/NL	6,000	<5.7	NA	NA
gamma-BHC (Lindane)	10	770/24,000	6,000	<5.7	NA	NA
Heptachlor	NL	220/40,000	4,000	<5.7	NA	NA
Aldrin	NL	59/2,400	100	<5.7	NA	NA
beta-BHC	NL	560/NL	NL	<5.7	NA	NA
delta-BHC	NL	NL	NL	<5.7	NA	NA
Heptachlor Epoxide	NL	110/1,040	400	<5.7	NA	NA
Endosulfan I	NL	NL/480,000	NL	<5.7	NA	NA
4,4'-DDE	NL	2,940/NL	^d	<11	NA	NA
Dieldrin	NL	63/4,000	70	<11	NA	NA
Endrin	NL	NL/24,000	200	<11	NA	NA
Endosulfan II	NL	NL/480,000	NL	<11	NA	NA
4,4'-DDD	NL	4,170/NL	^d	<11	NA	NA
4,4'-DDT	3,000	2,940/40,000	^d	<11	NA	NA
Endrin Aldehyde	NL	NL	NL	<11	NA	NA
Endosulfan Sulfate	NL	NL	NL	<11	NA	NA
Methoxychlor	NL	NL/400,000	NL	<11	NA	NA
Endrin Ketone	NL	NL	NL	<11	NA	NA
Toxaphene	NL	900/NL	NL	<110	NA	NA
Chlordane (Technical)	NL	2,900/40,000	NL	<57	NA	NA
DDT/DDD/DDE (total) ^d	NL	NL	750	--	--	--
Organophosphorous Pesticides (EPA 8141A GC-MS) (µg/kg)						
Dichlorvos	NL	3,400/40,000	NL	<37	NA	NA
Mevinphos	NL	NL/20,000	NL	<37	NA	NA
Ethoprop	NL	NL/NL	NL	<37	NA	NA
Naled	NL	NL/160,000	NL	<37	NA	NA
Sulfotepp	NL	NL/40,000	NL	<37	NA	NA
Monocrotophos	NL	NL/NL	NL	<37	NA	NA
Phorate	NL	NL/16,000	NL	<37	NA	NA
Dimethoate	NL	NL/16,000	NL	<37	NA	NA
Demeton-O and -S	NL	NL/3,200	NL	<37	NA	NA
Diazinon	NL	NL/72,000	NL	<37	NA	NA
Disulfoton	NL	NL/3,200	NL	<37	NA	NA
Parathion,methyl	NL	NL/20,000	NL	<37	NA	NA
Ronnel	NL	NL/4,000,000	NL	<37	NA	NA
Chlorpyrifos	NL	NL/240,000	NL	<37	NA	NA
Malathion	NL	NL/1,600,000	NL	<37	NA	NA
Fenthion	NL	NL/NL	NL	<37	NA	NA
Parathion	NL	NL/480,000	NL	<37	NA	NA
Trichloronate	NL	NL/NL	NL	<37	NA	NA
Tetrachlorvinphos	NL	41,600/2,400,000	NL	<37	NA	NA
Merphos	NL	NL/2,400	NL	<37	NA	NA
Tokuthion	NL	NL/NL	NL	<37	NA	NA
Fensulfothion	NL	NL/20,000	NL	<37	NA	NA
Bolstar	NL	NL/NL	NL	<37	NA	NA
EPN	NL	NL/NL	NL	<37	NA	NA
Azinphos,methyl	NL	NL/NL	NL	<37	NA	NA
Coumaphos	NL	NL/NL	NL	<37	NA	NA

Table 11

Analytical Laboratory Results for Pesticides and Metals in Surface Soil Samples (CDM, 2006)

King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	Method A Cleanup Level ^a	Method B Cleanup Level ^b	Ecological Indicator Soil Concentrations ^c	Sample I.D., Lab I.D., Date Sampled, Sample Depth		
				S19	S20	S21
				EC-S19-7/06 07/26/06 0.25 foot bgs	EC-S20-7/06 07/26/06 0.25 foot bgs	EC-S21-7/06 07/26/06 0.25 foot bgs
Total Metals (EPA 6010B) (mg/kg)						
Arsenic	20	0.66/24	10	<11	22	<17
Cadmium	2	NL/80	4	<0.57	0.73	<0.85
Lead	250	NL/NL	50	100	120	84

Notes:

Bold value indicates detection above detection limit.

Boxed value indicates value exceeds one or more cleanup criteria.

- a) Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Method A suggested cleanup level for unrestricted land uses; promulgated August 15, 2001. Method B, CLARC online database used when Method A cleanup levels are not available. Risk values based on direct contact for soil and potable groundwater values for water.
- b) Method B formula value (direct contact pathway as a carcinogen or noncarcinogen) from the Department of Ecology online database.
- c) Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Table 749-3, Ecological Indicator Soil Concentrations for Protection of Terrestrial Plants and Animals.
 Value represents lowest ecological indicator of plant, soil biota, or wildlife.
- d) Ecological Indicator Soil Concentration for total of DDT/DDD/DDE.

bgs - below ground surface.

BHC - hexachlorocyclohexane.

Sulfotepp - tetraethyl dithiopyrophosphate.

NA - not analyzed.

NL - not listed.

mg/kg - milligrams per kilogram.

µg/kg - micrograms per kilogram.

Table 13

Analytical Laboratory Results for Groundwater (CDM, 2006)

King County/Ellisport Creek Greenspace Property Assessment
Vashon Island, Washington

Analyte	Regulatory Criteria		Sample Location, Lab I.D., and Date Sampled					
	Method A Cleanup Level ^a	Method B Cleanup Level ^b	MW-1	MW-2	MW-3			MW-4
			EC-MW-01-7/06 07/27/06	EC-MW-02-7/06 07/27/06	EC-MW-03-7/06 07/27/06	EC-MW-03-8/06 ^c 08/17/06	EC-MW-05-8/06 ^d 08/17/06	EC-MW-04-7/06 07/27/06
NWTPH-Dx (µg/L)								
Oil as Bunker C	500	NL/NL	<400	1,200	4,600	<500	<500	<400
Polycyclic Aromatic Hydrocarbons (PAHs)								
EPA Test Method 8270C/SIM (µg/L)								
Napthalene	160	NL/160	<0.095	0.13	1.8	0.20	0.24	<0.096
2-Methylnaphthalene	NL	NL/NL	<0.095	<0.097	7.3	0.65	0.80	<0.096
1-Methylnaphthalene	NL	NL/NL	<0.095	<0.097	5.1	0.56	0.69	<0.096
Acenaphthylene	NL	NL/NL	<0.095	<0.097	<0.095	<0.095	<0.095	<0.096
Acenaphthene	NL	NL/960	<0.095	0.11	0.63	<0.095	<0.095	<0.096
Fluorene	NL	NL/640	<0.095	<0.097	0.87	<0.095	<0.095	<0.096
Phenanthrene	NL	NL/NL	<0.095	<0.097	4.4	0.29	0.39	<0.096
Anthracene	NL	NL/4,800	<0.095	<0.097	0.81	<0.095	<0.095	<0.096
Fluoranthene	NL	NL/640	<0.095	<0.097	0.42	<0.095	<0.095	<0.096
Pyrene	NL	NL/480	<0.095	<0.097	3.5	0.10	0.14	<0.096
Benzo[a]anthracene*	NL	0.011/NL	<0.0095	0.010	0.68	0.015	0.024	<0.096
Chrysene*	NL	0.011/NL	<0.0095	<0.0097	0.93	0.012	0.025	0.015
Benzo(b)fluoranthene*	NL	0.011/NL	<0.0095	<0.0097	0.21	<0.0095	<0.0095	0.011
Benzo(k)fluoranthene*	NL	0.011/NL	<0.0095	<0.0097	0.027	<0.0095	<0.0095	<0.0096
Benzo(a)pyrene*	0.1	0.011/NL	<0.0095	<0.0097	0.53	<0.0095	<0.0095	<0.0096
Indeno(1,2,3-c,d)pyrene*	NL	0.011/NL	<0.0095	<0.0097	0.10	<0.0095	<0.0095	<0.0096
Dibenz(a,h)anthracene*	NL	0.011/NL	<0.0095	<0.0097	0.056	<0.0095	<0.0095	<0.0096
Benzo(g,h,i)perylene	NL	NL/NL	<0.0095	<0.0097	0.37	<0.0095	<0.0095	0.013
TEQ cPAHs*	0.1		<0.0095	0.001	0.6607	0.00162	0.00265	0.00125

Notes:

*Carcinogenic polycyclic aromatic hydrocarbons (cPAHs).

Bold value indicates detection above detection limit.

Boxed value indicates value exceeds one or more cleanup criteria.

a) Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Method A suggested groundwater cleanup level; promulgated August 15, 2001.

b) Method B cleanup levels based on values obtained from the Washington State Department of Ecology online CLARC database. Risk values based on use as potable groundwater (both carcinogen and non-carcinogen values listed).

Format NL/NL = carcinogenic/non-carcinogenic value.

c) Resample of MW3.

d) Duplicate of resampled MW3.

NL - not listed.

µg/L - micrograms per liter

TEQ - Toxic Equivalent value.

Table 12
Analytical Laboratory Results for Surface Water (CDM, 2006)
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Analyte	Sample I.D., Lab I.D., Date Sampled
	SW-1 EC-SW1-7/06 7/26/2006
NWTPH-Dx (µg/L)	
Oil as Bunker C	5,600
Polycyclic Aromatic Hydrocarbons (PAHs) (µg/L)	
EPA Test Method 8270C/SIM	
Napthalene	<0.094
2-Methylnaphthalene	<0.094
1-Methylnaphthalene	<0.094
Acenaphthylene	<0.094
Acenaphthene	<0.094
Fluorene	<0.094
Phenanthrene	<0.094
Anthracene	<0.094
Fluoranthene	<0.094
Pyrene	0.40
Benzo[a]anthracene*	0.11
Chrysene*	0.17
Benzo(b)fluoranthene*	0.054
Benzo(k)fluoranthene*	<0.0094
Benzo(a)pyrene*	0.16
Indeno(1,2,3-c,d)pyrene*	0.036
Dibenz(a,h)anthracene*	0.020
Benzo(g,h,i)perylene	0.13

Notes:

*Carcinogenic polycyclic aromatic hydrocarbons (cPAHs).

Bold value indicates detection above detection limit.

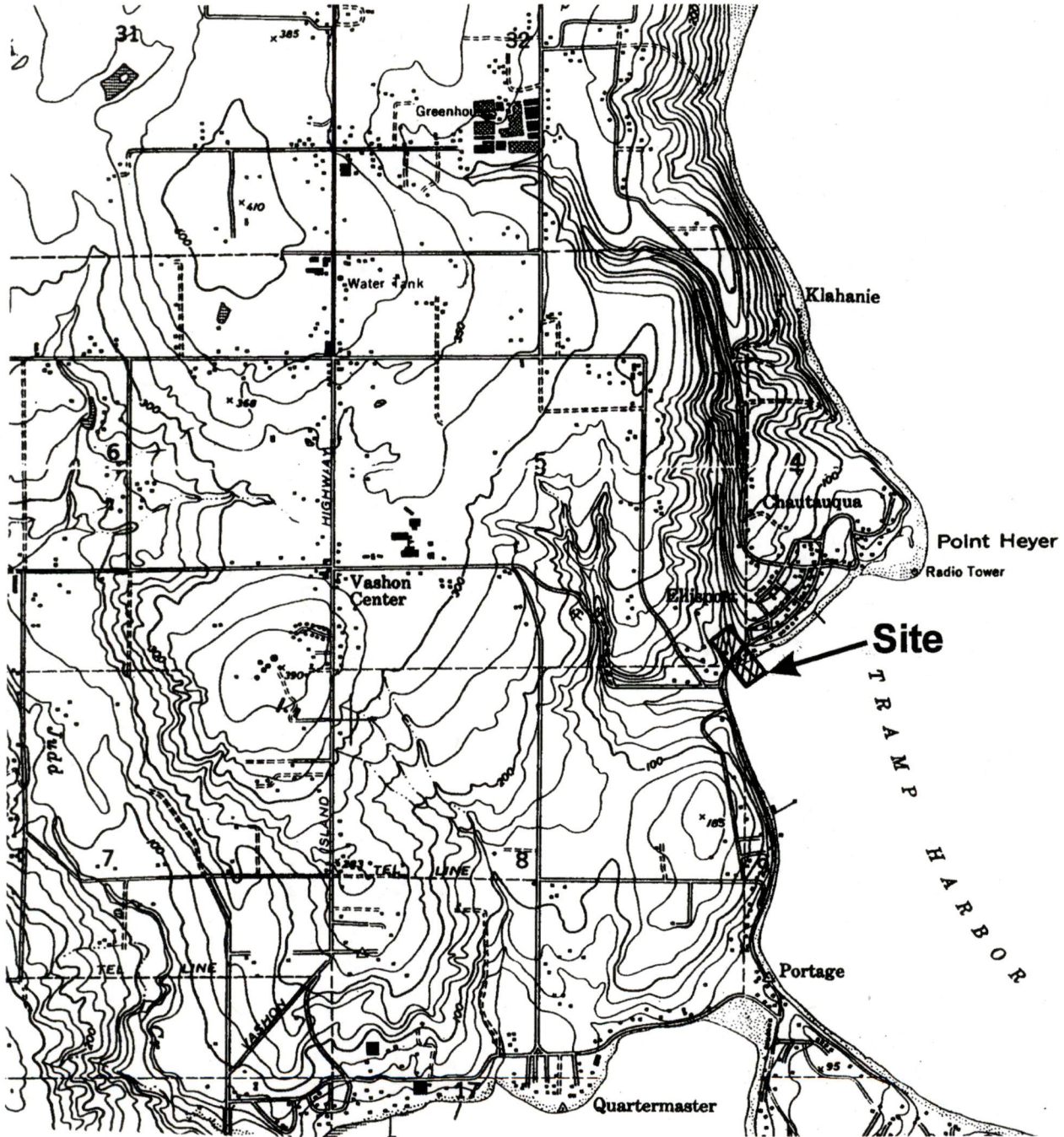
NL - not listed.

µg/L - micrograms per liter

Figures

Figures

P:\19897\45396\ELLISPORT PHASE II\ FIGURE-1 06/10/05 09:01 pencebs XREFS: 8X11BDR



Reference: USGS Map, Vashon, Washington 1949, Revised 1958

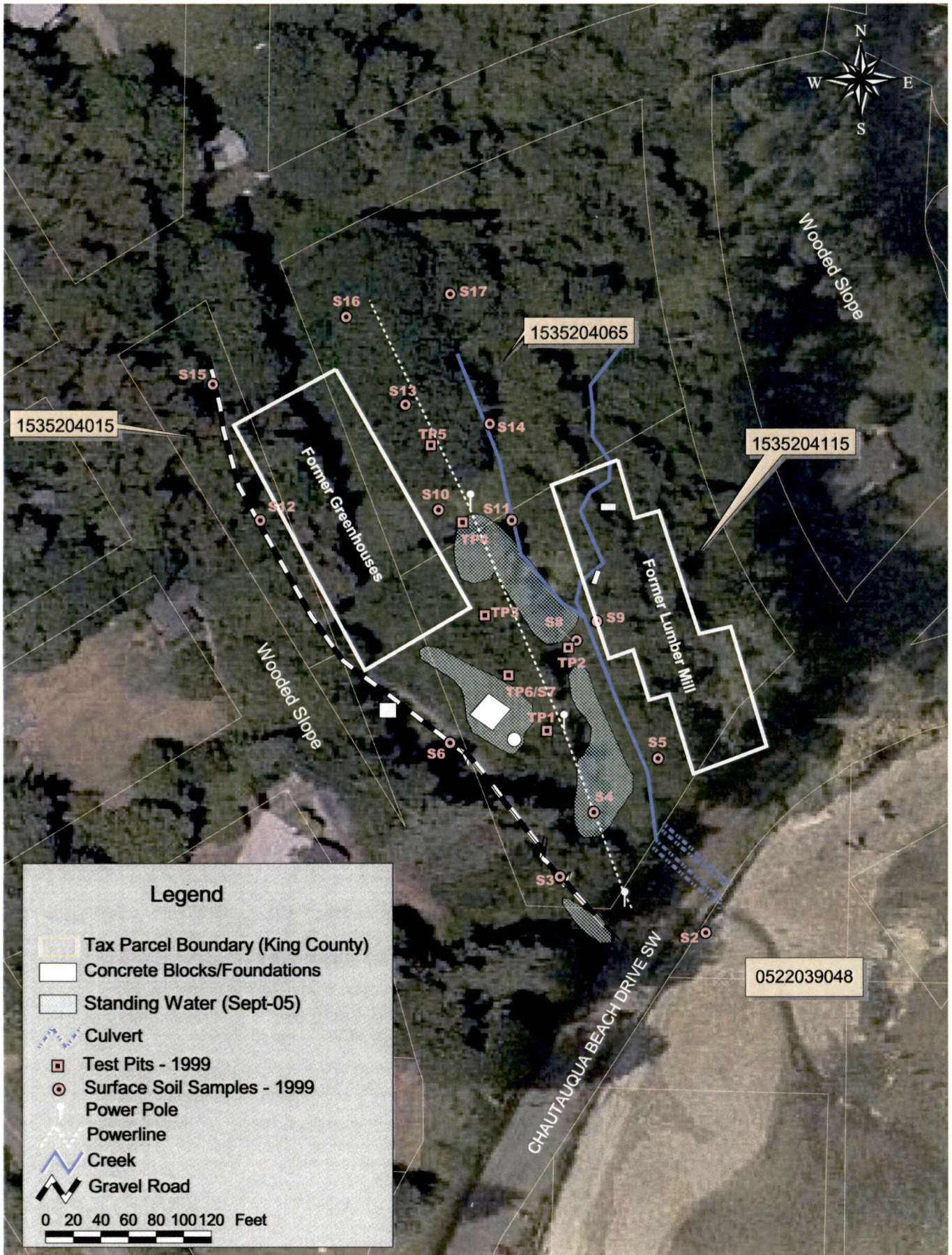


KING COUNTY/ELLISPORT CREEK GREENSPACE
 PROPERTY ASSESSMENT
 VASHON ISLAND, WA

Figure No. 1
 Vicinity Map

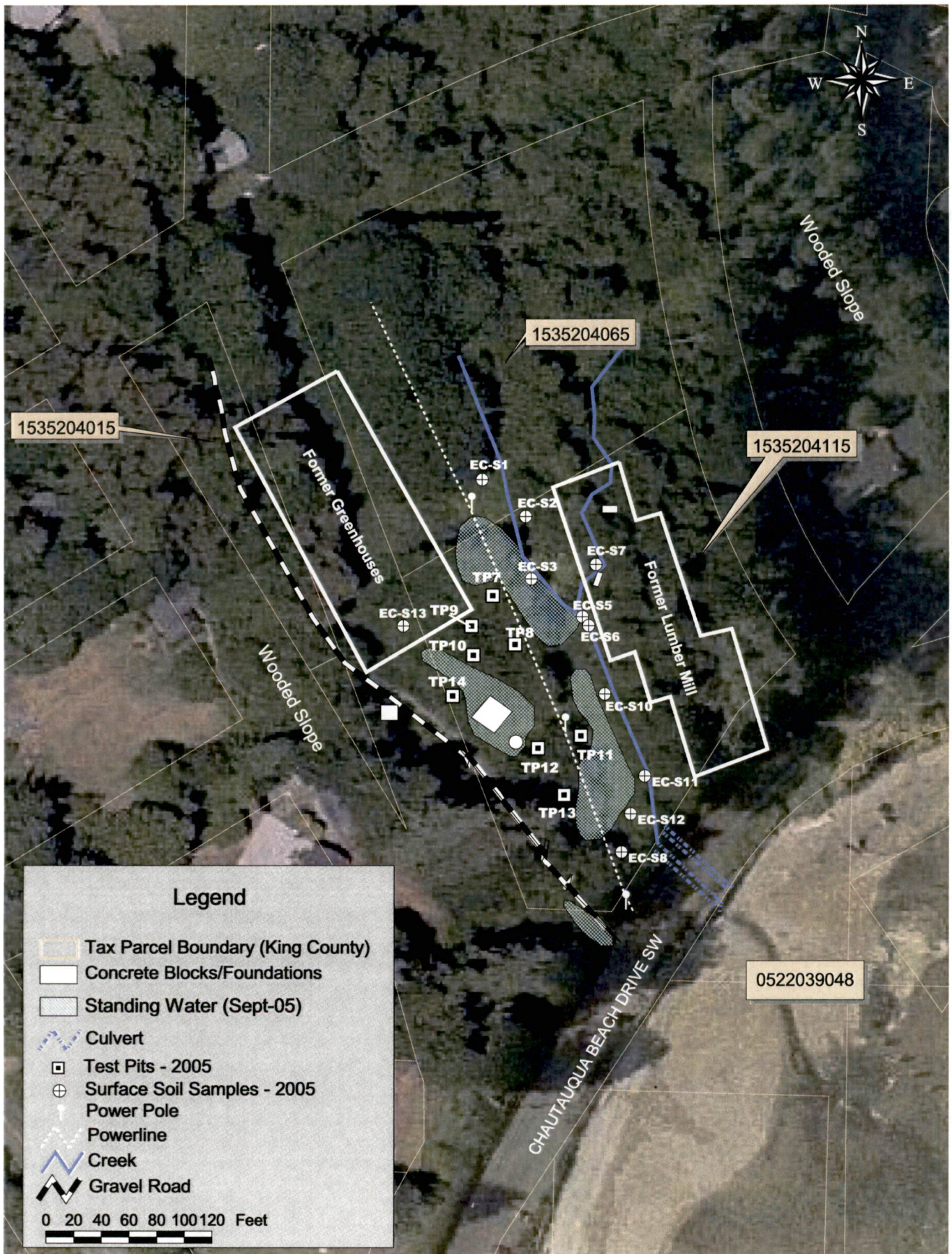


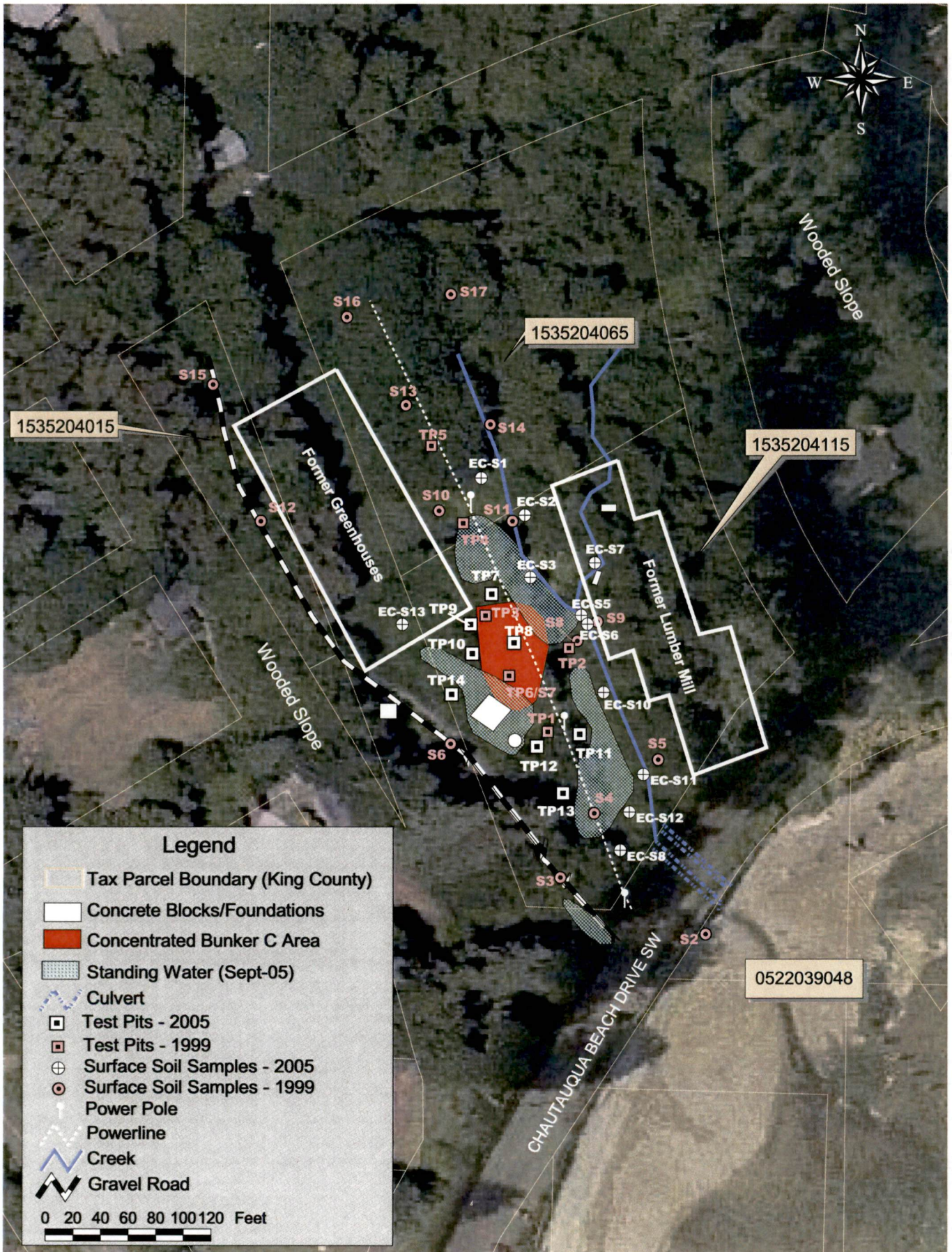


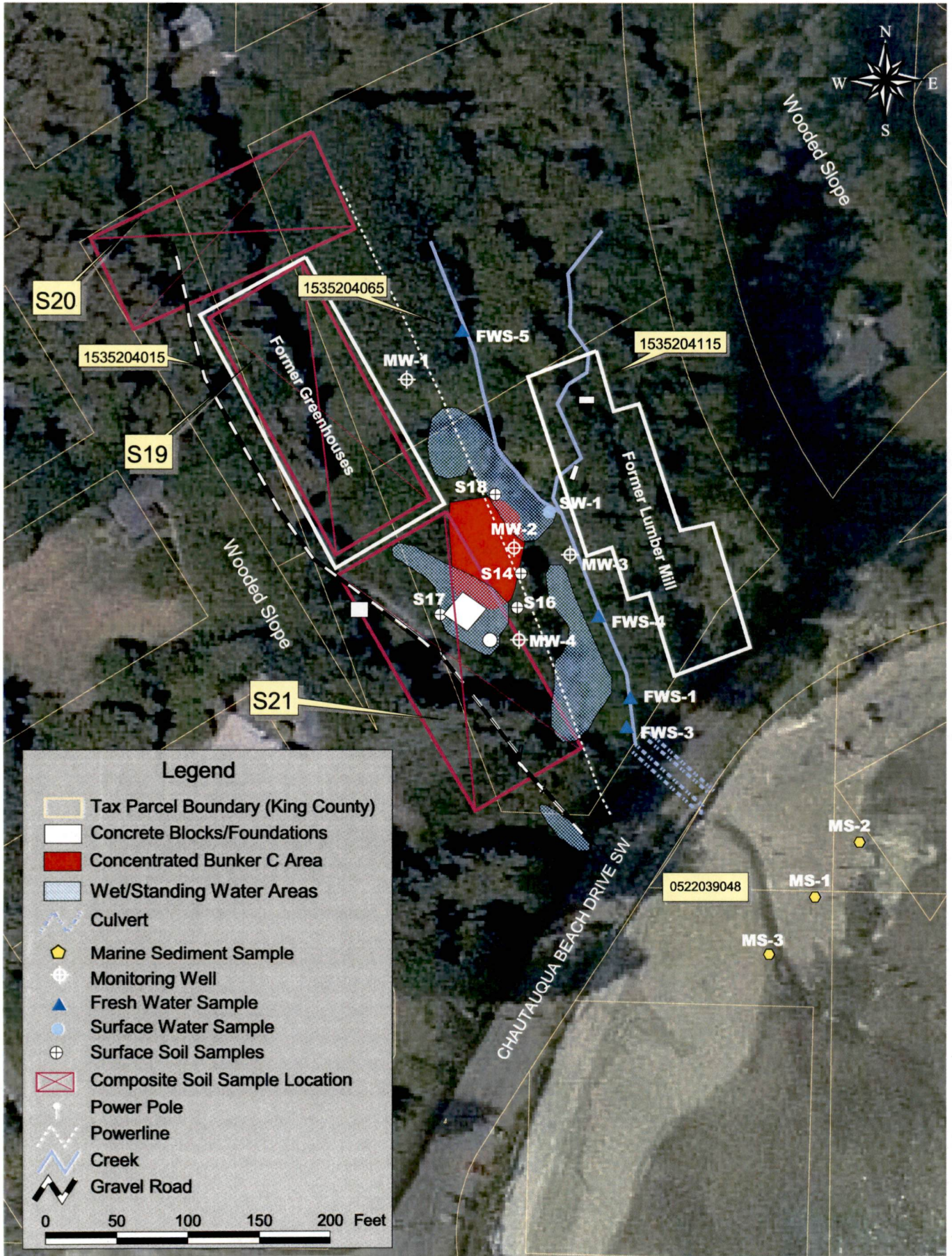


KING COUNTY/ELLISPORT CREEK GREENSPACE
 PROPERTY ASSESSMENT
 VASHON ISLAND, WA

Figure 3
 1999 Investigation Locations







KING COUNTY/ELLISPORT CREEK GREENSPACE
PROPERTY ASSESSMENT
VASHON ISLAND, WA

Figure 6
July 2006 Supplemental
Investigation Locations

A

Appendix
A

Appendix A

Site Photos

FIELD PHOTOGRAPHY LOG SHEET
Ellisport Creek Supplemental Phase II Assessment
Vashon Island, Washington

July 25, 2006

Photograph No. A-1

Photographed By:
Lance Peterson

Description:

View of exposed intertidal zone showing marine sediment sample MS-1 location. Samples MS-2 and MS-3 are located 50 feet on either side of MS-1 out of view of camera.



July 25, 2006

Photograph No. A-2

Photographed By:
Lance Peterson

Description:

View of exposed intertidal zone showing three marine sediment sample locations.



FIELD PHOTOGRAPHY LOG SHEET
Ellisport Creek Supplemental Phase II Assessment
Vashon Island, Washington

July 25, 2006

Photograph No. A-3

Photographed By:
Lance Peterson

Description:
Collection of marine
sediment sample MS-1.



July 25, 2006

Photograph No. A-4

Photographed By:
Lance Peterson

Description:
View toward Ellisport
Creek site showing extent
of intertidal zone exposure
on July 25, 2006.



FIELD PHOTOGRAPHY LOG SHEET
Ellisport Creek Supplemental Phase II Assessment
Vashon Island, Washington

July 25, 2006

Photograph No. A-5

Photographed By:
Lance Peterson

Description:
Freshwater sample location
FWS-1. Ellisport Creek
culvert at Chattauqua
Beach Drive SW is seen in
background.



July 27, 2006

Photograph No. A-6

Photographed By:
Lance Peterson

Description:
Freshwater sediment
sample FWS-1 location.



FIELD PHOTOGRAPHY LOG SHEET
Ellisport Creek Supplemental Phase II Assessment
Vashon Island, Washington

July 25, 2006

Photograph No. A-7

Photographed By:
Lance Peterson

Description:
Ellisport Creek bank
core sediment sample
FWS-3 location.



July 25, 2006

Photograph No. A-8

Photographed By:
Lance Peterson

Description:
Ellisport Creek bank
core sediment sample
FWS-4 location.



FIELD PHOTOGRAPHY LOG SHEET
Ellisport Creek Supplemental Phase II Assessment
Vashon Island, Washington

July 26, 2006

Photograph No. A-9

Photographed By:
Josh Miller

Description:
Surface soil sample
location S16.

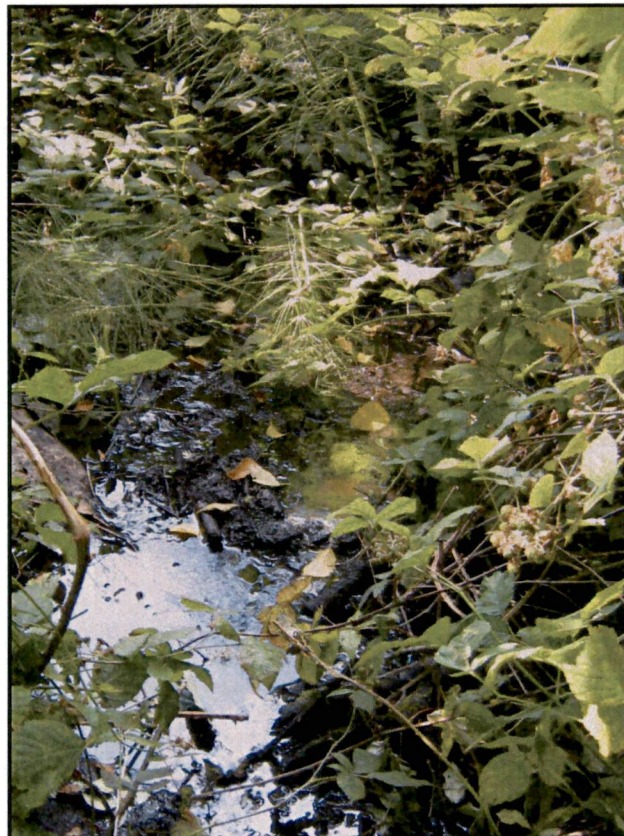


July 26, 2006

Photograph No. A-10

Photographed By:
Josh Miller

Description:
Surface water sample
SW-1 location.



FIELD PHOTOGRAPHY LOG SHEET
Ellisport Creek Supplemental Phase II Assessment
Vashon Island, Washington

July 27, 2006

Photograph No. A-11

Photographed By:
Jeff Bamer

Description:
View of drive point
monitoring well showing
24-inch screen.



July 27, 2006

Photograph No. A-12

Photographed By:
Josh Miller

Description:
Installation of monitor



FIELD PHOTOGRAPHY LOG SHEET
Ellisport Creek Supplemental Phase II Assessment
Vashon Island, Washington

July 27, 2006

Photograph No. A-13

Photographed By:
Lance Peterson

Description:
Monitoring well MW-1
showing bentonite chip
seal at surface.



July 27, 2006

Photograph No. A-14

Photographed By:
Josh Miller

Description:
Low-flow sampling
equipment at monitoring
well MW-3.



B

Appendix B

Appendix B

Field Exploration and Sampling Procedures

Appendix B

Field Exploration and Sampling Procedures

Sediment, soil, surface water, and groundwater samples were obtained at the Ellisport Creek Greenspace project site on July 25, 26, 27 and 28, 2006, and August 17, 2006. Sediment samples from the intertidal zone near the Ellisport Creek discharge point to Tramp Harbor (Puget Sound) and from Ellisport Creek were obtained on July 25th. Discrete and composite soil samples and a surface water sample were obtained on July 26th. Four monitoring wells (MW-1 through MW-4) were installed and groundwater samples were collected on July 27th. Monitoring well MW-3 was re-sampled on August 18, 2006 to obtain a duplicate water sample for quality assurance evaluation.

Marine Sediment Sampling

Sediment samples from the intertidal zone were obtained from the upper 10 centimeters (4 inches) using a stainless steel spoon. These discrete samples were timed for collection during low tide. The sediment was placed directly into 8-ounce pre-cleaned glass jars. The sample containers were immediately labeled, placed in a cooler, and chilled with ice.

Ellisport Creek Sediment Sampling

Sediment samples from the bed of Ellisport Creek were obtained from the upper 10 centimeters (4 inches) using a decontaminated shovel. The sediment was placed into a stainless steel pan and then transferred using a stainless steel spoon into 8-ounce pre-cleaned glass jars. The sample containers were immediately labeled, placed in a cooler, and chilled with ice.

Ellisport Creek Core Sampling

The two core sediment samples collected from the creek bank adjacent to Ellisport Creek were obtained by hand augering to the desired depth (approximately 2.5 to 3-ft bgs). Core sediment samples were then obtained using a stainless steel spoon to fill 8-ounce pre-cleaned glass jars. The sample containers were immediately labeled, placed in a cooler, and chilled with ice.

Near Surface Soil Sampling

Discrete samples were collected using shovels to dig a hole 1 to 2 ft bgs and then the samples from the excavation were collected using stainless steel spoons. The soil was placed in into 4-ounce pre-cleaned glass jars. The sample containers were immediately labeled, placed in a cooler, and chilled with ice. Composite samples collected from ground surfaces were obtained at a depth of 0.25 ft bgs after clearing vegetation, rocks, and debris from the ground surface using a stainless steel spoon. Five-point composite soil samples were obtained from three areas (within the footprint of the former greenhouse and to the north and south of this footprint). Locations of each sample point within these areas were influenced by accessibility while an attempt was made to maintain spatial representativeness. The composite sample points were mixed in a stainless steel bowl from which a representative

composite sample was collected. The soil from each composite sample was then transferred into 4-ounce pre-cleaned glass jars. The sample containers were immediately labeled, placed in a cooler, and chilled with ice.

Surface Water Sampling

The surface water sample was collected with a peristaltic pump by transferring the water directly into sample containers (500 and 1,000 milliliter (mL) pre-cleaned amber glass bottles) from clean polyethylene tubing that was submerged into water standing at the ground surface. The sample containers were immediately labeled, placed in a cooler, and chilled with ice.

Groundwater Sampling

Four shallow drive-point wells were installed around and within the estimated concentrated Bunker C area. Groundwater samples were collected from each drive point well using a peristaltic pump utilizing clean polyethylene tubing. Water was purged at a low rate (less than 1 liter per minute) with parameter measurements of temperature, specific conductance, and pH recorded periodically. The water clarity, sheen, or noticeable odor was noted on a sample collection form. Water was transferred directly into sample containers (500 and 1,000 mL pre-cleaned amber glass) from the polyethylene tubing. The sample containers were immediately labeled, placed in a cooler, and chilled with ice.

Sample Handling and Shipping

All sample containers were filled so that minimal headspace existed between the water or soil/sediment sample and the Teflon-lined caps of the containers. The sample jars were labeled, placed in a cooler containing Blue Ice, secured, and shipped to the analytical laboratory in a timely manner. Sample containers were labeled with the following information:

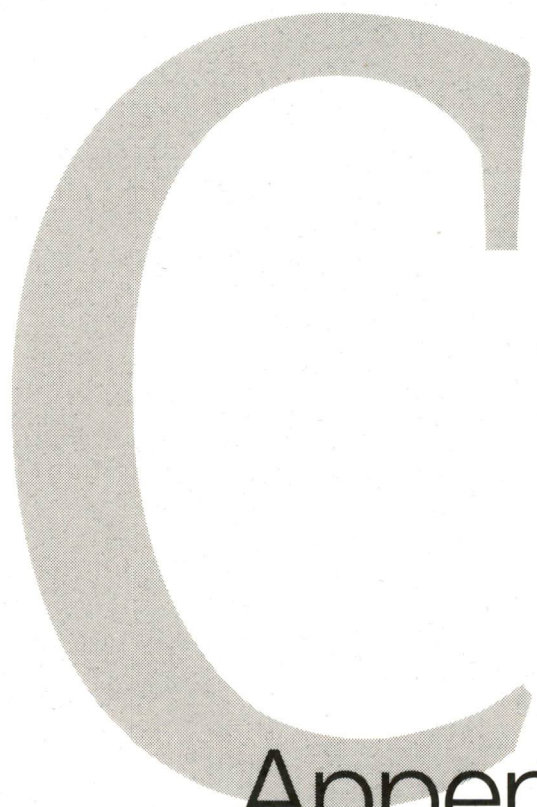
- Project identification
- Date
- Time
- Sampler's initials
- Sample identification number

The samples were stored and transported under chain-of-custody procedures. Copies of the completed chain-of-custody forms are presented with the laboratory reports in Appendix D.

Documentation

The CDM representative reported daily activities on a Field Investigation Daily Report form. Personnel on site, visitors, weather, and general activities planned and performed, and any problems were included on the Daily Field Report. Daily Field Reports and other documentation of field activities are contained in the project file.

CDM documented field activities associated with sampling on a log completed in the field. This included a comprehensive discussion of field observations, including visual observations, field parameter measurements, QA observations, and problems encountered. Sampling record forms were completed for all media sampled.



Appendix
C

Appendix C

Well Variance Information and Resource Protection Well Reports



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Avenue SE • Bellevue, Washington 98008-5452 • (425) 649-7000

August 1, 2006

CERTIFIED MAIL

7001 0320 0005 6260 5599

Mr. Lance Peterson
Camp Dresser & Mckee
11811 NE 1st Street, Suite 201
Bellevue, WA 98005

Dear Mr. Peterson:

RE: Variance request to construct drive-point monitoring wells (resource protection wells) at the Ellisport Creek Greenspace Project, on Vashon Island, King County, WA (SE ¼, SE ¼, Sec 5, T22N, R3E).

I am writing in response to your request for a variance to the Minimum Standards For Construction and Maintenance of Wells, Chapter 173-160 Washington Administrative Code (WAC) and specifically with WAC 173-160-420, 173-160-430, and 173-160-450. The variance request was received by the Department of Ecology via USPS mail on June 2, 2006. You were given a verbal okay to proceed on June 22, 2006.

You are requesting waivers from WAC 173-160-420, 430 and 450 which require protective measures around the wells, the use of PVC or stainless steel and the installation of a bentonite seal from the top of the filter pack to the surface. These are minimum standards.

The wells you intend to have installed are drive point monitoring wells. These wells will be used to gather shallow groundwater information, are temporary, and need to be installed with minimal impact to the site, which precludes using standard drilling equipment. The wells will have watertight caps, are temporary and will be installed with a one foot surface seal.

After careful consideration, the variance request is hereby **granted** in accordance with WAC 173-160-106 to allow for construction of drive-point wells. This variance is granted under the following conditions:



1. A "Notice of Intent to Construct Resource Protection Wells" (Start Card) with fees must be submitted to the Department (Lacey address) at least seventy-two (72) hours prior to constructing the wells.
2. Well Reports describing the construction shall be submitted to the Department (Northwest Regional Office) within thirty (30) days after completing the work. Attach a copy of this variance.
3. The work will be completed by a licensed well driller or engineer.

You have the right to appeal this decision to the Pollution Control Hearings Board. Pursuant to chapter 43.21B RCW, your appeal must be filed with the Pollution Control Hearings Board, and served on the Department of Ecology, within thirty (30) days of the date of your receipt of this document.

To appeal this action or decision, your notice of appeal must contain a copy of the Ecology order, action or decision you are appealing.

Your appeal must be filed with:

The Pollution Control Hearings Board
4224 - 6th Avenue SE, Rowe Six, Bldg. 2
P.O. Box 40903
Lacey, Washington 98504-0903

Your appeal must also be served on:

The Department of Ecology
Appeals Coordinator
P.O. Box 47608
Olympia, Washington 98504-7608.

In addition, please send a copy of your appeal to:

Water Resources Program
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

An appeal alone will not stay the effectiveness of this decision. Stay requests must be submitted in accordance with RCW 43.21B.320.

For additional information: Environmental Hearings Office Website:

<http://www.eho.wa.gov>

Mr. Lance Peterson
Variance Request
Page 3

Your attention to these laws and regulations, and cooperation with the Department of Ecology in this matter, is appreciated. Please telephone Trevor Contreras at (425) 649-7044 if you have any questions concerning this variance.

DATED this 12th day of August, 2006, at Bellevue, Washington

Sincerely,



Daniel L. Swenson
Section Supervisor
Water Resources Program

DLS:tc:ah

cc: Trevor Contreras, Ecology NWRO
Dick Szymarek, Ecology HQ
Marian Bruner, Ecology HQ

"I certify that I mailed this letter or an identical copy thereof, postage prepaid, to the above addressee(s) this 12th day of August, 2006."

Orlene Hans (Signature)

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. R69653

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

Construction

Decommission ORIGINAL INSTALLATION Notice of Intent Number _____

Type of Well ("x" in circle)

Resource Protection

Geotech Soil Boring

Consulting Firm COM

Property Owner Thomas Patilla

Unique Ecology Well ID _____

Site Address 20731 Chautauqua Beach Rd. SW

Tag No. APH 951

City Vashon Island County King

Location SE 1/4-1/4 SE 1/4 Sec 5 Twn 22 R 3 ^{EWM} or ^{WWM} (circle one)

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r) still REQUIRED) Lat Deg 47 Lat Min/Sec 25/27.3

Long Deg 122 Long Min/Sec 27/4.7

Driller Engineer Trainee Name (Print) Jeff Bamer

Tax Parcel No. 1535204065 & 1535204115

Driller/Engineer/Trainee Signature [Signature]

Cased or Uncased Diameter 1 1/4" Static Level 0.4' bgs on 8/19/06

Driller or Trainee License No. _____

Work/Decommission Start Date 7/27/06

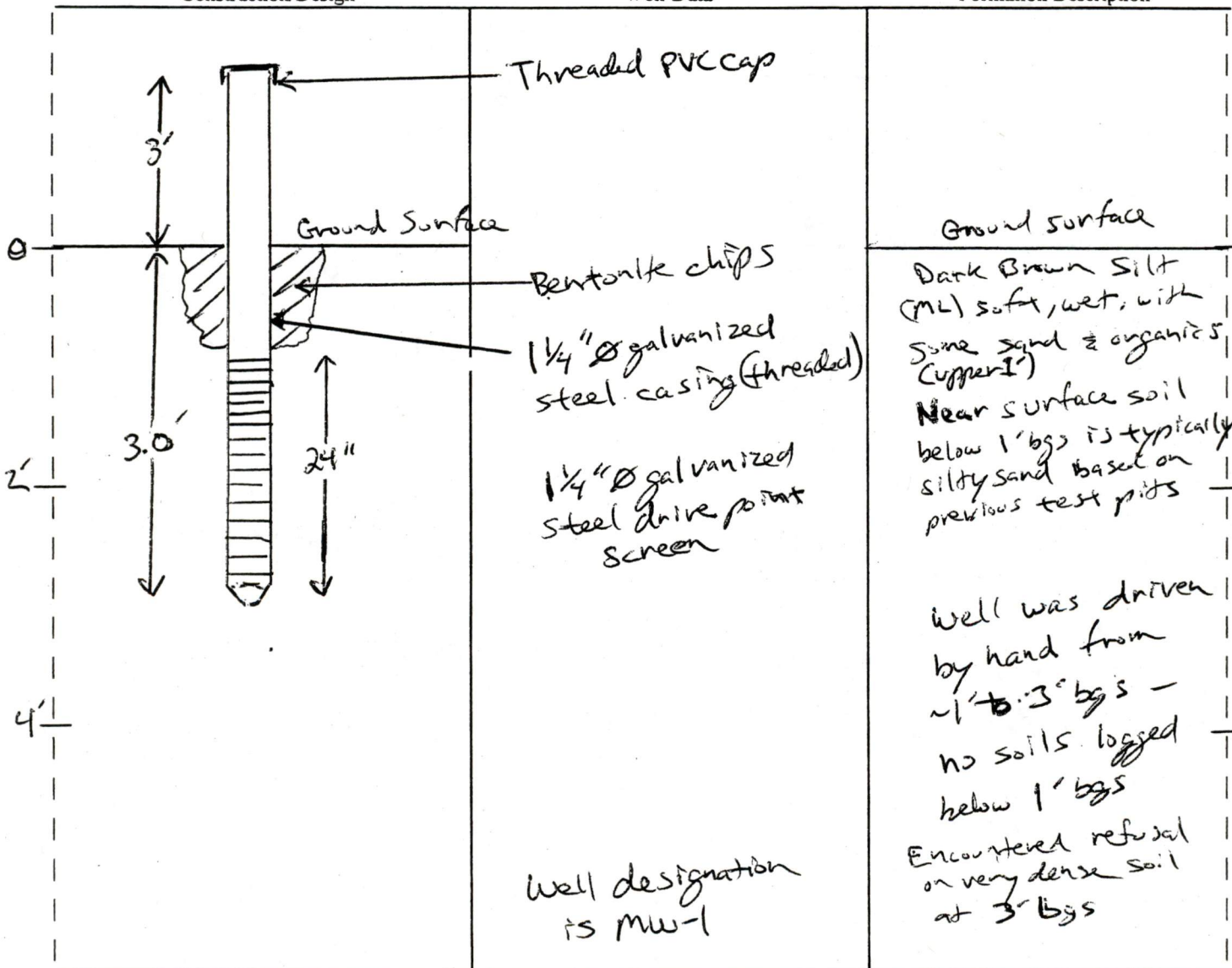
If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date 7/27/06

Construction/Design

Well Data

Formation Description



Ground surface

Dark Brown Silt (ML) soft, wet, with some sand & organics (Copper I)

Near surface soil below 1' bgs is typically silty sand based on previous test pits

Well was driven by hand from ~1' to 3' bgs - no soils logged below 1' bgs

Encountered refusal on very dense soil at 3' bgs

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. R69653

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

- Construction
- Decommission ORIGINAL INSTALLATION Notice of Intent Number _____

Type of Well ("x" in circle)

- Resource Protection
- Geotech Soil Boring

Consulting Firm CDM

Unique Ecology Well ID _____

Tag No. APH952

Property Owner Thomas Patillo

Site Address 20731 Chautauqua Beach Rd SW

City Vashon Island County King

Location SE 1/4-1/4 SE 1/4 Sec 5 Twn 22 R 3 ^{EWM} or ^{WWM} (circle one)

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Driller Engineer Trainee Name (Print) Jeff Bamer

Driller/Engineer/Trainee Signature [Signature]

Driller or Trainee License No. _____

If trainee, licensed driller's _____

Signature and License No. _____

Lat/Long (s, t, r) Lat Deg 47 Lat Min/Sec 25/27.3

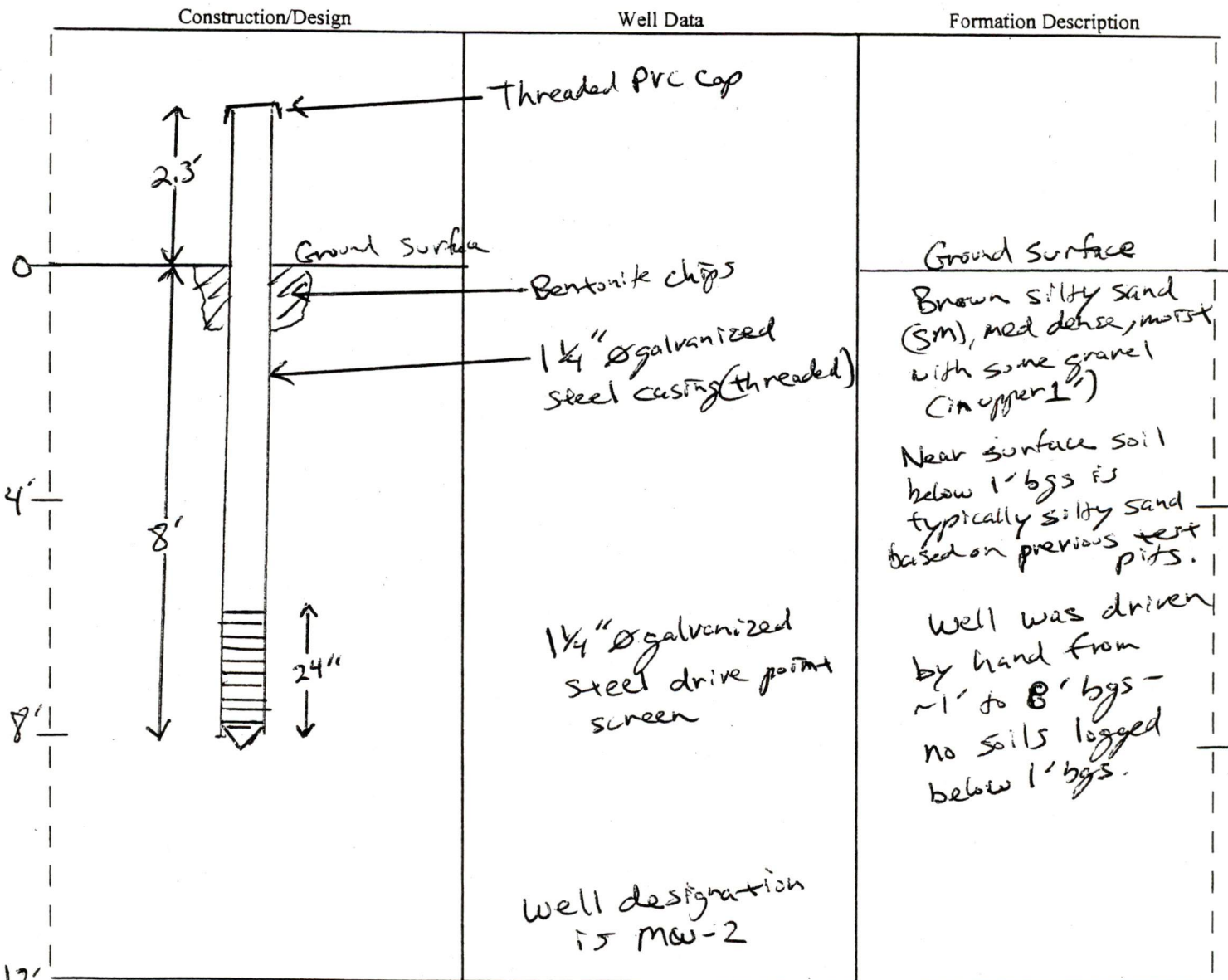
still REQUIRED) Long Deg 122 Long Min/Sec 27/4.7

Tax Parcel No. 1535204065 & 1535204115

Cased or Uncased Diameter 1 1/4" Static Level 1.6' bgs

Work/Decommission Start Date 7/27/06 on 8/17/06

Work/Decommission Completed Date 7/27/06



The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. R69653

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

- Construction
- Decommission ORIGINAL INSTALLATION Notice

Type of Well ("x" in circle)

- Resource Protection
- Geotech Soil Boring

Consulting Firm CDM

Property Owner Thomas Paxillo

Unique Ecology Well ID APH 953

Site Address 20731 Chautauqua Beach Rd SW

City Vashon Island County King

Location SE 1/4-1/4 SE 1/4 Sec 5 Twn 22 R 3 ^{EWM} or (circle one) _{WWM}

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r) Lat Deg 47 Lat Min/Sec 25/27.3

still REQUIRED) Long Deg 122 Long Min/Sec 27/4.7

Driller Engineer Trainee Name (Print) Jeff Bamer

Tax Parcel No. 15352 040 65 & 153520 4117

Driller/Engineer /Trainee Signature [Signature]

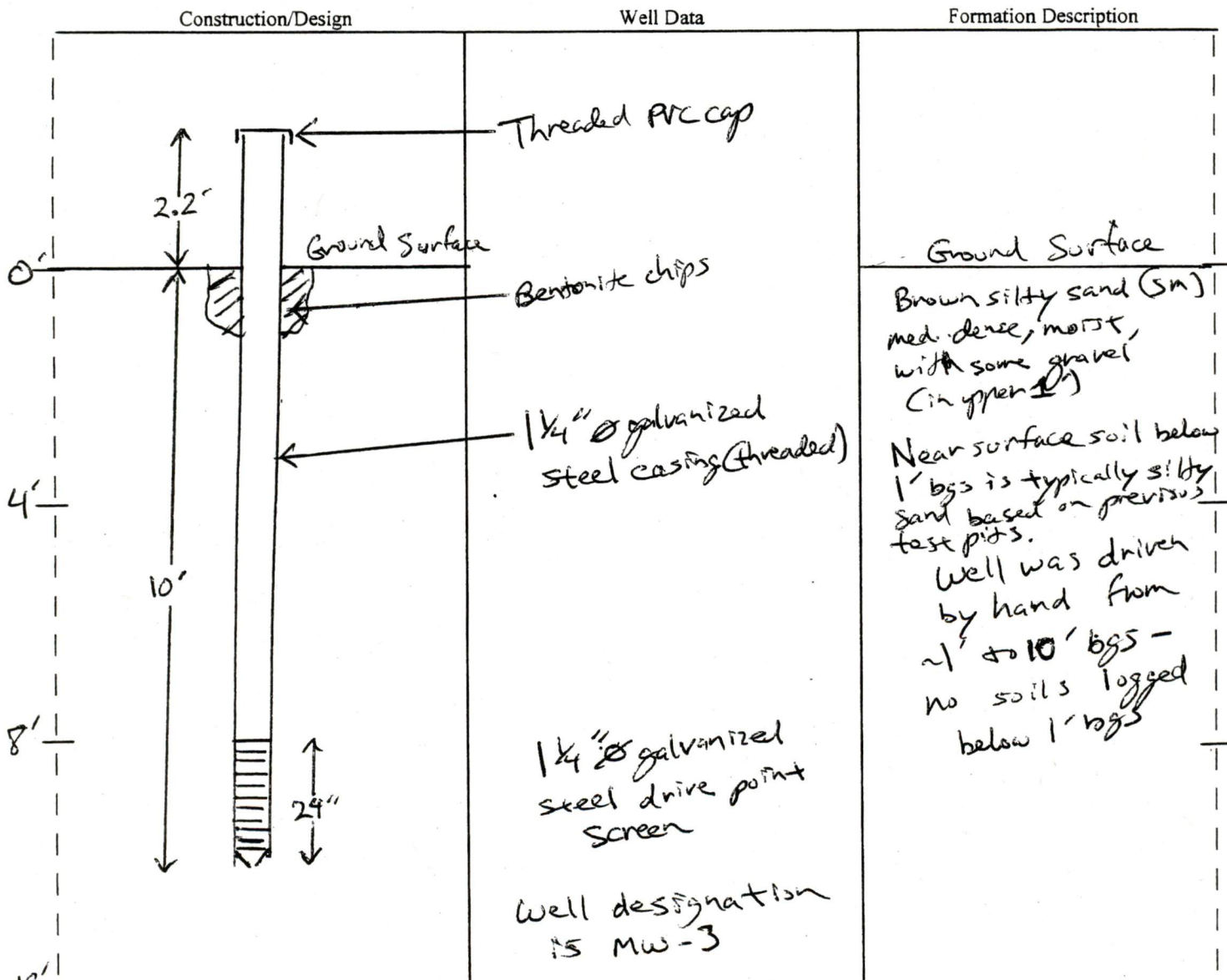
Cased or Uncased Diameter 1 1/4" Static Level 4.0' bgs on 8/17/06

Driller or Trainee License No. _____

Decommission Start Date 7/27/06

If trainee, licensed driller's Signature and License No. _____

Decommission Completed Date 7/27/06



The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. 169653

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission ("x" in circle)

- Construction
- Decommission ORIGINAL INSTALLATION Notice of Intent Number _____

Type of Well ("x" in circle)

- Resource Protection
- Geotech Soil Boring

Consulting Firm CDM

Property Owner Thomas Patillo

Unique Ecology Well ID _____

Site Address 20731 Chautauqua Beach Rd SW

Tag No. APH 954

City Vashon Island County King

Location SE 1/4-1/4 SE 1/4 Sec 5 Twn 22 R 3 EWM or WWM (circle one)

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s, t, r still REQUIRED) Lat Deg 47 Lat Min/Sec 25/27.3

Long Deg 122 Long Min/Sec 27/4.7

Driller Engineer Trainee Name (Print) Jeff Bamer

Tax Parcel No. 1535204063 & 1535204115

Driller/Engineer /Trainee Signature [Signature]

Cased or Uncased Diameter 1 1/4" Static Level 0' bgs

Driller or Trainee License No. _____

Work/Decommission Start Date 7/27/06

If trainee, licensed driller's _____

Work/Decommission Completed Date 7/27/06

Signature and License No. _____

Construction/Design	Well Data	Formation Description
	<p>Well designation is MWI-4</p>	<p>Ground Surface</p> <p>Dark Brown silt (ML) soft, wet, with some sand and organics (appears)</p> <p>Near surface soil below 1' bgs is typically silty sand based on previous test pits</p> <p>Well was driven by hand from 1' to 4' bgs - no soils logged below 1' bgs.</p>

The Department of Ecology does NOT warranty the Data and/or Information on this Well Report.

D

Appendix
D

Appendix D

Analytical Laboratory Reports

Quality Assurance Report

Project and Sample Information

Project Name: Supplemental Phase II Environmental Site Assessment, Ellisport Creek Greenspace Project Site

Project No.: 19897-52181

Lab Name: OnSite Environmental Inc. (OnSite), Redmond, Washington
Analytical Resources, Inc., Tukwila, Washington
STL Seattle, Tacoma, Washington

Lab Numbers: OnSite 0607-198, 0607-199, 0607-200, 0607-203

Sample No.: EC-S14-07/06, EC-S15-07/06, EC-S16-07/06, EC-S17-07/06, EC-S18-07/06, EC-S19-07/06, EC-S20-07/06, EC-S21-07/06, EC-SW1-07/06, EC-Rinsate-07/06, EC-MS1-07/06, EC-MS2-07/06, EC-MS3-07/06, EC-FWS1-07/06, EC-FWS2-07/06, EC-FWS3-07/06, EC-FWS4-07/06, EC-FWS5-07/06, EC-MW01-07/06, EC-MW02-07/06, EC-MW03-07/06, EC-MW04-07/06

Matrix: Marine Sediment, Freshwater Sediment, Soil, Surface Water, Groundwater

1.0 Quality Assurance Summary

This Quality Assurance Report (QAR) provides a summary of quality assurance (QA) findings. This review of the project data was performed using the Ellisport Creek Greenspace Project Site Supplemental Phase II Environmental Site Assessment Sampling and Quality Assurance Plan (SQAP; CDM, 2006); OnSite Environmental Inc. (OnSite) control limit criteria; and National Functional Guidelines for Organic Data Review (U.S. EPA, 1999). OnSite contracted with Analytical Resources, Inc. to complete the butyl tins, sulfides, and total organic carbon analyses of the marine and freshwater sediments. OnSite contracted with STL Seattle for the organophosphorus pesticide analysis of one soil sample. All samples extracted for NWTPH-Dx analysis were treated with an acid/silica gel cleanup procedure.

This report includes a review of holding times, method blanks, surrogate and matrix spike recoveries, laboratory blank and matrix spike duplicate data, and chain-of-custody records. Selected samples were analyzed for diesel- and oil-range total petroleum hydrocarbons (TPH) quantitated as Bunker C oil, semivolatile organic compounds, polycyclic aromatic hydrocarbons (PAHs), butyl tins, polychlorinated biphenyls (PCBs), organochlorine pesticides, organophosphorous pesticides, total metals, sulfides, and total organic carbon (TOC). All data are of known quality and are acceptable for use.

2.0 Analytical Methods

The following methods were used to analyze the samples:

Parameter	Method
Bunker C-Range TPH	NWTPH-Dx (quantitated as Bunker C)
Semivolatile Organic Compounds	EPA 8270C/SIM
Polycyclic Aromatic Hydrocarbons	EPA 8270C/SIM
Organochlorine Pesticides	EPA 8081A
Organophosphorous Pesticides	8141A/GC-MS
Butyl Tins	Krone, 1988
Total Metals	6010B/6020/7471A
Sulfides	EPA 376.2
Total Organic Carbon	EPA 9060

In the analysis of the soil sample submitted on July 28 for organochlorine pesticide analysis (sample ID: EC-S19-7/06), the DCB (surrogate) and Methoxychlor (target analyte) showed % differences greater than +15% in the continuing calibration verification standard (CCV). The sample was re-analyzed with similar results, indicating a matrix effect. This can potentially indicate an elevation in reported values for these compounds. Recoveries of the DCB surrogate were within the control limits for the sample and Methoxychlor was not detected, so elevation of the Methoxychlor value did not occur. The data for this analysis is not impacted by this issue.

In the analysis of the freshwater sediment samples submitted on July 28 for organochlorine pesticide analysis (sample ID's: EC-FWS1-7/06, EC-FWS2-7/06, and EC-FWS5-7/06) the 4, 4'-DDT and Methoxychlor (target analytes) showed % differences greater than +15% in the continuing calibration verification standard (CCV). The samples were re-analyzed with similar results, indicating a matrix effect. This can potentially indicate an elevation in reported values for these compounds. Methoxychlor and 4, 4'-DDT were not detected, so elevation of the reported values did not occur. The data for this analysis is not impacted by this issue.

3.0 Timeliness

Oil as Bunker C

The recommended holding time for NWTPH-Dx in soil/sediment and preserved water is 14 days. All samples were extracted and analyzed within the recommended holding time. The samples were analyzed between 24 and 36 days after collection,

but all were extracted within the 14-day holding times. See **Table D-1** for holding times per sample.

3.0 Timeliness (Continued)

Butyl Tins

The recommended holding time for Krone, 1988 is 14 days in soil/sediment. All samples were extracted and analyzed within the recommended holding time. See **Table D-2** for holding times per sample.

PAHs

The recommended holding time for EPA Method 8270C/SIM is 14 days in soil/sediment and 7 days in water. The samples were extracted and analyzed within the recommended holding times. See **Table D-3** for holding times per sample.

Semivolatile Organic Compounds

The recommended holding time for EPA Method 8270C/SIM is 14 days in soil/sediment. All samples were extracted and analyzed within the recommended holding time. See **Table D-4** for holding times per sample.

Organophosphorous Pesticides

The recommended holding time for EPA method 8141A is 14 days in soil/sediment. All samples were extracted and analyzed within the recommended holding time. See **Table D-5** for holding times per sample.

Organochlorine Pesticides

The recommended holding time for EPA method 8081A is 14 days in soil/sediment. All samples were extracted and analyzed within the recommended holding time. See **Table D-6** for holding times per sample.

PCBs

The recommended holding time for EPA method 8082 is 14 days in soil/sediment. All samples were extracted and analyzed within the recommended holding time. See **Table D-7** for holding times per sample.

Total Metals

The recommended holding time for EPA methods 6010B and 6020 is 6 months in soil/sediment. The recommended holding time for EPA method 7471A is 28 days in soil/sediment. All samples were extracted and analyzed within the recommended holding time. See **Table D-8** for holding times per sample.

Total Organic Carbon

The recommended holding time for EPA 9060 in sediment is 14 days. All samples were analyzed within the recommended holding time. See **Table D-9** for holding times per sample.

3.0 Timeliness (Continued)

Sulfides

The recommended holding time for EPA 376.2 in sediment is 7 days. All samples were analyzed 8 days after collection, one day past the 7-day holding time. The impact on the data due to analysis one day past the holding time is minimal and the data is acceptable for use. See Table D-10 for holding times per sample.

4.0 Chain-of-Custody

Field chain-of-custody forms were complete. All chain-of-custody forms were signed and dated. No issues with sample receipt conditions were indicated on the chain-of-custody forms or in the Case Narrative section of the laboratory reports. All samples listed on the chain-of-custody forms were analyzed as indicated.

5.0 Field Quality Control Samples

Following is a list of the field quality controls samples that were collected during the July and August 2006 sampling event:

Field Duplicates

<u>Sample ID</u>	<u>Duplicate ID</u>
EC-S14-7/05	EC-S15-7/05
EC-FWS 1-7/06	EC-FWS 2-7/06
EC-MW-03-7/06	EC-MW-05-7/06

Rinsate Samples

<u>Sample ID</u>
EC-Rinsate-7/06

Field Duplicates: Duplicate relative percent differences (RPD) could not be calculated for EC-S14-7/06 and EC-S15-7/06 as the analytes were not detected in either of the samples.

Duplicate RPDs for EC-FWS 1-7/06 and EC-FWS 2-7/06 for chromium, copper, nickel, and zinc were 12%, 2.4%, 3.6%, and 6.9%, respectively. PCBs and organochlorine pesticides were not detected in either EC-FWS 1-7/06 or EC-FWS 2-7/06, so RPDs could not be calculated for these analyses.

Semivolatiles and sulfide were not detected in EC-FWS 1-7/06, so RPDs could not be calculated for these analyses. Levels of detected semivolatiles and sulfide in the duplicate (EC-FWS 2-7/06) were relatively low. The RPD for TOC was 51%. This value is outside the limits established in the Ellisport Supplemental SQAP for the Ellisport Creek Greenhouse Project Site, suggesting sample heterogeneity.

The precision and representativeness of duplicate sediment samples is largely based on how homogenous the sediment is in the area where the samples were collected. Each sample was collected as a discrete unit and was not composited, increasing the likelihood of variability between duplicates.

The RPDs for detected PAHs in sample EC-MW-03-7/06 and its duplicate, EC-MW-05-7/06 ranged from 18% to 70%, with RPDs for of the six eight detected PAHs outside the RPD limits established in the Ellisport Supplemental SQAP for the Ellisport Creek Greenhouse Project Site, suggesting sample heterogeneity.

The absolute values of detections of PAHs are low and lower absolute values tend to result in higher RPDs.

Bunker C-range hydrocarbons were not detected in EC-MW-03 7/06 or its duplicate, EC-MW-05-7/06, so an RPD could not be calculated.

See **Table E-11** for calculation of RPD for each duplicate set.

Rinsate Sample:

A rinsate sample was collected by pouring deionized water over the decontaminated stainless steel spoon (sampling device) subsequent to collection of sample EC-S17-7/06. No analytes were detected at or above the laboratory's Practical Quantitation Limit (PQL) for NWTPH-Dx. See **Table D-12** for the rinsate sample analytical result.

6.0 Laboratory Quality Control Samples

Method Blank:

Diesel- and Oil-range TPH: No target compounds were detected at or above the PQL.

Butyl Tins: No target compounds were detected at or above the PQL.

PAHs: No target compounds were detected at or above the PQL.

Semivolatile Organic Compounds - Di-n-butylphthalate was detected at 0.027 mg/kg in the method blank associated with samples EC-MS 1-7/06, EC-MS 2-7/06, EC-MS 3-7/06, EC-FWS 1-7/06, EC-FWS 2-7/06, and EC-FWS 5-7/06. Di-n-butylphthalate was not detected in any of the samples. Therefore there is no impact on the data.

6.0 Laboratory Quality Control Samples (continued)

Organophosphorous Pesticides: No target compounds were detected at or above the PQL.

Organochlorine Pesticides: No target compounds were detected at or above the PQL.

Total Metals: No target compounds were detected at or above the PQL.

TOC: No target compounds were detected at or above the PQL.

Sulfides: No target compounds were detected at or above the PQL.

Matrix Spike:

Bunker C-range TPH: Matrix spike (MS) analyses were not performed on samples submitted for oil as bunker C analyses. Refer to duplicate data for precision data.

Butyl Tins: Matrix spike analyses were not performed on samples submitted for Butyl Tin analyses.

PAHs: A matrix spike and matrix spike duplicate MS/MSD set was performed on sample EC-FWS 4-7/06 for the PAH analysis. All percent recoveries for spikes analytes in the MS and MSD and relative percent differences (RPDs) between the MS and MSD and were within the laboratory's control limits.

Semivolatiles: An MS/MSD set was performed on sample EC-FWS 1-7/06 for the semivolatile analyses. All percent recoveries for spikes analytes in the MS and MSD and relative percent differences (RPDs) between the MS and MSD and were within the laboratory's control limits.

Organophosphorous Pesticides: An MS/MSD set was performed on sample EC-S19-7/06. All percent recoveries for spikes analytes in the MS and MSD and relative percent differences (RPDs) between the MS and MSD and were within the laboratory's control limits.

Organochlorine Pesticides: An MS/MSD set was performed on sample EC-S19-7/06 for the organochlorine pesticide analyses. All percent recoveries for spiked analytes in the Ms and MSD and RPDs between the MS/MSD were within the laboratory's control limits.

6.0 Laboratory Quality Control Samples (continued)

PCBs: An MS/MSD set was performed on sample EC-FWS 2-7/06 for the PCB analyses. Percent recoveries for the spiked analyte and the RPD between the MS and MSD were within the laboratory's control limits.

Total Metals: An MS/MSD set was performed on sample EC-FWS 5-7/06 for the total metals analyses. Percent recoveries for the all elements except antimony were within the laboratory's control limits. Recovery of antimony was low in both the MS and MSD (24% and 27%) and the RPD between the MS and MSD for all elements were within the laboratory's control limits. The MS/MSD were re-extracted and re-analyzed with similar results. Recovery of antimony in the spike blank was good at 106%, indicating a matrix effect.

TOC: An MS was performed on sample EC-FWS 3-7/06 for the TOC analyses and the spike recovery was within the laboratory's control limits. An MSD was not performed. Refer to duplicate data for precision data.

Sulfides: An MS was performed on sample EC-FWS 1-7/06 for the sulfides analyses and the spike recovery was within the laboratory's control limits. An MSD was not performed. Refer to duplicate data for precision data.

Duplicate:

Bunker C-Range TPH: Laboratory duplicate analyses were performed for NWTPH-Dx. Results were within the laboratory's duplicate criteria. Analytes were not detected in either of the samples and RPD values could not be calculated.

Butyl Tins: Duplicate analyses were not performed for the butyl tin analyses.

PAHs: Duplicate analyses were not performed on samples submitted for PAH analyses. Refer to MS/MSD data for precision information.

Semivolatiles: Duplicate analyses were not performed on samples submitted for semivolatile analyses. Refer to MS/MSD data for precision information.

6.0 Laboratory Quality Control Samples (continued)

Organophosphorous Pesticides: Duplicate analyses were not performed on samples submitted for organophosphorous pesticide analyses. Refer to MS/MSD and LCS/LCSD data for precision information.

Organochlorine Pesticides: Duplicate analyses were not performed on samples submitted for organochlorine pesticide analyses. Refer to MS/MSD data for precision information.

PCBs: Duplicate analyses were not performed on samples submitted for PCB analyses. Refer to MS/MSD data for precision information.

Total Metals: A duplicate was performed on sample EC-FWS 5-7/06. Results were within the laboratory's duplicate criteria. The RPDs for detected analytes were within the laboratory's control limits.

TOC: A duplicate and triplicate were performed on sample EC-FWS 3-7/06 for the TOC analyses. The relative standard deviation (RSD) for the triplicate was within the laboratory's control limits.

Sulfides: A duplicate was performed on sample EC-FWS 3-7/06. The results were within the laboratory's control limits. Sulfides were not detected in either of the samples, so an RPD could not be calculated.

Laboratory Control, Spike Blank, and Reference Samples:

Bunker C-Range TPH: Laboratory Control Samples (LCSs), Spike Blanks (SBs), and reference samples were not performed for the Bunker C-range TPH analyses. Refer to duplicate data for precision information.

Butyl Tins: An LCS was performed for the butyl tin analyses. Recoveries of spiked analytes were within the laboratory's control limits.

PAHs: LCSs, SBs, and reference samples were not performed for the PAH analyses. Refer to MS/MSD data for recovery and precision information.

Semivolatiles: LCSs, SBs, and reference samples were not reported for the semivolatiles analyses. Refer to MS/MSD data for recovery and precision information.

6.0 Laboratory Quality Control Samples (continued)

Organophosphorous Pesticides: An LCS and LCS duplicate (LCSD) set was performed for the organophosphorous pesticide analyses. Recoveries of spiked analytes and RPDs between the LCS and LCSD were within the laboratory's control limits.

Organochlorine Pesticides: LCSs, SBs, and reference samples were not reported for the organochlorine pesticide analyses. Refer to MS/MSD data for precision information.

PCBs: LCSs, SBs, and reference samples were not reported for the PCB analyses. Refer to MS/MSD data for recovery and precision information.

Total Metals: LCSs, SBs, and reference samples were not reported for the total metals analyses. Refer to MS/MSD data for recovery and precision information.

TOC: An LCS and a reference samples were reported for the TOC analyses. Recoveries in both of these analyses were within the laboratory's control limits.

Sulfides: An LCS was analyzed for the sulfides analyses. Recovery of sulfides in the LCS was within the laboratory's control limits.

Surrogates:

Diesel- and Oil-range TPH: The laboratory used one surrogate spike compound for diesel- and oil-range TPH analyses. All surrogate percent recoveries were within the laboratory control limits (LCL - 50%, UCL - 150%, all matrices).

Butyl Tins: The laboratory used two surrogate-spiking compounds for butyl tins analyses. All surrogate percent recoveries were within the laboratory's control limit criteria for EPA Method 8270C/SIM.

PAHs: The laboratory used three surrogate-spiking compounds for PAH analyses. All surrogate percent recoveries were within the laboratory's control limit criteria for EPA Method 8270C/SIM.

Semivolatiles: The laboratory used six surrogate-spiking compounds for PAH analyses. All surrogate percent recoveries were within the laboratory's control limit criteria for EPA Method 8270C/SIM.

6.0 Laboratory Quality Control Samples (continued)

Organophosphorus Pesticides: The laboratory used two surrogate-spiking compounds for organophosphorous pesticide analyses. All surrogate percent recoveries were within the laboratory's control limit criteria for EPA Method 8141A-GC/MS.

Organochlorine Pesticides: The laboratory used two surrogate-spiking compounds for organochlorine pesticide analyses. All surrogate percent recoveries were within the laboratory's control limit criteria for EPA Method 8081A.

PCBs: The laboratory used one surrogate-spiking compound for PCB analyses. All surrogate percent recoveries were within the laboratory's control limit criteria for EPA Method 8082.

Total Metals: Surrogates are not applicable for EPA methods 6010B, 6020, and 7471A.

TOC: Surrogates are not applicable for EPA method 9060 method.

Sulfides: Surrogates are not applicable for EPA method 376.2.

Signatures

Prepared by: Mary Lou Fox Date: 12/21/06

Checked by: Lance Peters Date: 12/21/06

Table D-1**Sample Holding Times - Diesel and Oil-Range TPH**

King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Sample ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Time Until Extraction (days)	Time Until Analysis (days)
EC-MW-01-7/06	Groundwater	7/27/2006	7/31/2006	8/20/2006	4	24
EC-MW-02-7/06	Groundwater	7/27/2006	7/31/2006	8/20/2006	4	24
EC-MW-03-7/06	Groundwater	7/27/2006	7/31/2006	8/20/2006	4	24
EC-MW-03-7/06	Groundwater	8/17/2006	8/21/2006	8/30/2006	4	9
EC-MW-05-7/06	Groundwater	8/17/2006	8/21/2006	8/30/2006	4	9
EC-MW-04-7/06	Groundwater	7/27/2006	7/31/2006	8/20/2006	4	24
EC-S14-7/06	Soil	7/26/2006	8/1/2006	8/20/2006	6	25
EC-S15-7/06	Soil	7/26/2006	8/1/2006	8/20/2006	6	25
EC-S16-7/06	Soil	7/26/2006	8/1/2006	8/20/2006	6	25
EC-S17-7/06	Soil	7/26/2006	8/1/2006	8/20/2006	6	25
EC-S18-7/06	Soil	7/26/2006	8/1/2006	8/20/2006	6	25
EC-SW1-7/06	Surface Water	7/26/2006	7/31/2006	8/22/2006	5	27
EC-Rinsate-7/06	Water	7/26/2006	7/31/2006	8/22/2006	5	27
EC-FWS 3-7/06	Freshwater Sediment	7/25/2006	8/1/2006	8/30/2006	7	36
EC-FWS 4-7/06	Freshwater Sediment	7/25/2006	8/1/2006	8/30/2006	7	36

Note:

Recommended holding time for NWTPH-Dx is 14 days for soil/sediment and 14 days for preserved water.

Table D-2**Sample Holding Times - Butyl Tins**

King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Sample ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Time Until Extraction (days)	Time Until Analysis (days)
EC-FWS 1-7/06	Freshwater Sediment	7/25/2006	8/8/2006	8/15/2006	14	21
EC-FWS 2-7/06	Freshwater Sediment	7/25/2006	8/8/2006	8/15/2006	14	21
EC-FWS 5-7/06	Freshwater Sediment	7/25/2006	8/8/2006	8/15/2006	14	21

Note:

Recommended holding time for Krone, 1988 is 14 days for soil/sediment.

Table D-3
Sample Holding Times - PAHs

King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Sample ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Time Until Extraction (days)	Time Until Analysis (days)
EC-MW-01-7/06	Groundwater	7/27/2006	8/1/2006	8/2/2006	5	6
EC-MW-02-7/06	Groundwater	7/27/2006	8/1/2006	8/2/2006	5	6
EC-MW-03-7/06	Groundwater	7/27/2006	8/1/2006	8/2&3/2006	5	6
EC-MW-04-7/06	Groundwater	7/27/2006	8/1/2006	8/2/2006	5	6
EC-SW1-7/06	Surface Water	7/26/2006	8/1/2006	8/2/2006	6	7
EC-FWS 3-7/06	Freshwater Sediment	7/25/2006	7/31/2006	8/2/2006	6	8
EC-FWS 4-7/06	Freshwater Sediment	7/25/2006	7/31/2006	8/1/2006	6	8

Note:

Recommended holding time for EPA Method 8270C/SIM is 14 days in soil/sediment and 7 days in water.

Table D-4
Sample Holding Times - Semivolatile Organic Compounds

King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Sample ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Time Until Extraction (days)	Time Until Analysis (days)
EC-MS 1-7/06	Marine Sediment	7/25/2006	8/2/2006	8/3&4/06	8	9 & 10
EC-MS 2-7/06	Marine Sediment	7/25/2006	8/2/2006	8/3&4/06	8	9 & 10
EC-MS 3-7/06	Marine Sediment	7/25/2006	8/2/2006	8/3&4/06	8	9 & 10
EC-FWS 1-7/06	Freshwater Sediment	7/25/2006	8/2/2006	8/2&3/06	8	8 & 9
EC-FWS 2-7/06	Freshwater Sediment	7/25/2006	8/2/2006	8/2&3/06	8	8 & 9
EC-FWS 5-7/06	Freshwater Sediment	7/25/2006	8/2/2006	8/2&3/06	8	8 & 9

Note:

Recommended holding time for EPA Method 8270C/SIM is 14 days in soil/sediment.

Table D-5
Sample Holding Times - Organophosphorous Pesticides
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Sample ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Time Until Extraction (days)	Time Until Analysis (days)
EC-S19-7/06	Soil	7/26/2006	8/2/2006	8/2/2006	7	7

Note:
 Recommended holding time for EPA Method 8141A is 14 days in soil/sediment.

Table D-6
Sample Holding Times - Organochlorine Pesticides
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Sample ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Time Until Extraction (days)	Time Until Analysis (days)
EC-S19-7/06	Soil	7/26/2006	7/31/2006	8/1/2006	5	6
EC-FWS 1-7/06	Freshwater Sediment	7/25/2006	7/31/2006	8/9/2006	6	15
EC-FWS 2-7/06	Freshwater Sediment	7/25/2006	7/31/2006	8/9/2006	6	15
EC-FWS 5-7/06	Freshwater Sediment	7/25/2006	7/31/2006	8/9/2006	6	15

Note:
 Recommended holding time for EPA Method 8081A is 14 days in soil/sediment.

Table D-7
Sample Holding Times -PCBs
 King County/Ellisport Creek Greenspace Property Assessment
 Vashon Island, Washington

Sample ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Time Until Extraction (days)	Time Until Analysis (days)
EC-MS 1-7/06	Marine Sediment	7/25/2006	8/1/2006	8/5/2006	7	11
EC-MS 2-7/06	Marine Sediment	7/25/2006	8/1/2006	8/5/2006	7	11
EC-MS 3-7/06	Marine Sediment	7/25/2006	8/1/2006	8/5/2006	7	11
EC-FWS 1-7/06	Freshwater Sediment	7/25/2006	8/1/2006	8/5/2006	7	11
EC-FWS 2-7/06	Freshwater Sediment	7/25/2006	8/1/2006	8/5/2006	7	11
EC-FWS 5-7/06	Freshwater Sediment	7/25/2006	8/1/2006	8/5/2006	7	11

Note:
 Recommended holding time for EPA Method 8082 is 14 days in soil/sediment.

Table D-8**Sample Holding Times - Total Metals**King County/Ellisport Creek Greenspace Property Assessment
Vashon Island, Washington

Sample ID	Matrix	Date Sampled	Date Extracted	Date Analyzed	Time Until Extraction (days)	Time Until Analysis (days)
EC-S19-7/06	Soil	7/26/2006	7/31/2006	8/1/2006	5	6
EC-S20-7/06	Soil	7/26/2006	7/31/2006	8/1/2006	5	6
EC-S21-7/06	Soil	7/26/2006	7/31/2006	8/1/2006	5	6
EC-MS 1-7/06	Marine Sediment	7/25/2006	8/3,4,&7/06	8/3&7/06	9,10, & 13	9 &13
EC-MS 2-7/06	Marine Sediment	7/25/2006	8/3,4&7/06	8/3&7/06	9,10, & 13	9 &13
EC-MS 3-7/06	Marine Sediment	7/25/2006	8/3,4&7/06	8/3&7/06	9,10, & 13	9 &13
EC-FWS 1-7/06	Freshwater Sediment	7/25/2006	8/3,4&7/06	8/3&7/06	9,10, & 13	9 &13
EC-FWS 2-7/06	Freshwater Sediment	7/25/2006	8/3,4&7/06	8/3&7/06	9,10, & 13	9 &13
EC-FWS 5-7/06	Freshwater Sediment	7/25/2006	8/3,4&7/06	8/3&7/06	9,10, & 13	9 &13

Note:

Recommended holding time for EPA Method 6010B and 6020 is 6 months in soil/sediment. Recommended holding time for EPA method 7471A is 28 days in soil/sediment.

Table D-9**Sample Holding Times - Total Organic Carbon**King County/Ellisport Creek Greenspace Property Assessment
Vashon Island, Washington

Sample ID	Matrix	Date Sampled	Date Analyzed	Time Until Analysis (days)
EC-MS 1-7/06	Marine Sediment	7/25/2006	8/7/2006	13
EC-MS 2-7/06	Marine Sediment	7/25/2006	8/7/2006	13
EC-MS 3-7/06	Marine Sediment	7/25/2006	8/7/2006	13
EC-FWS 1-7/06	Freshwater Sediment	7/25/2006	8/7/2006	13
EC-FWS 2-7/06	Freshwater Sediment	7/25/2006	8/7/2006	13
EC-FWS 3-7/06	Freshwater Sediment	7/25/2006	8/7/2006	13
EC-FWS 4-7/06	Freshwater Sediment	7/25/2006	8/7/2006	13
EC-FWS 5-7/06	Freshwater Sediment	7/25/2006	8/7/2006	13

Note:

Recommended holding time for Plumb, 1981 is 14 days in sediment.

Table D-10**Sample Holding Times - Sulfides**King County/Ellisport Creek Greenspace Property Assessment
Vashon Island, Washington

Sample ID	Matrix	Date Sampled	Date Analyzed	Time Until Analysis (days)
EC-FWS 1-7/06	Freshwater Sediment	7/25/2006	8/2/2006	8
EC-FWS 2-7/06	Freshwater Sediment	7/25/2006	8/2/2006	8
EC-FWS 5-7/06	Freshwater Sediment	7/25/2006	8/2/2006	8

Note:

Recommended holding time for EPA method 376.2 is 7 days in sediment.

Table D-11**Calculation of Relative Percent Difference for Field Duplicates**

King County/Ellisport Creek Greenspace Property Assessment

Vashon Island, Washington

Analyte (mg/kg)	Sample ID	Duplicate ID	RPD
	EC-S14-7/05	EC-S15-7/05	%
NWTPH-Dx Bunker C range	<59	<59	0.00

Analyte (mg/kg)	Sample ID	Duplicate ID	RPD
	EC-FWS 1-7/06	EC-FWS 2-7/06	%
Chromium	23	26	12
Copper	8.1	8.3	2.4
Nickel	28	27	3.6
Zinc	30	28	6.9

Analyte (ug/L)	Sample ID	Duplicate ID	RPD
	EC-MW-03-8/06	EC-MW-05-8/06	%
Naphthalene	0.20	0.24	18
2-Methylnaphthalene	0.65	0.8	29
1-Methylnaphthalene	0.56	0.69	21
Phenanthrene	0.29	0.39	29
Pyrene	0.10	0.14	33
Benzo(a)anthracene	0.015	0.024	46
Chrysene	0.012	0.025	70
Bunker C Range	<500	<500	0

< - analyte not detected at or greater than the listed concentration



**OnSite
Environmental Inc.**

Analytical Testing and Mobile Laboratory Services

AUG 11 2006

August 11, 2006

Lance Peterson
CDM
P.O. Box 3885
Bellevue, WA 98009

Re: Analytical Data for Project 19897-52181-T2
Laboratory Reference No. 0607-198


Dear Lance:

Enclosed are the analytical results and associated quality control data for samples submitted on July 28, 2006.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,



David Baumeister
Project Manager

Enclosures

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-198
Project: 19897-52181-T2

Case Narrative

Samples were collected on July 25, 2006 and received by the laboratory on July 28, 2006. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.


 Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52781-T2

OnSite Environmental Inc.

Analytical Testing and Mobile Laboratory Services

SEMI-VOLATILES by EPA 8270C/SIM
page 1 of 3

Date Extracted: 8-2-06
 Date Analyzed: 8-3,4&23-06

 Matrix: Soil
 Units: mg/kg (ppm)

 Lab ID: 07-198-01
 Client ID: EC-MS 1-7/06

Compound:	Results	Flags	PQL
N-Nitrosodimethylamine	ND		0.042
Pyridine	ND		0.042
Phenol	ND		0.042
Aniline	ND		0.042
bis(2-Chloroethyl)ether	ND		0.042
2-Chlorophenol	ND		0.042
1,3-Dichlorobenzene	ND		0.042
1,4-Dichlorobenzene	ND		0.042
Benzyl alcohol	ND		0.042
1,2-Dichlorobenzene	ND		0.042
2-Methylphenol (o-Cresol)	ND		0.042
bis(2-Chloroisopropyl)ether	ND		0.042
(3+4)-Methylphenol (m,p-Cresol)	ND		0.042
N-Nitroso-di-n-propylamine	ND		0.042
Hexachloroethane	ND		0.042
Nitrobenzene	ND		0.042
Isophorone	ND		0.042
2-Nitrophenol	ND		0.042
2,4-Dimethylphenol	ND		0.042
bis(2-Chloroethoxy)methane	ND		0.042
2,4-Dichlorophenol	ND		0.042
1,2,4-Trichlorobenzene	ND		0.042
Naphthalene	ND		0.0083
4-Chloroaniline	ND		0.042
Hexachlorobutadiene	ND		0.042
4-Chloro-3-methylphenol	ND		0.042
2-Methylnaphthalene	ND		0.0083
1-Methylnaphthalene	ND		0.0083

OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is not to be used for any other purpose without the written consent of OnSite Environmental, Inc.

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
 page 2 of 3

Lab ID: 07-198-01
 Client ID: EC-MS 1-7/06

Compound:	Results	Flags	PQL
Hexachlorocyclopentadiene	ND		0.042
2,4,6-Trichlorophenol	ND		0.042
2,3-Dichloroaniline	ND		0.042
2,4,5-Trichlorophenol	ND		0.042
2-Chloronaphthalene	ND		0.042
2-Nitroaniline	ND		0.042
1,4-Dinitrobenzene	ND		0.042
Dimethylphthalate	ND		0.042
1,3-Dinitrobenzene	ND		0.042
2,6-Dinitrotoluene	ND		0.042
1,2-Dinitrobenzene	ND		0.042
Acenaphthylene	ND		0.0083
3-Nitroaniline	ND		0.042
2,4-Dinitrophenol	ND		0.21
Acenaphthene	ND		0.0083
4-Nitrophenol	ND		0.042
2,4-Dinitrotoluene	ND		0.042
Dibenzofuran	ND		0.042
2,3,4,6-Tetrachlorophenol	ND		0.042
2,3,5,6-Tetrachlorophenol	ND		0.042
Diethylphthalate	ND		0.042
4-Chlorophenyl-phenylether	ND		0.042
4-Nitroaniline	ND		0.042
Fluorene	ND		0.0083
4,6-Dinitro-2-methylphenol	ND		0.21
N-Nitrosodiphenylamine	ND		0.042
1,2-Diphenylhydrazine	ND		0.042
4-Bromophenyl-phenylether	ND		0.042
Hexachlorobenzene	ND		0.042
Pentachlorophenol	ND		0.21
Phenanthrene	ND		0.0083
Anthracene	ND		0.0083
Carbazole	ND		0.042
Di-n-butylphthalate	ND		0.042
Fluoranthene	0.031		0.0083

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
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Lab ID: 07-198-01
 Client ID: EC-MS 1-7/06

Compound:	Results	Flags	PQL
Benzidine	ND		0.42
Pyrene	0.025		0.0083
Butylbenzylphthalate	ND		0.042
bis-2-Ethylhexyladipate	ND		0.042
3,3'-Dichlorobenzidine	ND		0.42
Benzo[a]anthracene	0.0086		0.0083
Chrysene	0.022		0.0083
bis(2-Ethylhexyl)phthalate	ND		0.042
Di-n-octylphthalate	ND		0.042
Benzo[b]fluoranthene	0.021		0.0083
Benzo[k]fluoranthene	ND		0.0083
Benzo[a]pyrene	0.010		0.0083
Indeno[1,2,3-cd]pyrene	ND		0.0083
Dibenz[a,h]anthracene	ND		0.0083
Benzo[g,h,i]perylene	ND		0.0083
Benzoic Acid	ND		0.042
Surrogate :	Percent Recovery		Control Limits
2-Fluorophenol	64		25 - 121
Phenol-d6	69		24 - 113
Nitrobenzene-d5	54		23 - 120
2-Fluorobiphenyl	71		30 - 115
2,4,6-Tribromophenol	101		19 - 122
Terphenyl-d14	81		18 - 137

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
 page 1 of 3

Date Extracted: 8-2-06
 Date Analyzed: 8-2,4&23-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: 07-198-02
 Client ID: EC-MS 2-7/06

Compound:	Results	Flags	PQL
N-Nitrosodimethylamine	ND		0.038
Pyridine	ND		0.038
Phenol	ND		0.038
Aniline	ND		0.038
bis(2-Chloroethyl)ether	ND		0.038
2-Chlorophenol	ND		0.038
1,3-Dichlorobenzene	ND		0.038
1,4-Dichlorobenzene	ND		0.038
Benzyl alcohol	ND		0.038
1,2-Dichlorobenzene	ND		0.038
2-Methylphenol (o-Cresol)	ND		0.038
bis(2-Chloroisopropyl)ether	ND		0.038
(3+4)-Methylphenol (m,p-Cresol)	ND		0.038
N-Nitroso-di-n-propylamine	ND		0.038
Hexachloroethane	ND		0.038
Nitrobenzene	ND		0.038
Isophorone	ND		0.038
2-Nitrophenol	ND		0.038
2,4-Dimethylphenol	ND		0.038
bis(2-Chloroethoxy)methane	ND		0.038
2,4-Dichlorophenol	ND		0.038
1,2,4-Trichlorobenzene	ND		0.038
Naphthalene	ND		0.0076
4-Chloroaniline	ND		0.038
Hexachlorobutadiene	ND		0.038
4-Chloro-3-methylphenol	ND		0.038
2-Methylnaphthalene	ND		0.0076
1-Methylnaphthalene	ND		0.0076

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
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Lab ID: 07-198-02
 Client ID: EC-MS 2-7/06

Compound:	Results	Flags	PQL
Hexachlorocyclopentadiene	ND		0.038
2,4,6-Trichlorophenol	ND		0.038
2,3-Dichloroaniline	ND		0.038
2,4,5-Trichlorophenol	ND		0.038
2-Chloronaphthalene	ND		0.038
2-Nitroaniline	ND		0.038
1,4-Dinitrobenzene	ND		0.038
Dimethylphthalate	ND		0.038
1,3-Dinitrobenzene	ND		0.038
2,6-Dinitrotoluene	ND		0.038
1,2-Dinitrobenzene	ND		0.038
Acenaphthylene	ND		0.0076
3-Nitroaniline	ND		0.038
2,4-Dinitrophenol	ND		0.19
Acenaphthene	ND		0.0076
4-Nitrophenol	ND		0.038
2,4-Dinitrotoluene	ND		0.038
Dibenzofuran	ND		0.038
2,3,4,6-Tetrachlorophenol	ND		0.038
2,3,5,6-Tetrachlorophenol	ND		0.038
Diethylphthalate	ND		0.038
4-Chlorophenyl-phenylether	ND		0.038
4-Nitroaniline	ND		0.038
Fluorene	ND		0.0076
4,6-Dinitro-2-methylphenol	ND		0.19
N-Nitrosodiphenylamine	ND		0.038
1,2-Diphenylhydrazine	ND		0.038
4-Bromophenyl-phenylether	ND		0.038
Hexachlorobenzene	ND		0.038
Pentachlorophenol	ND		0.19
Phenanthrene	ND		0.0076
Anthracene	ND		0.0076
Carbazole	ND		0.038
Di-n-butylphthalate	ND		0.038
Fluoranthene	ND		0.0076

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
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Lab ID: 07-198-02
 Client ID: EC-MS 2-7/06

Compound:	Results	Flags	PQL
Benzidine	ND		0.38
Pyrene	ND		0.0076
Butylbenzylphthalate	ND		0.038
bis-2-Ethylhexyladipate	ND		0.038
3,3'-Dichlorobenzidine	ND		0.38
Benzo[a]anthracene	ND		0.0076
Chrysene	ND		0.0076
bis(2-Ethylhexyl)phthalate	ND		0.038
Di-n-octylphthalate	ND		0.038
Benzo[b]fluoranthene	ND		0.0076
Benzo[k]fluoranthene	ND		0.0076
Benzo[a]pyrene	ND		0.0076
Indeno[1,2,3-cd]pyrene	ND		0.0076
Dibenz[a,h]anthracene	ND		0.0076
Benzo[g,h,i]perylene	ND		0.0076
Benzoic Acid	ND		0.038

Surrogate :	Percent Recovery	Control Limits
2-Fluorophenol	43	25 - 121
Phenol-d6	45	24 - 113
Nitrobenzene-d5	38	23 - 120
2-Fluorobiphenyl	48	30 - 115
2,4,6-Tribromophenol	88	19 - 122
Terphenyl-d14	79	18 - 137

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
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Date Extracted: 8-2-06
 Date Analyzed: 8-2,4&23-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: 07-198-03
 Client ID: EC-MS 3-7/06

Compound:	Results	Flags	PQL
N-Nitrosodimethylamine	ND		0.038
Pyridine	ND		0.038
Phenol	ND		0.038
Aniline	ND		0.038
bis(2-Chloroethyl)ether	ND		0.038
2-Chlorophenol	ND		0.038
1,3-Dichlorobenzene	ND		0.038
1,4-Dichlorobenzene	ND		0.038
Benzyl alcohol	ND		0.038
1,2-Dichlorobenzene	ND		0.038
2-Methylphenol (o-Cresol)	ND		0.038
bis(2-Chloroisopropyl)ether	ND		0.038
(3+4)-Methylphenol (m,p-Cresol)	ND		0.038
N-Nitroso-di-n-propylamine	ND		0.038
Hexachloroethane	ND		0.038
Nitrobenzene	ND		0.038
Isophorone	ND		0.038
2-Nitrophenol	ND		0.038
2,4-Dimethylphenol	ND		0.038
bis(2-Chloroethoxy)methane	ND		0.038
2,4-Dichlorophenol	ND		0.038
1,2,4-Trichlorobenzene	ND		0.038
Naphthalene	ND		0.0077
4-Chloroaniline	ND		0.038
Hexachlorobutadiene	ND		0.038
4-Chloro-3-methylphenol	ND		0.038
2-Methylnaphthalene	ND		0.0077
1-Methylnaphthalene	ND		0.0077

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
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Lab ID: 07-198-03
 Client ID: EC-MS 3-7/06

Compound:	Results	Flags	PQL
Hexachlorocyclopentadiene	ND		0.038
2,4,6-Trichlorophenol	ND		0.038
2,3-Dichloroaniline	ND		0.038
2,4,5-Trichlorophenol	ND		0.038
2-Chloronaphthalene	ND		0.038
2-Nitroaniline	ND		0.038
1,4-Dinitrobenzene	ND		0.038
Dimethylphthalate	ND		0.038
1,3-Dinitrobenzene	ND		0.038
2,6-Dinitrotoluene	ND		0.038
1,2-Dinitrobenzene	ND		0.038
Acenaphthylene	ND		0.0077
3-Nitroaniline	ND		0.038
2,4-Dinitrophenol	ND		0.19
Acenaphthene	ND		0.0077
4-Nitrophenol	ND		0.038
2,4-Dinitrotoluene	ND		0.038
Dibenzofuran	ND		0.038
2,3,4,6-Tetrachlorophenol	ND		0.038
2,3,5,6-Tetrachlorophenol	ND		0.038
Diethylphthalate	ND		0.038
4-Chlorophenyl-phenylether	ND		0.038
4-Nitroaniline	ND		0.038
Fluorene	ND		0.0077
4,6-Dinitro-2-methylphenol	ND		0.19
N-Nitrosodiphenylamine	ND		0.038
1,2-Diphenylhydrazine	ND		0.038
4-Bromophenyl-phenylether	ND		0.038
Hexachlorobenzene	ND		0.038
Pentachlorophenol	ND		0.19
Phenanthrene	ND		0.0077
Anthracene	ND		0.0077
Carbazole	ND		0.038
Di-n-butylphthalate	ND		0.038
Fluoranthene	0.025		0.0077

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
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Lab ID: 07-198-03
 Client ID: EC-MS 3-7/06

Compound:	Results	Flags	PQL
Benzidine	ND		0.38
Pyrene	0.014		0.0077
Butylbenzylphthalate	ND		0.038
bis-2-Ethylhexyladipate	ND		0.038
3,3'-Dichlorobenzidine	ND		0.38
Benzo[a]anthracene	ND		0.0077
Chrysene	0.015		0.0077
bis(2-Ethylhexyl)phthalate	ND		0.038
Di-n-octylphthalate	ND		0.038
Benzo[b]fluoranthene	0.0082		0.0077
Benzo[k]fluoranthene	ND		0.0077
Benzo[a]pyrene	ND		0.0077
Indeno[1,2,3-cd]pyrene	ND		0.0077
Dibenz[a,h]anthracene	ND		0.0077
Benzo[g,h,i]perylene	ND		0.0077
Benzoic Acid	ND		0.038
Surrogate :	Percent Recovery		Control Limits
2-Fluorophenol	66		25 - 121
Phenol-d6	70		24 - 113
Nitrobenzene-d5	56		23 - 120
2-Fluorobiphenyl	73		30 - 115
2,4,6-Tribromophenol	104		19 - 122
Terphenyl-d14	83		18 - 137

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

**SEMIVOLATILES by EPA 8270C/SIM
 METHOD BLANK QUALITY CONTROL**

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Date Extracted: 8-2-06
 Date Analyzed: 8-2,4&23-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: MB0802S1

Compound:	Results	Flags	PQL
N-Nitrosodimethylamine	ND		0.033
Pyridine	ND		0.033
Phenol	ND		0.033
Aniline	ND		0.033
bis(2-Chloroethyl)ether	ND		0.033
2-Chlorophenol	ND		0.033
1,3-Dichlorobenzene	ND		0.033
1,4-Dichlorobenzene	ND		0.033
Benzyl alcohol	ND		0.033
1,2-Dichlorobenzene	ND		0.033
2-Methylphenol (o-Cresol)	ND		0.033
bis(2-Chloroisopropyl)ether	ND		0.033
(3+4)-Methylphenol (m,p-Cresol)	ND		0.033
N-Nitroso-di-n-propylamine	ND		0.033
Hexachloroethane	ND		0.033
Nitrobenzene	ND		0.033
Isophorone	ND		0.033
2-Nitrophenol	ND		0.033
2,4-Dimethylphenol	ND		0.033
bis(2-Chloroethoxy)methane	ND		0.033
2,4-Dichlorophenol	ND		0.033
1,2,4-Trichlorobenzene	ND		0.033
Naphthalene	ND		0.0067
4-Chloroaniline	ND		0.033
Hexachlorobutadiene	ND		0.033
4-Chloro-3-methylphenol	ND		0.033
2-Methylnaphthalene	ND		0.0067
1-Methylnaphthalene	ND		0.0067

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

**SEMIVOLATILES by EPA 8270C/SIM
 METHOD BLANK QUALITY CONTROL**

page 2 of 3

Lab ID: MB0802S1

Compound:	Results	Flags	PQL
Hexachlorocyclopentadiene	ND		0.033
2,4,6-Trichlorophenol	ND		0.033
2,3-Dichloroaniline	ND		0.033
2,4,5-Trichlorophenol	ND		0.033
2-Chloronaphthalene	ND		0.033
2-Nitroaniline	ND		0.033
1,4-Dinitrobenzene	ND		0.033
Dimethylphthalate	ND		0.033
1,3-Dinitrobenzene	ND		0.033
2,6-Dinitrotoluene	ND		0.033
1,2-Dinitrobenzene	ND		0.033
Acenaphthylene	ND		0.0067
3-Nitroaniline	ND		0.033
2,4-Dinitrophenol	ND		0.17
Acenaphthene	ND		0.0067
4-Nitrophenol	ND		0.033
2,4-Dinitrotoluene	ND		0.033
Dibenzofuran	ND		0.033
2,3,4,6-Tetrachlorophenol	ND		0.033
2,3,5,6-Tetrachlorophenol	ND		0.033
Diethylphthalate	ND		0.033
4-Chlorophenyl-phenylether	ND		0.033
4-Nitroaniline	ND		0.033
Fluorene	ND		0.0067
4,6-Dinitro-2-methylphenol	ND		0.17
N-Nitrosodiphenylamine	ND		0.033
1,2-Diphenylhydrazine	ND		0.033
4-Bromophenyl-phenylether	ND		0.033
Hexachlorobenzene	ND		0.033
Pentachlorophenol	ND		0.17
Phenanthrene	ND		0.0067
Anthracene	ND		0.0067
Carbazole	ND		0.033
Di-n-butylphthalate	0.037		0.033
Fluoranthene	ND		0.0067

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
METHOD BLANK QUALITY CONTROL
 page 3 of 3

Lab ID: MB0802S1

Compound:	Results	Flags	PQL
Benzidine	ND		0.33
Pyrene	ND		0.0067
Butylbenzylphthalate	ND		0.033
bis-2-Ethylhexyladipate	ND		0.033
3,3'-Dichlorobenzidine	ND		0.33
Benzo[a]anthracene	ND		0.0067
Chrysene	ND		0.0067
bis(2-Ethylhexyl)phthalate	ND		0.033
Di-n-octylphthalate	ND		0.033
Benzo[b]fluoranthene	ND		0.0067
Benzo[k]fluoranthene	ND		0.0067
Benzo[a]pyrene	ND		0.0067
Indeno[1,2,3-cd]pyrene	ND		0.0067
Dibenz[a,h]anthracene	ND		0.0067
Benzo[g,h,i]perylene	ND		0.0067
Benzoic Acid	ND		0.033

Surrogate :	Percent Recovery	Control Limits
2-Fluorophenol	69	25 - 121
Phenol-d6	72	24 - 113
Nitrobenzene-d5	60	23 - 120
2-Fluorobiphenyl	74	30 - 115
2,4,6-Tribromophenol	94	19 - 122
Terphenyl-d14	82	18 - 137

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

**SEMIVOLATILES by EPA 8270C/SIM
 MS/MSD QUALITY CONTROL**

Date Extracted: 8-2-06

Date Analyzed: 8-2-06

Matrix: Soil
 Units: mg/kg (ppm)

Lab ID: 07-199-01

Compound:	Sample Amount	Spike Amount	MS	Percent Recovery	MSD	Percent Recovery	Recovery Limits	Flags
Phenol	ND	1.33	0.800	60	0.861	65	26-90	
2-Chlorophenol	ND	1.33	0.791	59	0.870	65	25-102	
1,4-Dichlorobenzene	ND	0.667	0.312	47	0.334	50	30-130	
N-Nitroso-di-n-propylamine	ND	0.667	0.323	48	0.354	53	41-126	
1,2,4-Trichlorobenzene	ND	0.667	0.381	57	0.401	60	30-130	
4-Chloro-3-methylphenol	ND	1.33	1.04	78	1.03	78	26-103	
Acenaphthene	ND	0.667	0.434	65	0.445	67	31-137	
2,4-Dinitrotoluene	ND	0.667	0.535	80	0.522	78	28-89	
4-Nitrophenol	ND	1.33	1.26	95	1.23	93	11-114	
Pentachlorophenol	ND	1.33	1.25	94	1.18	88	17-109	
Pyrene	ND	0.667	0.565	85	0.549	82	35-142	

	RPD	RPD Limits	Flags
Phenol	7	35	
2-Chlorophenol	10	50	
1,4-Dichlorobenzene	7	30	
N-Nitroso-di-n-propylamine	9	38	
1,2,4-Trichlorobenzene	5	30	
4-Chloro-3-methylphenol	1	33	
Acenaphthene	3	19	
2,4-Dinitrotoluene	3	47	
4-Nitrophenol	2	50	
Pentachlorophenol	6	47	
Pyrene	3	36	

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

PCBs by EPA 8082

Date Extracted: 8-1-06
 Date Analyzed: 8-5-06
 Matrix: Soil
 Units: mg/kg (ppm)

Lab ID: 07-198-01
 Client ID: **EC-MS 1 -7/06**

	Result	PQL
Aroclor 1016:	ND	0.063
Aroclor 1221:	ND	0.063
Aroclor 1232:	ND	0.063
Aroclor 1242:	ND	0.063
Aroclor 1248:	ND	0.063
Aroclor 1254:	ND	0.063
Aroclor 1260:	ND	0.063

Surrogate	Percent Recovery	Control Limits
Decachlorobiphenyl	82	41-128

Flags:

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

PCBs by EPA 8082

Date Extracted: 8-1-06

Date Analyzed: 8-5-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-198-02

Client ID: **EC-MS 2 -7/06**

	Result	PQL
Aroclor 1016:	ND	0.057
Aroclor 1221:	ND	0.057
Aroclor 1232:	ND	0.057
Aroclor 1242:	ND	0.057
Aroclor 1248:	ND	0.057
Aroclor 1254:	ND	0.057
Aroclor 1260:	ND	0.057

Surrogate	Percent Recovery	Control Limits
Decachlorobiphenyl	80	41-128

Flags:

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

PCBs by EPA 8082

Date Extracted: 8-1-06
 Date Analyzed: 8-5-06
 Matrix: Soil
 Units: mg/kg (ppm)

Lab ID: 07-198-03
 Client ID: **EC-MS 3 -7/06**

	Result	PQL
Aroclor 1016:	ND	0.057
Aroclor 1221:	ND	0.057
Aroclor 1232:	ND	0.057
Aroclor 1242:	ND	0.057
Aroclor 1248:	ND	0.057
Aroclor 1254:	ND	0.057
Aroclor 1260:	ND	0.057

Surrogate	Percent Recovery	Control Limits
Decachlorobiphenyl	77	41-128

Flags:

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-198
Project: 19897-52181-T2

**PCBs by EPA 8082
METHOD BLANK QUALITY CONTROL**

Date Extracted: 8-1-06

Date Analyzed: 8-5-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: MB0801S1

	Result	PQL
Aroclor 1016:	ND	0.050
Aroclor 1221:	ND	0.050
Aroclor 1232:	ND	0.050
Aroclor 1242:	ND	0.050
Aroclor 1248:	ND	0.050
Aroclor 1254:	ND	0.050
Aroclor 1260:	ND	0.050

Surrogate	Percent Recovery	Control Limits
Decachlorobiphenyl	101	41-128

Flags:

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

**PCBs by EPA 8082
 MS/MSD QUALITY CONTROL**

Date Extracted: 8-1-06

Date Analyzed: 8-5-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-199-02

Spike Level: 0.500

	MS	Percent Recovery	MSD	Percent Recovery	RPD
Aroclor 1260:	0.467	93	0.424	85	10
PQL	0.050		0.050		

Surrogate	Percent Recovery	Percent Recovery	Control Limits
Decachlorobiphenyl	99	90	41-128

Flags:

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-198
Project: 19897-52181-T2

TOTAL METALS
EPA 6010B/6020/7471A

Date Extracted: 8-3,4&7-06

Date Analyzed: 8-3&7-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-198-01

Client ID: EC-MS 1-7/06

Analyte	Method	Result	PQL
Arsenic	6010B	ND	13
Cadmium	6010B	ND	0.63
Chromium	6010B	16	0.63
Copper	6010B	8.7	0.85
Lead	6010B	ND	6.3
Mercury	7471A	ND	0.31
Silver	6020	ND	1.9
Zinc	6010B	27	3.1

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-198
Project: 19897-52181-T2

TOTAL METALS
EPA 6010B/6020/7471A

Date Extracted: 8-3,4&7-06

Date Analyzed: 8-3&7-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-198-02

Client ID: EC-MS 2-7/06

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Cadmium	6010B	ND	0.57
Chromium	6010B	19	0.57
Copper	6010B	8.9	0.77
Lead	6010B	ND	5.7
Mercury	7471A	ND	0.28
Silver	6020	ND	1.7
Zinc	6010B	27	2.8

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-198
Project: 19897-52181-T2

TOTAL METALS
EPA 6010B/6020/7471A

Date Extracted: 8-3,4&7-06

Date Analyzed: 8-3&7-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-198-03

Client ID: EC-MS 3-7/06

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Cadmium	6010B	ND	0.57
Chromium	6010B	26	0.57
Copper	6010B	8.3	0.78
Lead	6010B	ND	5.7
Mercury	7471A	ND	0.29
Silver	6020	ND	1.7
Zinc	6010B	27	2.9

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

**TOTAL METALS
 EPA 6010B/6020/7471A
 METHOD BLANK QUALITY CONTROL**

Date Extracted: 8-3,4&7-06
 Date Analyzed: 8-3&7-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: MB0803S1,MB0804S2&MB0807S2

Analyte	Method	Result	PQL
Arsenic	6010B	ND	10
Cadmium	6010B	ND	0.50
Chromium	6010B	ND	0.50
Copper	6010B	ND	0.68
Lead	6010B	ND	5.0
Mercury	7471A	ND	0.25
Silver	6020	ND	1.5
Zinc	6010B	ND	2.5

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

TOTAL METALS
EPA 6010B/6020/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 8-3,4&7-06
 Date Analyzed: 8-3&7-06

Matrix: Soil
 Units: mg/kg (ppm)

Lab ID: 07-199-05

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	ND	ND	NA	10	
Cadmium	ND	ND	NA	0.50	
Chromium	18.3	17.6	3	0.50	
Copper	8.23	8.00	3	0.68	
Lead	6.71	6.70	0	5.0	
Mercury	ND	ND	NA	0.25	
Silver	ND	ND	NA	1.5	
Zinc	26.8	26.8	0	2.5	

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-198
 Project: 19897-52181-T2

TOTAL METALS
EPA 6010B/6020/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 8-3,4&7-06

Date Analyzed: 8-3&7-06

Matrix: Soil
 Units: mg/kg (ppm)

Lab ID: 07-199-05

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	94.5	94	94.3	94	0	
Cadmium	50	46.1	92	46.2	92	0	
Chromium	100	113	95	114	96	1	
Copper	50	56.1	96	56.2	96	0	
Lead	250	238	92	239	93	0	
Mercury	0.50	0.445	89	0.439	88	1	
Silver	2.5	2.30	92	2.42	97	5	
Zinc	100	120	94	122	95	1	

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-198
Project: 19897-52181-T2

% MOISTURE

Date Analyzed: 8-1-06

Client ID	Lab ID	% Moisture
EC-MS 1-7/06	07-198-01	20
EC-MS 2-7/06	07-198-02	12
EC-MS 3-7/06	07-198-03	13



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - G - Insufficient sample quantity for duplicate analysis.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - O - Hydrocarbons indicative of diesel fuel are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a silica gel cleanup procedure.
 - Y - Sample extract treated with an acid/silica gel cleanup procedure.
 - Z -
- ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference



Analytical Resources, Incorporated
Analytical Chemists and Consultants

9 August 2006

David Baumeister
OnSite Environmental, Inc.
14648 NE 95th
Redmond, WA 98052

RE: Client Project: 19897-S2181-T2
ARI Job No: JR30

Dear David:

Please find enclosed the original Chain-of-Custody (COC) record and the final results for the samples from the project referenced above. Analytical Resources, Inc. accepted three soil samples on July 31, 2006. The samples were received intact. The samples were analyzed for TOC as requested.

No analytical complications were noted.

An electronic copy of these reports will remain on file at ARI. Should you have any questions, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

A handwritten signature in black ink that reads "Mark D. Harris".

Mark D. Harris
Project Manager
206/695-6210
mark@arilabs.com

Enclosures

cc: file JR30

MDH/mdh

METHOD BLANK RESULTS-CONVENTIONALS
JR30-OnSite Environmental Inc.



Matrix: Soil
Data Release Authorized: *MB*
Reported: 08/08/06

Project: NA
Event: 19897-S2181-T2
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank
Total Solids	08/02/06	Percent	< 0.01 U
	08/02/06		< 0.01 U
Total Organic Carbon	08/07/06	Percent	< 0.020 U

SAMPLE RESULTS-CONVENTIONALS
JR30-OnSite Environmental Inc.



Matrix: Soil
Data Release Authorized: *MB*
Reported: 08/08/06

Project: NA
Event: 19897-S2181-T2
Date Sampled: 07/25/06
Date Received: 07/31/06

Client ID: EC-MS1-7/06
ARI ID: 06-13589 JR30A

Analyte	Date	Method	Units	RL	Sample
Total Solids	08/02/06 080206#2	EPA 160.3	Percent	0.01	81.10
Total Organic Carbon	08/07/06 080706#1	Plumb, 1981	Percent	0.020	0.982

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
JR30-OnSite Environmental Inc.



Matrix: Soil
Data Release Authorized: *MB*
Reported: 08/08/06

Project: NA
Event: 19897-S2181-T2
Date Sampled: 07/25/06
Date Received: 07/31/06

Client ID: EC-MS2-7/06
ARI ID: 06-13590 JR30B

Analyte	Date	Method	Units	RL	Sample
Total Solids	08/02/06 080206#2	EPA 160.3	Percent	0.01	87.30
Total Organic Carbon	08/07/06 080706#1	Plumb,1981	Percent	0.020	0.330

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
JR30-OnSite Environmental Inc.



Matrix: Soil
Data Release Authorized: *MB*
Reported: 08/08/06

Project: NA
Event: 19897-S2181-T2
Date Sampled: 07/25/06
Date Received: 07/31/06

Client ID: EC-MS3-7/06
ARI ID: 06-13591 JR30C

Analyte	Date	Method	Units	RL	Sample
Total Solids	08/02/06 080206#2	EPA 160.3	Percent	0.01	81.10
Total Organic Carbon	08/07/06 080706#1	Plumb, 1981	Percent	0.020	0.534

RL Analytical reporting limit
U Undetected at reported detection limit

LAB CONTROL RESULTS-CONVENTIONALS
JR30-OnSite Environmental Inc.



Matrix: Soil
Data Release Authorized: *MB*
Reported: 08/08/06

Project: NA
Event: 19897-S2181-T2
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon	08/07/06	Percent	0.505	0.500	101.0%

STANDARD REFERENCE RESULTS-CONVENTIONALS
JR30-OnSite Environmental Inc.



Matrix: Soil
Data Release Authorized: *[Signature]*
Reported: 08/08/06

Project: NA
Event: 19897-S2181-T2
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST #8704	08/07/06	Percent	3.38	3.35	100.9%



**OnSite
Environmental Inc.**

Analytical Testing and Mobile Laboratory Services

August 17, 2006

Lance Peterson
CDM
P.O. Box 3885
Bellevue, WA 98009

Re: Analytical Data for Project 19897-52181-T2
Laboratory Reference No. 0607-199

Dear Lance:

Enclosed are the analytical results and associated quality control data for samples submitted on July 28, 2006.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 17, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-199
Project: 19897-52181-T2

Case Narrative

Samples were collected on July 25, 2006 and received by the laboratory on July 28, 2006. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Semivolatiles EPA 8270C/SIM Analysis

The samples (EC-FWS 1,2,5 -7/06) were scanned for Retene. All three samples were non-detect for Retene.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Organochlorine Pesticides by EPA 8081A Analysis

Due to matrix effects, the analytes 4,4'-DDT and Methoxychlor in the continuing calibration verification standards (CCVs) had %D values greater than +15% (low bias). Therefore, values for these compounds can be less than expected. Since the degradation of the CCV standards was reproducible after re-injecting the sample extracts, the CCV degradation problem was attributed to the matrix of these samples.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Total Metals EPA 6010B/6020/7471A Analysis

The Matrix Spike/ Matrix Spike Duplicate recoveries for Antimony are outside control limits due to matrix interferences. The samples were re-extracted and re-analyzed with similar results. The Spike Blank recovery was 106%.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 17, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-199
Project: 19897-52181-T2

NWTPH-Dx

Date Extracted: 8-1-06
Date Analyzed: 8-30-06

Matrix: Soil
Units: mg/kg (ppm)

Client ID:	EC-FWS 3-7/06	EC-FWS 4-7/06
Lab ID:	07-199-03	07-199-04

Bunker C Range:	580	ND
PQL:	76	61
Identification:	Bunker C	---
Surrogate Recovery		
o-Terphenyl:	92%	116%
Flags:	Y	Y

Date of Report: August 17, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-199
Project: 19897-52181-T2

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted: 8-1-06
Date Analyzed: 8-20-06

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0801S1

Bunker C Range: **ND**

PQL: 50

Identification: ---

Surrogate Recovery

o-Terphenyl: 119%

Flags: Y

Date of Report: August 17, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-199
Project: 19897-52181-T2

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted: 8-1-06
Date Analyzed: 8-20-06

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 07-200-03 07-200-03 DUP

Bunker C Range: 160 139

PQL: 50 50

RPD: 14

Surrogate Recovery
o-Terphenyl: 135% 112%

Flags: Y Y

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
 page 1 of 3

Date Extracted: 8-2-06
 Date Analyzed: 8-2,3,29&9-11-06

Matrix: Soil
 Units: mg/kg (ppm)

Lab ID: 07-199-01
 Client ID: EC-FWS 1-7/06

Compound:	Results	Flags	PQL
N-Nitrosodimethylamine	ND		0.039
Pyridine	ND		0.039
Phenol	ND		0.039
Aniline	ND		0.039
bis(2-Chloroethyl)ether	ND		0.039
2-Chlorophenol	ND		0.039
1,3-Dichlorobenzene	ND		0.039
1,4-Dichlorobenzene	ND		0.039
Benzyl alcohol	ND		0.039
1,2-Dichlorobenzene	ND		0.039
2-Methylphenol (o-Cresol)	ND		0.039
bis(2-Chloroisopropyl)ether	ND		0.039
(3+4)-Methylphenol (m,p-Cresol)	ND		0.039
N-Nitroso-di-n-propylamine	ND		0.039
Hexachloroethane	ND		0.039
Nitrobenzene	ND		0.039
Isophorone	ND		0.039
2-Nitrophenol	ND		0.039
2,4-Dimethylphenol	ND		0.039
bis(2-Chloroethoxy)methane	ND		0.039
2,4-Dichlorophenol	ND		0.039
1,2,4-Trichlorobenzene	ND		0.039
Naphthalene	ND		0.0078
4-Chloroaniline	ND		0.039
Hexachlorobutadiene	ND		0.039
4-Chloro-3-methylphenol	ND		0.039
2-Methylnaphthalene	ND		0.0078
1-Methylnaphthalene	ND		0.0078

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Lab ID: 07-199-01
 Client ID: EC-FWS 1-7/06

Compound:	Results	Flags	PQL
Hexachlorocyclopentadiene	ND		0.039
2,4,6-Trichlorophenol	ND		0.039
2,3-Dichloroaniline	ND		0.039
2,4,5-Trichlorophenol	ND		0.039
2-Chloronaphthalene	ND		0.039
2-Nitroaniline	ND		0.039
1,4-Dinitrobenzene	ND		0.039
Dimethylphthalate	ND		0.039
1,3-Dinitrobenzene	ND		0.039
2,6-Dinitrotoluene	ND		0.039
1,2-Dinitrobenzene	ND		0.039
Acenaphthylene	ND		0.0078
3-Nitroaniline	ND		0.039
2,4-Dinitrophenol	ND		0.19
Acenaphthene	ND		0.0078
4-Nitrophenol	ND		0.039
2,4-Dinitrotoluene	ND		0.039
Dibenzofuran	ND		0.039
2,3,4,6-Tetrachlorophenol	ND		0.039
2,3,5,6-Tetrachlorophenol	ND		0.039
Diethylphthalate	ND		0.039
4-Chlorophenyl-phenylether	ND		0.039
4-Nitroaniline	ND		0.039
Fluorene	ND		0.0078
4,6-Dinitro-2-methylphenol	ND		0.19
N-Nitrosodiphenylamine	ND		0.039
1,2-Diphenylhydrazine	ND		0.039
4-Bromophenyl-phenylether	ND		0.039
Hexachlorobenzene	ND		0.039
Pentachlorophenol	ND		0.19
Phenanthrene	ND		0.0078
Anthracene	ND		0.0078
Carbazole	ND		0.039
Di-n-butylphthalate	ND		0.039
Fluoranthene	ND		0.0078

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Lab ID: 07-199-01
 Client ID: EC-FWS 1-7/06

Compound:	Results	Flags	PQL
Benzidine	ND		0.39
Pyrene	ND		0.0078
Butylbenzylphthalate	ND		0.039
bis-2-Ethylhexyladipate	ND		0.039
3,3'-Dichlorobenzidine	ND		0.39
Benzo[a]anthracene	ND		0.0078
Chrysene	ND		0.0078
bis(2-Ethylhexyl)phthalate	ND		0.039
Di-n-octylphthalate	ND		0.039
Benzo[b]fluoranthene	ND		0.0078
Benzo[k]fluoranthene	ND		0.0078
Benzo[a]pyrene	ND		0.0078
Indeno[1,2,3-cd]pyrene	ND		0.0078
Dibenz[a,h]anthracene	ND		0.0078
Benzo[g,h,i]perylene	ND		0.0078
Benzoic Acid	ND		0.39
Retene	ND		0.039

Surrogate :	Percent Recovery	Control Limits
2-Fluorophenol	63	25 - 121
Phenol-d6	68	24 - 113
Nitrobenzene-d5	54	23 - 120
2-Fluorobiphenyl	70	30 - 115
2,4,6-Tribromophenol	94	19 - 122
Terphenyl-d14	82	18 - 137

Date of Report: August 17, 2006
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Date Extracted: 8-2-06
 Date Analyzed: 8-2,3,29&9-11-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: 07-199-02
 Client ID: EC-FWS 2-7/06

Compound:	Results	Flags	PQL
N-Nitrosodimethylamine	ND		0.039
Pyridine	ND		0.039
Phenol	ND		0.039
Aniline	ND		0.039
bis(2-Chloroethyl)ether	ND		0.039
2-Chlorophenol	ND		0.039
1,3-Dichlorobenzene	ND		0.039
1,4-Dichlorobenzene	ND		0.039
Benzyl alcohol	ND		0.039
1,2-Dichlorobenzene	ND		0.039
2-Methylphenol (o-Cresol)	ND		0.039
bis(2-Chloroisopropyl)ether	ND		0.039
(3+4)-Methylphenol (m,p-Cresol)	ND		0.039
N-Nitroso-di-n-propylamine	ND		0.039
Hexachloroethane	ND		0.039
Nitrobenzene	ND		0.039
Isophorone	ND		0.039
2-Nitrophenol	ND		0.039
2,4-Dimethylphenol	ND		0.039
bis(2-Chloroethoxy)methane	ND		0.039
2,4-Dichlorophenol	ND		0.039
1,2,4-Trichlorobenzene	ND		0.039
Naphthalene	ND		0.0078
4-Chloroaniline	ND		0.039
Hexachlorobutadiene	ND		0.039
4-Chloro-3-methylphenol	ND		0.039
2-Methylnaphthalene	ND		0.0078
1-Methylnaphthalene	ND		0.0078

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Lab ID: 07-199-02
 Client ID: EC-FWS 2-7/06

Compound:	Results	Flags	PQL
Hexachlorocyclopentadiene	ND		0.039
2,4,6-Trichlorophenol	ND		0.039
2,3-Dichloroaniline	ND		0.039
2,4,5-Trichlorophenol	ND		0.039
2-Chloronaphthalene	ND		0.039
2-Nitroaniline	ND		0.039
1,4-Dinitrobenzene	ND		0.039
Dimethylphthalate	ND		0.039
1,3-Dinitrobenzene	ND		0.039
2,6-Dinitrotoluene	ND		0.039
1,2-Dinitrobenzene	ND		0.039
Acenaphthylene	ND		0.0078
3-Nitroaniline	ND		0.039
2,4-Dinitrophenol	ND		0.19
Acenaphthene	ND		0.0078
4-Nitrophenol	ND		0.039
2,4-Dinitrotoluene	ND		0.039
Dibenzofuran	ND		0.039
2,3,4,6-Tetrachlorophenol	ND		0.039
2,3,5,6-Tetrachlorophenol	ND		0.039
Diethylphthalate	ND		0.039
4-Chlorophenyl-phenylether	ND		0.039
4-Nitroaniline	ND		0.039
Fluorene	ND		0.0078
4,6-Dinitro-2-methylphenol	ND		0.19
N-Nitrosodiphenylamine	ND		0.039
1,2-Diphenylhydrazine	ND		0.039
4-Bromophenyl-phenylether	ND		0.039
Hexachlorobenzene	ND		0.039
Pentachlorophenol	ND		0.19
Phenanthrene	ND		0.0078
Anthracene	ND		0.0078
Carbazole	ND		0.039
Di-n-butylphthalate	ND		0.039
Fluoranthene	0.019		0.0078

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 Samples Submitted: July 28, 2006
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Lab ID: 07-199-02
 Client ID: EC-FWS 2-7/06

Compound:	Results	Flags	PQL
Benzidine	ND		0.39
Pyrene	0.026		0.0078
Butylbenzylphthalate	ND		0.039
bis-2-Ethylhexyladipate	ND		0.039
3,3'-Dichlorobenzidine	ND		0.39
Benzo[a]anthracene	0.011		0.0078
Chrysene	0.0099		0.0078
bis(2-Ethylhexyl)phthalate	ND		0.039
Di-n-octylphthalate	ND		0.039
Benzo[b]fluoranthene	0.013		0.0078
Benzo[k]fluoranthene	ND		0.0078
Benzo[a]pyrene	0.0080		0.0078
Indeno[1,2,3-cd]pyrene	ND		0.0078
Dibenz[a,h]anthracene	ND		0.0078
Benzo[g,h,i]perylene	ND		0.0078
Benzoic Acid	ND		0.39
Retene	ND		0.039
Surrogate :	Percent Recovery		Control Limits
2-Fluorophenol	63		25 - 121
Phenol-d6	68		24 - 113
Nitrobenzene-d5	54		23 - 120
2-Fluorobiphenyl	73		30 - 115
2,4,6-Tribromophenol	100		19 - 122

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 Samples Submitted: July 28, 2006
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Date Extracted: 8-2-06
 Date Analyzed: 8-2,3,29&9-11-06

Matrix: Soil
 Units: mg/kg (ppm)

Lab ID: 07-199-05
 Client ID: EC-FWS 5-7/06

Compound:	Results	Flags	PQL
N-Nitrosodimethylamine	ND		0.056
Pyridine	ND		0.056
Phenol	ND		0.056
Aniline	ND		0.056
bis(2-Chloroethyl)ether	ND		0.056
2-Chlorophenol	ND		0.056
1,3-Dichlorobenzene	ND		0.056
1,4-Dichlorobenzene	ND		0.056
Benzyl alcohol	ND		0.056
1,2-Dichlorobenzene	ND		0.056
2-Methylphenol (o-Cresol)	ND		0.056
bis(2-Chloroisopropyl)ether	ND		0.056
(3+4)-Methylphenol (m,p-Cresol)	ND		0.056
N-Nitroso-di-n-propylamine	ND		0.056
Hexachloroethane	ND		0.056
Nitrobenzene	ND		0.056
Isophorone	ND		0.056
2-Nitrophenol	ND		0.056
2,4-Dimethylphenol	ND		0.056
bis(2-Chloroethoxy)methane	ND		0.056
2,4-Dichlorophenol	ND		0.056
1,2,4-Trichlorobenzene	ND		0.056
Naphthalene	ND		0.011
4-Chloroaniline	ND		0.056
Hexachlorobutadiene	ND		0.056
4-Chloro-3-methylphenol	ND		0.056
2-Methylnaphthalene	ND		0.011
1-Methylnaphthalene	ND		0.011

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Lab ID: 07-199-05
 Client ID: EC-FWS 5-7/06

Compound:	Results	Flags	PQL
Hexachlorocyclopentadiene	ND		0.056
2,4,6-Trichlorophenol	ND		0.056
2,3-Dichloroaniline	ND		0.056
2,4,5-Trichlorophenol	ND		0.056
2-Chloronaphthalene	ND		0.056
2-Nitroaniline	ND		0.056
1,4-Dinitrobenzene	ND		0.056
Dimethylphthalate	ND		0.056
1,3-Dinitrobenzene	ND		0.056
2,6-Dinitrotoluene	ND		0.056
1,2-Dinitrobenzene	ND		0.056
Acenaphthylene	ND		0.011
3-Nitroaniline	ND		0.056
2,4-Dinitrophenol	ND		0.28
Acenaphthene	0.15		0.056
4-Nitrophenol	ND		0.056
2,4-Dinitrotoluene	ND		0.056
Dibenzofuran	0.12		0.056
2,3,4,6-Tetrachlorophenol	ND		0.056
2,3,5,6-Tetrachlorophenol	ND		0.056
Diethylphthalate	ND		0.056
4-Chlorophenyl-phenylether	ND		0.056
4-Nitroaniline	ND		0.056
Fluorene	0.24		0.056
4,6-Dinitro-2-methylphenol	ND		0.28
N-Nitrosodiphenylamine	ND		0.056
1,2-Diphenylhydrazine	ND		0.056
4-Bromophenyl-phenylether	ND		0.056
Hexachlorobenzene	ND		0.056
Pentachlorophenol	ND		0.28
Phenanthrene	1.0		0.056
Anthracene	0.11		0.056
Carbazole	ND		0.056
Di-n-butylphthalate	ND		0.056
Fluoranthene	1.2		0.056

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Lab ID: 07-199-05
 Client ID: EC-FWS 5-7/06

Compound:	Results	Flags	PQL
Benzidine	ND		0.56
Pyrene	0.64		0.056
Butylbenzylphthalate	ND		0.056
bis-2-Ethylhexyladipate	ND		0.056
3,3'-Dichlorobenzidine	ND		0.56
Benzo[a]anthracene	0.18		0.056
Chrysene	0.15		0.056
bis(2-Ethylhexyl)phthalate	ND		0.056
Di-n-octylphthalate	ND		0.056
Benzo[b]fluoranthene	0.096		0.056
Benzo[k]fluoranthene	0.026		0.011
Benzo[a]pyrene	0.043		0.011
Indeno[1,2,3-cd]pyrene	0.013		0.011
Dibenz[a,h]anthracene	ND		0.011
Benzo[g,h,i]perylene	0.013		0.011
Benzoic Acid	ND		0.56
Retene	ND		0.056
Surrogate :	Percent Recovery		Control Limits
2-Fluorophenol	71		25 - 121
Phenol-d6	78		24 - 113
Nitrobenzene-d5	60		23 - 120
2-Fluorobiphenyl	81		30 - 115
2,4,6-Tribromophenol	111		19 - 122

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

SEMIVOLATILES by EPA 8270C/SIM
METHOD BLANK QUALITY CONTROL
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Date Extracted: 8-2-06
 Date Analyzed: 8-2,3,29&9-11-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: MB0802S1

Compound:	Results	Flags	PQL
N-Nitrosodimethylamine	ND		0.033
Pyridine	ND		0.033
Phenol	ND		0.033
Aniline	ND		0.033
bis(2-Chloroethyl)ether	ND		0.033
2-Chlorophenol	ND		0.033
1,3-Dichlorobenzene	ND		0.033
1,4-Dichlorobenzene	ND		0.033
Benzyl alcohol	ND		0.033
1,2-Dichlorobenzene	ND		0.033
2-Methylphenol (o-Cresol)	ND		0.033
bis(2-Chloroisopropyl)ether	ND		0.033
(3+4)-Methylphenol (m,p-Cresol)	ND		0.033
N-Nitroso-di-n-propylamine	ND		0.033
Hexachloroethane	ND		0.033
Nitrobenzene	ND		0.033
Isophorone	ND		0.033
2-Nitrophenol	ND		0.033
2,4-Dimethylphenol	ND		0.033
bis(2-Chloroethoxy)methane	ND		0.033
2,4-Dichlorophenol	ND		0.033
1,2,4-Trichlorobenzene	ND		0.033
Naphthalene	ND		0.0067
4-Chloroaniline	ND		0.033
Hexachlorobutadiene	ND		0.033
4-Chloro-3-methylphenol	ND		0.033
2-Methylnaphthalene	ND		0.0067
1-Methylnaphthalene	ND		0.0067

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

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METHOD BLANK QUALITY CONTROL
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Lab ID: MB0802S1

Compound:	Results	Flags	PQL
Hexachlorocyclopentadiene	ND		0.033
2,4,6-Trichlorophenol	ND		0.033
2,3-Dichloroaniline	ND		0.033
2,4,5-Trichlorophenol	ND		0.033
2-Chloronaphthalene	ND		0.033
2-Nitroaniline	ND		0.033
1,4-Dinitrobenzene	ND		0.033
Dimethylphthalate	ND		0.033
1,3-Dinitrobenzene	ND		0.033
2,6-Dinitrotoluene	ND		0.033
1,2-Dinitrobenzene	ND		0.033
Acenaphthylene	ND		0.0067
3-Nitroaniline	ND		0.033
2,4-Dinitrophenol	ND		0.17
Acenaphthene	ND		0.0067
4-Nitrophenol	ND		0.033
2,4-Dinitrotoluene	ND		0.033
Dibenzofuran	ND		0.033
2,3,4,6-Tetrachlorophenol	ND		0.033
2,3,5,6-Tetrachlorophenol	ND		0.033
Diethylphthalate	ND		0.033
4-Chlorophenyl-phenylether	ND		0.033
4-Nitroaniline	ND		0.033
Fluorene	ND		0.0067
4,6-Dinitro-2-methylphenol	ND		0.17
N-Nitrosodiphenylamine	ND		0.033
1,2-Diphenylhydrazine	ND		0.033
4-Bromophenyl-phenylether	ND		0.033
Hexachlorobenzene	ND		0.033
Pentachlorophenol	ND		0.17
Phenanthrene	ND		0.0067
Anthracene	ND		0.0067
Carbazole	ND		0.033
Di-n-butylphthalate	0.037		0.033
Fluoranthene	ND		0.0067

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

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METHOD BLANK QUALITY CONTROL
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Lab ID: MB0802S1

Compound:	Results	Flags	PQL
Benzidine	ND		0.33
Pyrene	ND		0.0067
Butylbenzylphthalate	ND		0.033
bis-2-Ethylhexyladipate	ND		0.033
3,3'-Dichlorobenzidine	ND		0.33
Benzo[a]anthracene	ND		0.0067
Chrysene	ND		0.0067
bis(2-Ethylhexyl)phthalate	ND		0.033
Di-n-octylphthalate	ND		0.033
Benzo[b]fluoranthene	ND		0.0067
Benzo[k]fluoranthene	ND		0.0067
Benzo[a]pyrene	ND		0.0067
Indeno[1,2,3-cd]pyrene	ND		0.0067
Dibenz[a,h]anthracene	ND		0.0067
Benzo[g,h,i]perylene	ND		0.0067
Benzoic Acid	ND		0.33
Retene	ND		0.033
Surrogate :	Percent Recovery		Control Limits
2-Fluorophenol	69		25 - 121
Phenol-d6	72		24 - 113
Nitrobenzene-d5	60		23 - 120
2-Fluorobiphenyl	74		30 - 115
2,4,6-Tribromophenol	94		19 - 122
Terphenyl-d14	82		18 - 137

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**SEMIVOLATILES by EPA 8270C/SIM
 MS/MSD QUALITY CONTROL**

Date Extracted: 8-2-06
 Date Analyzed: 8-2-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: 07-199-01

Compound:	Sample Amount	Spike Amount	MS	Percent Recovery	MSD	Percent Recovery	Recovery Limits	Flags
Phenol	ND	1.33	0.800	60	0.861	65	26-90	
2-Chlorophenol	ND	1.33	0.791	59	0.870	65	25-102	
1,4-Dichlorobenzene	ND	0.667	0.312	47	0.334	50	30-130	
N-Nitroso-di-n-propylamine	ND	0.667	0.323	48	0.354	53	41-126	
1,2,4-Trichlorobenzene	ND	0.667	0.381	57	0.401	60	30-130	
4-Chloro-3-methylphenol	ND	1.33	1.04	78	1.03	78	26-103	
Acenaphthene	ND	0.667	0.434	65	0.445	67	31-137	
2,4-Dinitrotoluene	ND	0.667	0.535	80	0.522	78	28-89	
4-Nitrophenol	ND	1.33	1.26	95	1.23	93	11-114	
Pentachlorophenol	ND	1.33	1.25	94	1.18	88	17-109	
Pyrene	ND	0.667	0.565	85	0.549	82	35-142	

	RPD	RPD Limits	Flags
Phenol	7	35	
2-Chlorophenol	10	50	
1,4-Dichlorobenzene	7	30	
N-Nitroso-di-n-propylamine	9	38	
1,2,4-Trichlorobenzene	5	30	
4-Chloro-3-methylphenol	1	33	
Acenaphthene	3	19	
2,4-Dinitrotoluene	3	47	
4-Nitrophenol	2	50	
Pentachlorophenol	6	47	
Pyrene	3	36	

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

PAHs by EPA 8270C/SIM

Date Extracted: 7-31-06
 Date Analyzed: 8-2-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: 07-199-03
 Client ID: EC-FWS 3-7/06

Compound:	Results	Flags	PQL
Naphthalene	ND		0.010
2-Methylnaphthalene	ND		0.010
1-Methylnaphthalene	ND		0.010
Acenaphthylene	ND		0.010
Acenaphthene	ND		0.010
Fluorene	ND		0.010
Phenanthrene	ND		0.010
Anthracene	ND		0.010
Fluoranthene	ND		0.010
Pyrene	0.052		0.010
Benzo[a]anthracene	0.023		0.010
Chrysene	0.049		0.010
Benzo[b]fluoranthene	0.038		0.010
Benzo[k]fluoranthene	ND		0.010
Benzo[a]pyrene	0.13		0.010
Indeno(1,2,3-c,d)pyrene	0.051		0.010
Dibenz[a,h]anthracene	0.022		0.010
Benzo[g,h,i]perylene	0.22		0.010

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	56	49 - 121
2-Fluorobiphenyl	60	53 - 110
Terphenyl-d14	75	64 - 123

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

PAHs by EPA 8270C/SIM

Date Extracted: 7-31-06
 Date Analyzed: 8-1-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: 07-199-04
 Client ID: EC-FWS 4-7/06

Compound:	Results	Flags	PQL
Naphthalene	ND		0.0081
2-Methylnaphthalene	ND		0.0081
1-Methylnaphthalene	ND		0.0081
Acenaphthylene	ND		0.0081
Acenaphthene	ND		0.0081
Fluorene	ND		0.0081
Phenanthrene	ND		0.0081
Anthracene	ND		0.0081
Fluoranthene	ND		0.0081
Pyrene	ND		0.0081
Benzo[a]anthracene	ND		0.0081
Chrysene	ND		0.0081
Benzo[b]fluoranthene	ND		0.0081
Benzo[k]fluoranthene	ND		0.0081
Benzo[a]pyrene	ND		0.0081
Indeno(1,2,3-c,d)pyrene	ND		0.0081
Dibenz[a,h]anthracene	ND		0.0081
Benzo[g,h,i]perylene	ND		0.0081

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	63	49 - 121
2-Fluorobiphenyl	62	53 - 110
Terphenyl-d14	84	64 - 123

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**PAHs by EPA 8270C/SIM
 METHOD BLANK QUALITY CONTROL**

Date Extracted: 7-31-06
 Date Analyzed: 8-1-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: MB0731S1

Compound:	Results	Flags	PQL
Naphthalene	ND		0.0067
2-Methylnaphthalene	ND		0.0067
1-Methylnaphthalene	ND		0.0067
Acenaphthylene	ND		0.0067
Acenaphthene	ND		0.0067
Fluorene	ND		0.0067
Phenanthrene	ND		0.0067
Anthracene	ND		0.0067
Fluoranthene	ND		0.0067
Pyrene	ND		0.0067
Benzo[a]anthracene	ND		0.0067
Chrysene	ND		0.0067
Benzo[b]fluoranthene	ND		0.0067
Benzo[k]fluoranthene	ND		0.0067
Benzo[a]pyrene	ND		0.0067
Indeno(1,2,3-c,d)pyrene	ND		0.0067
Dibenz[a,h]anthracene	ND		0.0067
Benzo[g,h,i]perylene	ND		0.0067

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	65	49 - 121
2-Fluorobiphenyl	66	53 - 110
Terphenyl-d14	91	64 - 123

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**PAHs by EPA 8270C/SIM
 MS/MSD QUALITY CONTROL**

Date Extracted: 7-31-06

Date Analyzed: 8-2-06

Matrix: Soil
 Units: mg/kg (ppm)

Lab ID: 07-199-04

Compound:	Sample Amount	Spike Amount	MS	Percent Recovery	MSD	Percent Recovery	Recovery Limits	Flags
Naphthalene	ND	0.0833	0.0599	72	0.0646	78	30-115	
Acenaphthylene	ND	0.0833	0.0615	74	0.0648	78	46-125	
Acenaphthene	ND	0.0833	0.0622	75	0.0651	78	40-119	
Fluorene	ND	0.0833	0.0640	77	0.0668	80	50-133	
Phenanthrene	ND	0.0833	0.0720	86	0.0735	88	48-128	
Anthracene	ND	0.0833	0.0643	77	0.0649	78	53-134	
Fluoranthene	ND	0.0833	0.0714	86	0.0710	85	50-143	
Pyrene	ND	0.0833	0.0767	92	0.0767	92	44-139	
Benzo[a]anthracene	ND	0.0833	0.0776	93	0.0771	92	62-129	
Chrysene	ND	0.0833	0.0718	86	0.0713	86	42-127	
Benzo[b]fluoranthene	ND	0.0833	0.0775	93	0.0773	93	57-132	
Benzo[k]fluoranthene	ND	0.0833	0.0723	87	0.0715	86	57-131	
Benzo[a]pyrene	ND	0.0833	0.0778	93	0.0760	91	59-132	
Indeno(1,2,3-c,d)pyrene	ND	0.0833	0.0763	92	0.0757	91	55-135	
Dibenz[a,h]anthracene	ND	0.0833	0.0760	91	0.0755	91	36-146	
Benzo[g,h,i]perylene	ND	0.0833	0.0771	93	0.0764	92	42-140	

	RPD	RPD Limit	Flags
Naphthalene	8	25	
Acenaphthylene	5	25	
Acenaphthene	5	25	
Fluorene	4	25	
Phenanthrene	2	25	
Anthracene	1	25	
Fluoranthene	1	25	
Pyrene	0	25	
Benzo[a]anthracene	1	25	
Chrysene	1	25	
Benzo[b]fluoranthene	0	25	
Benzo[k]fluoranthene	1	25	
Benzo[a]pyrene	2	25	
Indeno(1,2,3-c,d)pyrene	1	25	
Dibenz[a,h]anthracene	1	25	
Benzo[g,h,i]perylene	1	25	

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

PCBs by EPA 8082

Date Extracted: 8-1-06

Date Analyzed: 8-5-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-199-01

Client ID: **EC-FWS 1-7/06**

	Result	PQL
Aroclor 1016:	ND	0.058
Aroclor 1221:	ND	0.058
Aroclor 1232:	ND	0.058
Aroclor 1242:	ND	0.058
Aroclor 1248:	ND	0.058
Aroclor 1254:	ND	0.058
Aroclor 1260:	ND	0.058

Surrogate	Percent Recovery	Control Limits
Decachlorobiphenyl	65	41-128

Flags:

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

PCBs by EPA 8082

Date Extracted: 8-1-06
 Date Analyzed: 8-5-06
 Matrix: Soil
 Units: mg/kg (ppm)

Lab ID: 07-199-02
 Client ID: **EC-FWS 2-7/06**

	Result	PQL
Aroclor 1016:	ND	0.058
Aroclor 1221:	ND	0.058
Aroclor 1232:	ND	0.058
Aroclor 1242:	ND	0.058
Aroclor 1248:	ND	0.058
Aroclor 1254:	ND	0.058
Aroclor 1260:	ND	0.058

Surrogate	Percent Recovery	Control Limits
Decachlorobiphenyl	90	41-128

Flags:

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

PCBs by EPA 8082

Date Extracted: 8-1-06

Date Analyzed: 8-5-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-199-05

Client ID: **EC-FWS 5-7/06**

	Result	PQL
Aroclor 1016:	ND	0.085
Aroclor 1221:	ND	0.085
Aroclor 1232:	ND	0.085
Aroclor 1242:	ND	0.085
Aroclor 1248:	ND	0.085
Aroclor 1254:	ND	0.085
Aroclor 1260:	ND	0.085

Surrogate	Percent Recovery	Control Limits
Decachlorobiphenyl	73	41-128

Flags:

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**PCBs by EPA 8082
 METHOD BLANK QUALITY CONTROL**

Date Extracted: 8-1-06
 Date Analyzed: 8-5-06
 Matrix: Soil
 Units: mg/kg (ppm)

Lab ID: MB0801S1

	Result	PQL
Aroclor 1016:	ND	0.050
Aroclor 1221:	ND	0.050
Aroclor 1232:	ND	0.050
Aroclor 1242:	ND	0.050
Aroclor 1248:	ND	0.050
Aroclor 1254:	ND	0.050
Aroclor 1260:	ND	0.050

Surrogate	Percent Recovery	Control Limits
Decachlorobiphenyl	101	41-128

Flags:

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**PCBs by EPA 8082
 MS/MSD QUALITY CONTROL**

Date Extracted: 8-1-06

Date Analyzed: 8-5-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-199-02

Spike Level: 0.500

	MS	Percent Recovery	MSD	Percent Recovery	RPD
Aroclor 1260:	0.467	93	0.424	85	10
PQL	0.050		0.050		

Surrogate	Percent Recovery	Percent Recovery	Control Limits
Decachlorobiphenyl	99	90	41-128

Flags:

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**ORGANOCHLORINE
 PESTICIDES by EPA 8081A**

Date Extracted: 7-31-06
 Date Analyzed: 8-9-06

Matrix: Soil
 Units: ug/kg (ppb)

Lab ID: 07-199-01
 Client ID: EC-FWS 1-7/06

Analyte	Result	PQL	Flags
alpha-BHC	ND	5.8	
gamma-BHC	ND	5.8	
Heptachlor	ND	5.8	
Aldrin	ND	5.8	
beta-BHC	ND	5.8	
delta-BHC	ND	5.8	
Heptachlor epoxide	ND	5.8	
Endosulfan I	ND	5.8	
4,4'-DDE	ND	12	
Dieldrin	ND	12	
Endrin	ND	12	
Endosulfan II	ND	12	
4,4'-DDD	ND	12	
4,4'-DDT	ND	12	
Endrin Aldehyde	ND	12	
Endosulfan Sulfate	ND	12	
Methoxychlor	ND	12	
Endrin ketone	ND	12	
Toxaphene	ND	120	
Chlordane (Technical)	ND	58	

Surrogate	Percent Recovery	Control Limits
TCMX	70	34 - 109
DCB	69	30 - 115

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**ORGANOCHLORINE
 PESTICIDES by EPA 8081A**

Date Extracted: 7-31-06
 Date Analyzed: 8-9-06

Matrix: Soil
 Units: ug/kg (ppb)

Lab ID: 07-199-02
 Client ID: EC-FWS 2-7/06

Analyte	Result	PQL	Flags
alpha-BHC	ND	5.8	
gamma-BHC	ND	5.8	
Heptachlor	ND	5.8	
Aldrin	ND	5.8	
beta-BHC	ND	5.8	
delta-BHC	ND	5.8	
Heptachlor epoxide	ND	5.8	
Endosulfan I	ND	5.8	
4,4'-DDE	ND	12	
Dieldrin	ND	12	
Endrin	ND	12	
Endosulfan II	ND	12	
4,4'-DDD	ND	12	
4,4'-DDT	ND	12	
Endrin Aldehyde	ND	12	
Endosulfan Sulfate	ND	12	
Methoxychlor	ND	12	
Endrin ketone	ND	12	
Toxaphene	ND	120	
Chlordane (Technical)	ND	58	

Surrogate	Percent Recovery	Control Limits
TCMX	66	34 - 109
DCB	69	30 - 115

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**ORGANOCHLORINE
 PESTICIDES by EPA 8081A**

Date Extracted: 7-31-06
 Date Analyzed: 8-9-06

Matrix: Soil
 Units: ug/kg (ppb)

Lab ID: 07-199-05
 Client ID: EC-FWS 5-7/06

Analyte	Result	PQL	Flags
alpha-BHC	ND	8.5	
gamma-BHC	ND	8.5	
Heptachlor	ND	8.5	
Aldrin	ND	8.5	
beta-BHC	ND	8.5	
delta-BHC	ND	8.5	
Heptachlor epoxide	ND	8.5	
Endosulfan I	ND	8.5	
4,4'-DDE	ND	17	
Dieldrin	ND	17	
Endrin	ND	17	
Endosulfan II	ND	17	
4,4'-DDD	ND	17	
4,4'-DDT	ND	17	
Endrin Aldehyde	ND	17	
Endosulfan Sulfate	ND	17	
Methoxychlor	ND	17	
Endrin ketone	ND	17	
Toxaphene	ND	170	
Chlordane (Technical)	ND	85	

Surrogate	Percent Recovery	Control Limits
TCMX	61	34 - 109
DCB	64	30 - 115

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**ORGANOCHLORINE
 PESTICIDES by EPA 8081A
 METHOD BLANK QUALITY CONTROL**

Date Extracted: 7-31-06
 Date Analyzed: 8-1-06

Matrix: Soil
 Units: ug/kg (ppb)

Lab ID: MB0731S1

Analyte	Result	PQL	Flags
alpha-BHC	ND	5.0	
gamma-BHC	ND	5.0	
Heptachlor	ND	5.0	
Aldrin	ND	5.0	
beta-BHC	ND	5.0	
delta-BHC	ND	5.0	
Heptachlor epoxide	ND	5.0	
Endosulfan I	ND	5.0	
4,4'-DDE	ND	10	
Dieldrin	ND	10	
Endrin	ND	10	
Endosulfan II	ND	10	
4,4'-DDD	ND	10	
4,4'-DDT	ND	10	
Endrin Aldehyde	ND	10	
Endosulfan Sulfate	ND	10	
Methoxychlor	ND	10	
Endrin ketone	ND	10	
Toxaphene	ND	100	
Chlordane (Technical)	ND	50	

Surrogate	Percent Recovery	Control Limits
TCMX	93	34 - 109
DCB	73	30 - 115

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**ORGANOCHLORINE
 PESTICIDES by EPA 8081A
 MS/MSD QUALITY CONTROL**

Date Extracted: 7-31-06

Date Analyzed: 8-1-06

Matrix: Soil
 Units: ug/kg (ppb)

Lab ID: 07-200-06

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
gamma-BHC	50	44.5	89	46.3	93	4	
Heptachlor	50	41.6	83	42.9	86	3	
Aldrin	50	40.9	82	42.8	86	5	
Dieldrin	125	119	95	122	98	3	
Endrin	125	97.2	78	102	82	5	
4,4'-DDT	125	99.5	80	101	81	2	

Surrogate	Percent Recovery	Percent Recovery	Control Limits
TCMX	82	85	34 - 109
DCB	71	72	30 - 115

Date of Report: August 17, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-199
Project: 19897-52181-T2

TOTAL METALS
EPA 6010B/6020/7471A

Date Extracted: 8-3,4&7-06

Date Analyzed: 8-3&7-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-199-01

Client ID: EC-FWS 1-7/06

Analyte	Method	Result	PQL
Antimony	6020	ND	0.35
Arsenic	6010B	ND	12
Beryllium	6020	ND	0.29
Cadmium	6010B	ND	0.58
Chromium	6010B	23	0.58
Copper	6010B	8.1	0.79
Lead	6010B	ND	5.8
Mercury	7471A	ND	0.29
Nickel	6010B	28	2.9
Silver	6020	ND	0.35
Zinc	6010B	30	2.9

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

TOTAL METALS
EPA 6010B/6020/7471A

Date Extracted: 8-3,4&7-06

Date Analyzed: 8-3&7-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-199-02

Client ID: EC-FWS 2-7/06

Analyte	Method	Result	PQL
Antimony	6020	ND	0.35
Arsenic	6010B	ND	12
Beryllium	6020	ND	0.29
Cadmium	6010B	ND	0.58
Chromium	6010B	26	0.58
Copper	6010B	8.3	0.79
Lead	6010B	ND	5.8
Mercury	7471A	ND	0.29
Nickel	6010B	27	2.9
Silver	6020	ND	0.35
Zinc	6010B	28	2.9

Date of Report: August 17, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-199
Project: 19897-52181-T2

TOTAL METALS
EPA 6010B/6020/7471A

Date Extracted: 8-3,4&7-06

Date Analyzed: 8-3&7-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-199-05

Client ID: EC-FWS 5-7/06

Analyte	Method	Result	PQL
Antimony	6020	ND	0.51
Arsenic	6010B	ND	17
Beryllium	6020	ND	0.42
Cadmium	6010B	ND	0.85
Chromium	6010B	31	0.85
Copper	6010B	14	1.2
Lead	6010B	11	8.5
Mercury	7471A	ND	0.42
Nickel	6010B	33	4.2
Silver	6020	ND	0.51
Zinc	6010B	45	4.2

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**TOTAL METALS
 EPA 6010B/6020/7471A
 METHOD BLANK QUALITY CONTROL**

Date Extracted: 8-3,4&7-06
 Date Analyzed: 8-3&7-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: MB0803S1,MB0804S2&MB0807S2

Analyte	Method	Result	PQL
Antimony	6020	ND	0.30
Arsenic	6010B	ND	10
Beryllium	6020	ND	0.25
Cadmium	6010B	ND	0.50
Chromium	6010B	ND	0.50
Copper	6010B	ND	0.68
Lead	6010B	ND	5.0
Mercury	7471A	ND	0.25
Nickel	6010B	ND	2.5
Silver	6020	ND	0.30
Zinc	6010B	ND	2.5

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

**TOTAL METALS
 EPA 6010B/6020/7471A
 DUPLICATE QUALITY CONTROL**

Date Extracted: 8-3,4&7-06

Date Analyzed: 8-3&7-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-199-05

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Antimony	ND	ND	NA	0.30	
Arsenic	ND	ND	NA	10	
Beryllium	ND	ND	NA	0.25	
Cadmium	ND	ND	NA	0.50	
Chromium	18.3	17.6	3	0.50	
Copper	8.23	8.00	3	0.68	
Lead	6.71	6.70	0	5.0	
Mercury	ND	ND	NA	0.25	
Nickel	19.4	20.0	3	2.5	
Silver	ND	1.25	NA	0.30	
Zinc	26.8	26.8	0	2.5	

Date of Report: August 17, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-199
 Project: 19897-52181-T2

TOTAL METALS
EPA 6010B/6020/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 8-3,4&7-06

Date Analyzed: 8-3&7-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-199-05

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Antimony	50	12.1	24	13.5	27	11	
Arsenic	100	94.5	94	94.3	94	0	
Beryllium	25	24.6	99	24.3	97	1	
Cadmium	50	46.1	92	46.2	92	0	
Chromium	100	113	95	114	96	1	
Copper	50	56.1	96	56.2	96	0	
Lead	250	238	92	239	93	0	
Mercury	0.50	0.445	89	0.439	88	1	
Nickel	100	112	92	113	94	1	
Silver	2.5	2.30	92	2.42	97	5	
Zinc	100	120	94	122	95	1	

Date of Report: August 17, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-199
Project: 19897-52181-T2

% MOISTURE

Date Analyzed: 7-31&8-2-06

Client ID	Lab ID	% Moisture
EC-FWS-1-7/06	07-199-01	14
EC-FWS-2-7/06	07-199-02	14
EC-FWS-3-7/06	07-199-03	34
EC-FWS-4-7/06	07-199-04	18
EC-FWS-5-7/06	07-199-05	41



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - G - Insufficient sample quantity for duplicate analysis.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - O - Hydrocarbons indicative of diesel fuel are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a silica gel cleanup procedure.
 - Y - Sample extract treated with an acid/silica gel cleanup procedure.
 - Z -
- ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference



Analytical Resources, Incorporated

Analytical Chemists and Consultants

15 August 2006

David Baumeister
OnSite Environmental, Inc.
14648 NE 95th
Redmond, WA 98052

RE: Client Project: 19897-52181-T2
ARI Job No: JR31

Dear David:

Please find enclosed the original Chain-of-Custody (COC) record and the final results for the samples from the project referenced above. Analytical Resources, Inc. accepted five sediment samples on July 31, 2006. The samples were received intact. The samples were analyzed for TBTs, sulfides and TOC as requested.

No analytical complications were noted.

An electronic copy of these reports will remain on file at ARI. Should you have any questions, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
mark@arilabs.com

Enclosures

cc: file JR31

MDH/mdh

ARI Data Reporting Qualifiers

Effective 11/22/04

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but \geq the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤ 5 times the Reporting Limit and the replicate control limit defaults to ± 1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- NR Spiked compound recovery is not reported due to chromatographic interference
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte reporting limit is raised due to a positive chromatographic interference. The compound is not detected above the raised limit but may be present at or below the limit
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by $\geq 40\%$ RPD with no obvious chromatographic interference

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS
Page 1 of 1

Sample ID: MB-080806
METHOD BLANK

Lab Sample ID: MB-080806
LIMS ID: 06-13592
Matrix: Sediment
Data Release Authorized: *MW*
Reported: 08/15/06

QC Report No: JR31-OnSite Environmental Inc.
Project: 19897-52181-T2
Event: NA
Date Sampled: NA
Date Received: NA

Date Extracted: 08/08/06
Date Analyzed: 08/15/06 09:11
Instrument/Analyst: NT1/VTS
Silica Gel Cleanup: No

Sample Amount: 5.00 g-dry-wt
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Alumina Cleanup: Yes

CAS Number	Analyte	RL	Result	Q
TBT_ION	Tributyl Tin Ion	3.9	< 3.9	U
DBT_ION	Dibutyl Tin Ion	5.8	< 5.8	U
BT_ION	Butyl Tin Ion	4.1	< 4.1	U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	48.8%
Triphenyl Tin Chloride	64.3%

Sample ID: EC-FWS 1-7/06
SAMPLE

Lab Sample ID: JR31A
LIMS ID: 06-13592
Matrix: Sediment
Data Release Authorized: *Trw*
Reported: 08/15/06

QC Report No: JR31-OnSite Environmental Inc.
Project: 19897-52181-T2
Event: NA
Date Sampled: 07/25/06
Date Received: 07/31/06

Date Extracted: 08/08/06
Date Analyzed: 08/15/06 09:48
Instrument/Analyst: NT1/VTS
Silica Gel Cleanup: No

Sample Amount: 5.25 g-dry-wt
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Alumina Cleanup: Yes
Moisture: 12.5%

CAS Number	Analyte	RL	Result	Q
TBT_ION	Tributyl Tin Ion	3.7	< 3.7	U
DBT_ION	Dibutyl Tin Ion	5.5	< 5.5	U
BT_ION	Butyl Tin Ion	3.9	< 3.9	U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	59.0%
Triphenyl Tin Chloride	72.8%

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS

Page 1 of 1

Sample ID: EC-FWS 2-7/06

SAMPLE

Lab Sample ID: JR31B

LIMS ID: 06-13593

Matrix: Sediment

Data Release Authorized: *YVW*

Reported: 08/15/06

QC Report No: JR31-OnSite Environmental Inc.

Project: 19897-52181-T2

Event: NA

Date Sampled: 07/25/06

Date Received: 07/31/06

Date Extracted: 08/08/06

Date Analyzed: 08/15/06 10:07

Instrument/Analyst: NT1/VTS

Silica Gel Cleanup: No

Sample Amount: 5.28 g-dry-wt

Final Extract Volume: 0.50 mL

Dilution Factor: 1.00

Alumina Cleanup: Yes

Moisture: 12.5%

CAS Number	Analyte	RL	Result	Q
TBT_ION	Tributyl Tin Ion	3.7	< 3.7	U
DBT_ION	Dibutyl Tin Ion	5.5	< 5.5	U
BT_ION	Butyl Tin Ion	3.9	< 3.9	U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	57.7%
Tripentyl Tin Chloride	69.1%

ORGANICS ANALYSIS DATA SHEET

Tributyl Tins by Krone 1988 SIM GC/MS
Page 1 of 1

Sample ID: EC-FWS 5-7/06
SAMPLE

Lab Sample ID: JR31C
LIMS ID: 06-13594
Matrix: Sediment
Data Release Authorized: *TW*
Reported: 08/15/06

QC Report No: JR31-OnSite Environmental Inc.
Project: 19897-52181-T2
Event: NA
Date Sampled: 07/25/06
Date Received: 07/31/06

Date Extracted: 08/08/06
Date Analyzed: 08/15/06 10:26
Instrument/Analyst: NT1/VTS
Silica Gel Cleanup: No

Sample Amount: 5.16 g-dry-wt
Final Extract Volume: 0.50 mL
Dilution Factor: 1.00
Alumina Cleanup: Yes
Moisture: 42.9%

CAS Number	Analyte	RL	Result	Q
TBT_ION	Tributyl Tin Ion	3.7	< 3.7	U
DBT_ION	Dibutyl Tin Ion	5.6	< 5.6	U
BT_ION	Butyl Tin Ion	4.0	< 4.0	U

Reported in $\mu\text{g}/\text{kg}$ (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	62.6%
Tripentyl Tin Chloride	76.1%

ORGANICS ANALYSIS DATA SHEET
Tributyl Tins by Krone 1988 SIM GC/MS
 Page 1 of 1

Sample ID: LCS-080806
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-080806
 LIMS ID: 06-13592
 Matrix: Sediment
 Data Release Authorized: *MW*
 Reported: 08/15/06

QC Report No: JR31-OnSite Environmental Inc.
 Project: 19897-52181-T2

Date Sampled: NA
 Date Received: NA

Date Extracted LCS: 08/08/06
 Date Analyzed LCS: 08/15/06 09:30
 Instrument/Analyst LCS: NT1/VTS
 Silica Gel Cleanup: No

Sample Amount LCS: 5.00 g-dry-wt
 Final Extract Volume LCS: 0.50 mL
 Dilution Factor LCS: 1.00
 Alumina Cleanup: Yes

Analyte	LCS	Spike Added	Recovery
Tributyl Tin Ion	43.6	44.6	97.8%
Dibutyl Tin Ion	28.7	38.4	74.7%
Butyl Tin Ion	14.2	31.2	45.5%

Reported in $\mu\text{g}/\text{kg}$ (ppb)

TBT Surrogate Recovery

Tripropyl Tin Chloride	64.0%
Triphenyl Tin Chloride	76.5%

METHOD BLANK RESULTS-CONVENTIONALS
JR31-OnSite Environmental Inc.



Matrix: Sediment
Data Release Authorized: *MS*
Reported: 08/08/06

Project: NA
Event: 19897-52181-T2
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank
Total Solids	08/02/06	Percent	< 0.01 U
	08/02/06		< 0.01 U
Preserved Total Solids	08/01/06	Percent	< 0.01 U
Sulfide	08/02/06	mg/kg	< 1.00 U
Total Organic Carbon	08/07/06	Percent	< 0.020 U

SAMPLE RESULTS-CONVENTIONALS
JR31-OnSite Environmental Inc.



Matrix: Sediment
Data Release Authorized: *MB*
Reported: 08/08/06

Project: NA
Event: 19897-52181-T2
Date Sampled: 07/25/06
Date Received: 07/31/06

Client ID: EC-FWS 1-7/06
ARI ID: 06-13592 JR31A

Analyte	Date	Method	Units	RL	Sample
Total Solids	08/02/06 080206#2	EPA 160.3	Percent	0.01	89.20
Preserved Total Solids	08/01/06 080106#1	EPA 160.3	Percent	0.01	85.60
Sulfide	08/02/06 080206#1	EPA 376.2	mg/kg	1.10	< 1.10 U
Total Organic Carbon	08/07/06 080706#1	Plumb, 1981	Percent	0.020	0.445

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
JR31-OnSite Environmental Inc.



Matrix: Sediment
Data Release Authorized: *MB*
Reported: 08/08/06

Project: NA
Event: 19897-52181-T2
Date Sampled: 07/25/06
Date Received: 07/31/06

Client ID: EC-FWS 2-7/06
ARI ID: 06-13593 JR31B

Analyte	Date	Method	Units	RL	Sample
Total Solids	08/02/06 080206#2	EPA 160.3	Percent	0.01	86.20
Preserved Total Solids	08/01/06 080106#1	EPA 160.3	Percent	0.01	85.50
Sulfide	08/02/06 080206#1	EPA 376.2	mg/kg	1.03	3.29
Total Organic Carbon	08/07/06 080706#1	Plumb,1981	Percent	0.020	0.753

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
JR31-OnSite Environmental Inc.



Matrix: Sediment
Data Release Authorized: *MB*
Reported: 08/08/06

Project: NA
Event: 19897-52181-T2
Date Sampled: 07/25/06
Date Received: 07/31/06

Client ID: EC-FWS 5-7/06
ARI ID: 06-13594 JR31C

Analyte	Date	Method	Units	RL	Sample
Total Solids	08/02/06 080206#2	EPA 160.3	Percent	0.01	58.00
Preserved Total Solids	08/01/06 080106#1	EPA 160.3	Percent	0.01	53.40
Sulfide	08/02/06 080206#1	EPA 376.2	mg/kg	1.82	< 1.82 U
Total Organic Carbon	08/07/06 080706#1	Plumb,1981	Percent	0.020	4.58

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
JR31-OnSite Environmental Inc.



Matrix: Sediment
Data Release Authorized: MB
Reported: 08/08/06

Project: NA
Event: 19897-52181-T2
Date Sampled: 07/25/06
Date Received: 07/31/06

Client ID: EC-FWS 3-7/06
ARI ID: 06-13595 JR31D

Analyte	Date	Method	Units	RL	Sample
Total Solids	08/02/06 080206#2	EPA 160.3	Percent	0.01	65.40
Total Organic Carbon	08/07/06 080706#1	Plumb, 1981	Percent	0.020	3.07

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
JR31-OnSite Environmental Inc.



Matrix: Sediment
Data Release Authorized: MB
Reported: 08/08/06

Project: NA
Event: 19897-52181-T2
Date Sampled: 07/25/06
Date Received: 07/31/06

Client ID: EC-FWS 4-7/06
ARI ID: 06-13596 JR31E

Analyte	Date	Method	Units	RL	Sample
Total Solids	08/02/06 080206#2	EPA 160.3	Percent	0.01	82.50
Total Organic Carbon	08/07/06 080706#1	Plumb,1981	Percent	0.020	0.779

RL Analytical reporting limit
U Undetected at reported detection limit

REPLICATE RESULTS-CONVENTIONALS
JR31-OnSite Environmental Inc.



Matrix: Sediment
Data Release Authorized: *msb*
Reported: 08/08/06

Project: NA
Event: 19897-52181-T2
Date Sampled: 07/25/06
Date Received: 07/31/06

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: JR31A Client ID: EC-FWS 1-7/06					
Sulfide	08/02/06	mg/kg	< 1.10	< 1.13	NA
ARI ID: JR31C Client ID: EC-FWS 5-7/06					
Preserved Total Solids	08/01/06	Percent	53.40	55.80 55.10	2.3%
ARI ID: JR31D Client ID: EC-FWS 3-7/06					
Total Solids	08/02/06	Percent	65.40	71.70 67.60	4.7%
Total Organic Carbon	08/07/06	Percent	3.07	2.89 2.66	7.2%

MS/MSD RESULTS-CONVENTIONALS
JR31-OnSite Environmental Inc.



Matrix: Sediment
Data Release Authorized: *MS*
Reported: 08/08/06

Project: NA
Event: 19897-52181-T2
Date Sampled: 07/25/06
Date Received: 07/31/06

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: JR31A Client ID: EC-FWS 1-7/06						
Sulfide	08/02/06	mg/kg	< 1.10	245	275	89.1%
ARI ID: JR31D Client ID: EC-FWS 3-7/06						
Total Organic Carbon	08/07/06	Percent	3.07	6.92	3.10	124.3%

LAB CONTROL RESULTS-CONVENTIONALS
JR31-OnSite Environmental Inc.



Matrix: Sediment
Data Release Authorized: *MSB*
Reported: 08/08/06

Project: NA
Event: 19897-52181-T2
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	LCS	Spike Added	Recovery
Sulfide	08/02/06	mg/kg	199	214	93.0%
Total Organic Carbon	08/07/06	Percent	0.505	0.500	101.0%

STANDARD REFERENCE RESULTS-CONVENTIONALS
JR31-OnSite Environmental Inc.



Matrix: Sediment
Data Release Authorized: *MB*
Reported: 08/08/06

Project: NA
Event: 19897-52181-T2
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST #8704	08/07/06	Percent	3.38	3.35	100.9%

Chain of Custody

Company: <u>CDM</u> Project Number: <u>14897-52181-T2</u> Project Name: <u>Kinn County - Ellegard Creek</u> Project Manager: <u>Lance Pedersen</u> Sampled by: <u>Josh Miller</u>	Turnaround Request (in working days) (Check One) <input type="checkbox"/> Same Day <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input checked="" type="checkbox"/> Standard (7 working days) (TPH analysis 5 working days) <input type="checkbox"/> _____ (other)	Laboratory Number: 07-199 Requested Analysis <table border="1" style="width:100%; border-collapse: collapse; font-size: small;"> <tr> <td>NWTPH-HCID</td> <td>NWTPH-Gx/BTEX</td> <td>NWTPH-Dx</td> <td>Volatiles by 8260B</td> <td>Halogenated Volatiles by 8260B</td> <td>Semivolatiles by 8270C <i>See Table</i></td> <td>PAHs by 8270C / SIM</td> <td>PCBs by 8082 <i>See Table</i></td> <td>Pesticides by 8081A <i>See Table</i></td> <td>Herbicides by 8151A</td> <td>Total PCPRA Metals (8) <i>See Table</i></td> <td>TCLP Metals</td> <td>HEM by 1664</td> <td>VPH</td> <td>EPH</td> <td>TOC</td> <td>Sediment Quality Values, 2005 MET <i>3-3'</i></td> <td>Substrate</td> <td>% Moisture</td> </tr> </table>	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C <i>See Table</i>	PAHs by 8270C / SIM	PCBs by 8082 <i>See Table</i>	Pesticides by 8081A <i>See Table</i>	Herbicides by 8151A	Total PCPRA Metals (8) <i>See Table</i>	TCLP Metals	HEM by 1664	VPH	EPH	TOC	Sediment Quality Values, 2005 MET <i>3-3'</i>	Substrate	% Moisture
NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C <i>See Table</i>	PAHs by 8270C / SIM	PCBs by 8082 <i>See Table</i>	Pesticides by 8081A <i>See Table</i>	Herbicides by 8151A	Total PCPRA Metals (8) <i>See Table</i>	TCLP Metals	HEM by 1664	VPH	EPH	TOC	Sediment Quality Values, 2005 MET <i>3-3'</i>	Substrate	% Moisture			

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total PCPRA Metals (8)	TCLP Metals	HEM by 1664	VPH	EPH	TOC	Sediment Quality Values, 2005 MET	Substrate	% Moisture	
1	EC-FWS 1 - 7/06	7/25/06	1315	soil	4						X		X	X		X					X	X		X	X
2	EC-FWS 2 - 7/06		1320		4						X		X	X		X					X	X		X	
3	EC-FWS 3 - 7/06		1415		2			X				X									⊗				
4	EC-FWS 4 - 7/06		1500		2			X				X									⊗				
5	EC-FWS 5 - 7/06		1600		4						X		X	X		X					X	X		X	

Signature	Company	Date	Time	Comments/Special Instructions:
Relinquished by: <u>Josh Miller</u>	<u>CDM</u>	<u>7/28/06</u>	<u>11:00</u>	Contract No. E23008E ⊗ Added 7/21/06 DB
Received by: <u>M. Van</u>	<u>O/E</u>	<u>7/28/06</u>	<u>1415</u>	
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Reviewed by/Date:	Reviewed by/Date:	Chromatograms with final report <input type="checkbox"/>		



**OnSite
Environmental Inc.**

Analytical Testing and Mobile Laboratory Services

RECEIVED

AUG 11 2006

August 11, 2006

Lance Peterson
CDM
P.O. Box 3885
Bellevue, WA 98009

Re: Analytical Data for Project 19897-52181-T2
Laboratory Reference No. 0607-200

Dear Lance:

Enclosed are the analytical results and associated quality control data for samples submitted on July 28, 2006.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

Case Narrative

Samples were collected on July 26, 2006 and received by the laboratory on July 28, 2006. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Organochlorine Pesticides by EPA 8081A Analysis

Due to matrix effects, the analytes DCB and Methoxychlor in the continuing calibration verification standard (CCV) PEST MID LEVEL 0731-3 had %D values greater than +15% (low bias). Therefore, values for these compounds can be less than expected. The sample was rerun with similar results.

Any other QA/QC issues associated with this extraction and analysis will be indicated with a footnote reference and discussed in detail on the Data Qualifier page.

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-200
 Project: 19897-52181-T2

NWTPH-Dx

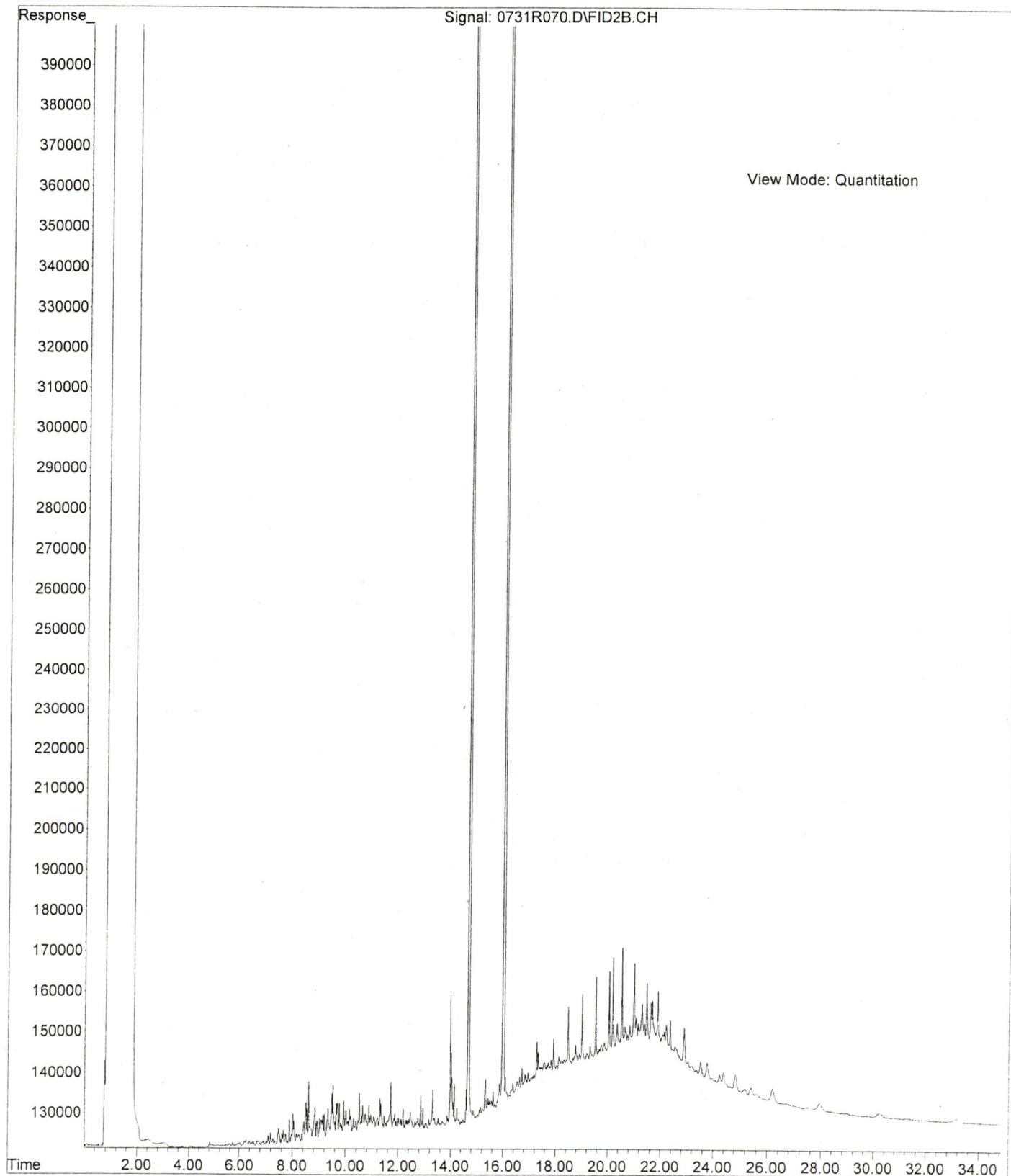
Date Extracted: 8-1-06
 Date Analyzed: 8-20-06

Matrix: Soil
 Units: mg/kg (ppm)

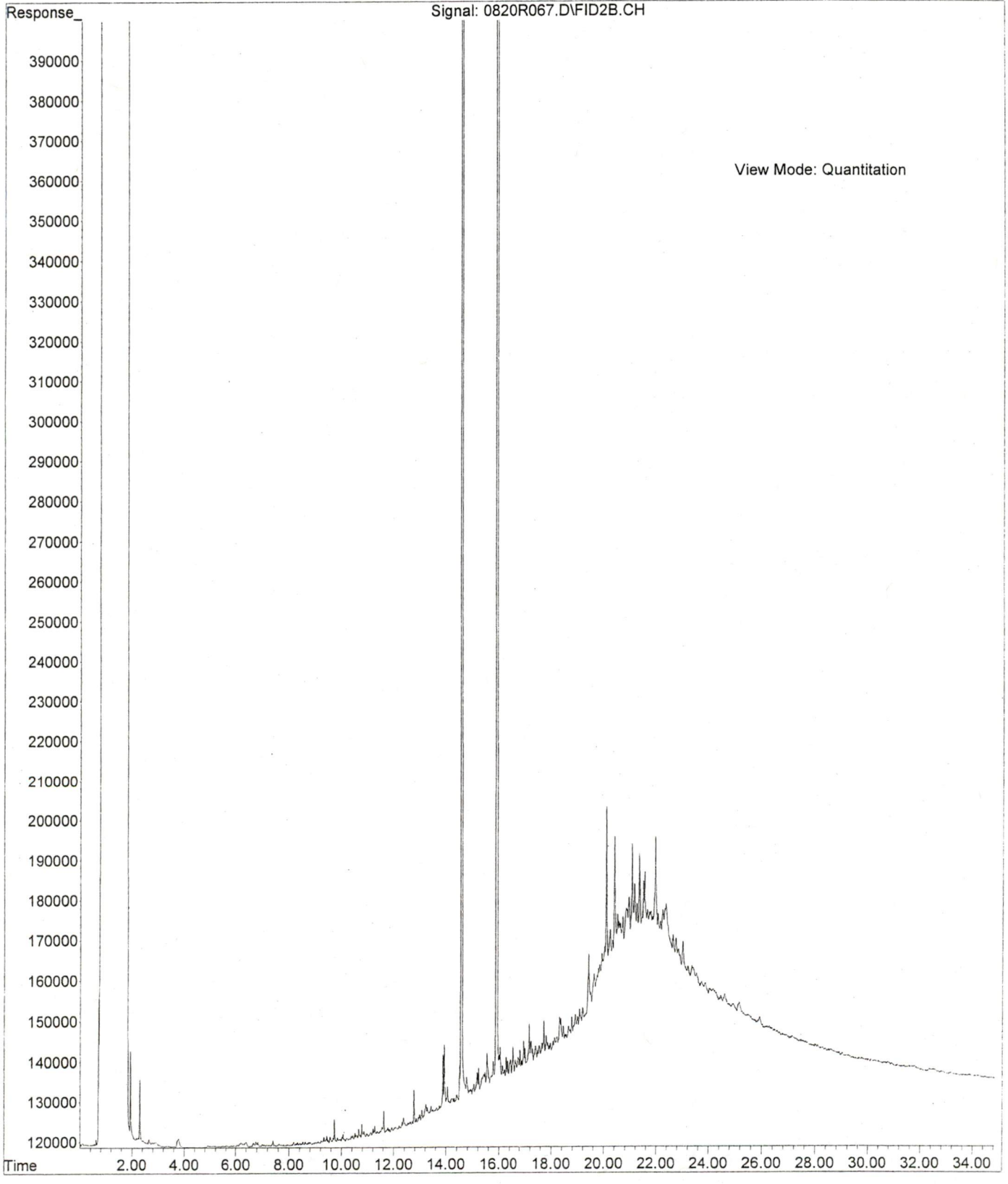
Client ID:	EC-S14-7/06	EC-S15-7/06	EC-S16-7/06
Lab ID:	07-200-01	07-200-02	07-200-03

Bunker C Range:	ND	ND	200
PQL:	59	59	63
Identification:	---	---	Bunker C
Surrogate Recovery o-Terphenyl:	108%	103%	135%
Flags:	Y	Y	Y

File :X:\DIESELS\TERI\DATA\T060731.SEC\0731R070.D
Operator : DY
Acquired : 01 Aug 2006 00:58 using AcqMethod F060707.M
Instrument : Teri
Sample Name: 07-203-02
Misc Info : 2
Vial Number: 70



File :X:\DIESELS\TERI\DATA\T060820.SEC\0820R067.D
Operator : DY
Acquired : 21 Aug 2006 1:52 using AcqMethod F060707.M
Instrument : Teri
Sample Name: 07-200-03
Misc Info : 2
Vial Number: 67



Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-200
 Project: 19897-52181-T2

NWTPH-Dx

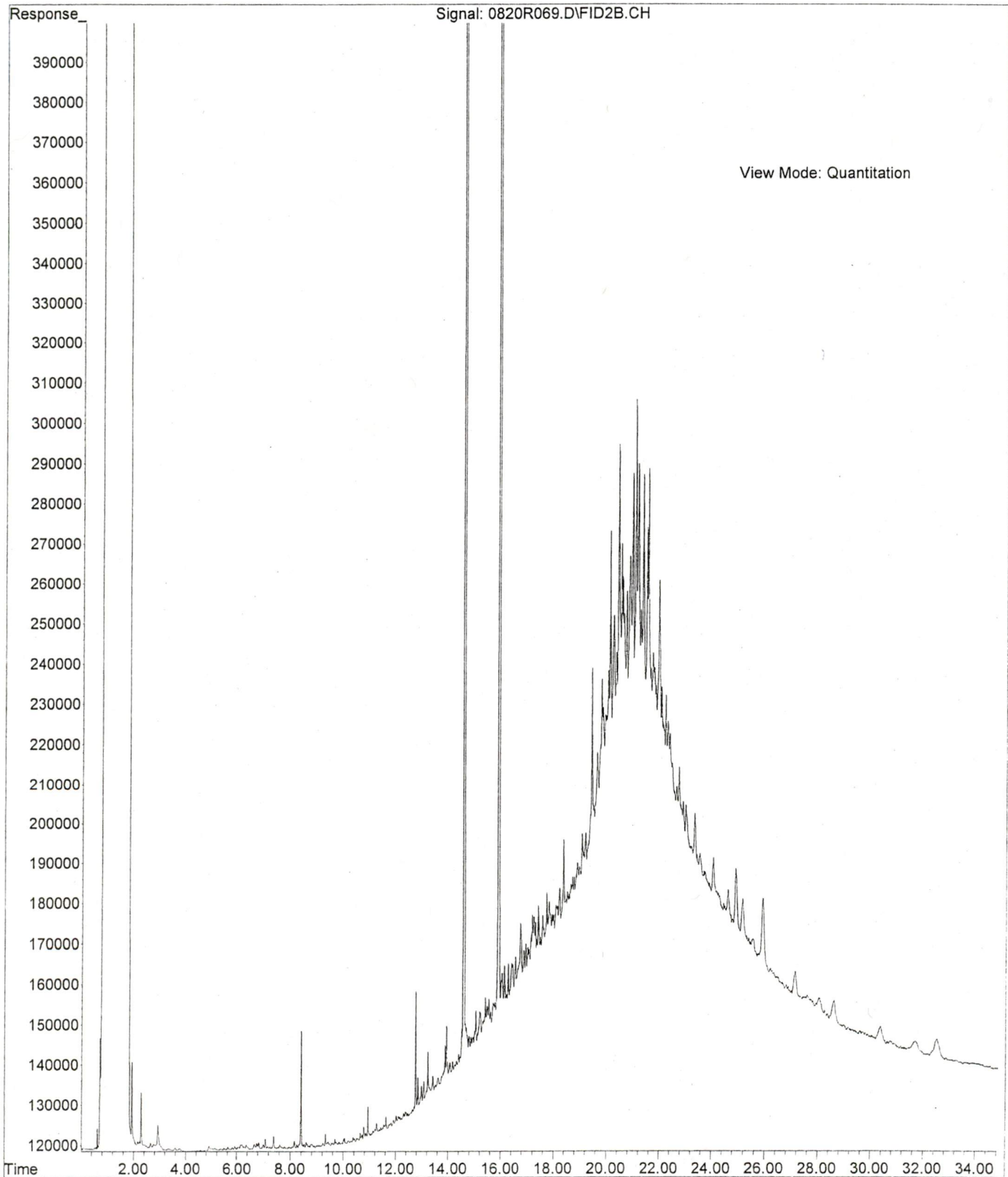
Date Extracted: 8-1-06
 Date Analyzed: 8-20-06

Matrix: Soil
 Units: mg/kg (ppm)

Client ID:	EC-S17-7/06	EC-S18-7/06
Lab ID:	07-200-04	07-200-05

Bunker C Range:	ND	830
PQL:	66	130
Identification:	---	Bunker C
Surrogate Recovery		
o-Terphenyl:	96%	106%
Flags:	Y	Y

File :X:\DIESELS\TERI\DATA\T060820.SEC\0820R069.D
Operator : DY
Acquired : 21 Aug 2006 3:20 using AcqMethod F060707.M
Instrument : Teri
Sample Name: 07-200-05
Misc Info : 2
Vial Number: 69



Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted: 8-1-06
Date Analyzed: 8-20-06

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0801S1

Bunker C Range: **ND**
PQL: 50

Identification:

Surrogate Recovery
o-Terphenyl: 119%

Flags: Y

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted: 8-1-06
Date Analyzed: 8-20-06

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 07-200-03 07-200-03 DUP

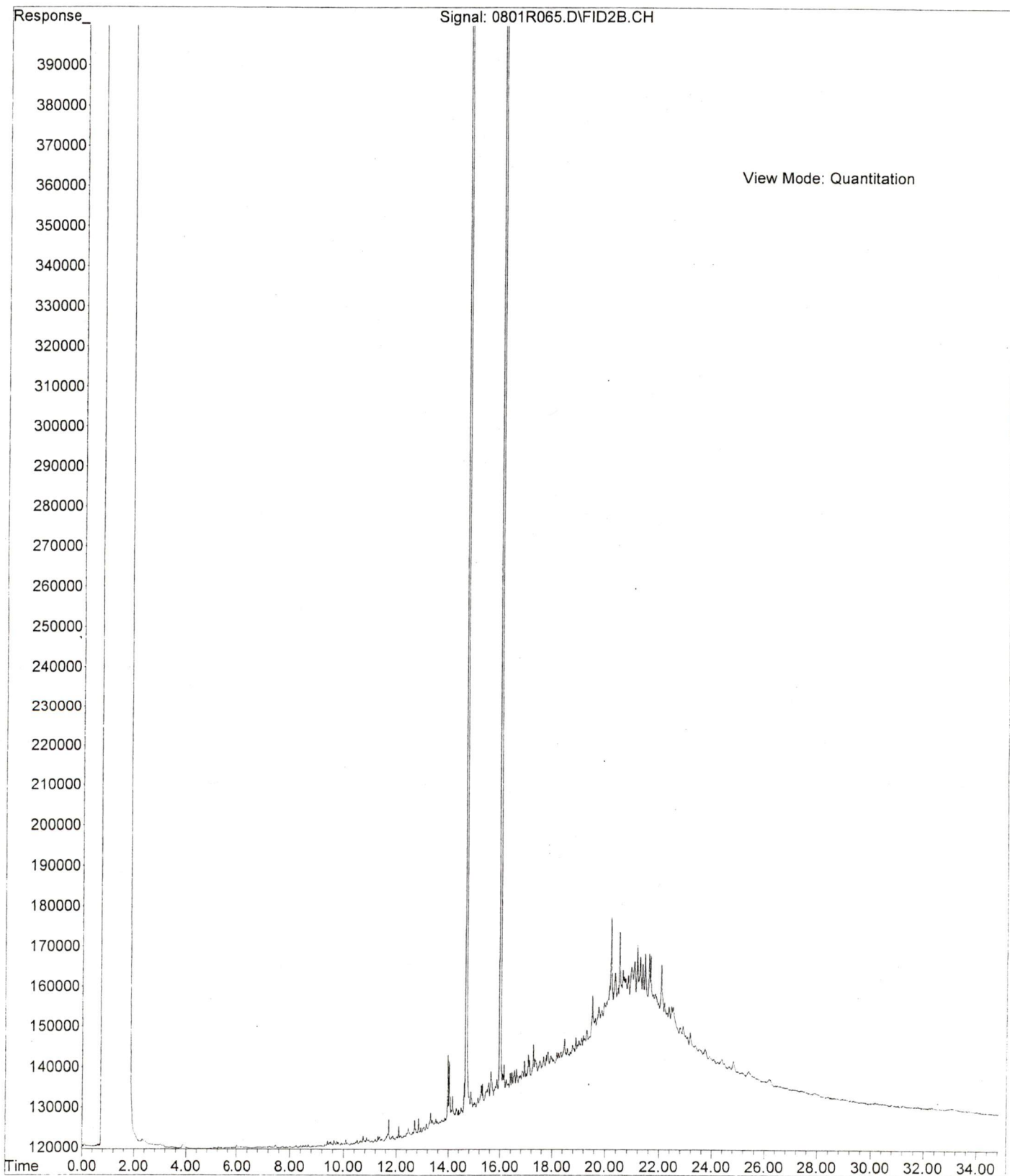
Bunker C Range: 160 139
PQL: 25 25

RPD: 14

Surrogate Recovery
o-Terphenyl: 135% 112%

Flags: Y Y

File :X:\DIESELS\TERI\DATA\T060801.SEC\0801R065.D
Operator : DY
Acquired : 01 Aug 2006 23:48 using AcqMethod F060707.M
Instrument : Teri
Sample Name: 07-200-03
Misc Info : 2
Vial Number: 65



Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

NWTPH-Dx

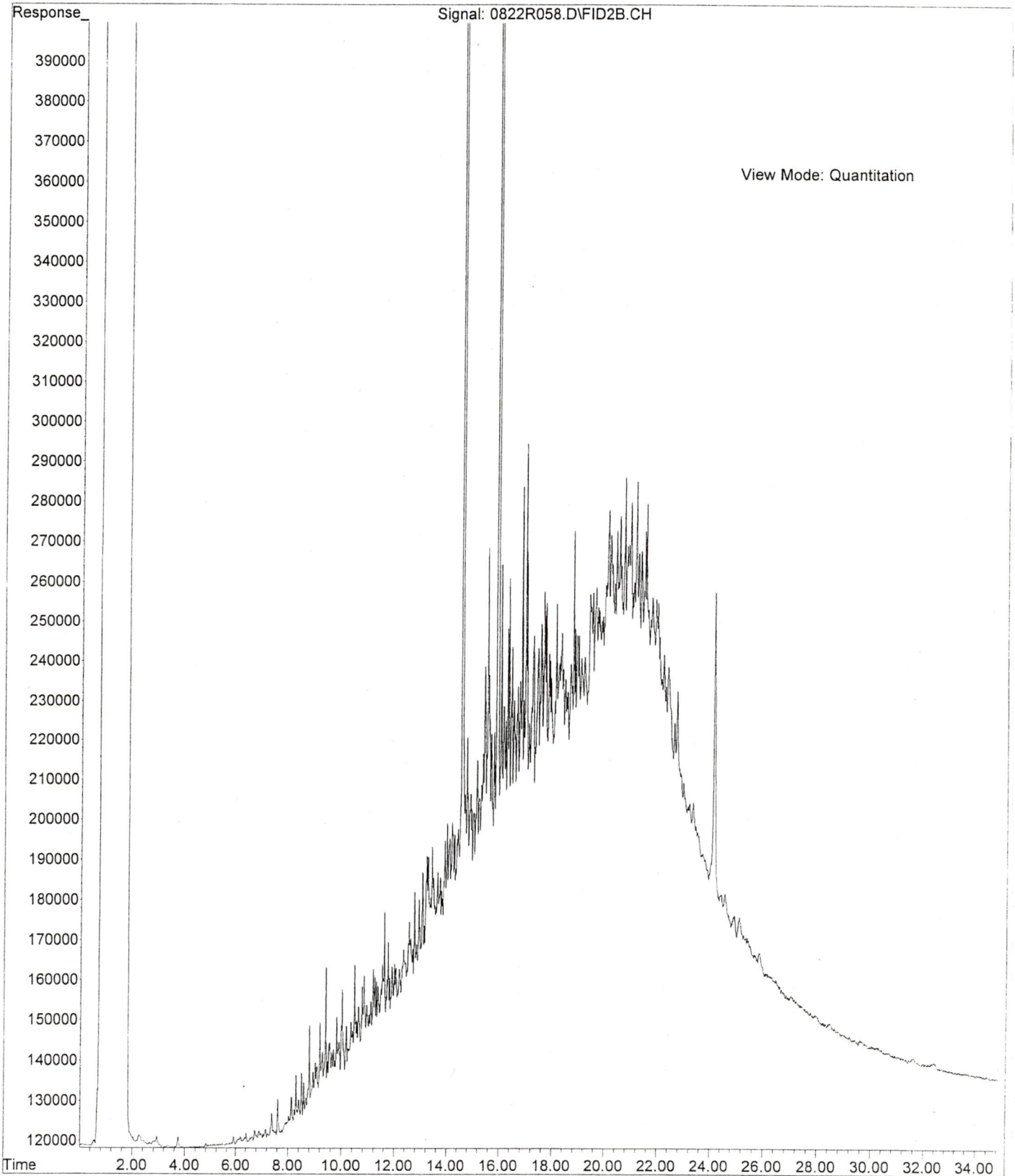
Date Extracted: 7-31-06
Date Analyzed: 8-22-06

Matrix: Water
Units: mg/L (ppm)

Client ID:	EC-SW1-7/06	EC-Rinsate-7/06
Lab ID:	07-200-09	07-200-10

Bunker C Range:	5.6	ND
PQL:	0.40	0.40
Identification:	Bunker C	---
Surrogate Recovery o-Terphenyl:	139%	133%
Flags:	Y	Y

File :X:\DIESELS\TERI\DATA\T060822.SEC\0822R058.D
Operator : DY
Acquired : 22 Aug 2006 20:38 using AcqMethod F060707.M
Instrument : Teri
Sample Name: 07-200-09 RC
Misc Info : 2
Vial Number: 58



Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted: 7-31-06
Date Analyzed: 8-20-06

Matrix: Water
Units: mg/L (ppm)

Lab ID: MB0731W1

Bunker C Range: **ND**
PQL: 0.40

Identification: ---

Surrogate Recovery
o-Terphenyl: 133%

Flags: Y

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

**NWTPH-Dx
DUPLICATE QUALITY CONTROL**

Date Extracted: 7-31-06
Date Analyzed: 7-31-06

Matrix: Water
Units: mg/L (ppm)

Lab ID: 07-192-04 07-192-04 DUP

Diesel Range: **ND** **ND**
PQL: 0.25 0.25

RPD: N/A

Surrogate Recovery
o-Terphenyl: 119% 123%

Flags: Y Y

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-200
 Project: 19897-52181-T2

PAHs by EPA 8270C/SIM

Date Extracted: 8-1-06
 Date Analyzed: 8-2-06
 Matrix: Water
 Units: ug/L (ppb)
 Lab ID: 07-200-09
 Client ID: EC-SW1-7/06

Compound:	Results	Flags	PQL
Naphthalene	ND		0.094
2-Methylnaphthalene	ND		0.094
1-Methylnaphthalene	ND		0.094
Acenaphthylene	ND		0.094
Acenaphthene	ND		0.094
Fluorene	ND		0.094
Phenanthrene	ND		0.094
Anthracene	ND		0.094
Fluoranthene	ND		0.094
Pyrene	0.40		0.094
Benzo[a]anthracene	0.11		0.0094
Chrysene	0.17		0.0094
Benzo[b]fluoranthene	0.054		0.0094
Benzo[k]fluoranthene	ND		0.0094
Benzo[a]pyrene	0.16		0.0094
Indeno(1,2,3-c,d)pyrene	0.036		0.0094
Dibenz[a,h]anthracene	0.020		0.0094
Benzo[g,h,i]perylene	0.13		0.0094

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	54	24 - 92
2-Fluorobiphenyl	54	25 - 89
Terphenyl-d14	76	39 - 92

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-200
 Project: 19897-52181-T2

**PAHs by EPA 8270C/SIM
 METHOD BLANK QUALITY CONTROL**

Date Extracted: 8-1-06
 Date Analyzed: 8-2-06
 Matrix: Water
 Units: ug/L (ppb)
 Lab ID: MB0801W1

Compound:	Results	Flags	PQL
Naphthalene	ND		0.10
2-Methylnaphthalene	ND		0.10
1-Methylnaphthalene	ND		0.10
Acenaphthylene	ND		0.10
Acenaphthene	ND		0.10
Fluorene	ND		0.10
Phenanthrene	ND		0.10
Anthracene	ND		0.10
Fluoranthene	ND		0.10
Pyrene	ND		0.10
Benzo[a]anthracene	ND		0.010
Chrysene	ND		0.010
Benzo[b]fluoranthene	ND		0.010
Benzo[k]fluoranthene	ND		0.010
Benzo[a]pyrene	ND		0.010
Indeno(1,2,3-c,d)pyrene	ND		0.010
Dibenz[a,h]anthracene	ND		0.010
Benzo[g,h,i]perylene	ND		0.010

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	73	24 - 92
2-Fluorobiphenyl	69	25 - 89
Terphenyl-d14	85	39 - 92

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-200
 Project: 19897-52181-T2

**PAHs by EPA 8270C/SIM
 SB/SBD QUALITY CONTROL**

Date Extracted: 8-1-06
 Date Analyzed: 8-2-06

Matrix: Water
 Units: ug/L (ppb)

Lab ID: SB0801W1

Compound:	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
Naphthalene	0.500	0.295	59	0.313	63	43-76	
Acenaphthylene	0.500	0.300	60	0.305	61	41-88	
Acenaphthene	0.500	0.300	60	0.304	61	45-80	
Fluorene	0.500	0.321	64	0.319	64	49-92	
Phenanthrene	0.500	0.395	79	0.366	73	53-90	
Anthracene	0.500	0.330	66	0.326	65	55-94	
Fluoranthene	0.500	0.366	73	0.363	73	56-102	
Pyrene	0.500	0.391	78	0.385	77	53-99	
Benzo[a]anthracene	0.500	0.410	82	0.404	81	48-104	
Chrysene	0.500	0.384	77	0.375	75	43-94	
Benzo[b]fluoranthene	0.500	0.424	85	0.414	83	52-102	
Benzo[k]fluoranthene	0.500	0.391	78	0.378	76	53-100	
Benzo[a]pyrene	0.500	0.418	84	0.404	81	43-111	
Indeno(1,2,3-c,d)pyrene	0.500	0.407	81	0.398	80	50-105	
Dibenz[a,h]anthracene	0.500	0.415	83	0.403	81	49-96	
Benzo[g,h,i]perylene	0.500	0.413	83	0.398	80	50-103	

	RPD	RPD Limit	Flags
Naphthalene	6	25	
Acenaphthylene	2	25	
Acenaphthene	1	25	
Fluorene	1	25	
Phenanthrene	8	25	
Anthracene	1	25	
Fluoranthene	1	25	
Pyrene	2	25	
Benzo[a]anthracene	1	25	
Chrysene	2	25	
Benzo[b]fluoranthene	2	25	
Benzo[k]fluoranthene	4	25	
Benzo[a]pyrene	3	25	
Indeno(1,2,3-c,d)pyrene	3	25	
Dibenz[a,h]anthracene	3	25	
Benzo[g,h,i]perylene	4	25	

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-200
 Project: 19897-52181-T2

**ORGANOCHLORINE
 PESTICIDES by EPA 8081A**

Date Extracted: 7-31-06
 Date Analyzed: 8-1-06

Matrix: Soil
 Units: ug/kg (ppb)

Lab ID: 07-200-06
 Client ID: EC-S19-7/06

Analyte	Result	PQL	Flags
alpha-BHC	ND	5.7	
gamma-BHC	ND	5.7	
Heptachlor	ND	5.7	
Aldrin	ND	5.7	
beta-BHC	ND	5.7	
delta-BHC	ND	5.7	
Heptachlor epoxide	ND	5.7	
Endosulfan I	ND	5.7	
4,4'-DDE	ND	11	
Dieldrin	ND	11	
Endrin	ND	11	
Endosulfan II	ND	11	
4,4'-DDD	ND	11	
4,4'-DDT	ND	11	
Endrin Aldehyde	ND	11	
Endosulfan Sulfate	ND	11	
Methoxychlor	ND	11	
Endrin ketone	ND	11	
Toxaphene	ND	110	
Chlordane (Technical)	ND	57	

Surrogate	Percent Recovery	Control Limits
TCMX	76	34 - 109
DCB	68	30 - 115

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-200
 Project: 19897-52181-T2

**ORGANOCHLORINE
 PESTICIDES by EPA 8081A
 METHOD BLANK QUALITY CONTROL**

Date Extracted: 7-31-06
 Date Analyzed: 8-1-06

Matrix: Soil
 Units: ug/kg (ppb)

Lab ID: MB0731S1

Analyte	Result	PQL	Flags
alpha-BHC	ND	5.0	
gamma-BHC	ND	5.0	
Heptachlor	ND	5.0	
Aldrin	ND	5.0	
beta-BHC	ND	5.0	
delta-BHC	ND	5.0	
Heptachlor epoxide	ND	5.0	
Endosulfan I	ND	5.0	
4,4'-DDE	ND	10	
Dieldrin	ND	10	
Endrin	ND	10	
Endosulfan II	ND	10	
4,4'-DDD	ND	10	
4,4'-DDT	ND	10	
Endrin Aldehyde	ND	10	
Endosulfan Sulfate	ND	10	
Methoxychlor	ND	10	
Endrin ketone	ND	10	
Toxaphene	ND	100	
Chlordane (Technical)	ND	50	

Surrogate	Percent Recovery	Control Limits
TCMX	93	34 - 109
DCB	73	30 - 115

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-200
 Project: 19897-52181-T2

**ORGANOCHLORINE
 PESTICIDES by EPA 8081A
 MS/MSD QUALITY CONTROL**

Date Extracted: 7-31-06
 Date Analyzed: 8-1-06

Matrix: Soil
 Units: ug/kg (ppb)

Lab ID: 07-200-06

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
gamma-BHC	50	44.5	89	46.3	93	4	
Heptachlor	50	41.6	83	42.9	86	3	
Aldrin	50	40.9	82	42.8	86	5	
Dieldrin	125	119	95	122	98	3	
Endrin	125	97.2	78	102	82	5	
4,4'-DDT	125	99.5	80	101	81	2	

Surrogate	Percent Recovery	Percent Recovery	Control Limits
TCMX	82	85	34 - 109
DCB	71	72	30 - 115

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

**TOTAL METALS
EPA 6010B**

Date Extracted: 7-31-06

Date Analyzed: 8-1-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-200-06

Client ID: EC-S19-7/06

Analyte	Method	Result	PQL
Arsenic	6010B	ND	11
Cadmium	6010B	ND	0.57
Lead	6010B	100	5.7

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

**TOTAL METALS
EPA 6010B**

Date Extracted: 7-31-06

Date Analyzed: 8-1-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-200-07

Client ID: EC-S20-7/06

Analyte	Method	Result	PQL
Arsenic	6010B	22	11
Cadmium	6010B	0.73	0.56
Lead	6010B	120	5.6

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

**TOTAL METALS
EPA 6010B**

Date Extracted: 7-31-06

Date Analyzed: 8-1-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-200-08

Client ID: EC-S21-7/06

Analyte	Method	Result	PQL
Arsenic	6010B	ND	17
Cadmium	6010B	ND	0.85
Lead	6010B	84	8.5

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

**TOTAL METALS
EPA 6010B
METHOD BLANK QUALITY CONTROL**

Date Extracted: 7-31-06
Date Analyzed: 8-1-06

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0731S1

Analyte	Method	Result	PQL
Arsenic	6010B	ND	10
Cadmium	6010B	ND	0.50
Lead	6010B	ND	5.0

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

**TOTAL METALS
EPA 6010B
DUPLICATE QUALITY CONTROL**

Date Extracted: 7-31-06

Date Analyzed: 8-1-06

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 07-202-10

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	ND	ND	NA	10	
Cadmium	ND	ND	NA	0.50	
Lead	ND	ND	NA	5.0	

Date of Report: August 11, 2006
 Samples Submitted: July 28, 2006
 Laboratory Reference: 0607-200
 Project: 19897-52181-T2

**TOTAL METALS
 EPA 6010B
 MS/MSD QUALITY CONTROL**

Date Extracted: 7-31-06
 Date Analyzed: 8-1-06
 Matrix: Soil
 Units: mg/kg (ppm)
 Lab ID: 07-202-10

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	94.9	95	90.0	90	5	
Cadmium	50	47.6	95	45.0	90	6	
Lead	250	242	97	231	92	5	

Date of Report: August 11, 2006
Samples Submitted: July 28, 2006
Laboratory Reference: 0607-200
Project: 19897-52181-T2

% MOISTURE

Date Analyzed: 7-31-06

Client ID	Lab ID	% Moisture
EC-S14-7/06	07-200-01	15
EC-S15-7/06	07-200-02	15
EC-S16-7/06	07-200-03	21
EC-S17-7/06	07-200-04	24
EC-S18-7/06	07-200-05	60
EC-S19-7/06	07-200-06	12
EC-S20-7/06	07-200-07	11
EC-S21-7/06	07-200-08	41



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - G - Insufficient sample quantity for duplicate analysis.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - O - Hydrocarbons indicative of diesel fuel are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a silica gel cleanup procedure.
 - Y - Sample extract treated with an acid/silica gel cleanup procedure.
 - Z -
- ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference



STL

ANALYTICAL REPORT

Job Number: 580-3178-1

Job Description: 19897-52181-T2

For:

OnSite Environmental Inc
14648 NE 95th Street
Redmond, WA 98052

Attention: Mr. David Baumeister

Ivy J Bolm
Project Manager I
ibolm@stl-inc.com
08/31/2006
Revision: 1

Project Manager: Ivy J Bolm

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Severn Trent Laboratories, Inc.

STL Seattle 5755 8th Street East, Tacoma, WA 98424
Tel (253) 922-2310 Fax (253) 922-5047 www.stl-inc.com



METHOD SUMMARY

Client: OnSite Environmental Inc

Job Number: 580-3178-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Organophosphorous Compounds by GC-MS	STL SEA	SW846 8141A	
Ultrasonic Extraction	STL SEA		SW846 3550B
Percent Moisture	STL SEA	EPA PercentMoisture	

LAB REFERENCES:

STL SEA = STL Seattle

METHOD REFERENCES:

EPA - US Environmental Protection Agency

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986
And Its Updates.

SAMPLE SUMMARY

Client: OnSite Environmental Inc

Job Number: 580-3178-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
580-3178-1	EC-S19-7/06	Solid	07/26/2006 1300	07/31/2006 1300

Analytical Data

Client: OnSite Environmental Inc

Job Number: 580-3178-1

Client Sample ID: EC-S19-7/06

Lab Sample ID: 580-3178-1

Date Sampled: 07/26/2006 1300

Client Matrix: Solid

% Moisture: 11.4

Date Received: 07/31/2006 1300

8141A Organophosphorous Compounds by GC-MS

Method: 8141A

Analysis Batch: 580-9548

Instrument ID: SEA008

Preparation: 3550B

Prep Batch: 580-9472

Lab File ID: L19936.D

Dilution: 1.0

Initial Weight/Volume: 15.2145 g

Date Analyzed: 08/02/2006 1841

Final Weight/Volume: 10 mL

Date Prepared: 08/02/2006 0928

Injection Volume:

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	RL
Dichlorvos		ND		37
Mevinphos		ND		37
Ethoprop		ND		37
Naled		ND		37
Sulfotepp		ND		37
Monochrotophos		ND		37
Phorate		ND		37
Dimethoate		ND		37
Demeton-O + Demeton-S		ND		37
Diazinon		ND		37
Disulfoton		ND		37
Parathion methyl		ND		37
Ronnel		ND		37
Chlorpyrifos		ND		37
Malathion		ND		37
Fenthion		ND		37
Parathion		ND		37
Trichloronate		ND		37
Tetrachlorviphos		ND		37
Merphos		ND		37
Tokuthion		ND		37
Fensulfothion		ND		37
Bolstar		ND		37
EPN		ND		37
Azinphos-methyl		ND		37
Coumaphos		ND		37
Surrogate		%Rec		Acceptance Limits
Tributyl phosphate		64		38 - 129
Triphenylphosphate		69		45 - 125

Analytical Data

Client: OnSite Environmental Inc

Job Number: 580-3178-1

General Chemistry

Client Sample ID: EC-S19-7/06

Lab Sample ID: 580-3178-1
Client Matrix: Solid

Date Sampled: 07/26/2006 1300
Date Received: 07/31/2006 1300

Analyte	Result	Qual	Units	RL	Dil	Method
Percent Solids	89		%	0.10	1.0	PercentMoisture
	Anly Batch: 580-9417	Date Analyzed	08/01/2006 1107			
Percent Moisture	11		%	0.10	1.0	PercentMoisture
	Anly Batch: 580-9417	Date Analyzed	08/01/2006 1107			

QUALITY CONTROL RESULTS

Quality Control Results

Client: OnSite Environmental Inc

Job Number: 580-3178-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS Semi VOA					
Prep Batch: 580-9472					
LCS 580-9472/2-A	Lab Control Spike	T	Solid	3550B	
LCSD 580-9472/3-A	Lab Control Spike Duplicate	T	Solid	3550B	
MB 580-9472/1-A	Method Blank	T	Solid	3550B	
580-3178-1	EC-S19-7/06	T	Solid	3550B	
580-3178-1MS	Matrix Spike	T	Solid	3550B	
580-3178-1MSD	Matrix Spike Duplicate	T	Solid	3550B	
Analysis Batch:580-9548					
LCS 580-9472/2-A	Lab Control Spike	T	Solid	8141A	580-9472
LCSD 580-9472/3-A	Lab Control Spike Duplicate	T	Solid	8141A	580-9472
MB 580-9472/1-A	Method Blank	T	Solid	8141A	580-9472
580-3178-1	EC-S19-7/06	T	Solid	8141A	580-9472
580-3178-1MS	Matrix Spike	T	Solid	8141A	580-9472
580-3178-1MSD	Matrix Spike Duplicate	T	Solid	8141A	580-9472

Report Basis

T = Total

General Chemistry

Analysis Batch:580-9417

580-3178-1	EC-S19-7/06	T	Solid	PercentMoisture
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Report Basis

T = Total

Quality Control Results

Client: OnSite Environmental Inc

Job Number: 580-3178-1

Method Blank - Batch: 580-9472

**Method: 8141A
Preparation: 3550B**

Lab Sample ID: MB 580-9472/1-A
 Client Matrix: Solid
 Dilution: 1.0
 Date Analyzed: 08/02/2006 1642
 Date Prepared: 08/02/2006 0928

Analysis Batch: 580-9548
 Prep Batch: 580-9472
 Units: ug/Kg

Instrument ID: SEA008
 Lab File ID: L19931.D
 Initial Weight/Volume: 15.0000 g
 Final Weight/Volume: 10 mL
 Injection Volume:

Analyte	Result	Qual	RL
Dichlorvos	ND		33
Mevinphos	ND		33
Ethoprop	ND		33
Naled	ND		33
Sulfotepp	ND		33
Monochrotophos	ND		33
Phorate	ND		33
Dimethoate	ND		33
Demeton-O + Demeton-S	ND		33
Diazinon	ND		33
Disulfoton	ND		33
Parathion methyl	ND		33
Ronnel	ND		33
Chlorpyrifos	ND		33
Malathion	ND		33
Fenthion	ND		33
Parathion	ND		33
Trichloronate	ND		33
Tetrachlorviphos	ND		33
Merphos	ND		33
Tokuthion	ND		33
Fensulfothion	ND		33
Bolstar	ND		33
EPN	ND		33
Azinphos-methyl	ND		33
Coumaphos	ND		33

Surrogate	% Rec	Acceptance Limits
Tributyl phosphate	85	38 - 129
Triphenylphosphate	73	45 - 125

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

Quality Control Results

Client: OnSite Environmental Inc

Job Number: 580-3178-1

**Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 580-9472**

**Method: 8141A
Preparation: 3550B**

LCS Lab Sample ID: LCS 580-9472/2-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 08/02/2006 1706
Date Prepared: 08/02/2006 0928

Analysis Batch: 580-9548
Prep Batch: 580-9472
Units: ug/Kg

Instrument ID: SEA008
Lab File ID: L19932.D
Initial Weight/Volume: 15.0000 g
Final Weight/Volume: 10 mL
Injection Volume:

LCSD Lab Sample ID: LCSD 580-9472/3-A
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 08/02/2006 1730
Date Prepared: 08/02/2006 0928

Analysis Batch: 580-9548
Prep Batch: 580-9472
Units: ug/Kg

Instrument ID: SEA008
Lab File ID: L19933.D
Initial Weight/Volume: 15.0000 g
Final Weight/Volume: 10 mL
Injection Volume:

Analyte	% Rec.		Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
	LCS	LCSD					
Diazinon	85	87	58 - 113	2	28		
Chlorpyrifos	78	82	55 - 115	5	19		
Malathion	77	85	58 - 124	10	23		
Azinphos-methyl	70	71	38 - 133	0	31		
Surrogate	LCS % Rec		LCSD % Rec		Acceptance Limits		
Tributyl phosphate	71		79		38 - 129		
Triphenylphosphate	64		60		45 - 125		

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

Quality Control Results

Client: OnSite Environmental Inc

Job Number: 580-3178-1

**Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 580-9472**

**Method: 8141A
Preparation: 3550B**

MS Lab Sample ID: 580-3178-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 08/02/2006 1754
Date Prepared: 08/02/2006 0928

Analysis Batch: 580-9548
Prep Batch: 580-9472

Instrument ID: SEA008
Lab File ID: L19934.D
Initial Weight/Volume: 15.1447 g
Final Weight/Volume: 10 mL
Injection Volume:

MSD Lab Sample ID: 580-3178-1
Client Matrix: Solid
Dilution: 1.0
Date Analyzed: 08/02/2006 1818
Date Prepared: 08/02/2006 0928

Analysis Batch: 580-9548
Prep Batch: 580-9472

Instrument ID: SEA008
Lab File ID: L19935.D
Initial Weight/Volume: 15.1236 g
Final Weight/Volume: 10 mL
Injection Volume:

Analyte	% Rec.		Limit	RPD	RPD Limit	MS Qual	MSD Qual
	MS	MSD					
Diazinon	77	82	58 - 113	7	28		
Chlorpyrifos	79	83	55 - 115	5	19		
Malathion	71	73	58 - 124	3	23		
Azinphos-methyl	87	102	38 - 133	16	31		
Surrogate		MS % Rec	MSD % Rec		Acceptance Limits		
Tributyl phosphate		63	66		38 - 129		
Triphenylphosphate		67	70		45 - 125		

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



CHAIN OF CUSTODY RECORD

3178 Page 1 of 1

14648 NE 95th Street, Redmond, WA 98052 · (425) 883-3881

Laboratory Reference #: 07-200

Subcontract Laboratory: Severn Trent Laboratories, Inc.

Phone #: 1 (253) 922 - 2310

Project Manager: David Baumeister

Date/Time: _____

Project Number: 19897-52181-T2

Contact Person: _____

Project Name: _____

OSE #	Sample ID	Date Sampled	Time	Matrix	# Jars	Analysis Requested	Comments/Special Instructions
	EC-S19-7/04	7/26/04	1300	S	1	OP Pesticides 8141	
Relinquished by: <i>MCH</i>	date: <i>7/31/06</i>	Received by: <i>Jack Hunter</i>	date: <i>7/31/06</i>				
Company: <i>OSE</i>	time: <i>1130</i>	Company: <i>STL</i>	time: <i>1:30</i>				
Relinquished by: <i>Jack Hunter</i>	date: <i>7/31/06</i>	Received by: <i>Khesler</i>	date: <i>7/31/06</i>				
Company: <i>STL</i>	time: <i>12:00</i>	Company: <i>STL</i>	time: <i>1pm</i>				
Relinquished by:	date:	Received by:	date:				
Company:	time:	Company:	time:				

LOGIN SAMPLE RECEIPT CHECK LIST

Client: OnSite Environmental Inc

Job Number: 580-3178-1

Login Number: 3178

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	Hand Del
Cooler Temperature is acceptable.	NA	
Cooler Temperature is recorded.	NA	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	NA	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

Chain of Custody

Laboratory Number: **07-200**

Company: **CDM**
 Project Number: **19297-52181-T2**
 Project Name: **King County - Ellyspat Crk**
 Project Manager: **Lance Peterson**
 Sampled by: **Josh Miller**

Turnaround Request (in working days)

(Check One)

Same Day 1 Day
 2 Day 3 Day
 Standard (7 working days)
 (TPH analysis 5 working days)
 _____ (other)

Requested Analysis

NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 814 <i>814 A Organics Pesticides</i>	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	VPH	EPH	As, Cd, Pb by 6010B	% Moisture
------------	---------------	----------	--------------------	--------------------------------	------------------------	---------------------	--------------	---------------------	---	-----------------------	-------------	-------------	-----	-----	----------------------------	------------

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 814 <i>814 A Organics Pesticides</i>	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	VPH	EPH	As, Cd, Pb by 6010B	% Moisture		
1	EC-S14-7/06	7/26/06	0830	soil	1			X															X	
2	EC-S15-7/06		0840		1			X																
3	EC-S16-7/06		0900		1			X																
4	EC-S17-7/06		1000		1			X																
5	EC-S18-7/06		1200		1			X																
6	EC-S19-7/06		1300		4									X	X							X		
7	EC-S20-7/06		1400		1																	X		
8	EC-S21-7/06		1430		1																	X		
9	EC-SW1-7/06		12:15	water	2			X				X												
10	EC-Rinsate-7/06		11:30		2			X																

Signature	Company	Date	Time	Comments/Special Instructions:
Relinquished by: <i>Josh Miller</i>	CDM	7/28/06	1100	Contract No 23008E
Received by: <i>CM New</i>	<i>OS</i>	7/28/06	1415	
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				
Reviewed by/Date	Reviewed by/Date	Chromatograms with final report <input type="checkbox"/>		



**OnSite
Environmental Inc.**

Analytical Testing and Mobile Laboratory Services

Received

AUG 11 2006

CDM

August 8, 2006

Lance Peterson
CDM
P.O. Box 3885
Bellevue, WA 98009

Re: Analytical Data for Project 19897-52181-T2
Laboratory Reference No. 0607-203

Dear Lance:

Enclosed are the analytical results and associated quality control data for samples submitted on July 29, 2006.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baummeister
Project Manager

Enclosures

Date of Report: August 8, 2006
Samples Submitted: July 29, 2006
Laboratory Reference: 0607-203
Project: 19897-52181-T2

Case Narrative

Samples were collected on July 27, 2006 and received by the laboratory on July 29, 2006. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: August 8, 2006
 Samples Submitted: July 29, 2006
 Laboratory Reference: 0607-203
 Project: 19897-52181-T2

NWTPH-Dx

Date Extracted: 7-31-06
 Date Analyzed: 8-20-06

Matrix: Water
 Units: mg/L (ppm)

Client ID:	EC-MW-01-7/06	EC-MW-02-7/06	EC-MW-03-7/06
Lab ID:	07-203-01	07-203-02	07-203-03

Bunker C Range:	ND	1.2	4.6
PQL:	0.40	0.40	0.40
Identification:	---	Bunker C	Bunker C
Surrogate Recovery			
o-Terphenyl:	128%	134%	135%
Flags:	Y	Y	Y

Date of Report: August 8, 2006
Samples Submitted: July 29, 2006
Laboratory Reference: 0607-203
Project: 19897-52181-T2

NWTPH-Dx

Date Extracted: 7-31-06
Date Analyzed: 8-20-06

Matrix: Water
Units: mg/L (ppm)

Client ID: EC-MW-04-7/06
Lab ID: 07-203-04

Bunker C Range: **ND**
PQL: 0.40

Identification: ---

Surrogate Recovery
o-Terphenyl: 131%

Flags: Y

Date of Report: August 8, 2006
Samples Submitted: July 29, 2006
Laboratory Reference: 0607-203
Project: 19897-52181-T2

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted: 7-31-06
Date Analyzed: 8-20-06

Matrix: Water
Units: mg/L (ppm)

Lab ID: MB0731W1

Bunker C Range: **ND**
PQL: 0.40

Identification: ---

Surrogate Recovery
o-Terphenyl: 133%

Flags: Y

Date of Report: August 8, 2006
Samples Submitted: July 29, 2006
Laboratory Reference: 0607-203
Project: 19897-52181-T2

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted: 7-31-06
Date Analyzed: 7-31-06

Matrix: Water
Units: mg/L (ppm)

Lab ID: 07-192-04 07-192-04 DUP

Diesel Range: ND ND
PQL: 0.25 0.25

RPD: N/A

Surrogate Recovery
o-Terphenyl: 119% 123%

Flags: Y Y

Date of Report: August 8, 2006
 Samples Submitted: July 29, 2006
 Laboratory Reference: 0607-203
 Project: 19897-52181-T2

PAHs by EPA 8270C/SIM

Date Extracted: 8-1-06
 Date Analyzed: 8-2-06
 Matrix: Water
 Units: ug/L (ppb)
 Lab ID: 07-203-01
 Client ID: EC-MW-01-7/06

Compound:	Results	Flags	PQL
Naphthalene	ND		0.095
2-Methylnaphthalene	ND		0.095
1-Methylnaphthalene	ND		0.095
Acenaphthylene	ND		0.095
Acenaphthene	ND		0.095
Fluorene	ND		0.095
Phenanthrene	ND		0.095
Anthracene	ND		0.095
Fluoranthene	ND		0.095
Pyrene	ND		0.095
Benzo[a]anthracene	ND		0.0095
Chrysene	ND		0.0095
Benzo[b]fluoranthene	ND		0.0095
Benzo[k]fluoranthene	ND		0.0095
Benzo[a]pyrene	ND		0.0095
Indeno(1,2,3-c,d)pyrene	ND		0.0095
Dibenz[a,h]anthracene	ND		0.0095
Benzo[g,h,i]perylene	ND		0.0095

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	70	24 - 92
2-Fluorobiphenyl	64	25 - 89
Terphenyl-d14	80	39 - 92

Date of Report: August 8, 2006
 Samples Submitted: July 29, 2006
 Laboratory Reference: 0607-203
 Project: 19897-52181-T2

PAHs by EPA 8270C/SIM

Date Extracted: 8-1-06
 Date Analyzed: 8-2-06
 Matrix: Water
 Units: ug/L (ppb)
 Lab ID: 07-203-02
 Client ID: EC-MW-02-7/06

Compound:	Results	Flags	PQL
Naphthalene	0.13		0.097
2-Methylnaphthalene	ND		0.097
1-Methylnaphthalene	ND		0.097
Acenaphthylene	ND		0.097
Acenaphthene	0.11		0.097
Fluorene	ND		0.097
Phenanthrene	ND		0.097
Anthracene	ND		0.097
Fluoranthene	ND		0.097
Pyrene	ND		0.097
Benzo[a]anthracene	0.010		0.0097
Chrysene	ND		0.0097
Benzo[b]fluoranthene	ND		0.0097
Benzo[k]fluoranthene	ND		0.0097
Benzo[a]pyrene	ND		0.0097
Indeno(1,2,3-c,d)pyrene	ND		0.0097
Dibenz[a,h]anthracene	ND		0.0097
Benzo[g,h,i]perylene	ND		0.0097

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	60	24 - 92
2-Fluorobiphenyl	56	25 - 89
Terphenyl-d14	76	39 - 92

Date of Report: August 8, 2006
 Samples Submitted: July 29, 2006
 Laboratory Reference: 0607-203
 Project: 19897-52181-T2

PAHs by EPA 8270C/SIM

Date Extracted: 8-1-06
 Date Analyzed: 8-2&3-06
 Matrix: Water
 Units: ug/L (ppb)
 Lab ID: 07-203-03
 Client ID: EC-MW-03-7/06

Compound:	Results	Flags	PQL
Naphthalene	1.8		0.095
2-Methylnaphthalene	7.3		0.48
1-Methylnaphthalene	5.1		0.48
Acenaphthylene	ND		0.095
Acenaphthene	0.63		0.095
Fluorene	0.87		0.095
Phenanthrene	4.4		0.095
Anthracene	0.81		0.095
Fluoranthene	0.42		0.095
Pyrene	3.5		0.095
Benzo[a]anthracene	0.68		0.0095
Chrysene	0.93		0.0095
Benzo[b]fluoranthene	0.21		0.0095
Benzo[k]fluoranthene	0.027		0.0095
Benzo[a]pyrene	0.53		0.0095
Indeno(1,2,3-c,d)pyrene	0.10		0.0095
Dibenz[a,h]anthracene	0.056		0.0095
Benzo[g,h,i]perylene	0.37		0.0095

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	58	24 - 92
2-Fluorobiphenyl	54	25 - 89
Terphenyl-d14	76	39 - 92

Date of Report: August 8, 2006
 Samples Submitted: July 29, 2006
 Laboratory Reference: 0607-203
 Project: 19897-52181-T2

PAHs by EPA 8270C/SIM

Date Extracted: 8-1-06
 Date Analyzed: 8-2-06
 Matrix: Water
 Units: ug/L (ppb)
 Lab ID: 07-203-04
 Client ID: EC-MW-04-7/06

Compound:	Results	Flags	PQL
Naphthalene	ND		0.096
2-Methylnaphthalene	ND		0.096
1-Methylnaphthalene	ND		0.096
Acenaphthylene	ND		0.096
Acenaphthene	ND		0.096
Fluorene	ND		0.096
Phenanthrene	ND		0.096
Anthracene	ND		0.096
Fluoranthene	ND		0.096
Pyrene	ND		0.096
Benzo[a]anthracene	ND		0.0096
Chrysene	0.015		0.0096
Benzo[b]fluoranthene	0.011		0.0096
Benzo[k]fluoranthene	ND		0.0096
Benzo[a]pyrene	ND		0.0096
Indeno(1,2,3-c,d)pyrene	ND		0.0096
Dibenz[a,h]anthracene	ND		0.0096
Benzo[g,h,i]perylene	0.013		0.0096

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	63	24 - 92
2-Fluorobiphenyl	57	25 - 89
Terphenyl-d14	75	39 - 92

Date of Report: August 8, 2006
 Samples Submitted: July 29, 2006
 Laboratory Reference: 0607-203
 Project: 19897-52181-T2

**PAHs by EPA 8270C/SIM
 METHOD BLANK QUALITY CONTROL**

Date Extracted: 8-1-06
 Date Analyzed: 8-2-06
 Matrix: Water
 Units: ug/L (ppb)
 Lab ID: MB0801W1

Compound:	Results	Flags	PQL
Naphthalene	ND		0.10
2-Methylnaphthalene	ND		0.10
1-Methylnaphthalene	ND		0.10
Acenaphthylene	ND		0.10
Acenaphthene	ND		0.10
Fluorene	ND		0.10
Phenanthrene	ND		0.10
Anthracene	ND		0.10
Fluoranthene	ND		0.10
Pyrene	ND		0.10
Benzo[a]anthracene	ND		0.010
Chrysene	ND		0.010
Benzo[b]fluoranthene	ND		0.010
Benzo[k]fluoranthene	ND		0.010
Benzo[a]pyrene	ND		0.010
Indeno(1,2,3-c,d)pyrene	ND		0.010
Dibenz[a,h]anthracene	ND		0.010
Benzo[g,h,i]perylene	ND		0.010

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	73	24 - 92
2-Fluorobiphenyl	69	25 - 89
Terphenyl-d14	85	39 - 92

Date of Report: August 8, 2006
 Samples Submitted: July 29, 2006
 Laboratory Reference: 0607-203
 Project: 19897-52181-T2

**PAHs by EPA 8270C/SIM
 SB/SBD QUALITY CONTROL**

Date Extracted: 8-1-06
 Date Analyzed: 8-2-06

Matrix: Water
 Units: ug/L (ppb)

Lab ID: SB0801W1

Compound:	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
Naphthalene	0.500	0.295	59	0.313	63	43-76	
Acenaphthylene	0.500	0.300	60	0.305	61	41-88	
Acenaphthene	0.500	0.300	60	0.304	61	45-80	
Fluorene	0.500	0.321	64	0.319	64	49-92	
Phenanthrene	0.500	0.395	79	0.366	73	53-90	
Anthracene	0.500	0.330	66	0.326	65	55-94	
Fluoranthene	0.500	0.366	73	0.363	73	56-102	
Pyrene	0.500	0.391	78	0.385	77	53-99	
Benzo[a]anthracene	0.500	0.410	82	0.404	81	48-104	
Chrysene	0.500	0.384	77	0.375	75	43-94	
Benzo[b]fluoranthene	0.500	0.424	85	0.414	83	52-102	
Benzo[k]fluoranthene	0.500	0.391	78	0.378	76	53-100	
Benzo[a]pyrene	0.500	0.418	84	0.404	81	43-111	
Indeno(1,2,3-c,d)pyrene	0.500	0.407	81	0.398	80	50-105	
Dibenz[a,h]anthracene	0.500	0.415	83	0.403	81	49-96	
Benzo[g,h,i]perylene	0.500	0.413	83	0.398	80	50-103	

	RPD	RPD Limit	Flags
Naphthalene	6	25	
Acenaphthylene	2	25	
Acenaphthene	1	25	
Fluorene	1	25	
Phenanthrene	8	25	
Anthracene	1	25	
Fluoranthene	1	25	
Pyrene	2	25	
Benzo[a]anthracene	1	25	
Chrysene	2	25	
Benzo[b]fluoranthene	2	25	
Benzo[k]fluoranthene	4	25	
Benzo[a]pyrene	3	25	
Indeno(1,2,3-c,d)pyrene	3	25	
Dibenz[a,h]anthracene	3	25	
Benzo[g,h,i]perylene	4	25	



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - G - Insufficient sample quantity for duplicate analysis.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - O - Hydrocarbons indicative of diesel fuel are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a silica gel cleanup procedure.
 - Y - Sample extract treated with an acid/silica gel cleanup procedure.
 - Z -
- ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Turnaround Request (In working days) Laboratory Number: **07-203**

Company: CDM
 Project Number: 19897-52181-T2
 Project Name: King County - Ellispark
 Project Manager: Lance Peterson
 Sampled by: Josh Miller

(Check One)
 Same Day 1 Day
 2 Day 3 Day
 Standard (7 working days)
 (TPH analysis 5 working days)

 (other)

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	# of Cont.	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles by 8260B	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C / SIM	PCBs by 8082	Pesticides by 8081A	Herbicides by 8151A	Total RCRA Metals (8)	TCLP Metals	HEM by 1664	VPH	EPH	% Moisture	
1	EC-MW01-7/06	7/29/06	1600	Water	4			X				X										
2	EC-MW 02-7/06		1630		2			X				X										
3	EC-MW 03-7/06		1745 ^{PM}		4			X				X										
4	EC-MW04-7/06		1800		4			X				X										

Signature	Company	Date	Time	Comments/Special Instructions:
<u>Josh Miller</u>	<u>CDM</u>	<u>7/29/06</u>	<u>10:30</u>	
<u>[Signature]</u>	<u>OSI/En</u>	<u>7/29/06</u>	<u>1030</u>	
Reviewed by/Date	Reviewed by/Date	Chromatograms with final report <input type="checkbox"/>		

Received

SEP 01 2006

CDM



**OnSite
Environmental Inc.**

Analytical Testing and Mobile Laboratory Services

August 31, 2006

Lance Peterson
CDM
P.O. Box 3885
Bellevue, WA 98009

Re: Analytical Data for Project 19897-52181
Laboratory Reference No. 0608-170

Dear Lance:

Enclosed are the analytical results and associated quality control data for samples submitted on August 18, 2006.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "David Baumeister", is written over a circular scribble. Below the signature is the typed name and title.

David Baumeister
Project Manager

Enclosures

Date of Report: August 31, 2006
Samples Submitted: August 18, 2006
Laboratory Reference: 0608-170
Project: 19897-52181

Case Narrative

Samples were collected on August 17, 2006 and received by the laboratory on August 18, 2006. They were maintained at the laboratory at a temperature of 2°C to 6°C except as noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.

Date of Report: August 31, 2006
Samples Submitted: August 18, 2006
Laboratory Reference: 0608-170
Project: 19897-52181

NWTPH-Dx

Date Extracted: 8-21-06
Date Analyzed: 8-30-06

Matrix: Water
Units: mg/L (ppm)

Client ID:	EC-MW3-8/06	EC-MW5-8/06
Lab ID:	08-170-01	08-170-02

Bunker C Range:	ND	ND
PQL:	0.50	0.50
Identification:	---	---
Surrogate Recovery		
o-Terphenyl:	89%	93%
Flags:	Y	Y

Date of Report: August 31, 2006
Samples Submitted: August 18, 2006
Laboratory Reference: 0608-170
Project: 19897-52181

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted: 8-21-06
Date Analyzed: 8-30-06

Matrix: Water
Units: mg/L (ppm)

Lab ID: MB0821W1

Bunker C Range: **ND**
PQL: 0.50

Identification: ---

Surrogate Recovery
o-Terphenyl: 70%

Flags: Y

Date of Report: August 31, 2006
Samples Submitted: August 18, 2006
Laboratory Reference: 0608-170
Project: 19897-52181

**NWTPH-Dx
DUPLICATE QUALITY CONTROL**

Date Extracted: 8-21-06
Date Analyzed: 8-30-06

Matrix: Water
Units: mg/L (ppm)

Lab ID: 08-170-01 08-170-01 DUP

Bunker C Range: **ND** **ND**
PQL: 0.50 0.50

RPD: N/A

Surrogate Recovery
o-Terphenyl: 89% 87%

Flags: Y Y

Date of Report: August 31, 2006
 Samples Submitted: August 18, 2006
 Laboratory Reference: 0608-170
 Project: 19897-52181

PAHs by EPA 8270C/SIM

Date Extracted: 8-24-06
 Date Analyzed: 8-25-06

Matrix: Water
 Units: ug/L (ppb)

Lab ID: 08-170-01
 Client ID: EC-MW3-8/06

Compound:	Results	Flags	PQL
Naphthalene	0.20		0.095
2-Methylnaphthalene	0.65		0.095
1-Methylnaphthalene	0.56		0.095
Acenaphthylene	ND		0.095
Acenaphthene	ND		0.095
Fluorene	ND		0.095
Phenanthrene	0.29		0.095
Anthracene	ND		0.095
Fluoranthene	ND		0.095
Pyrene	0.10		0.095
Benzo[a]anthracene	0.015		0.0095
Chrysene	0.012		0.0095
Benzo[b]fluoranthene	ND		0.0095
Benzo[k]fluoranthene	ND		0.0095
Benzo[a]pyrene	ND		0.0095
Indeno(1,2,3-c,d)pyrene	ND		0.0095
Dibenz[a,h]anthracene	ND		0.0095
Benzo[g,h,i]perylene	ND		0.0095

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	50	24 - 92
2-Fluorobiphenyl	44	25 - 89
Terphenyl-d14	80	39 - 92

Date of Report: August 31, 2006
 Samples Submitted: August 18, 2006
 Laboratory Reference: 0608-170
 Project: 19897-52181

PAHs by EPA 8270C/SIM

Date Extracted: 8-24-06
 Date Analyzed: 8-25-06
 Matrix: Water
 Units: ug/L (ppb)
 Lab ID: 08-170-02
 Client ID: EC-MW5-8/06

Compound:	Results	Flags	PQL
Naphthalene	0.24		0.095
2-Methylnaphthalene	0.80		0.095
1-Methylnaphthalene	0.69		0.095
Acenaphthylene	ND		0.095
Acenaphthene	ND		0.095
Fluorene	ND		0.095
Phenanthrene	0.39		0.095
Anthracene	ND		0.095
Fluoranthene	ND		0.095
Pyrene	0.14		0.095
Benzo[a]anthracene	0.024		0.0095
Chrysene	0.025		0.0095
Benzo[b]fluoranthene	ND		0.0095
Benzo[k]fluoranthene	ND		0.0095
Benzo[a]pyrene	ND		0.0095
Indeno(1,2,3-c,d)pyrene	ND		0.0095
Dibenz[a,h]anthracene	ND		0.0095
Benzo[g,h,i]perylene	ND		0.0095

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	53	24 - 92
2-Fluorobiphenyl	49	25 - 89
Terphenyl-d14	80	39 - 92

Date of Report: August 31, 2006
 Samples Submitted: August 18, 2006
 Laboratory Reference: 0608-170
 Project: 19897-52181

**PAHs by EPA 8270C/SIM
 METHOD BLANK QUALITY CONTROL**

Date Extracted: 8-24-06
 Date Analyzed: 8-25-06
 Matrix: Water
 Units: ug/L (ppb)
 Lab ID: MB0824W1

Compound:	Results	Flags	PQL
Naphthalene	ND		0.10
2-Methylnaphthalene	ND		0.10
1-Methylnaphthalene	ND		0.10
Acenaphthylene	ND		0.10
Acenaphthene	ND		0.10
Fluorene	ND		0.10
Phenanthrene	ND		0.10
Anthracene	ND		0.10
Fluoranthene	ND		0.10
Pyrene	ND		0.10
Benzo[a]anthracene	ND		0.010
Chrysene	ND		0.010
Benzo[b]fluoranthene	ND		0.010
Benzo[k]fluoranthene	ND		0.010
Benzo[a]pyrene	ND		0.010
Indeno(1,2,3-c,d)pyrene	ND		0.010
Dibenz[a,h]anthracene	ND		0.010
Benzo[g,h,i]perylene	ND		0.010

Surrogate :	Percent Recovery	Control Limits
Nitrobenzene-d5	64	24 - 92
2-Fluorobiphenyl	58	25 - 89
Terphenyl-d14	86	39 - 92

Date of Report: August 31, 2006
 Samples Submitted: August 18, 2006
 Laboratory Reference: 0608-170
 Project: 19897-52181

**PAHs by EPA 8270C/SIM
 SB/SBD QUALITY CONTROL**

Date Extracted: 8-24-06
 Date Analyzed: 8-25-06

Matrix: Water
 Units: ug/L (ppb)

Lab ID: SB0824W1

Compound:	Spike Amount	SB	Percent Recovery	SBD	Percent Recovery	Recovery Limits	Flags
Naphthalene	0.500	0.289	58	0.343	69	43-76	
Acenaphthylene	0.500	0.286	57	0.328	66	41-88	
Acenaphthene	0.500	0.285	57	0.326	65	45-80	
Fluorene	0.500	0.308	62	0.350	70	49-92	
Phenanthrene	0.500	0.332	66	0.363	73	53-90	
Anthracene	0.500	0.328	66	0.364	73	55-94	
Fluoranthene	0.500	0.365	73	0.381	76	56-102	
Pyrene	0.500	0.360	72	0.373	75	53-99	
Benzo[a]anthracene	0.500	0.412	82	0.420	84	48-104	
Chrysene	0.500	0.372	74	0.383	77	43-94	
Benzo[b]fluoranthene	0.500	0.384	77	0.400	80	52-102	
Benzo[k]fluoranthene	0.500	0.397	79	0.400	80	53-100	
Benzo[a]pyrene	0.500	0.367	73	0.382	76	43-111	
Indeno(1,2,3-c,d)pyrene	0.500	0.364	73	0.370	74	50-105	
Dibenz[a,h]anthracene	0.500	0.385	77	0.393	79	49-96	
Benzo[g,h,i]perylene	0.500	0.364	73	0.373	75	50-103	

	RPD	RPD Limit	Flags
Naphthalene	17	25	
Acenaphthylene	14	25	
Acenaphthene	13	25	
Fluorene	13	25	
Phenanthrene	9	25	
Anthracene	11	25	
Fluoranthene	4	25	
Pyrene	3	25	
Benzo[a]anthracene	2	25	
Chrysene	3	25	
Benzo[b]fluoranthene	4	25	
Benzo[k]fluoranthene	1	25	
Benzo[a]pyrene	4	25	
Indeno(1,2,3-c,d)pyrene	2	25	
Dibenz[a,h]anthracene	2	25	
Benzo[g,h,i]perylene	3	25	



Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
 - B - The analyte indicated was also found in the blank sample.
 - C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
 - E - The value reported exceeds the quantitation range and is an estimate.
 - F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
 - G - Insufficient sample quantity for duplicate analysis.
 - H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
 - I - Compound recovery is outside of the control limits.
 - J - The value reported was below the practical quantitation limit. The value is an estimate.
 - K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
 - L - The RPD is outside of the control limits.
 - M - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
 - O - Hydrocarbons indicative of diesel fuel are present in the sample and are impacting the gasoline result.
 - P - The RPD of the detected concentrations between the two columns is greater than 40.
 - Q - Surrogate recovery is outside of the control limits.
 - S - Surrogate recovery data is not available due to the necessary dilution of the sample.
 - T - The sample chromatogram is not similar to a typical _____.
 - U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
 - V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
 - W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
 - X - Sample extract treated with a silica gel cleanup procedure.
 - Y - Sample extract treated with an acid/silica gel cleanup procedure.
 - Z -
- ND - Not Detected at PQL
 PQL - Practical Quantitation Limit
 RPD - Relative Percent Difference

E

Appendix

E

Appendix E

Organic Carbon Normalization Process

Appendix E

Organic Carbon Normalization Process

The analytical results for the marine sediment samples (denoted MS-1, MS-2, and MS-3) collected during the July 2006 CDM investigation were organic-carbon normalized per the Washington State Sediment Management Standards (SMS), Washington Administrative Code (WAC) Chapter 173-204. Because non-ionic, organic chemicals partition to the organic carbon in sediments, their effective toxicity is more highly related to the organic fraction of the sediment than the concentration based on total dry weight. Data for metals and other ionic compounds do not need to be normalized because ionic or polar compounds are less likely to partition into the organic fraction of the sediment. The following equations were used to normalize sediment data to total organic carbon (TOC; Michelsen and Bragdon-Cook, 1993):

$$C_{normalized} = \frac{C_{dryweight}}{X}$$

Where:

$C_{normalized}$ = Organic carbon-normalized data in milligrams per kilogram (mg/kg)

$C_{dryweight}$ = Concentration as a function of dry weight (mg/kg)

X = Percent organic carbon in sediment, expressed as a decimal (e.g., 1 mg/kg organic carbon = 0.0001% = 0.000001 expressed as a decimal)

The three sediment sample contained a relatively small level of TOC at 3,300 to 9,820 mg/kg. These values correspond to 0.33 to 0.982% or 0.0033 to 0.00982 expressed as a decimal.

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