Data Report

Former Mill A MTCA Support Sample Collection

Everett, Washington

Prepared for:

Port of Everett
Everett, Washington

November 2007

Project No. 13116.000

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1.0 INTRODUCTION

This report describes the results of fieldwork conducted by Geomatrix Consultants, Inc. (Geomatrix), to characterize sediments within and adjacent to the Former Mill A site in Everett, Washington. Structures associated with the Former Mill A were demolished during the 1980s, and the area is now known as the Port of Everett (Port) South Terminal area (the site) (Figure 1). The South Terminal Area was listed on the Washington State Department of Ecology's (Ecology's) 1996 Sediment Management Standards Contaminated Sediment Site List (Ecology 1996). The site was listed for phenols, benzoic acid, metals, and low-molecular-weight polycyclic aromatic hydrocarbons (LPAHs). In response to the Governor's Puget Sound Initiative, the Port conducted additional characterization of the sediments in the South Terminal area to determine what, if any, remediation or other action needs to be taken to seek a delisting of the South Terminal area from the Contaminated Site List. The sampling and analyses were conducted as described in the Quality Assurance Project Plan (QAPP), prepared for the Port of Everett by Geomatrix (Appendix A; Geomatrix, 2007), except as specified in Section 4.0.

2.0 SITE HISTORY

Historically, the South Terminal area has been used for sawmills, pulp mills, and log rafting and storage. The Bell-Nelson sawmill was constructed on pilings south of Pier 1 in the vicinity of the South Terminal site and began operating as early as 1896 (Pentec, 1992). In 1901 the Weyerhaeuser Company (Weyerhaeuser) purchased the Bell-Nelson sawmill and continued lumber production on the site (Pentec, 1992).

During the 1930s, Weyerhaeuser constructed a sulfite pulp mill (Mill A) adjacent to the sawmill (Pentec, 1992; DOF and Pentec, 1992). A shoreline bulkhead was also constructed during the 1930s or 1940s close to the location of the west bulkhead (DOF and Pentec, 1992). The area behind the bulkhead was subsequently filled. An offshore cargo dock was constructed before 1936 using treated timber pilings and connected to the shoreline by bridges (Figure 2).

An aerial photograph of the mill site in 1947 (Figure 3) shows a reconfigured cargo dock, the sulfite pulp mill, and waiting log rafts. Figure 4 shows the sulfite plant layout and process sewer outfalls as they existed in 1970. The sewers identified on the drawing include the bleach plant sewer, the main sewer, and the power house and acid plant sewers (abandoned and rerouted by 1970). Also visible on the 1970 drawing are numerous buildings and tanks, including a chlorinator, a chlorine unloading facility, a barking plant (identified as "Hydraulic Log Barker" on the 1977 Mill Plot Plan [Figure 5]), and a power house with hogged fuel storage.

Three inactive industrial outfalls (WT002, WT003, and WT004) and one stormwater outfall (WT006) were identified by Ecology and Environment (1992) in the vicinity of the Mill A site (Figure 6). The industrial outfalls WT002 and WT003 were reported to discharge spent sulfite liquor, as well as untreated washing, bleaching, and drying process wastewater into the nearshore areas adjacent to the plant (Pentec, 1992; DOF and Pentec, 1992; Ecology and Environment, 1992; Pentec et al., 1993). Industrial outfall WT004 was reported to discharge limestone cleaning water and stormwater (Ecology and Environment, 1992). Outfalls identified as WT002 and WT003 likely correspond to the power house and acid plant sewer and the main sewer, respectively, on Figure 4. The bleach plant sewer line and outfall were located where the current South Terminal Pier (Figure 1) is now located and had been removed or buried by 1977.

In 1951, a deepwater outfall was installed to discharge spent sulfide liquor from the Scott Paper and the Weyerhaeuser mills offshore (Pentec, 1992; DOF and Pentec, 1992). The sewer line

from the Scott Paper mill was laid to the east of the Weyerhaeuser mill and discharged through the deepwater diffuser southwest of the mill. A majority of the process water from the Weyerhaeuser mill was eventually discharged through the deepwater diffuser, but as late as December 1975 effluent and pulp were still being discharged into the nearshore from Outfall 004 (Ecology, 1975).

In 1975, the sulfite pulp mill was converted into a thermomechanical mill. Figure 5 shows the plant layout as it existed in 1977, including the location of the deepwater effluent line to the southwest of the mill.

During the early 1980s the thermomechanical mill ceased operation and was demolished. The property was bought by the Port in 1983, and the uplands were cleared for use as a log yard in 1987 (Pentec et al., 1993). As part of the Port's Marine Terminal Improvement Program, the area just north of the Former Mill A site was dredged. A Nearshore Confined Disposal Facility was constructed along the shoreline north of the Former Mill A site at the current site of the Port's Pacific Terminal facility (Figure 1).

3.0 PREVIOUS STUDIES

Disposal of sawdust and other wood waste into the nearshore areas of the Everett waterfront and the filled tidelands of the Snohomish River appears to have been a common practice until the 1940s (DOF and Pentec, 1992). The operation of sawmill, pulp, and paper facilities have altered native sediments due to deposition of sawdust and wood chips (from milling operations) and rafting debris (bark and wood debris) over native sediments in the nearshore area of South Terminal (DOF and Pentec, 1992).

Early studies in the East Waterway and in the vicinity of South Terminal have been summarized previously (PTI and Tetra Tech, 1988). Three sampling locations near the Mill A site had relatively high concentrations of some metals, polycyclic aromatic hydrocarbons (PAHs), phenols, and benzoic acid, but with localized distributions.

During sediment investigations conducted in 1992 as part of the Port's Marine Terminal Improvement Program, a deposit of sawdust was found adjacent to the Former Mill A site. This deposit was located in the vicinity of the former cargo dock adjacent to the west bulkhead of the Former Mill A site and was estimated to be up to 20 feet thick. This surface and near-surface deposit was composed of fine-grained sawdust (60 to 80 percent total volatile solids) with sand and silt (Pentec et al., 1993).

Chemical analyses were conducted in 1992 to evaluate the nature and extent of chemical contaminants and disposal options for nearshore sediments at the South Terminal (DOF and Pentec, 1992; EcoChem and Pentec, 1993; Pentec et al., 1993). Three borings were located in the sawdust deposit. Chemical characterization of samples from the borings showed that a total of eight chemicals of concern exceeded the 1998 Puget Sound Dredged Disposal Analysis (PSDDA) screening level or maximum level criteria. Three phenols also exceeded the Sediment Management Standards (SMS) Cleanup Screening Level (CSL) criteria (Washington Administrative Code [WAC] 173-204-520).

EcoChem and Pentec (1992) compared chemical groups (e.g., PAHs and methylphenols) to known contaminant sources reported in the literature to identify potential sources of contamination. The chief chemical group of concern in the sawdust deposit was phenols. The sawdust deposit has a methylphenol pattern that does not show a strong correlation between 2,4-dimethylphenol concentrations and PAH concentrations. Based on the literature, natural wood decomposition and effluent common in the pulp and paper industry have similar patterns (EcoChem and Pentec, 1992).

4.0 METHODS

Sediment sampling within the project area was conducted from May 7 to May 16, 2007. Sample collection was conducted in general accordance with the project QAPP (Geomatrix, 2007), as described in this section; any deviations from the QAPP are noted. Cores were collected at 21 of the 27 coring stations (as specified in the QAPP). Six of the coring stations could not be sampled due to the presence of debris or riprap. Two additional coring stations were added during the field effort to provide additional data on the horizontal extent of the sawdust deposit. Three of the coring stations were also relocated from the original proposed locations to avoid debris. Grab samples were collected at 21 stations (as specified in the QAPP). A duplicate grab sample collected at ST-24 was used as a field QC sample (frequency of approximately 5 percent). No other deviations from the QAPP were noted. Samples were assigned sequential sample ID numbers.

4.1 CORE COLLECTION PROCEDURES

Core processing followed the QAPP. Cores were processed within 6 hours of collection.

Core tube processing was performed as follows.

- The uppermost side of the core tube was removed using a circular saw.
- A layer approximately 1 centimeter (cm) (or 0.38 inch) thick was removed from the exposed sediment surface with a decontaminated stainless-steel scraper.
- The exposed sediment surface of the core was photo-documented and logged using the Universal Soil Classification System.
- Sediment from each segment was collected from the center of the core. Sediment touching the sides of the core tube was not collected.
- Sediment samples were placed directly from the core tube into cleaned glass sample containers. Samples for analysis were transferred to the analytical laboratory using chain-of-custody procedures. Samples were identified as unhomogenized on the sample label and the chain-of-custody forms.
- Samples were homogenized by the laboratory prior to analysis. Excess sample material was archived by the analytical laboratory. Archived samples were frozen and held by the analytical laboratory.

4.2 GRAB SAMPLE COLLECTION PROCEDURES

Grab sampling processing followed the QAPP. Grab sampling processing was performed as follows.

- The exposed sediment surface of the grab was photo-documented and logged using the Universal Soil Classification System.
- Sediment from the top 10 cm was collected from the center of the grab. Sediment touching the sides of the grab sampler was not collected.
- Sediment samples were placed directly from the grab sampler into cleaned glass sample containers. Samples for analysis were transferred to the analytical laboratory using chain-of-custody procedures. Samples were identified as unhomogenized on the sample label and the chain-of-custody forms.
- Samples were homogenized by the laboratory prior to analysis. Excess sample material was archived by the analytical laboratory. Archived samples were frozen and held by the analytical laboratory.

4.3 ANALYSIS SCHEDULE

Sediment samples from eight of the grab sample locations (plus one field QC sample) were analyzed for the SMS Chemicals of Concern (COCs; selected metals, semivolatile organic compounds [SVOCs], pesticides, and polychlorinated biphenyls [PCBs]) and total organic carbon (TOC), as specified in the QAPP. Sediment samples from four cores were analyzed for dioxins. Eleven samples from eight cores were analyzed for SVOCs and TOC. During a second round of analyses, two additional samples from cores were analyzed for the Dredged Material Management Program (DMMP) COCs (selected metals, SVOCs, pesticides, and PCBs) and TOC. The two core samples were not analyzed for chromium. No other deviations from the QAPP are noted.

4.4 LABORATORY PROCEDURES

Samples were selected for analysis of selected metals, (antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc), PCBs, pesticides, SVOCs, or dioxins/furans. All of the samples selected for analysis of PCBs, pesticides, and SVOCs were also analyzed for TOC. All of the metals (with the exception of mercury) were analyzed using U.S. Environmental Protection Agency (EPA) Method 6010B. Mercury was analyzed using EPA Method 7471A. TOC was analyzed according to Plumb (1981) and the PSDDA guidelines. Samples for PCB analysis were extracted using EPA Method 3550B sonication extraction and analyzed according to EPA Method 8082. Samples for pesticide analysis were

analyzed using EPA Method 8081. Samples for SVOCs analysis were analyzed using EPA Method 8270D. Dioxins/furans were analyzed using EPA Method 1613B.

5.0 RESULTS

Results of sampling and laboratory analysis, including sediment stratigraphy and sediment chemistry, are presented in this section.

5.1 SAMPLE COLLECTION

The locations of cores and grabs collected for this investigation are shown on Figure 7, and information about sample locations is presented in Table 1. Each sampling station was identified by type: Type 1 stations were coring stations; Type 2 stations were grab sample stations; Type 3 stations were sampled using both core and grab samplers.

5.1.1 Core Samples

Core sample collection field forms are provided in Appendix B. Core summary logs describing the sediment types, stratigraphic contacts, summary interpretation, and sample ID for each of the cores are provided in Appendix C. Photo logs for the cores are included as Appendix D.

5.1.2 Grab Samples

Qualitative Sample Characteristic forms for the grab samples are included as Appendix E. Photo logs for the grab samples are in Appendix F.

5.2 SOIL UNITS

This section presents a summary interpretation of the soil types found in the cores, including the presence and character of woody materials or products. Some soil units were found to contain more than one type or source of woody debris (Appendix C).

5.2.1 Recent

This is a surface unit of generally loose or soft unconsolidated sands and silts showing signs of disturbance. The unit frequently contains wood fragments (bark and twigs) or shell debris with a moderately strong smell of hydrogen sulfide.

5.2.2 Native

The native soil unit consists of gray, moderately dense, poorly graded sand, silty sand, sandy silt to moderately soft silts representing alluvial sediments from the Snohomish basin. This unit may contain shells or shell fragments. In addition, the native unit may contain trace amounts of wood and other organics. If a native unit is present in a core then it is the deepest soil unit in the core.

5.2.3 Indeterminate Soil

The indeterminate soil unit consisted of disturbed sediment layers that differ in the percentage of sawdust or other wood debris present compared to adjacent soil units. This unit may grade into adjacent units without an obvious horizon or interface.

5.2.4 Rafting Debris

The rafting unit is a woody debris layer containing identifiable angular chunks of bark or shredded bark in a loose sand or silt matrix. The unit may also contain wood fragments or splinters likely resulting from the in-water storage of logs.

5.2.5 Sawdust

The sawdust unit is characterized by fine, granular, dark-stained wood particles with the appearance of coarse coffee grounds. In addition, this unit may contain variable amounts of angular wood chips (0.5 inch or larger and unstained) as a minor component. The soil unit may contain sand, silt, or shells as a minor component. Wood in the unit is sulfide stained and appears to be a machined product.

5.2.6 Wood Chips

This unit contains deposits of uniformly sized angular chips or chunks (<0.25 inch or larger up to 1.5 inches) of wood in a sand or silt matrix. Deposits of chips within the soil unit are uniform in size. The wood is usually unstained and appears to be a machined product.

5.3 SEDIMENT CHEMISTRY

The laboratory chain-of-custody forms are in Appendix G. The laboratory data forms for the analytical results are in Appendix H.

5.3.1 Analytical Results

The results of the conventional and chemical analyses, including laboratory and data validation qualifiers, are shown in Table 2. Comparison of the chemical results with the SMS Sediment Quality Standards (SQS; WAC 173-204-320) or the appropriate dry weight equivalent Apparent Effects Threshold (AET) values are presented in Table 3. Samples with total organic carbon values less than 4 percent were compared against the carbon-normalized SMS SQS values where appropriate. Samples with elevated TOC values (>4 percent) were compared to the dry weight equivalents. DMMP Screening Levels (SLs) or Bioaccumulation Triggers (BTs) for chemicals that do not have SMS values are also presented in Table 3.

5.3.2 Date-Quality Review

A Level 1 data-quality review was conducted on each batch analyzed for this investigation. A summary of the data-quality review is presented below; a complete review is presented in Appendix I. Sediment samples collected for chemical analysis were submitted to Analytical Resources, Inc., as specified in the QAPP.

The data-quality review included the following steps.

- Review sample holding time.
- Verify that sample numbers and analyses match those requested on the chain-of-custody form.
- Verify that the required reporting limits have been achieved.
- Verify that field duplicates, matrix spikes, and laboratory control samples were run at the proper frequency.
- Verify that the surrogate compound analyses have been performed and have met quality control criteria.
- Verify that the lab blanks are free of contaminants.

The data-quality review is summarized below by analytical group.

5.3.2.1 PCBs

Each batch included a method blank, laboratory control sample (LCS), matrix spike (MS), matrix-spike duplicate (MSD), and appropriate surrogates. Additionally, a regional reference material (RRM) SQ-1 was analyzed with each batch. All samples were extracted and analyzed within the holding times specified in the QAPP.

Instrument calibration met the functional guidelines. Laboratory blanks met the functional guidelines. Surrogate recoveries were within the limits specified in the QAPP with one exception due to dilution. No qualifiers were necessary. The LCS recoveries were within the limits specified in the QAPP.

RRM recoveries were within the functional guidelines. MS and MSD recoveries were within the limits specified in the QAPP, with the following exceptions. The native concentration of Aroclor 1260 exceeded 4 times the spike amount in 13116000025 MS and MSD, and control

limits do not apply. Matrix effects on accuracy could not be evaluated for Aroclor 1260 in these samples.

MS/MSD relative percent differences (RPDs) were within the limits specified in the QAPP.

Multiple analysis results have been evaluated and reduced to the most appropriate result. All other PCB data, as qualified, were acceptable for use.

5.3.2.2 SVOCs

Each batch included a method blank, LCS, MS, MSD, and appropriate surrogates. Additionally, RRM SQ-1 was analyzed with each batch. All samples were extracted and analyzed within the holding times specified in the QAPP.

Instrument calibration met functional guideline criteria, except as noted. Associated positive and negative results for benzoic acid are qualified as estimated. Associated results for pentachlorophenol are not detected and are considered unaffected.

Phenol, diethyl phthalate, di-n-butyl phthalate, and bis(2-ethylhexyl) phthalate were found in the method blank for batch LA62. Positive sample results with concentrations below 5 times the associated blank concentration are qualified "U" and should be considered not detected at the reported level. Positive sample results with concentrations between 5 and 10 times the associated blank concentration are qualified as estimated. Positive sample results with concentrations above 10 times the associated blank concentration are considered unaffected.

Surrogates were not recovered or were outside the limit in six samples due to dilution; no qualifiers were assigned. Remaining surrogate recoveries were within the limits specified in the QAPP, except as noted. In instances where three of the four acid and three of the four base-neutral surrogates are within limits, functional guidelines criteria are met and no qualifiers are assigned. Base neutral compounds in samples 13116000015 and 13116000029 are qualified as estimated.

The LCS recoveries were within the limits specified in the QAPP, with the exception of benzyl alcohol in batch LA62. Benzyl alcohol is quantified as estimated in the associated samples.

RRM recoveries were within two standard deviations of the average detected concentration with exceptions. The results are only slightly low, and these analytes are within limits in the LCS.

MS and MSD recoveries were within the limits specified in the QAPP, with exceptions. Results for these analytes in the native sample are qualified as estimated. MS/MSD RPDs were within the limits specified in the QAPP, with exceptions. Results for these analytes in the native sample are qualified as estimated.

Multiple analysis results have been evaluated and reduced to the most appropriate result. All other SVOC data, as qualified, were acceptable for use.

5.3.2.3 Pesticides

Each batch included a method blank, LCS, MS, MSD, and appropriate surrogates. Additionally, RRM SQ-1 was analyzed with each batch and an LCS duplicate was analyzed with batch LD21. All samples were extracted and analyzed within the holding times specified in the QAPP.

Instrument calibration met the functional guidelines. Laboratory blanks met the functional guidelines. Surrogate recoveries were within the limits specified in the QAPP. The LCS recoveries were within the limits specified in the QAPP.

RRM recoveries were within two standard deviations of the average detected concentration with exceptions. The results represent 77 and 80 percent recoveries. No qualifiers were assigned.

MS and MSD recoveries were within the limits specified in the QAPP, with exceptions. According to the laboratory narrative, these recoveries were affected by interferences from PCBs. These compounds were not detected in the associated samples, and no qualifiers are required.

MS/MSD RPDs were within the limits specified in the QAPP, with exceptions. According to the laboratory narrative, these recoveries were affected by interferences from PCBs. These compounds were not detected in the associated samples, and no qualifiers are required.

Multiple analysis results have been evaluated and reduced to the most appropriate result. All other pesticide data, as qualified, were acceptable for use.

5.3.2.4 Metals

Each batch included a method blank, LCS, MS, and laboratory duplicate. Additionally, standard reference material (SRM) ERA D044540 was analyzed with batch LD21.

All samples were extracted and analyzed within the holding times specified in the QAPP, except those for mercury analyses. For mercury analyses, 9 of the 11 samples exceeded the 28-day holding time by 2 days. The two samples in the second analysis round exceeded the holding time by more than 77 days and were rejected as unusable. The remaining mercury results were qualified as estimated.

Instrument calibration met the functional guidelines. Laboratory blanks met the functional guidelines. The LCS recoveries were within the limits specified in the QAPP. The SRM recoveries were within the certified range. MS recoveries were within the limits specified in the QAPP, with exceptions. MS recoveries for antimony were below the functional guidelines action level and were rejected as unusable. Laboratory duplicate RPDs were within the limits specified in the QAPP, with exceptions. The results were qualified as estimated in the associated sample. All other metals data, as qualified, were acceptable for use.

5.3.2.5 Total Organic Carbon

Each batch included a method blank, LCS, and SRM National Institute of Standards and Technology (NIST) #8704. Three of the four batches also included an MS and laboratory triplicate. No qualifiers were assigned based on the missing laboratory triplicate.

All samples were extracted and analyzed within the holding times specified in the QAPP. Instrument calibration met the functional guidelines. Laboratory blanks met the functional guidelines. The LCS recoveries, SRM recoveries, MS recoveries, and laboratory triplicate relative standard deviations (RSDs) were within the limits specified in the QAPP. All other TOC data, as qualified, were acceptable for use.

5.3.2.6 Dioxins/Furans

A method blank and an ongoing precision and recovery (OPR) sample were analyzed. Appropriate isotope dilution and cleanup standards were included. All samples were extracted and analyzed within the holding times specified in the QAPP. Instrument calibration met the functional guidelines. Laboratory blanks met the functional guidelines. Standard recoveries of C_{13} labeled isotope dilution were within laboratory and QAPP control limits. Cleanup standard recoveries were within laboratory and QAPP control limits for Cl_{37} labeled isotopes. OPR recoveries were within laboratory and QAPP control limits.

Several results are flagged "J" by the laboratory indicating a concentration below the calibration range. These results are qualified as estimated. Several results are flagged "DM"

by the laboratory indicating the presence of diphenyl ethers and a maximum possible concentration. These results are qualified as estimated.

All other dioxin and furan data, as qualified, were acceptable for use.

5.3.3 Data Usability

All physical and chemical analytical results met the data-quality objectives specified in the approved QAPP because analytical data, as qualified, were acceptable.

6.0 SUMMARY

This section presents a summary the results of the field sampling program. The potential sources of contamination based on the analytical results are discussed, and a strategy for delisting the site from the Contaminated Sites List is presented.

6.1 SOIL UNITS

Soil units at the site are described in Section 5.2, based on the summary logs for each core presented in Appendix C. Soil units that contained more than 30 percent wood products or debris were identified as rafting debris, sawdust, wood chips, or a combination of product types. Wood debris was found at depths up to 19 feet below mudline (station ST-5) with total wood debris accumulations of greater than 18 feet. A minimum of 4 feet of sediments identified as being of recent origin were laid on top of the native undisturbed sands and silts throughout the site.

Interpolated cross-sections through the wood deposit at the Mill A site were constructed based on the sample cores (see Figure 8). Wood accumulations at the toe of the west bulkhead (+3 feet mean lower low water [MLLW]) were assumed to be zero and to increase in thickness with distance from the shore. The thickness of the wood deposits and the mudline elevation at each of the core locations were used to generate simple interpolated surfaces between sample locations. The wood accumulations were assumed to decrease to zero approaching stations ST-32, ST-34, and ST-39 within the dredged ships berth. The estimated volume of sediments containing more than 30 percent wood products or debris (including sawdust, wood chips, and rafting debris) is estimated to be approximately 79,000 cubic yards (cy). The volume of material identified as sawdust is estimated to be approximately 49,000 cy.

6.2 CHEMISTRY

The samples selected for analysis were chosen to provide information on the horizontal and vertical distribution of contaminants. A majority of the samples collected and analyzed were within sawdust units; however, samples of rafting debris, wood chips, and recent surface sediments were also analyzed.

The TOC in sediment samples containing significant amounts of sawdust or other wood debris ranged from 6.11 to 46.9 percent. Surface sediments (top 10 cm) contained from 0.8 to 5.47 percent TOC.

Eleven samples were analyzed for the SMS list of metals. Nine of the samples were from surface grab samples and two samples were composites from cores. None of the samples exceeded the SMS SQS values or the DMMP SLs or BTs for metals.

A total of 22 samples were analyzed for SVOCs (13 core samples and 9 grab samples). Of the 13 core samples analyzed for SVOCs, 7 exceeded one or more of the SMS CSL values (or the appropriate dry weight equivalent). The dominant LPAH contaminants of concern were naphthalene, acenaphthene, phenanthrene, fluorene, and anthracene. The dominant high-molecular-weight PAHs (HPAHs) were fluoranthene and pyrene. Additional SVOCs with elevated concentrations include butyl benzyl phthalate, dibenzofuran, 2-methylphenol, 4-methylphenol, 2,4-dimethyphenol, and benzyl alcohol. There were no detected exceedances of the SQS for SVOCs in grab samples; however, there were non-detected exceedances of the carbon-normalized SQS and CSL levels for chlorinated benzenes due to elevated detection limits.

A total of 11 samples (9 surface grabs and 2 core composites) were analyzed for PCBs and pesticides. Pesticides values were low or undetected in all samples. PCB concentrations in the surface grab samples were well below the SMS SQS or undetected. PCBs were present at levels above the SMS SQS (or dry-weight equivalent) in the two cores that were composited from the top 2.8 and 4 feet of the sediment column (ST-34 and ST-39, respectively); in contrast, the grab samples at the same stations showed low or undetected PCB concentrations in the top 10 cm.

Four core samples were analyzed for dioxins and furans. The four samples had 2,3,7,8-TCDD concentrations ranging from 0.967 to 18.6 picograms (10^{-12} gram) per gram (pg/g) dry weight. The total toxic equivalent concentration (TEQ) was calculated using the World Health Organization 2005 toxicity equivalency factors (TEFs; Van den Berg et al., 2006). Detected values were available for all dioxins and furans; the substitution of half the detection limit for undetected compounds was not used in the calculation of the TEQ. The four samples had total TEQs ranging from 17.9 to 119.6 pg/g.

6.3 POTENTIAL SOURCES OF CONTAMINATION

Several of the core samples analyzed had significantly elevated levels of PAHs and other SVOCs. The samples with elevated SVOCs had high TOC content and contained large amounts of wood (rafting debris, sawdust, or wood chips). Fingerprinting and source allocation have not been done; however, a preliminary assessment of the HPAHs and the LPAHs

indicates a pyrogenic source for the PAHs that is potentially creosote. The historic presence of numerous treated pilings in the sample area (Figure 2 and Figure 9) provide a potential source of the pyrogenic PAHs (creosote). Several of the core samples analyzed within the footprint of the former cargo dock showed elevated levels of PAHs. Sample ID 13116000010 from core station ST-11 contained pieces of a piling treated with a creosote-like substance. The sample had the second highest PAH concentrations, and the sample interval had a distinct creosote smell and small blebs of free product.

The presence of elevated methylphenols at the site is consistent with the decomposition of wood products and waste effluents from pulp and paper mills (Ecochem and Pentec, 1993). Figure 9 shows aerial photographs of the Mill A site in 1947, 1976, and 2002. Outfalls that might have been discharging waste effluents from the Weyerhaeuser pulp mill during this time period are shown. The figure also shows the estimated boundaries of the sawdust deposit at the site.

The two surface core samples with elevated PCB concentrations contained a mix of Aroclor 1242 and Aroclor 1248. Detailed fingerprinting and source allocation have not been done; however, Aroclor 1248 was historically used extensively as a primary component of some hydraulic fluids (Lowenbach, 2002). Aroclor 1242 was also used as a component in some hydraulic fluids. PCBs were also used as heat transfer media and as dielectric fluids in transformers and capacitors (Lowenbach, 2002). It is likely that hydraulic equipment was used at the mill site.

Dioxins and furans are common constituents created by combustion and would be expected from burning of wood waste in hog fuel boilers such as exists at the mill site. The power plant at the Weyerhaeuser Mill A plant used wood-derived fuels to fire the industrial boiler. This fuel derived from waste wood is called hog fuel and may include wastewater sludges or fiber as well as other fuel sources. Salt-laden hog fuel (from logs rafted in saltwater) has been implicated in the productions of dioxins (Luthe and Prahacs, 1993, cited in Ecology, 2004). The added chlorine content of wood waste from saltwater-rafted logs can result in a nearly 24-fold increase in the dioxin emission from each unit of waste wood burned (EPA, 2006). The dioxins can be air particulates (fly ash) that falls out of the air or can be grate or bottom ash retained in the boiler and periodically removed and disposed of. Additional potential sources of dioxins include wastewater discharges from bleached pulp production (Ecology, 1998).

6.4 RATIONALE FOR PROPOSED DELISTING

The accumulated wood at the Mill A site is composed of sawdust, wood chips, and rafting debris that comprise 30 percent to 100 percent by volume of the deposit (Figure 9). The deposit is contaminated by COCs that are present at levels above the SMS SQS or CSL (Table 3). It is probable that some remediation will be required to remove or isolate the deposit from the surrounding environment. This study was designed to provide initial information on the types of contamination present. Remediation will be required prior to or in conjunction with any proposed expansion of the Marine Terminal at South Terminal (potential footprint of the Stage 2 development is shown on Figure 7).

The surface sediments surrounding the wood deposit were also sampled using a grab sampler and screened against the SMS. All of the grab samples appeared to have low levels of contamination; however elevated detection limits on some of the chlorinated benzenes resulted in carbon-normalized values above the SMS SLs. All of the detection limits were below the dry weight AETs. The grab samples analyzed were arrayed around the wood deposit. Analytical results for these grab samples demonstrate that the surrounding sediments both within the ship berths and adjacent to areas previously dredged do not exceed the SQS and are substantially cleaner than the sediments within and immediately adjacent to the wood deposits. With the successful remediation of the wood deposit at the Mill A site we believe that a delisting of the South Terminal area from the Contaminated Site List would be warranted.

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Tables

Geomatrix

TABLE 1

SAMPLING LOCATIONS

Former Mill A MTCA Support Sample Collection
Everett, Washington

Station	Target Coordinates[1]		Station Type	Date	Time	Sample Location		Estimated Mudline (feet MLLW)[2]	Bathymetry Mudline (feet MLLW)
	Northing	Easting				Northing	Easting		
Core Samples									
ST-1	358699	1298970	Type 1	5/8/2007	9:16:00	358700	1298972	-0.7	-2.958
ST-2	358825	1298833	Type 1	5/14/2007	8:36:00	358824	1298830	-31	-32.42
ST-3	358783	1298949	Type 1	5/7/2007	11:23:00	358785	1298947	-5.4	-6.015
ST-5	358850	1298910	Type 1	5/7/2007	12:40:00	358852	1298910	-11.4	-11.67
ST-6	358850	1299012	Type 1	5/14/2007	13:58:00	358841	1299008	-4.8	-4.623
ST-8	358938	1298961	Type 1	5/11/2007	13:10:00	358938	1298963	-12.1	-11.453
ST-9	358945	1299057	Type 1	5/8/2007	9:59:00	358943	1299058	-6.1	-5.679
ST-11	359026	1299012	Type 1	5/7/2007	13:27:00	359030	1299011	-22.8	-25.972
ST-12	359026	1299113	Type 1	5/14/2007	14:49:00	359027	1299117	-6.6	-5.091
ST-14	359113	1299164	Type 1	5/8/2007	10:46:00	359117	1299162	-8.5	-6.305
ST-15	359153	1299103	Type 1	5/7/2007	14:33:00	359148	1299100	-19.8	-23.405
ST-17	359201	1299215	Type 1	5/14/2007	11:36:00	359199	1299215	-11.7	-9.058
ST-19	359228	1299292	Type 1	5/11/2007	9:40:00	359233	1299267	-14.9	-9.908
ST-20	359295	1299243	Type 1	5/7/2007	15:52:00	359297	1299241	-20.9	-19.026
ST-21	359289	1299367	Type 1	5/11/2007	11:46:00	359290	1299372	-11.9	-16.473
ST-29	358563	1298535	Type 3	5/7/2007	9:29:00	358563	1298537	-44.4	-45.715
ST-32	358915	1298739	Type 3	5/7/2007	10:24:00	358913	1298741	-51	-54.664
ST-34	359247	1298988	Type 3	5/9/2007	9:48:00	359248	1298990	-50.8	-50.686
ST-37	359445	1299248	Type 3	5/11/2007	10:20:00	359445	1299244	-35.5	-36.828
ST-39	359579	1299208	Type 3	5/14/2007	10:16:00	359583	1299208	-49.2	-49.605
ST-42	359798	1299452	Type 3	5/11/2007	15:40:00	359802	1299451	-41	-37.755
ST-43	*		Type 1	5/11/2007	14:16:00	359111	1298991	-38.7	-40.607
ST-44	*		Type 1	5/14/2007	9:15:00	358944	1298897	-32.3	-34.785

Geomatrix

TABLE 1

SAMPLING LOCATIONS

Former Mill A MTCA Support Sample Collection
Everett, Washington

Station	Target Coordinates[1] Northing	Target Coordinates[1] Easting	Station Type	Date	Time	Sample Location Northing	Sample Location Easting	Estimated Mudline (feet MLLW)[2]	Bathymetry Mudline (feet MLLW)
Grab Samples									
ST-22	358033	1298433	Type 2	5/16/2007	10:31	358032	1298432		-0.021
ST-23	358033	1298229	Type 2	5/16/2007	10:16	358031	1298232		-9.321
ST-24	358210	1298127	Type 2	5/15/2007	9:16	358212	1298126		-43.377
ST-24 D	358210	1298127	Type 2	5/15/2007	9:52	358206	1298132		-43.305
ST-25	358210	1298331	Type 2	5/16/2007	10:01	358204	1298322		-27.36
ST-26	358386	1298229	Type 2	5/16/2007	9:50	358390	1298222		-48.032
ST-27	358386	1298433	Type 2	5/16/2007	9:30	358389	1298436		-40.616
ST-28	358563	1298331	Type 2	5/16/2007	9:08	358562	1298329		-60.4
ST-29	358563	1298535	Type 3	5/15/2007	10:35	358564	1298542		-45.468
ST-30	358739	1298433	Type 2	5/15/2007	10:09	358740	1298433		-67.719
ST-31	358739	1298637	Type 2	5/16/2007	10:50	358756	1298591		-56.617
ST-32	358915	1298739	Type 3	5/15/2007	11:05	358917	1298739		-55.06
ST-33	359122	1298793	Type 2	5/15/2007	15:26	359125	1298799		-60.958
ST-34	359247	1298988	Type 3	5/15/2007	11:27	359249	1298992		-50.529
ST-35	359268	1299146	Type 2	5/15/2007	15:07	359266	1299143		-35.336
ST-36	359445	1299044	Type 2	5/15/2007	14:52	359448	1299041		-57.328
ST-37	359445	1299248	Type 3	5/15/2007	11:47	359444	1299244		-36.781
ST-38	359445	1299452	Type 2	5/15/2007	14:31	359444	1299454		-17.329
ST-39	359579	1299208	Type 3	5/15/2007	13:13	359581	1299205		-49.804
ST-40	359621	1299350	Type 2	5/15/2007	14:12	359623	1299345		-36.206
ST-41	359798	1299248	Type 2	5/15/2007	13:53	359799	1299242		-55.522
ST-42	359798	1299452	Type 3	5/15/2007	13:33	359799	1299449		-37.769

1. *Station added in field.
2. Mudline elevation in feet relative to mean lower low water (MLLW).

TABLE 2

CHEMISTRY RESULTS EXPRESSED AS DRY WEIGHTS[1]

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.	13116000038			13116000004			13116000006			13116000007			13116000029			13116000019			13116000010			13116000021			13116000023			13116000013			13116000037			13116000014			13116000015		
Station ID.	ST-2			ST-3			ST-3			ST-5			ST-8			ST-9			ST-11			ST-14			ST-14			ST-15			ST-17			ST-20			ST-20		
Sample Depth (Feet BML)	5.0 to 6.0 ft			3.5 to 6.2 ft			14.0 to 15.9 ft			0.9 to 2.5 ft			7.3 to 10.5 ft			10.1 to 12.0 ft			0 to 6.2 ft			3.4 to 3.6 ft			9.4 to 10.5 ft			0.8 to 2.2 ft			5.9 to 7.1 ft			9.9 to 11.2 ft			14.0 to 15.5 ft		
Soil Unit	Sawdust			Sawdust			Wood Chips			Wood Chips			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust		
Chemical Parameter	**Value**	**Q1[2]**	**Q2[2]**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**
Conventionals (Percent)																																							
Total Organic Carbon	6.11			46.9			9.21						24.1						18.9			44			14.4									30.8			25.1		
Total Solids	29.1			25.3			42.3						25.9						28.6			17.8			23.2									20			22		
Metals (mg/kg dry weight)																																							
Antimony																																							
Arsenic																																							
Cadmium																																							
Chromium																																							
Copper																																							
Lead																																							
Mercury																																							
Nickel																																							
Silver																																							
Selenium																																							
Zinc																																							
Nonionizable Organic Compounds																																							
Aromatic Hydrocarbons (µg/kg dry weight)																																							
Total LPAH	11,800		J	2,200			35,100						5,060		J				137,000			3,300			3,160									1,830			2,530		J
Naphthalene	3,500			1,400			4,100						3,400						43,000			2,700			2,200									1,100			1,400		
Acenaphthylene	88			170			79						190						290			48			43									52			56		
Acenaphthene	2,400		J	130			5,400						280						22,000			150			350									150			260		J
Fluorene	1,500			120			6,000						260						17,000			110			190									130			240		
Phenanthrene	3,300			330			17,000						760		J				44,000			250			310									310			460		
Anthracene	1,000			49			2,500						170						11,000			38			71									83			110		
2-Methylnaphthalene	1,100			150			3,000						320		J				13,000			200			330									130			210		
Total HPAH	8,790		J	648			14,600						1,450		J				90,200			599			665									871			1,190		J
Fluoranthene	3,000			580			7,600						930						36,000			330			220									210			230		
Pyrene	1,700			68			4,200						430						21,000			170			150									190			150		J
Benz[a]anthracene	870			24	U		770						37		J				8,600			14			51									77			120		J
Chrysene	1,100			24	U		800						48		J				8,600			34			74									120			190		J
Benzo[b]fluoranthene	600			24	U		340						28	U	UJ				4,400			21			48									64			120		J
Benzo[k]fluoranthene	570			24	U		310						28	U	UJ				4,400			19			41									66			130		
Total benzofluoranthenes	1,170			24	U		650						28	U	UJ				8,800			40			89									130			250		J
Benzo[a]pyrene	560			24	U		260						28	U	UJ				3,900			11			38									64			120		J
Indeno[1,2,3-c,d]pyrene	180			24	U		120						28	U	UJ				1,500			9.6	U		22									37			57		
Dibenzo[a,h]anthracene	62			24	U		43						28	U	UJ				390			9.6	U		6.2	U								9.8			15		J
Benzo[g,h,i]perylene	150		J	24	U		140						28	U	UJ				1,400			9.6	U		21									33			59		

Geomatrix

TABLE 2

CHEMISTRY RESULTS EXPRESSED AS DRY WEIGHTS[1]
Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.	13116000038			13116000004			13116000006			13116000007			13116000029			13116000019			13116000010			13116000021			13116000023			13116000013			13116000037			13116000014			13116000015		
Station ID.	ST-2			ST-3			ST-3			ST-5			ST-8			ST-9			ST-11			ST-14			ST-14			ST-15			ST-17			ST-20			ST-20		
Sample Depth (Feet BML)	5.0 to 6.0 ft			3.5 to 6.2 ft			14.0 to 15.9 ft			0.9 to 2.5 ft			7.3 to 10.5 ft			10.1 to 12.0 ft			0 to 6.2 ft			3.4 to 3.6 ft			9.4 to 10.5 ft			0.8 to 2.2 ft			5.9 to 7.1 ft			9.9 to 11.2 ft			14.0 to 15.5 ft		
Soil Unit	Sawdust			Sawdust			Wood Chips			Wood Chips			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust		
Chemical Parameter	**Value**	**Q1[2]**	**Q2[2]**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**
Chlorinated Benzenes																																							
1,2-Dichlorobenzene	6.1	U		24	U		6.2	U					28	U	UJ				6.1	U		9.6	U		6.2	U								6.1	U		6.2	U	UJ
1,4-Dichlorobenzene	6.1	U	UJ	24	U		6.2	U					28	U	UJ				6.1	U		9.6	U		6.2	U								6.1	U		6.2	U	UJ
1,2,4-Trichlorobenzene	6.1	U	UJ	24	U		6.2	U	UJ				28	U	UJ				7.4		J	9.6	U		6.2	U								6.1	U		6.2	U	UJ
Hexachlorobenzene	6.1	U	UJ	24	U		6.2	U					28	U	UJ				14		J	9.6	U		6.2	U								6.1	U		6.2	U	UJ
Phthalate Esters																																							
Dimethyl phthalate	6.1	U		24	U		6.2	U					28	U	UJ				6.1	U		9.6	U		6.2	U								6.1	U		6.2	U	UJ
Diethyl phthalate	6.7	B	U	24	U		6.2	U					28	U	UJ				12	B	U	9.6	U		8.6	B	U							17	B	U	7.4	B	UJ
Di-n-butyl phthalate	6.1	U	UJ	90	B	J	520	B					270	B					110	B	J	45	B	U	8.6	B	U							7.3	B	U	48	B	UJ
Butyl benzyl phthalate	6.1	U		390			6.2	U					650						6.1			58	B		6.2	U								180			9.9		J
Bis[2-ethylhexyl] phthalate	10	B	U	36	B	J	9.9	B	U				37	B	J				37	B	J	22	B	U	18	B	U							26	B	U	12	B	UJ
Di-n-octyl phthalate	6.7			24	U		6.2	U					28	U	UJ				6.1	U		9.6	U		6.2	U								6.1	U		6.2	U	UJ
Miscellaneous																																							
Dibenzofuran	1,100			170			4,800						240						13,000			410			240									300			250		
Hexachlorobutadiene	6.1	U	UJ	24	U		6.2	U	UJ				28	U	UJ				8.6		J	9.6	U		6.2	U								6.1	U		6.2	U	UJ
N-Nitrosodiphenylamine	42	Y	UJY	24	U		71	Y	UY				28	U	UJ				180	Y	UJY	9.6	U		6.2	U								6.1	U		6.2	U	UJ
Ionizable Organic Compounds (µg/kg dry weight)																																							
Phenol	15	B	UJ	150	B		31	B	U				85	B					260	B		62	B	J	37	B	J							90	B		33	B	J
2-Methylphenol	180			44			23						62						120			290			240									200			170		
4-Methylphenol	470			2,600			300						3,700						480			2600			830									1,100			1,200		
2,4-Dimethylphenol	170		J	34			42		J				110						800			250			240									95			87		
Pentachlorophenol	30	U		120	U		31	U					140	U					31	U		48	U		31	U								330			31	U	
Benzyl alcohol	30	U	UJ	120	U	UJ	510		J				140	U	UJ				170		J	82		J	31	U	UJ							170		J	88		J
Benzoic acid	61	U	UJ	600		J	62	U	J				530		J				680	E	J	110		J	69		J							61	U	UJ	62	U	UJ
Pesticides/PCBs																																							
Aroclor 1016																																							
Aroclor 1221																																							
Aroclor 1232																																							
Aroclor 1242																																							
Aroclor 1248																																							
Aroclor 1254																																							
Aroclor 1260																																							
Total PCBs																																							
4,4'-DDD																																							
4,4'-DDE																																							
4,4'-DDT																																							
Total DDT																																							

TABLE 2

CHEMISTRY RESULTS EXPRESSED AS DRY WEIGHTS[1]

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.	13116000038			13116000004			13116000006			13116000007			13116000029			13116000019			13116000010			13116000021			13116000023			13116000013			13116000037			13116000014			13116000015		
Station ID.	ST-2			ST-3			ST-3			ST-5			ST-8			ST-9			ST-11			ST-14			ST-14			ST-15			ST-17			ST-20			ST-20		
Sample Depth (Feet BML)	5.0 to 6.0 ft			3.5 to 6.2 ft			14.0 to 15.9 ft			0.9 to 2.5 ft			7.3 to 10.5 ft			10.1 to 12.0 ft			0 to 6.2 ft			3.4 to 3.6 ft			9.4 to 10.5 ft			0.8 to 2.2 ft			5.9 to 7.1 ft			9.9 to 11.2 ft			14.0 to 15.5 ft		
Soil Unit	Sawdust			Sawdust			Wood Chips			Wood Chips			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust		
Chemical Parameter	Value	Q1[2]	Q2[2]	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2
Pesticides/PCBs (continued)																																						
Aldrin																																						
Alpha-Chlordane																																						
Dieldrin																																						
Heptachlor																																						
Gamma-BHC (Lindane)																																						
Dioxins/Furans (pg/g dry weight)																																						
2,3,7,8-TCDD (TEF = 1)										0.967						5.85												2.72			18.6								
2,3,7,8-TCDF (TEF = 0.1)										105	F					25.2	F											50.2	F		87.4	F							
1,2,3,7,8-PeCDD (TEF = 1)										1.57	J	J				11.9												5.22			46.4								
1,2,3,7,8-PeCDF (TEF = 0.03)										3.01						10.6												7.31			37								
2,3,4,7,8-PeCDF (TEF = 0.3)										3.51						12.9												8.76			33.3								
1,2,3,4,7,8-HxCDD (TEF = 0.1)										2.57						20.8												13.6			64.8								
1,2,3,6,7,8-HxCDD (TEF = 0.1)										5.85						23.6												33.1			79								
1,2,3,7,8,9-HxCDD (TEF = 0.1)										3.21						19.5												17.8			63.8								
1,2,3,4,7,8-HxCDF (TEF = 0.1)										4.29						6.89												10.2			23.6								
1,2,3,6,7,8-HxCDF (TEF = 0.1)										2.49						7.59												5.34			22.8								
1,2,3,7,8,9-HxCDF (TEF = 0.1)										0.781	J	J				2.58												3.57			7.36								
2,3,4,6,7,8-HxCDF (TEF = 0.1)										2.75						8.78												6.2			25.9								
1,2,3,4,6,7,8-HpCDD (TEF = 0.01)										91.8						153												799			500								
1,2,3,4,6,7,8-HpCDF (TEF = 0.01)										43.8						16.7												58.5			74								
1,2,3,4,7,8,9-HpCDF (TEF = 0.01)										1.74	J	J				2.48	J	J										3.42			8.95								
OCDD (TEF = 0.0003)										552						138												8,930			592								
OCDF (TEF = 0.0003)										68.3						5.59												103			61.3								

TABLE 2

CHEMISTRY RESULTS EXPRESSED AS DRY WEIGHTS[1]

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.	13116000027			13116000100			13116000101			13116000103			13116000102			13116000104			13116000105			13116000025			13116000106			13116000107			13116000033			13116000108			13116000031		
Station ID.	ST-21			ST-24			ST-24D			ST-29			ST-30			ST-32			ST-34			ST-34			ST-37			ST-39			ST-39			ST-42			ST-43		
Sample Depth (Feet BML)	9.1 to 11.2 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 2.8 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 4.0 ft			0 to 0.3 ft			5.7 to 7.2 ft		
Soil Unit	Rafting Debris			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Sawdust		
Chemical Parameter	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**
Conventionals (Percent)																																						
Total Organic Carbon	17.1			1.45			1.14			1.26			2.14			1.74			2.05			3.93			3.27			1.69			5.47			0.8			15.9		
Total Solids	43.2			62.6			64			53.5			44.6			45.6			47.1			43.5			49.8			53.1			41.5			71.6			25.9		
Metals (mg/kg dry weight)																																							
Antimony				7	U	R	7	U	R	9	U	R	10	U	R	10	U	R	10	U	R	10	U	R	10	U	R	9	U	R	10	U	R	6	U	R			
Arsenic				7	U		7	U		9	U		10			10			10			40		J	10	U		9	U		10			6	U				
Cadmium				0.3	U		0.3	U		0.7			0.7			0.8			0.8			1.5			0.6			0.6			2.1			0.2	U				
Chromium				32.7			33.3			42.2			51			44			39			49			29			34.2			60			22.8					
Copper				23.1			22.1			44.3			47.3			46.8			41.3			104			30.3			28.2			84.3			12.4					
Lead				9			9			21			16			17			19			55			13			13			55			3					
Mercury				0.06		J	0.05	U	UJ	0.09		J	0.1		J	0.15		J	0.14		J	0.37		R	0.08		J	0.11		J	0.3		R	0.05	U	UJ			
Nickel				30			31			38			44			39			35			45			27			33			67			23					
Silver				0.4	U		0.4	U		0.6	U		0.6	U		0.6	U		0.6	U		0.6	U		0.6	U		0.6	U		0.8	U		0.4	U				
Selenium				0.3	U		0.3	U		0.4	U		0.4	U		0.5			0.5			0.8		J	0.4	U		0.5			0.6			0.2	U				
Zinc				56			50			163			94			98			106			341		J	76			67			127			34					
Nonionizable Organic Compounds																																						
Aromatic Hydrocarbons (µg/kg dry weight)																																						
Total LPAH	2,740			193			104			682			240			471			685			3,720		J	621			397			1,750			67			581,000		
Naphthalene	850			29			20	U		78			37			58			100			630			100			84			570			27			14,000		
Acenaphthylene	67			20	U		20	U		28			20	U		20			20			34			26			20	U		44			20	U		210		
Acenaphthene	340			20			20	U		73			26			57			100			570		J	74			44			180			20	U		15,000		
Fluorene	360			20	U		20	U		73			24			48			81			500			61			44			240			20	U		52,000		
Phenanthrene	850			110			76			310			110			210			300			1,700			260			150			510			40			90,000		
Anthracene	270			34			28			120			43			78			84			290			100			75			210			20	U		410,000		
2-Methylnaphthalene	210			20	U		20	U		35			20	U		22			43			290			36			23			160			20	U		8,700		
Total HPAH	4,480			977		J	578		J	2,740		J	1,150		J	1,890		J	2,430		J	6,430		J	2,270		J	1,550		J	2,430			306		J	148,000		
Fluoranthene	1,200			330		J	170		J	840			320			510			810			2,400			690			440			840			110			76,000		
Pyrene	880			190			130			570			250		J	280		J	380		J	1,100		J	320		J	230			450			70			36,000		
Benz[a]anthracene	350			77			47		J	220		J	95			170		J	190		J	490			180		J	140		J	180			30		J	11,000		
Chrysene	560			120			88			360		J	160		J	280		J	330		J	740			340		J	240		J	320			43		J	17,000		
Benzo[b]fluoranthene	350			79			55			230		J	100			200			230			550			230			160			230			31			2,400		
Benzo[k]fluoranthene	300			62			45			180		J	98			150			160			420			180			120			200			20	U		2,300		
Total benzofluoranthenes	650			141			100			410		J	198			350			390			970			410			280			430			31			4,700		
Benzo[a]pyrene	370			65			43			170		J	77			140			160			440			160			120			150			22			1900		
Indeno[1,2,3-c,d]pyrene	200			27			20	U		78			31			79			74			130			81			30			31			20	U		480		
Dibenzo[a,h]anthracene	41			20	U		20	U		20	U	UJ	20	U		20	U		20	U		27			20	U		20	U		20	U		20	U		170		
Benzo[g,h,i]perylene	230			27			20	U		91			23			84			91			130		J	91			71			31			20	U		360		

Geomatrix

TABLE 2

CHEMISTRY RESULTS EXPRESSED AS DRY WEIGHTS[1]

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.	13116000027			13116000100			13116000101			13116000103			13116000102			13116000104			13116000105			13116000025			13116000106			13116000107			13116000033			13116000108			13116000031		
Station ID.	ST-21			ST-24			ST-24D			ST-29			ST-30			ST-32			ST-34			ST-34			ST-37			ST-39			ST-39			ST-42			ST-43		
Sample Depth (Feet BML)	9.1 to 11.2 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 2.8 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 4.0 ft			0 to 0.3 ft			5.7 to 7.2 ft		
Soil Unit	Rafting Debris			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Sawdust		
Chemical Parameter	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**
Chlorinated Benzenes																																							
1,2-Dichlorobenzene	6.2	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		96		
1,4-Dichlorobenzene	6.2	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20		
1,2,4-Trichlorobenzene	6.2	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		6.2	U	
Hexachlorobenzene	6.2	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		6.2	U	UJ
Phthalate Esters																																							
Dimethyl phthalate	6.2	U		20	U	UJ	65		J	20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		6.2	U	
Diethyl phthalate	6.2	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		9.9	B	U
Di-n-butyl phthalate	63	B	J	20	U		20	U		20	U		20	U		20	U		20	U		68	M	N	20	U		20	U		47	M	N	20	U		210	B	J
Butyl benzyl phthalate	140			20	U	UJ	20	U	UJ	20	U	UJ	20	U	UJ	20	U	UJ	20	U	UJ	20	U		20	U	UJ	20	U	UJ	20	U		20	U	UJ	290		
Bis[2-ethylhexyl] phthalate	30	B	U	44		J	20	U	UJ	48		J	30		J	36		J	38		J	130			33		J	34		J	88			20	U	UJ	110	B	
Di-n-octyl phthalate	7.4			20	U	UJ	20	U	UJ	20	U	UJ	20	U	UJ	20	U	UJ	20	U	UJ	20	U		20	U	UJ	20	U	UJ	20	U		20	U	UJ	6.2	U	
Miscellaneous																																							
Dibenzofuran	240			20	U		20	U		62			25			47			81			460			62			37			180			20	U		17,000		
Hexachlorobutadiene	6.2	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		6.2	U	
N-Nitrosodiphenylamine	6.2	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		1,000	Y	UY
Ionizable Organic Compounds (µg/kg dry weight)																																							
Phenol	45	B	J	20	U		20	U		22			20	U		20	U		23			20	U		25			20	U		25			20	U		37	B	J
2-Methylphenol	11			20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		120		
4-Methylphenol	550			24			20	U		41			20	U		26			42			540			91			46			530			20	U		920		
2,4-Dimethylphenol	48			20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20			20	U		410		
Pentachlorophenol	31	U		100	U		100	U		100	U		100	U		100	U		100	U		99	U		99	U		100	U		100	U		99	U		31	U	
Benzyl alcohol	48		J	20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		35		J
Benzoic acid	64		J	200	U	UJ	200	U	UJ	200	U	UJ	200	U	UJ	200	U	UJ	200	U	UJ	200	U		200	U	UJ	200	U	UJ	200	U		200	U	UJ	86		J
Pesticides/PCBs																																							
Aroclor 1016				16	U		9.9	U		16	U		17	U		17	U		16	U		16	U		16	U		16	U		17	U		16	U				
Aroclor 1221				16	U		9.9	U		16	U		17	U		17	U		16	U		16	U		16	U		16	U		17	U		16	U				
Aroclor 1232				16	U		9.9	U		33	Y	UY	33	Y	UY	17	U		16	U		16	U		16	U		16	U		17	U		16	U				
Aroclor 1242				16	U		9.9	U		16	U		17	U		17	U		16	U		16	U		16	U		16	U		17	U		16	U				
Aroclor 1248				16	U		9.9	U		16	U		17	U		17	U		25			16	U		16	U		16	U		21	Y	UY	16	U				
Aroclor 1254				16	U		12			31			17	U		17	U		18			2500			36			16	U		57			16	U				
Aroclor 1260				16	U		9.9	U		26			17	U		17	U		24			2700			26			16	U		74			16	U				
Total PCBs				16	U		12			57			33	Y	UY	17	U		67			5,200			62			16	U		131			16	U				
4,4'-DDD				4	U		3.9	U		3.9	U		3.9	U		3.9	U		4	U		2	U		2	U		3.9	U		2	U		1.9	U				
4,4'-DDE				4	U		3.9	U		3.9	U		3.9	U		3.9	U		4	U		2	U		2	U		3.9	U		2	U		1.9	U				
4,4'-DDT				4	U		3.9	U		3.9	U		3.9	U		3.9	U		4	U		2	U		2	U		3.9	U		2	U		1.9	U				
Total DDT				4	U		3.9	U		3.9	U		3.9	U		3.9	U		4	U		2	U		2	U		3.9	U		2	U		1.9	U				

TABLE 2

CHEMISTRY RESULTS EXPRESSED AS DRY WEIGHTS[1]

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.	13116000027			13116000100			13116000101			13116000103			13116000102			13116000104			13116000105			13116000025			13116000106			13116000107			13116000033			13116000108			13116000031		
Station ID.	ST-21			ST-24			ST-24D			ST-29			ST-30			ST-32			ST-34			ST-34			ST-37			ST-39			ST-39			ST-42			ST-43		
Sample Depth (Feet BML)	9.1 to 11.2 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 2.8 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 4.0 ft			0 to 0.3 ft			5.7 to 7.2 ft		
Soil Unit	Rafting Debris			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Sawdust		
Chemical Parameter	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**
Pesticides/PCBs (continued)																																						
Aldrin				2	U		1.9	U		2	U		2	U		2	U		2	U		0.98	U		0.98	U		2	U		0.99	U		0.97	U				
Alpha-Chlordane				2	U		1.9	U		2	U		2	U		2	U		2	U		0.98	U		0.98	U		2	U		0.99	U		0.97	U				
Dieldrin				4	U		3.9	U		3.9	U		3.9	U		3.9	U		4	U		2	U		2	U		3.9	U		2	U		1.9	U				
Heptachlor				2	U		1.9	U		2	U		2	U		2	U		2	U		0.98	U		0.98	U		2	U		0.99	U		0.97	U				
Gamma-BHC (Lindane)				2	U		1.9	U		2	U		2	U		2	U		2	U		2.5	Y	UY	0.98	U		2	U		0.99	U		0.97	U				
Dioxins/Furans (pg/g dry weight)																																						
2,3,7,8-TCDD (TEF = 1)																																						
2,3,7,8-TCDF (TEF = 0.1)																																						
1,2,3,7,8-PeCDD (TEF = 1)																																						
1,2,3,7,8-PeCDF (TEF = 0.03)																																						
2,3,4,7,8-PeCDF (TEF = 0.3)																																						
1,2,3,4,7,8-HxCDD (TEF = 0.1)																																						
1,2,3,6,7,8-HxCDD (TEF = 0.1)																																						
1,2,3,7,8,9-HxCDD (TEF = 0.1)																																						
1,2,3,4,7,8-HxCDF (TEF = 0.1)																																						
1,2,3,6,7,8-HxCDF (TEF = 0.1)																																						
1,2,3,7,8,9-HxCDF (TEF = 0.1)																																						
2,3,4,6,7,8-HxCDF (TEF = 0.1)																																						
1,2,3,4,6,7,8-HpCDD (TEF = 0.01)																																						
1,2,3,4,6,7,8-HpCDF (TEF = 0.01)																																						
1,2,3,4,7,8,9-HpCDF (TEF = 0.01)																																						
OCDD (TEF = 0.0003)																																						
OCDF (TEF = 0.0003)																																						

1. Abbreviations:
   BML = Below mudline.
   HPAH = High-molecular-weight polycyclic aromatic hydrocarbons.
   LPAH = Low-molecular-weight polycyclic aromatic hydrocarbons.
   mg/kg = milligrams per kilogram.
   PCBs = Polychlorinated biphenyls.
   pg/g = Picograms (10^{-12} gram) per gram.
   TEF = Toxicity equivalency factors.

2. Qualifiers:
   Q1 = Lab data qualifier.
   Q2 = Data validation qualifier.
   B = Blank contamination.
   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.
   F = Analyte confirmation on secondary column.
   J = The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
   M = Poor spectral match.
   N = Analysis indicates presence of an analyte for which there is presumptive evidence to make a tentative identification.
   R = The sample result is rejected. The presence or absence of the analyte cannot be verified and the data are not usable.
   U = The material was analyzed for, but was not detected above the level of the associated value.
   Y = Elevated reporting limits.

TABLE 3[1,2]

CHEMISTRY RESULTS COMPARED TO APPROPRIATE CRITERIA

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.						13116000038			13116000004			13116000006			13116000007			13116000029			13116000019			13116000010			13116000021			13116000023		
Station ID.						ST-2			ST-3			ST-3			ST-5			ST-8			ST-9			ST-11			ST-14			ST-14		
Sample Depth (Feet BML)						5.0 to 6.0 ft			3.5 to 6.2 ft			14.0 to 15.9 ft			0.9 to 2.5 ft			7.3 to 10.5 ft			10.1 to 12.0 ft			0 to 6.2 ft			3.4 to 3.6 ft			9.4 to 10.5 ft		
Soil Unit	SMS		DW Equivalent		PSDDA	Sawdust			Sawdust			Wood Chips			Wood Chips			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust		
Chemical Parameter	**SQS**	**CSL**	**SQS (LAET**	**CSL (2LAET**	**BT**	**Value**	**Q1[3]**	**Q2[3]**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**
Conventionals (Percent)																																
Total Organic Carbon						6.11			46.9			9.21						24.1						18.9			44			14.4		
Total Solids						29.1			25.3			42.3						25.9						28.6			17.8			23.2		
Metals (mg/kg dry weight)	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt																											
Antimony	—	—	—	—	150																											
Arsenic	57	93	57	93																												
Cadmium	5.1	6.7	5.1	6.7																												
Chromium	260	270	260	270																												
Copper	390	390	390	390																												
Lead	450	530	450	530																												
Mercury	0.41	0.59	0.41	0.59																												
Nickel	—	—	—	—	140																											
Silver	6.1	6.1	6.1	6.1																												
Selenium			—	—	3																											
Zinc	410	960	410	960																												
Nonionizable Organic Compounds																																
Aromatic Hydrocarbons	mg/kg carbon	mg/kg carbon	µg/kg dry wt	µg/kg dry wt	µg/kg dry wt	µg/kg dry wt			µg/kg dry wt			µg/kg dry wt						µg/kg dry wt						µg/kg dry wt			µg/kg dry wt			µg/kg dry wt		
Total LPAH	370	780	5,200	5,200		11,800		J	2,200			35,100						5,060		J				137,000			3,300			3,160		
Naphthalene	99	170	2,100	2,100		3,500			1,400			4,100						3,400						43,000			2,700			2,200		
Acenaphthylene	66	66	1,300	1,300		88			170			79						190						290			48			43		
Acenaphthene	16	57	500	500		2,400		J	130			5,400						280						22,000			150			350		
Fluorene	23	79	540	540		1,500			120			6,000						260						17,000			110			190		
Phenanthrene	100	480	1,500	1,500		3,300			330			17,000						760		J				44,000			250			310		
Anthracene	220	1,200	960	960		1,000			49			2,500						170						11,000			38			71		
2-Methylnaphthalene	38	64	670	670		1,100			150			3,000						320		J				13,000			200			330		
Total HPAH	960	5,300	12,000	17,000		8,790		J	648			14,600						1,450		J				90,200			599			665		
Fluoranthene	160	1,200	1,700	2,500		3,000			580			7,600						930						36,000			330			220		
Pyrene	1,000	1,400	2,600	3,300		1,700			68			4,200						430						21,000			170			150		
Benz[a]anthracene	110	270	1,300	1,600		870			24	U		770						37		J				8,600			14			51		
Chrysene	110	460	1,400	2,800		1,100			24	U		800						48		J				8,600			34			74		
Total benzofluoranthenes	230	450	3,200	3,600		1,170			24	U		650						28	U	UJ				8,800			40			89		
Benzo[a]pyrene	99	210	1,600	1,600		560			24	U		260						28	U	UJ				3,900			11			38		
Indeno[1,2,3-c,d]pyrene	34	88	600	690		180			24	U		120						28	U	UJ				1,500			9.6	U		22		
Dibenzo[a,h]anthracene	12	33	230	230		62			24	U		43						28	U	UJ				390			9.6	U		6.2	U	
Benzo[g,h,i]perylene	31	78	670	720		150		J	24	U		140						28	U	UJ				1,400			9.6	U		21		

TABLE 3[1,2]

CHEMISTRY RESULTS COMPARED TO APPROPRIATE CRITERIA

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.						13116000038			13116000004			13116000006			13116000007			13116000029			13116000019			13116000010			13116000021			13116000023		
Station ID.						ST-2			ST-3			ST-3			ST-5			ST-8			ST-9			ST-11			ST-14			ST-14		
Sample Depth (Feet BML)						5.0 to 6.0 ft			3.5 to 6.2 ft			14.0 to 15.9 ft			0.9 to 2.5 ft			7.3 to 10.5 ft			10.1 to 12.0 ft			0 to 6.2 ft			3.4 to 3.6 ft			9.4 to 10.5 ft		
Soil Unit	SMS		DW Equivalent		PSDDA	Sawdust			Sawdust			Wood Chips			Wood Chips			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust		
Chemical Parameter	SQS	CSL	SQS (LAET	CSL (2LAET	BT	Value	Q1[3]	Q2[3]	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2
Chlorinated Benzenes																																
1,2-Dichlorobenzene	2.3	2.3	35	50		6.1	U		24	U		6.2	U					28	U	UJ				6.1	U		9.6	U		6.2	U	
1,4-Dichlorobenzene	3.1	9.0	110	110		6.1	U	UJ	24	U		6.2	U					28	U	UJ				6.1	U		9.6	U		6.2	U	
1,2,4-Trichlorobenzene	0.81	1.8	31	51		6.1	U	UJ	24	U		6.2	U	UJ				28	U	UJ				7.4		J	9.6	U		6.2	U	
Hexachlorobenzene	0.38	2.3	22	70		6.1	U	UJ	24	U		6.2	U					28	U	UJ				14		J	9.6	U		6.2	U	
Phthalate Esters																																
Dimethyl phthalate	53	53	71	160		6.1	U		24	U		6.2	U					28	U	UJ				6.1	U		9.6	U		6.2	U	
Diethyl phthalate	61	110	200	1,200		6.7	B	U	24	U		6.2	U					28	U	UJ				12	B	U	9.6	U		8.6	B	U
Di-n-butyl phthalate	220	1700	1,400	5,100		6.1	U	UJ	90	B	J	520	B					270	B					110	B	J	45	B	U	8.6	B	U
Butyl benzyl phthalate	4.9	64	63	900		6.1	U		390			6.2	U					650						6.1			58	B		6.2	U	
Bis[2-ethylhexyl] phthalate	47	78	1,300	3,100		10	B	U	36	B	J	9.9	B	U				37	B	J				37	B	J	22	B	U	18	B	U
Di-n-octyl phthalate	58	4500	6,200	6,200		6.7			24	U		6.2	U					28	U	UJ				6.1	U		9.6	U		6.2	U	
Miscellaneous																																
Dibenzofuran	15	58	540	540		1100			170			4800						240						13,000			410			240		
Hexachlorobutadiene	3.9	6.2	11	120		6.1	U	UJ	24	U		6.2	U	UJ				28	U	UJ				8.6		J	9.6	U		6.2	U	
N-Nitrosodiphenylamine	11	11	28	40		42	Y	UJY	24	U		71	Y	UY				28	U	UJ				180	Y	UJY	9.6	U		6.2	U	
Ionizable Organic Compounds (µg/kg dry wt)						µg/kg dry wt			µg/kg dry wt			µg/kg dry wt						µg/kg dry wt						µg/kg dry wt			µg/kg dry wt			µg/kg dry wt		
Phenol	420	1200	420	1,200		15	B	UJ	150	B		31	B	U				85	B					260	B		62	B	J	37	B	J
2-Methylphenol	63	63	63	63		180			44			23						62						120			290			240		
4-Methylphenol	670	670	670	670		470			2600			300						3700						480			2,600			830		
2,4-Dimethylphenol	29	29	29	29		170		J	34			42		J				110						800			250			240		
Pentachlorophenol	360	690	360	690		30	U		120	U		31	U					140	U					31	U		48	U		31	U	
Benzyl alcohol	57	73	57	72		30	U	UJ	120	U	UJ	510		J				140	U	UJ				170		J	82		J	31	U	UJ
Benzoic acid	650	650	650	650		61	U	UJ	600		J	62	U	J				530		J				680	E	J	110		J	69		J
Pesticides/PCBs																																
Total PCBs	12	65	130	1,000																												
Total DDT					6.9																											
Aldrin					10																											
Alpha-Chlordane					10																											
Dieldrin					10																											
Heptachlor					10																											
Gamma-BHC (Lindane)					10																											

TABLE 3[1,2]

CHEMISTRY RESULTS COMPARED TO APPROPRIATE CRITERIA

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.						13116000038			13116000004			13116000006			13116000007			13116000029			13116000019			13116000010			13116000021			13116000023		
Station ID.						ST-2			ST-3			ST-3			ST-5			ST-8			ST-9			ST-11			ST-14			ST-14		
Sample Depth (Feet BML)						5.0 to 6.0 ft			3.5 to 6.2 ft			14.0 to 15.9 ft			0.9 to 2.5 ft			7.3 to 10.5 ft			10.1 to 12.0 ft			0 to 6.2 ft			3.4 to 3.6 ft			9.4 to 10.5 ft		
Soil Unit	SMS		DW Equivalent		PSDDA	Sawdust			Sawdust			Wood Chips			Wood Chips			Sawdust			Sawdust			Sawdust			Sawdust			Sawdust		
Chemical Parameter	SQS	CSL	SQS (LAET	CSL (2LAET	BT	Value	Q1[3]	Q2[3]	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2
Dioxins/Furans (pg/g dry weight)	TEF																															
2,3,7,8-TCDD (TEF = 1)	1				5										0.97						5.85											
2,3,7,8-TCDF (TEF = 0.1)	0.1														105	F					25.2	F										
1,2,3,7,8-PeCDD (TEF = 1)	1														1.57	J	J				11.9											
1,2,3,7,8-PeCDF (TEF = 0.03)	0.03														3.01						10.6											
2,3,4,7,8-PeCDF (TEF = 0.3)	0.3														3.51						12.9											
1,2,3,4,7,8-HxCDD (TEF = 0.1)	0.1														2.57						20.8											
1,2,3,6,7,8-HxCDD (TEF = 0.1)	0.1														5.85						23.6											
1,2,3,7,8,9-HxCDD (TEF = 0.1)	0.1														3.21						19.5											
1,2,3,4,7,8-HxCDF (TEF = 0.1)	0.1														4.29						6.89											
1,2,3,6,7,8-HxCDF (TEF = 0.1)	0.1														2.49						7.59											
1,2,3,7,8,9-HxCDF (TEF = 0.1)	0.1														0.78	J	J				2.58											
2,3,4,6,7,8-HxCDF (TEF = 0.1)	0.1														2.75						8.78											
1,2,3,4,6,7,8-HpCDD (TEF = 0.01)	0.01														91.8						153											
1,2,3,4,6,7,8-HpCDF (TEF = 0.01)	0.01														43.8						16.7											
1,2,3,4,7,8,9-HpCDF (TEF = 0.01)	0.01														1.74	J	J				2.48	J	J									
OCDD (TEF = 0.0003)	0.0003														552						138											
OCDF (TEF = 0.0003)	0.0003														68.3						5.59											
TEQ (½U)					15										17.9						35.197											

TABLE 3[1,2]

CHEMISTRY RESULTS COMPARED TO APPROPRIATE CRITERIA

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.						13116000013			13116000037			13116000014			13116000015			13116000027			13116000100			13116000101			13116000103		
Station ID.						ST-15			ST-17			ST-20			ST-20			ST-21			ST-24			ST-24D			ST-29		
Sample Depth (Feet BML)						0.8 to 2.2 ft			5.9 to 7.1 ft			9.9 to 11.2 ft			14.0 to 15.5 ft			9.1 to 11.2 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft		
Soil Unit	SMS		DW Equivalent		PSDDA	Sawdust			Sawdust			Sawdust			Sawdust			Rafting Debris			Recent			Recent			Recent		
Chemical Parameter	**SQS**	**CSL**	**SQS (LAET**	**CSL (2LAET**	**BT**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**
Conventionals (Percent)																													
Total Organic Carbon												30.8			25.1			17.1			1.45			1.14			1.26		
Total Solids												20			22			43.2			62.6			64			53.5		
Metals (mg/kg dry weight)	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt																								
Antimony	—	—	—	—	150																7	U	R	7	U	R	9	U	R
Arsenic	57	93	57	93																	7	U		7	U		9	U	
Cadmium	5.1	6.7	5.1	6.7																	0.3	U		0.3	U		0.7		
Chromium	260	270	260	270																	32.7			33.3			42.2		
Copper	390	390	390	390																	23.1			22.1			44.3		
Lead	450	530	450	530																	9			9			21		
Mercury	0.41	0.59	0.41	0.59																	0.06		J	0.05	U	UJ	0.09		J
Nickel	—	—	—	—	140																30			31			38		
Silver	6.1	6.1	6.1	6.1																	0.4	U		0.4	U		0.6	U	
Selenium			—	—	3																0.3	U		0.3	U		0.4	U	
Zinc	410	960	410	960																	56			50			163		
Nonionizable Organic Compounds																													
Aromatic Hydrocarbons	mg/kg carbon	mg/kg carbon	µg/kg dry wt	µg/kg dry wt	µg/kg dry wt							µg/kg dry wt			µg/kg dry wt			µg/kg dry wt			mg/kg carbon			mg/kg carbon			mg/kg carbon		
Total LPAH	370	780	5,200	5,200								1,830			2,530		J	2,740			13			9			54		
Naphthalene	99	170	2,100	2,100								1,100			1,400			850			2			2	U		6		
Acenaphthylene	66	66	1,300	1,300								52			56			67			1	U		2	U		2		
Acenaphthene	16	57	500	500								150			260		J	340			1			2	U		6		
Fluorene	23	79	540	540								130			240			360			1	U		2	U		6		
Phenanthrene	100	480	1,500	1,500								310			460			850			8			7			25		
Anthracene	220	1,200	960	960								83			110			270			2			2			10		
2-Methylnaphthalene	38	64	670	670								130			210			210			1	U		2	U		3		
Total HPAH	960	5,300	12,000	17,000								871			1,190		J	4,480			67		J	51		J	217		J
Fluoranthene	160	1,200	1,700	2,500								210			230			1,200			23		J	15		J	67		
Pyrene	1,000	1,400	2,600	3,300								190			150		J	880			13			11			45		
Benz[a]anthracene	110	270	1,300	1,600								77			120		J	350			5			4		J	17		J
Chrysene	110	460	1,400	2,800								120			190		J	560			8			8			29		J
Total benzofluoranthenes	230	450	3,200	3,600								130			250		J	650			10			9			33		J
Benzo[a]pyrene	99	210	1,600	1,600								64			120		J	370			4			4			13		J
Indeno[1,2,3-c,d]pyrene	34	88	600	690								37			57			200			2			2	U		6		
Dibenzo[a,h]anthracene	12	33	230	230								9.8			15		J	41			1	U		2	U		2	U	UJ
Benzo[g,h,i]perylene	31	78	670	720								33			59			230			2			2	U		7		

TABLE 3[1,2]

CHEMISTRY RESULTS COMPARED TO APPROPRIATE CRITERIA

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.						13116000013			13116000037			13116000014			13116000015			13116000027			13116000100			13116000101			13116000103		
Station ID.						ST-15			ST-17			ST-20			ST-20			ST-21			ST-24			ST-24D			ST-29		
Sample Depth (Feet BML)						0.8 to 2.2 ft			5.9 to 7.1 ft			9.9 to 11.2 ft			14.0 to 15.5 ft			9.1 to 11.2 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft		
Soil Unit	SMS		DW Equivalent		PSDDA	Sawdust			Sawdust			Sawdust			Sawdust			Rafting Debris			Recent			Recent			Recent		
Chemical Parameter	SQS	CSL	SQS (LAET	CSL (2LAET	BT	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2
Chlorinated Benzenes																													
1,2-Dichlorobenzene	2.3	2.3	35	50								6.1	U		6.2	U	UJ	6.2	U		1.4	U		1.8	U		1.6	U	
1,4-Dichlorobenzene	3.1	9.0	110	110								6.1	U		6.2	U	UJ	6.2	U		1.4	U		1.8	U		1.6	U	
1,2,4-Trichlorobenzene	0.81	1.8	31	51								6.1	U		6.2	U	UJ	6.2	U		1.4	U		1.8	U		1.6	U	
Hexachlorobenzene	0.38	2.3	22	70								6.1	U		6.2	U	UJ	6.2	U		1.4	U		1.8	U		1.6	U	
Phthalate Esters																													
Dimethyl phthalate	53	53	71	160								6.1	U		6.2	U	UJ	6.2	U		1	U	UJ	6		J	2	U	
Diethyl phthalate	61	110	200	1,200								17	B	U	7.4	B	UJ	6.2	U		1	U		2	U		2	U	
Di-n-butyl phthalate	220	1700	1,400	5,100								7.3	B	U	48	B	UJ	63	B	J	1	U		2	U		2	U	
Butyl benzyl phthalate	4.9	64	63	900								180			9.9		J	140			1.4	U	UJ	1.8	U	UJ	1.6	U	UJ
Bis[2-ethylhexyl] phthalate	47	78	1,300	3,100								26	B	U	12	B	UJ	30	B	U	3		J	2	U	UJ	4		J
Di-n-octyl phthalate	58	4500	6,200	6,200								6.1	U		6.2	U	UJ	7.4			1	U	UJ	2	U	UJ	2	U	UJ
Miscellaneous																													
Dibenzofuran	15	58	540	540								300			250			240			1	U		2	U		5		
Hexachlorobutadiene	3.9	6.2	11	120								6.1	U		6.2	U	UJ	6.2	U		1.4	U		1.8	U		1.6	U	
N-Nitrosodiphenylamine	11	11	28	40								6.1	U		6.2	U	UJ	6.2	U		1	U		2	U		2	U	
Ionizable Organic Compounds (µg/kg dry wt)												µg/kg dry wt			µg/kg dry wt			µg/kg dry wt			µg/kg dry wt			µg/kg dry wt			µg/kg dry wt		
Phenol	420	1200	420	1,200								90	B		33	B	J	45	B	J	20	U		20	U		22		
2-Methylphenol	63	63	63	63								200			170			11			20	U		20	U		20	U	
4-Methylphenol	670	670	670	670								1100			1200			550			24			20	U		41		
2,4-Dimethylphenol	29	29	29	29								95			87			48			20	U		20	U		20	U	
Pentachlorophenol	360	690	360	690								330			31	U		31	U		100	U		100	U		100	U	
Benzyl alcohol	57	73	57	72								170		J	88		J	48		J	20	U		20	U		20	U	
Benzoic acid	650	650	650	650								61	U	UJ	62	U	UJ	64		J	200	U	UJ	200	U	UJ	200	U	UJ
Pesticides/PCBs																													
Total PCBs	12	65	130	1,000																	16	U		12			57		
Total DDT					6.9																4	U		3.9	U		3.9	U	
Aldrin					10																2	U		1.9	U		2	U	
Alpha-Chlordane					10																2	U		1.9	U		2	U	
Dieldrin					10																4	U		3.9	U		3.9	U	
Heptachlor					10																2	U		1.9	U		2	U	
Gamma-BHC (Lindane)					10																2	U		1.9	U		2	U	

TABLE 3[1,2]

CHEMISTRY RESULTS COMPARED TO APPROPRIATE CRITERIA

Former Mill A MTCA Support Sample Collection

Everett, Washington

Sample ID No.						13116000013			13116000037			13116000014			13116000015			13116000027			13116000100			13116000101			13116000103		
Station ID.						ST-15			ST-17			ST-20			ST-20			ST-21			ST-24			ST-24D			ST-29		
Sample Depth (Feet BML)						0.8 to 2.2 ft			5.9 to 7.1 ft			9.9 to 11.2 ft			14.0 to 15.5 ft			9.1 to 11.2 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft		
Soil Unit	SMS		DW Equivalent		PSDDA	Sawdust			Sawdust			Sawdust			Sawdust			Rafting Debris			Recent			Recent			Recent		
Chemical Parameter	SQS	CSL	SQS (LAET	CSL (2LAET	BT	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2
Dioxins/Furans (pg/g dry weight)	TEF																												
2,3,7,8-TCDD (TEF = 1)	1				5	2.72			18.6																				
2,3,7,8-TCDF (TEF = 0.1)	0.1					50.2	F		87.4	F																			
1,2,3,7,8-PeCDD (TEF = 1)	1					5.22			46.4																				
1,2,3,7,8-PeCDF (TEF = 0.03)	0.03					7.31			37																				
2,3,4,7,8-PeCDF (TEF = 0.3)	0.3					8.76			33.3																				
1,2,3,4,7,8-HxCDD (TEF = 0.1)	0.1					13.6			64.8																				
1,2,3,6,7,8-HxCDD (TEF = 0.1)	0.1					33.1			79																				
1,2,3,7,8,9-HxCDD (TEF = 0.1)	0.1					17.8			63.8																				
1,2,3,4,7,8-HxCDF (TEF = 0.1)	0.1					10.2			23.6																				
1,2,3,6,7,8-HxCDF (TEF = 0.1)	0.1					5.34			22.8																				
1,2,3,7,8,9-HxCDF (TEF = 0.1)	0.1					3.57			7.36																				
2,3,4,6,7,8-HxCDF (TEF = 0.1)	0.1					6.2			25.9																				
1,2,3,4,6,7,8-HpCDD (TEF = 0.01)	0.01					799			500																				
1,2,3,4,6,7,8-HpCDF (TEF = 0.01)	0.01					58.5			74																				
1,2,3,4,7,8,9-HpCDF (TEF = 0.01)	0.01					3.42			8.95																				
OCDD (TEF = 0.0003)	0.0003					8,930			592																				
OCDF (TEF = 0.0003)	0.0003					103			61.3																				
TEQ (½U)					15	36.107			119.59																				

TABLE 3[1,2]

CHEMISTRY RESULTS COMPARED TO APPROPRIATE CRITERIA

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.						13116000102			13116000104			13116000105			13116000025			13116000106			13116000107			13116000033			13116000108			13116000031		
Station ID.						ST-30			ST-32			ST-34			ST-34			ST-37			ST-39			ST-39			ST-42			ST-43		
Sample Depth (Feet BML)						0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 2.8 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 4.0 ft			0 to 0.3 ft			5.7 to 7.2 ft		
Soil Unit	SMS		DW Equivalent		PSDDA	Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Sawdust		
Chemical Parameter	**SQS**	**CSL**	**SQS (LAET**	**CSL (2LAET**	**BT**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**	**Value**	**Q1**	**Q2**
Conventionals (Percent)																															
Total Organic Carbon						2.14			1.74			2.05			3.93			3.27			1.69			5.47			0.8			15.9		
Total Solids						44.6			45.6			47.1			43.5			49.8			53.1			41.5			71.6			25.9		
Metals (mg/kg dry weight)	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt	mg/kg dry wt																										
Antimony	—	—	—	—	150	10	U	R	10	U	R	10	U	R	10	U	R	10	U	R	9	U	R	10	U	R	6	U	R			
Arsenic	57	93	57	93		10			10			10			40		J	10	U		9	U		10			6	U				
Cadmium	5.1	6.7	5.1	6.7		0.7			0.8			0.8			1.5			0.6			0.6			2.1			0.2	U				
Chromium	260	270	260	270		51			44			39			49			29			34.2			60			22.8					
Copper	390	390	390	390		47.3			46.8			41.3			104			30.3			28.2			84.3			12.4					
Lead	450	530	450	530		16			17			19			55			13			13			55			3					
Mercury	0.41	0.59	0.41	0.59		0.1		J	0.15		J	0.14		J	0.37		R	0.08		J	0.11		J	0.3		R	0.05	U	UJ			
Nickel	—	—	—	—	140	44			39			35			45			27			33			67			23					
Silver	6.1	6.1	6.1	6.1		0.6	U		0.6	U		0.6	U		0.6	U		0.6	U		0.6	U		0.8	U		0.4	U				
Selenium			—	—	3	0.4	U		0.5			0.5			0.8		J	0.4	U		0.5			0.6			0.2	U				
Zinc	410	960	410	960		94			98			106			341		J	76			67			127			34					
Nonionizable Organic Compounds																															
Aromatic Hydrocarbons	mg/kg carbon	mg/kg carbon	µg/kg dry wt	µg/kg dry wt	µg/kg dry wt	mg/kg carbon			mg/kg carbon			mg/kg carbon			mg/kg carbon			mg/kg carbon			mg/kg carbon			µg/kg dry wt			mg/kg carbon			µg/kg dry wt		
Total LPAH	370	780	5,200	5,200		11			27			33			95		J	19			23			1,750			8			581,000		
Naphthalene	99	170	2,100	2,100		2			3			5			16			3			5			570			3			14,000		
Acenaphthylene	66	66	1,300	1,300		1	U		1			1			1			1			1	U		44			3	U		210		
Acenaphthene	16	57	500	500		1			3			5			15		J	2			3			180			3	U		15,000		
Fluorene	23	79	540	540		1			3			4			13			2			3			240			3	U		52,000		
Phenanthrene	100	480	1,500	1,500		5			12			15			43			8			9			510			5			90,000		
Anthracene	220	1,200	960	960		2			4			4			7			3			4			210			3	U		410,000		
2-Methylnaphthalene	38	64	670	670		1	U		1			2			7			1			1			160			3	U		8,700		
Total HPAH	960	5,300	12,000	17,000		54		J	109		J	119		J	164		J	69		J	92		J	2,430			38		J	148,000		
Fluoranthene	160	1,200	1,700	2,500		15			29			40			61			21			26			840			14			76,000		
Pyrene	1,000	1,400	2,600	3,300		12		J	16		J	19		J	28		J	10		J	14			450			9			36,000		
Benz[a]anthracene	110	270	1,300	1,600		4			10		J	9		J	12			6		J	8		J	180			4		J	11,000		
Chrysene	110	460	1,400	2,800		7		J	16		J	16		J	19			10		J	14		J	320			5		J	17,000		
Total benzofluoranthenes	230	450	3,200	3,600		9			20			19			25			13			17			430			4			4,700		
Benzo[a]pyrene	99	210	1,600	1,600		4			8			8			11			5			7			150			3			1,900		
Indeno[1,2,3-c,d]pyrene	34	88	600	690		1			5			4			3			2			2			31			3	U		480		
Dibenzo[a,h]anthracene	12	33	230	230		1	U		1	U		1	U		1			1	U		1	U		20	U		3	U		170		
Benzo[g,h,i]perylene	31	78	670	720		1			5			4			3		J	3			4			31			3	U		360		

TABLE 3[1,2]

CHEMISTRY RESULTS COMPARED TO APPROPRIATE CRITERIA

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.						13116000102			13116000104			13116000105			13116000025			13116000106			13116000107			13116000033			13116000108			13116000031		
Station ID.						ST-30			ST-32			ST-34			ST-34			ST-37			ST-39			ST-39			ST-42			ST-43		
Sample Depth (Feet BML)						0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 2.8 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 4.0 ft			0 to 0.3 ft			5.7 to 7.2 ft		
Soil Unit	SMS		DW Equivalent		PSDDA	Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Sawdust		
Chemical Parameter	SQS	CSL	SQS (LAET	CSL (2LAET	BT	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2
Chlorinated Benzenes																															
1,2-Dichlorobenzene	2.3	2.3	35	50		0.9	U		1.1	U		1.0	U		0.5	U		0.6	U		1.2	U		20	U		2.5	U		96		
1,4-Dichlorobenzene	3.1	9.0	110	110		0.9	U		1.1	U		1.0	U		0.5	U		0.6	U		1.2	U		20	U		2.5	U		20		
1,2,4-Trichlorobenzene	0.81	1.8	31	51		0.9	U		1.1	U		1.0	U		0.5	U		0.6	U		1.2	U		20	U		2.5	U		6.2	U	
Hexachlorobenzene	0.38	2.3	22	70		0.9	U		1.1	U		1.0	U		0.5	U		0.6	U		1.2	U		20	U		2.5	U		6.2	U	UJ
Phthalate Esters																															
Dimethyl phthalate	53	53	71	160		1	U		1	U		1	U		1	U		1	U		1	U		20	U		3	U		6.2	U	
Diethyl phthalate	61	110	200	1,200		1	U		1	U		1	U		1	U		1	U		1	U		20	U		3	U		9.9	B	U
Di-n-butyl phthalate	220	1700	1,400	5,100		1	U		1	U		1	U		2	M	N	1	U		1	U		47	M	N	3	U		210	B	J
Butyl benzyl phthalate	4.9	64	63	900		0.9	U	UJ	1.1	U	UJ	1.0	U	UJ	0.5	U		0.6	U	UJ	1.2	U	UJ	20	U		2.5	U	UJ	290		
Bis[2-ethylhexyl] phthalate	47	78	1,300	3,100		1		J	2		J	2		J	3			1		J	2		J	88			3	U	UJ	110	B	
Di-n-octyl phthalate	58	4500	6,200	6,200		1	U	UJ	1	U	UJ	1	U	UJ	1	U		1	U	UJ	1	U	UJ	20	U		3	U	UJ	6.2	U	
Miscellaneous																															
Dibenzofuran	15	58	540	540		1			3			4			12			2			2			180			3	U		17,000		
Hexachlorobutadiene	3.9	6.2	11	120		0.9	U		1.1	U		1.0	U		0.5	U		0.6	U		1.2	U		20	U		2.5	U		6.2	U	
N-Nitrosodiphenylamine	11	11	28	40		1	U		1	U		1	U		1	U		1	U		1	U		20	U		3	U		1,000	Y	UY
Ionizable Organic Compounds (µg/kg dry wt)						µg/kg dry wt			µg/kg dry wt			µg/kg dry wt			µg/kg dry wt			µg/kg dry wt			µg/kg dry wt			µg/kg dry wt			µg/kg dry wt			µg/kg dry wt		
Phenol	420	1200	420	1,200		20	U		20	U		23			20	U		25			20	U		25			20	U		37	B	J
2-Methylphenol	63	63	63	63		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		120		
4-Methylphenol	670	670	670	670		20	U		26			42			540			91			46			530			20	U		920		
2,4-Dimethylphenol	29	29	29	29		20	U		20	U		20	U		20	U		20	U		20	U		20			20	U		410		
Pentachlorophenol	360	690	360	690		100	U		100	U		100	U		99	U		99	U		100	U		100	U		99	U		31	U	
Benzyl alcohol	57	73	57	72		20	U		20	U		20	U		20	U		20	U		20	U		20	U		20	U		35		J
Benzoic acid	650	650	650	650		200	U	UJ	200	U	UJ	200	U	UJ	200	U		200	U	UJ	200	U	UJ	200	U		200	U	UJ	86		J
Pesticides/PCBs																															
Total PCBs	12	65	130	1,000		33	Y	UY	17	U		67			5,200			62			16	U		131			16	U				
Total DDT					6.9	3.9	U		3.9	U		4	U		2	U		2	U		3.9	U		2	U		1.9	U				
Aldrin					10	2	U		2	U		2	U		0.98	U		0.98	U		2	U		0.99	U		0.97	U				
Alpha-Chlordane					10	2	U		2	U		2	U		0.98	U		0.98	U		2	U		0.99	U		0.97	U				
Dieldrin					10	3.9	U		3.9	U		4	U		2	U		2	U		3.9	U		2	U		1.9	U				
Heptachlor					10	2	U		2	U		2	U		0.98	U		0.98	U		2	U		0.99	U		0.97	U				
Gamma-BHC (Lindane)					10	2	U		2	U		2	U		2.5	Y	UY	0.98	U		2	U		0.99	U		0.97	U				

TABLE 3[1,2]

CHEMISTRY RESULTS COMPARED TO APPROPRIATE CRITERIA

Former Mill A MTCA Support Sample Collection
Everett, Washington

Sample ID No.						13116000102			13116000104			13116000105			13116000025			13116000106			13116000107			13116000033			13116000108			13116000031		
Station ID.						ST-30			ST-32			ST-34			ST-34			ST-37			ST-39			ST-39			ST-42			ST-43		
Sample Depth (Feet BML)						0 to 0.3 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 2.8 ft			0 to 0.3 ft			0 to 0.3 ft			0 to 4.0 ft			0 to 0.3 ft			5.7 to 7.2 ft		
Soil Unit	SMS		DW Equivalent		PSDDA	Recent			Recent			Recent			Recent			Recent			Recent			Recent			Recent			Sawdust		
Chemical Parameter	SQS	CSL	SQS (LAET	CSL (2LAET	BT	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2	Value	Q1	Q2
Dioxins/Furans (pg/g dry weight)	TEF																															
2,3,7,8-TCDD (TEF = 1)	1				5																											
2,3,7,8-TCDF (TEF = 0.1)	0.1																															
1,2,3,7,8-PeCDD (TEF = 1)	1																															
1,2,3,7,8-PeCDF (TEF = 0.03)	0.03																															
2,3,4,7,8-PeCDF (TEF = 0.3)	0.3																															
1,2,3,4,7,8-HxCDD (TEF = 0.1)	0.1																															
1,2,3,6,7,8-HxCDD (TEF = 0.1)	0.1																															
1,2,3,7,8,9-HxCDD (TEF = 0.1)	0.1																															
1,2,3,4,7,8-HxCDF (TEF = 0.1)	0.1																															
1,2,3,6,7,8-HxCDF (TEF = 0.1)	0.1																															
1,2,3,7,8,9-HxCDF (TEF = 0.1)	0.1																															
2,3,4,6,7,8-HxCDF (TEF = 0.1)	0.1																															
1,2,3,4,6,7,8-HpCDD (TEF = 0.01)	0.01																															
1,2,3,4,6,7,8-HpCDF (TEF = 0.01)	0.01																															
1,2,3,4,7,8,9-HpCDF (TEF = 0.01)	0.01																															
OCDD (TEF = 0.0003)	0.0003																															
OCDF (TEF = 0.0003)	0.0003																															
TEQ (½U)					15																											

1. Abbreviations:
   BML = Below mudline.
   BT = Bioaccumulation trigger.
   CSL = Cleanup Screening Level.
   HPAH = High-molecular-weight polycyclic aromatic hydrocarbons.
   LAET = lowest-apparent-effects threshold.
   2LAET = second-lowest-apparent-effects threshold.
   LPAH = Low-molecular-weight polycyclic aromatic hydrocarbons.
   mg/kg = milligrams per kilogram.
   PCBs = Polychlorinated biphenyls.
   pg/g = Picograms (10-12 gram) per gram.
   PSDDA = Puget Sound Dredged Disposal Analysis.
   SMS = Sediment Management Standards.
   SQS = Sediment Quality Standards
   TEF = Toxicity equivalency factors.
   wt = Weight.

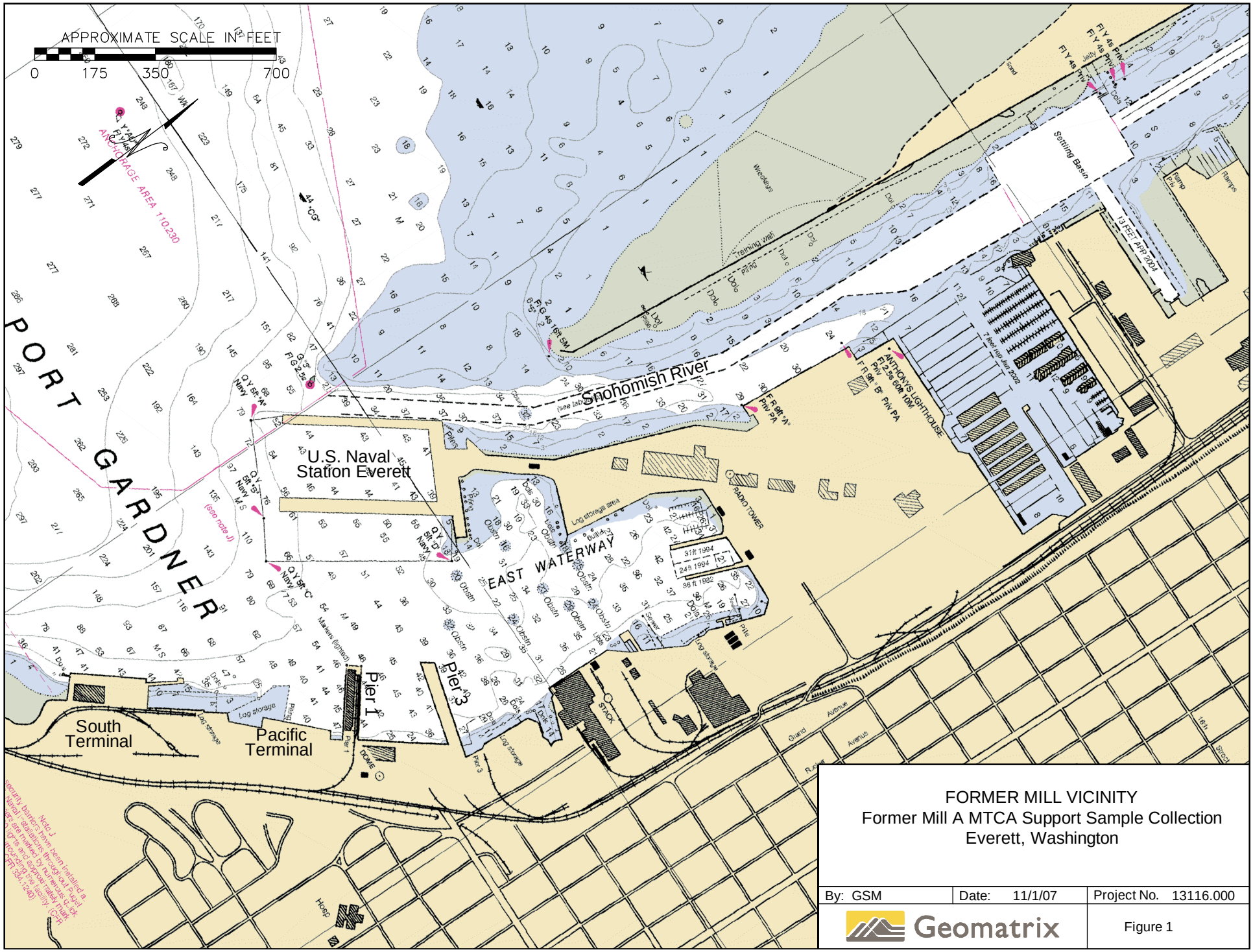
2. **Exceeds LAET or SQS**

   Exceeds 2LAET or CSL

   Carbon < 0.5 or > 4.0 Percent

3. Qualifiers:
   Q1 = Lab data qualifier.
   Q2 = Data validation qualifier.
   B = Blank contamination.
   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.
   F = Analyte confirmation on secondary column.
   J = The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
   M = Poor spectral match.
   N = Analysis indicates presence of an analyte for which there is presumptive evidence to make a tentative identification.
   R = The sample result is rejected. The presence or absence of the analyte cannot be verified and the data are not usable.
   U = The material was analyzed for, but was not detected above the level of the associated value.
   Y = Elevated reporting limits.

Figures



FORMER MILL VICINITY
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11/1/07	Project No. 13116.000
Geomatrix		Figure 1

South Terminal Vicinity.dwg

OUTER HARBOR LINE

FOOTPRINT OF CURRENT PIER

WEST BULKHEAD

Drawing Courtesy of Port of Everett

APPROXIMATE SCALE IN FEET

0 40 80 160

1936 WEYERHAEUSER WHARF
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11-1-07	Project No. 13116.000
Geomatrix		Figure 2

South Terminal Sample Locations.dwg

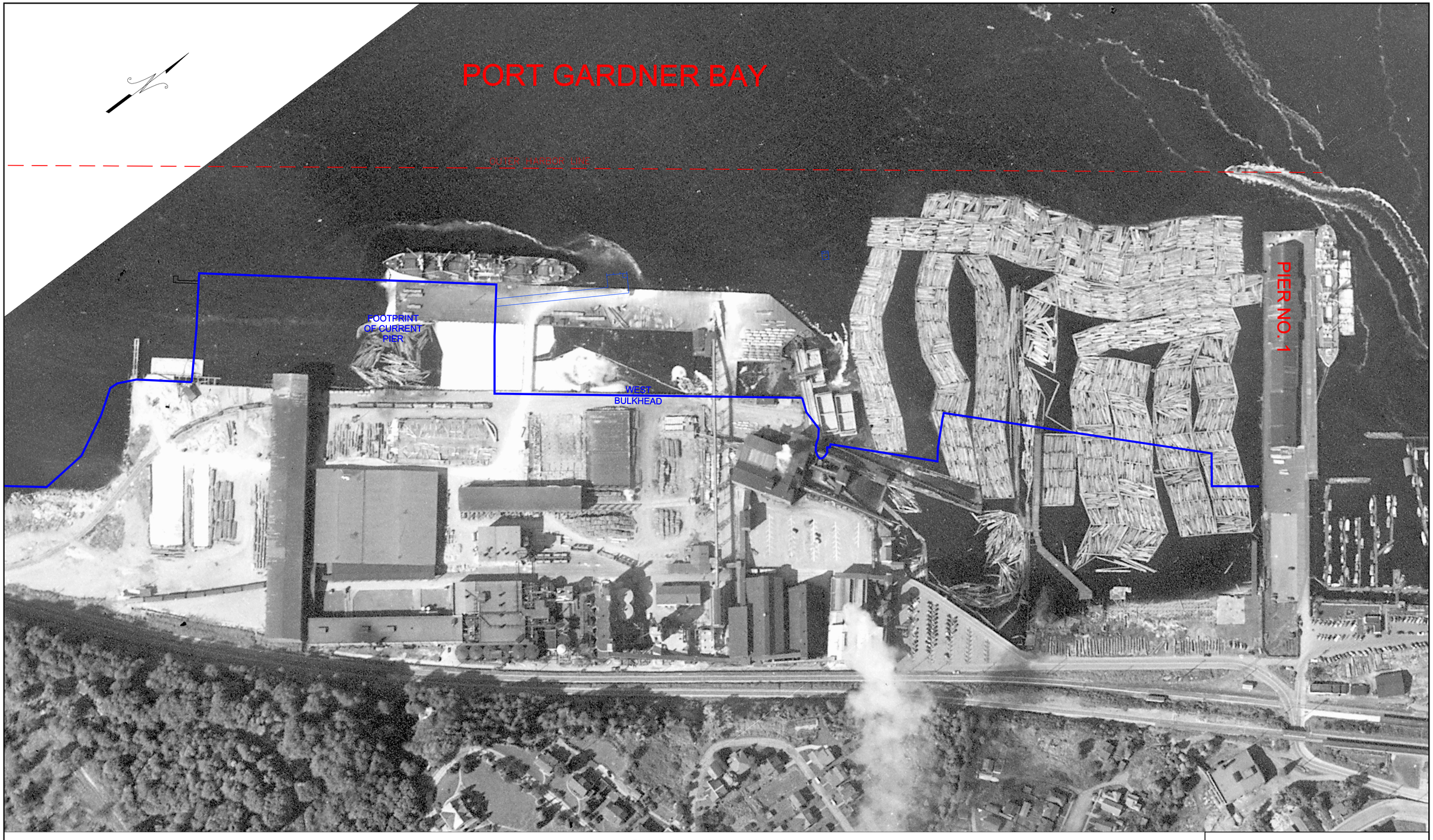


Photo Courtesy of Walker and Associates

APPROXIMATE SCALE IN FEET

0 100 200 400

1947 SOUTH TERMINAL VICINITY
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11-1-07	Project No. 13116.000
Geomatrix		Figure 3

South Terminal Sample Locations.dwg

FOOTPRINT OF CURRENT PIER

WEST BULKHEAD

OUTER HARBOR LINE

SECTION SHOWING MAIN SEWER 1"=20'-0"

TYPICAL SECTION THRU DISCHARGE PIPE 3/8"=1'-0"

FUNCTIONING DETAILS LEVEL REGULATING VALVE 3/8"=1'-0"

PLANTSITE SHOWING PROCESS SEWERS 1"=50'

Drawing Courtesy of Port of Everett

APPROXIMATE SCALE IN FEET

0 75 150 300

1970 WEYERHAEUSER PLANT LAYOUT AND PROCESS SEWERS
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11-1-07	Project No. 13116.000
Geomatrix		Figure 4

South Terminal Sample Locations.dwg

OUTER HARBOR LINE

INNER HARBOR LINE N46°02'30"E-2103.50'

PARCEL NO. 1
39.36 ACRES

PARCEL NO. 2
14.72 ACRES

S30+00

S26+00

S20+00

S10+00

S52°26'E 904.97'

FOOTPRINT OF CURRENT PIER

WEST BULKHEAD

DEEP WATER EFFLUENT DISCHARGE LINE

DOCK WAREHOUSE

DOCK WAREHOUSE 18'

CARGO DOCK 21'

WHF. #2

20 TON CAPACITY BRIDGE

FUEL CRANE

WHIRLEY CRANE

R & D BUILDING

FUEL OIL STORAGE TANK 23'

20' RESEARCH BLDG.

PARKING LOT

GAS PUMP

HEATING PLANT

TRUCK SCALE

SURGE TANK

CLARIFIER

UNOX

CRANE SHED PULP STORAGE 60'

PULP STORAGE 34'

REFINER BLDG.

BLEACH PLANT 62

COVERED LOADING PLATFORM

CHEMICAL STORAGE BLDG.

MILL "A" CREEK

FINISHING ROOM

HYDROPULPER

MACHINE ROOM 37'

SCREEN ROOM ADD.

SCREEN ROOM 40'

BARO. COND. SUMP

WHITE WATER TANK

BROWN WASHER BLDG.

RED WASHER BLDG.

WASHER DRAIN LEG

FOAM TOWER

BRICK CATCHER

DIGESTER BUILDING

ACCUMULATORS

ACID STORAGE TANKS

ACID PLANT (No 2)

COOLER

PRESS. TOWER

OFFICE 36'

SULFUR STORAGE (NOT USED)

SULFUR BURNER ROOM

STOREROOM & SHOPS 62'

CHIP SCREENS

CHIP STORAGE 80'

STACK 150'

FUEL STORAGE

SCRUBBER

210' STACK

BOILER HOUSE 54'

#6 BOILER

HOG FUEL TRUCK DUMP

WATER SOFTENER

TRANSFORMER

PARKING LOT

AUTO SHOP

PROPERTY LINE

G.N.R.R. COAST LINE

CHIP CONV.

CHIP UNLOAD PIT

ELEC. SWITCH

TRANS.

WOOD CREW LUNCH ROOM

SULFUR UNLOADING SIDING

CHIP CONVEYOR

BIN

CONVEYOR

ATLAS FUEL BIN

CREDIT UNION

GARAGE

GATEHOUSE

LOG POND

SEA WALL

WALKWAY

APRON LIFT

RETURN LOG HAUL

SPRING LOG HAUL

HOG HOUSE

SMALL LOG BARKER 163'

HYDRAULIC LOG BARKER

SLUDGE HOPPER

CLARI-FIER

SLUDGE REMOVER

TRUCK HOPPER

SALVAGE LOG DECK

CUT OFF SAW

T29N, R4E.
T29N, R5E.

N

Drawing Courtesy of Port of Everett

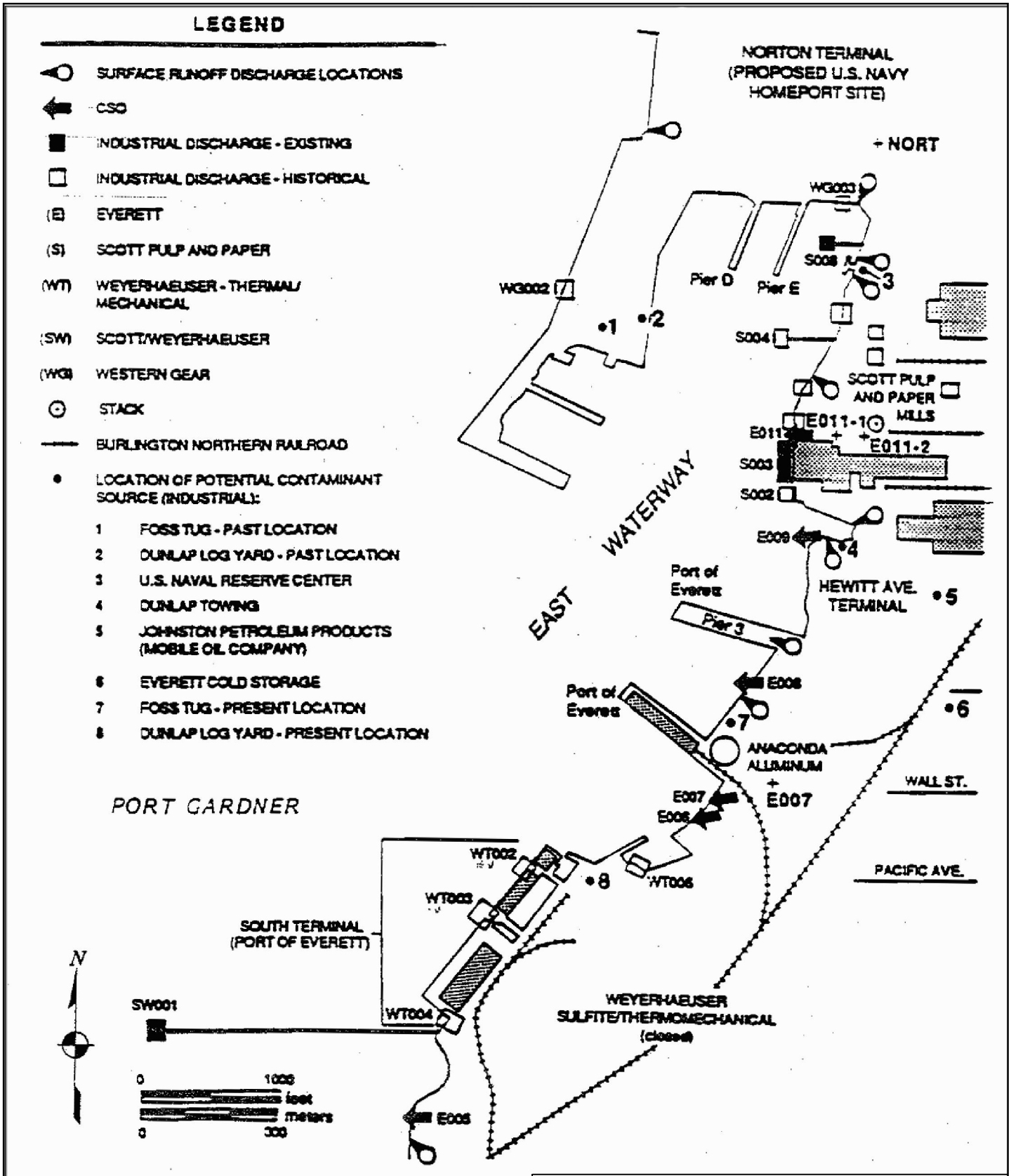
APPROXIMATE SCALE IN FEET

0 75 150 300

1977 WEYERHAEUSER PLANT
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11-1-07	Project No. 13116.000
Geomatrix		Figure 5

South Terminal Sample Locations.dwg



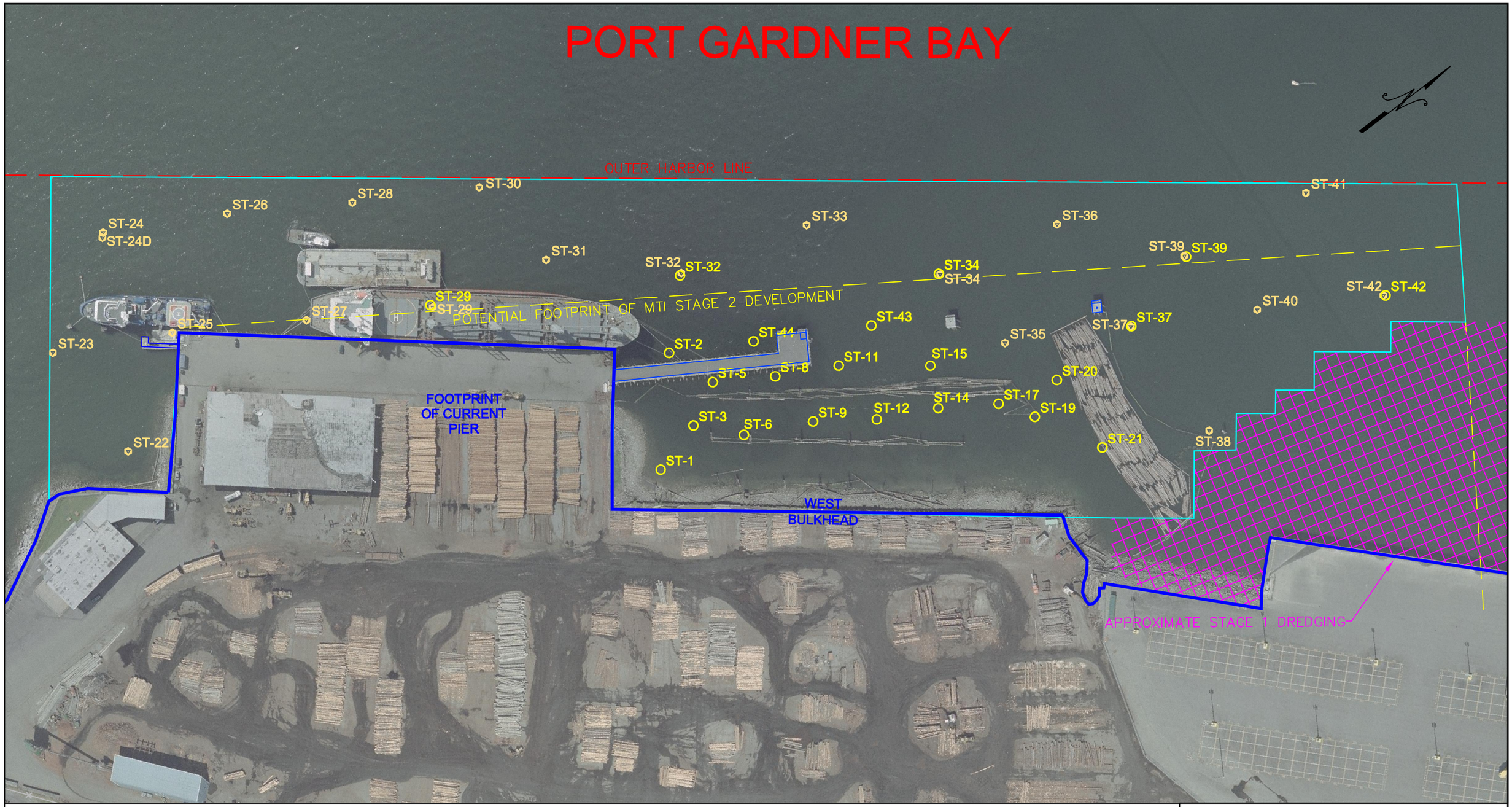
OUTFALL LOCATION MAP
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11-1-07	Project No. 13116.000
Geomatrix		Figure 6

South Terminal Outfall Locations.dwg

Source: Ecology and Environment 1992

PORT GARDNER BAY



2002 Photo Courtesy of City of Everett

Area of Investigation

ST-17 Core Sample Location, May 2007

ST-12 Grab Sample Location, May 2007

APPROXIMATE SCALE IN FEET

0 75 150 300

ACTUAL SEDIMENT SAMPLE LOCATIONS
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11-1-07	Project No. 13116.000
Geomatrix		Figure 7

South Terminal Sample Locations.dwg

PORT GARDNER BAY

OUTER HARBOR LINE

A-A
B-B
C-C
D-D
E-E
F-F
G-G
H-H

FOOTPRINT OF CURRENT PIER

WEST BULKHEAD

APPROXIMATE STAGE 1 DREDGING

APPROXIMATE SCALE IN FEET

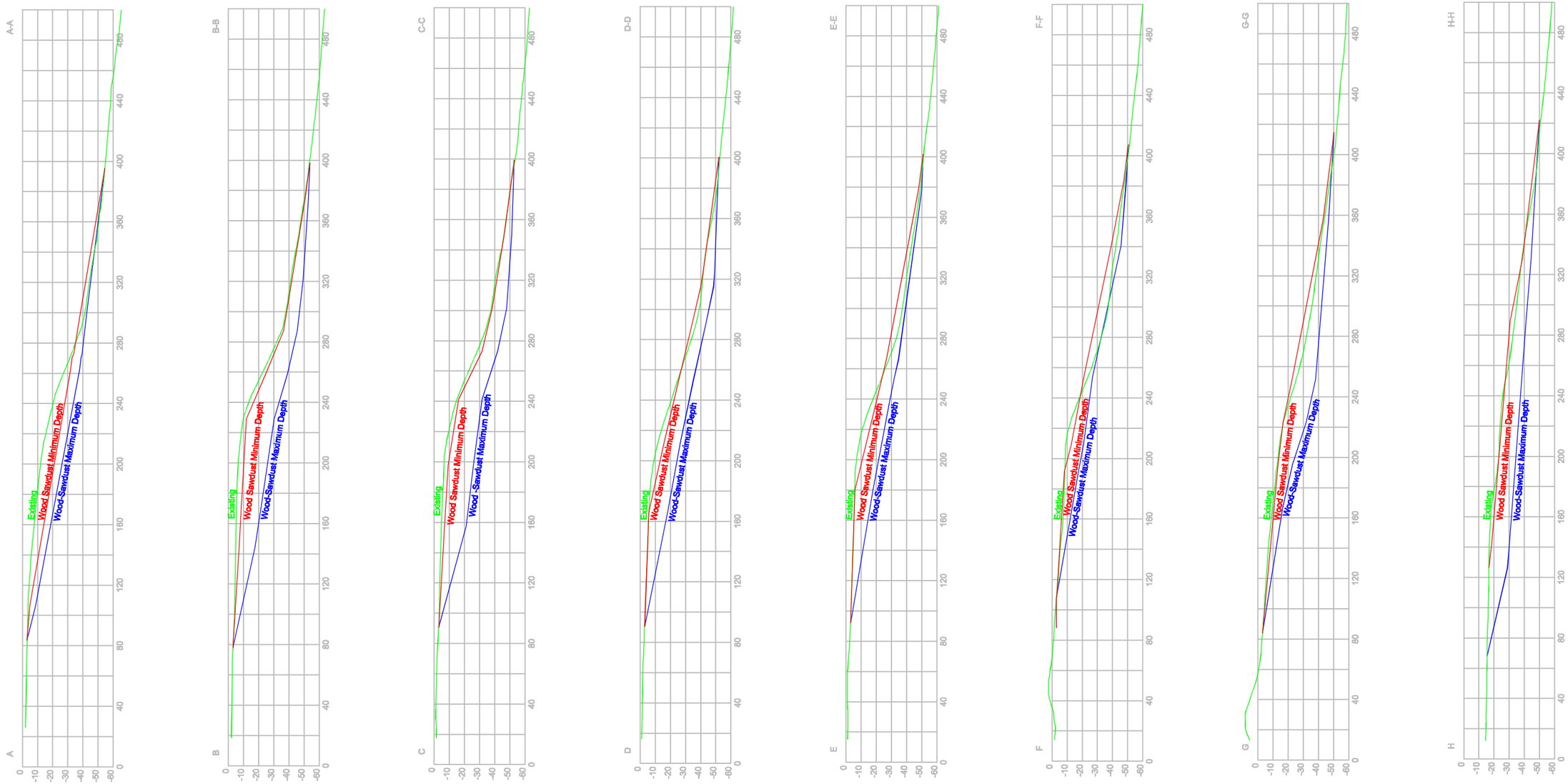
0 75 150 300

LOCATION OF CROSS-SECTIONS
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11-1-07	Project No. 13116.000
Geomatrix		Figure 8a

Wood Debris Vol.dwg

Wood-sawdust volume 78,370 cu yd

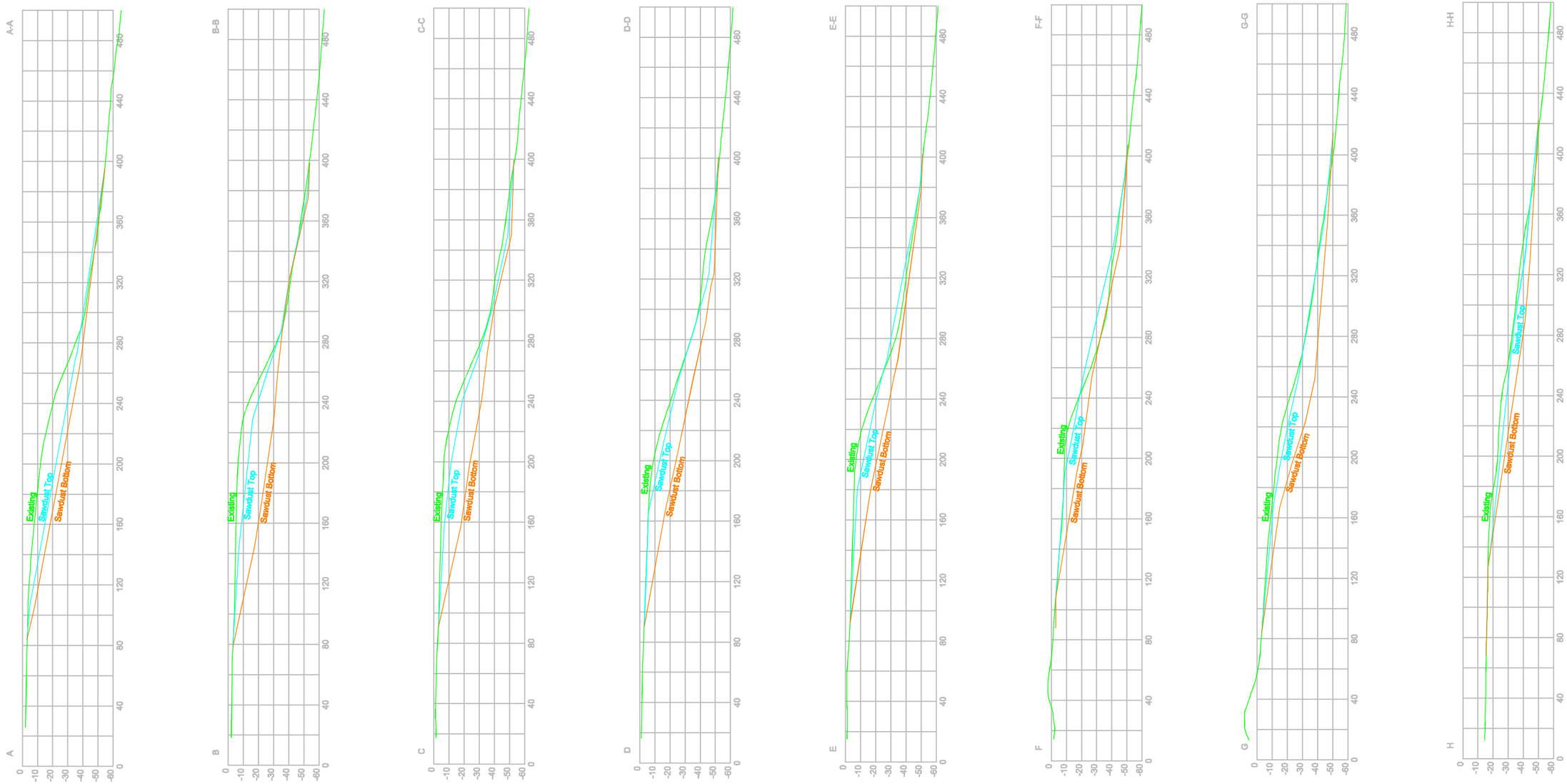


CROSS-SECTIONS THROUGH WOOD AND SAWDUST DEPOSIT
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11-1-07	Project No. 13116.000
Geomatrix		Figure 8b

Wood Debris Vol.dwg

Sawdust volume 48,941 cu yd



CROSS-SECTIONS THROUGH SAWDUST DEPOSIT
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11-1-07	Project No. 13116.000
Geomatrix		Figure 8c

Wood Debris Vol.dwg

Drawing Courtesy of Port of Everett

Photo Courtesy of Walker and Associates

1936 WEYCO Pier

1947 Aerial Photo

1976 Aerial Photo

2002 Aerial Photo

ST-25 ST-26 ST-27 ST-28 ST-29 ST-30 ST-31 ST-32 ST-33 ST-34 ST-35 ST-36 ST-37 ST-39

ST-1 ST-2 ST-3 ST-5 ST-6 ST-8 ST-9 ST-11 ST-12 ST-14 ST-15 ST-17 ST-19 ST-20 ST-21 ST-43 ST-44

SAWDUST

FOOTPRINT OF CURRENT PIER

WEST BULKHEAD

24" OUTFALL

40" OUTFALL

38" OUTFALL

APPROXIMATE SCALE IN FEET

0 50 100 200

Photo Courtesy of Aero-Metric

Photo Courtesy of City of Everett

MILL SITE CONDITIONS IN 1936, 1947, 1976, AND 2002 COMPARED
Former Mill A MTCA Support Sample Collection
Everett, Washington

By: GSM	Date: 11-1-07	Project No. 13116.000
Geomatrix		Figure 9

South Terminal Sample Locations.dwg

Geomatrix

Appendix A

Quality Assurance Project Plan

Quality Assurance Project Plan

Former Mill A MTCA Support Sample Collection

Everett, Washington

Prepared for:

Port of Everett
Everett, Washington

Prepared by:

Geomatrix Consultants, Inc.
6505 – 216th Street SW, Suite 100
Mountlake Terrace, Washington 98043
(425) 697-4340

March 13, 2007

Project No. 13116.000

TITLE AND APPROVAL SHEET
FORMER MILL A MTCA SUPPORT
SAMPLE COLLECTION
QUALITY ASSURANCE PROJECT PLAN

Port of Everett Project Manager	Name	Date
Consultant Team Project Manager	Name	Date
Consultant Team QA Manager	Name	Date

DISTRIBUTION LIST

The following individuals or entities will receive a copy of this Quality Assurance Project Plan and any subsequent revision.

Port of Everett Project Manager	*Graham Anderson*, Port of Everett
Consultant Team Project Manager	*Cliff Whitmus*, Geomatrix Consultants, Inc.
Consultant Team QA Manager	*Nick Bacher*, Geomatrix Consultants, Inc.
Consultant Team Laboratory Coordinator	*Cari Sayler*, Sayler Data Solutions, Inc.
Analytical Laboratory Project Manager	*Mark Harris*, Analytical Resources, Inc.

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QUALITY ASSURANCE PROJECT PLAN
Former Mill A MTCA Support
Sample Collection

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) describes work to be conducted for the characterization of sediments within and adjacent to the Former Mill A site in Everett, Washington. This plan conforms to the substantive requirements of the Washington State Department of Ecology's (Ecology) Sediment Sampling and Analysis Plan Appendix (Ecology, 2003) and the U.S. Environmental Protection Agency's (EPA) Guidance for Quality Assurance Project Plans (QA/G-5; EPA, 2002).

2.0 PROBLEM DEFINITION/OBJECTIVE

The problem statement is to further characterize sediments within and adjacent to the Former Mill A site in comparison to the State of Washington Sediment Management Standards (SMS; 173-204 WAC) in order to determine the chemical nature of sediments in this area.

The data from this investigation should generate results that will allow for a better characterization of sediment adjacent to the Former Mill A site. To further characterize this area, tiered grab and core sampling and analysis will be conducted, as discussed in Section 3.1. The proposed sample locations are shown on Figure 1.

2.1 PROJECT DESCRIPTION

During sediment investigations conducted in 1992 as part of the Port of Everett's (Port's) Marine Terminal Improvement Program, a deposit of sawdust (Figure 1) was found adjacent to the Former Mill A site. This deposit is located adjacent to the west bulkhead of the Former Mill A site. The estimated volume of the sawdust deposit is approximately 150,000 cubic yards and is composed primarily of sawdust (60 to 80 percent total volatile solids) with sand and silt (Pentec, DOF, and Hartman, 1993). In 1992, sediment sampling and chemical analyses were conducted to determine the nature, extent, and disposal options for nearshore sediments at the South Terminal (DOF and Pentec, 1992; EcoChem and Pentec, 1993; Pentec, DOF, and Hartman, 1993). Three borings (PC1, PC2, and PC3; Figure 1) were located in the sawdust deposit. Chemical characterization of the sawdust deposit showed that a total of eight chemicals of concern exceed the 1998 Puget Sound Dredged Disposal Analysis (PSDDA) screening level or maximum level criteria. Three phenols also exceeded the SMS cleanup screening level (173-204-520 WAC) criteria.

The Former Mill A site is part of the Port's South Terminal area which was listed on Ecology's 1996 Sediment Management Standards Contaminated Sediment Site List. The site was listed for phenols, benzoic acid, metals, and low molecular weight polynuclear aromatic hydrocarbons (LPAHs). In response to the Washington Governor's Puget Sound Initiative, the Port will characterize the sediments, as described in this QAPP, in the South Terminal area to determine what, if any, remediation or other action needs to be taken to seek a delisting of the South Terminal area from the Contaminated Site List.

2.2 QUALITY OBJECTIVES AND CRITERIA

This section outlines the objectives of the QAPP, and summarizes relevant quality assurance (QA) criteria.

2.2.1 Quality Objectives and Criteria for Analytical Data

The goals for the analytical data are to produce data of sufficient quality to meet the project data-quality objectives (DQOs). The primary DQO for this project is that the sediment concentrations must be sufficiently accurate to compare to the Sediment Management Standards Sediment Quality Standards (SQS; 173-204-320 WAC) for marine sediments (Table 1). Because the SQS for many organic compounds is based on carbon-normalized concentrations, the samples must also be analyzed for total organic carbon (TOC). Comparison of carbon-normalized values against the SQS listed in Table 1 may be inappropriate if TOC values are below 0.5 percent or above 4 percent (Michelsen, 1992). At TOC concentrations below 0.5 percent and above 4 percent, the project DQOs for PAH and polychlorinated biphenyl (PCB) data must be accurate at the dry-weight-based standards in Table 1. The practical quantitation limits for the analytes in this study must be at least as low as the concentrations presented in Table 1.

To meet the goal of returning data accurate to within the SQSs, data-quality indicators (DQIs) also need to be established. DQIs are specific measured parameters, including the familiar PARCC parameters (precision, accuracy, representativeness, comparability, and completeness), as well as sensitivity.

The basis for assessing each of these elements of data quality is discussed in the following sections. Precision and accuracy QC (quality control) limits for analytical methods and matrix are identified in Tables 2 through 8.

2.2.2 Precision

Precision measures the reproducibility of measurements. Precision is strictly defined as the degree of mutual agreement among independent measurements as the result of repeated application of the same process under similar conditions. Analytical precision is the measurement of the variability associated with duplicate (two) or replicate (more than two) analyses. If the recoveries of analytes in the laboratory control sample (LCS) are within established control limits, then precision is within limits. Total precision is the measurement of the variability associated with the entire sampling and analysis process. Total precision measures variability introduced by both the laboratory and field operations and is determined

by analysis of duplicate or replicate field samples. Field-duplicate samples (5 percent frequency) and matrix duplicate spiked samples (one per analytical batch) shall be analyzed to assess field and analytical precision, and the precision measurement is determined using the relative percent difference between the duplicate sample results. For replicate analyses, the relative standard deviation is determined.

2.2.3 Accuracy

Accuracy is a statistical measurement of correctness and includes components of random error (variability due to imprecision) and systemic error. It therefore reflects the total error associated with a measurement. A measurement is accurate when the value reported does not differ from the true value or known concentration of the spike or standard. Analytical accuracy is measured by comparing the percent recovery of analytes spiked into an LCS to a control limit. For compounds, such as PCBs, surrogate compound recoveries are also used to assess accuracy and method performance for each sample analyzed.

Both accuracy and precision are calculated for each analytical batch, and the associated sample results are interpreted by considering these specific measurements. The formula for calculation of accuracy returns a percent recovery from pure and sample matrices. Limits of accuracy for Method 8082 (PCBs), Method 6010 (ICP metals), Method 7000 series (GFAA/CVAA metals), Method 8270D (SVOCs), Method 1613B (dioxin), Method 8081 (pesticides and PCBs), and the standard methods for conventionals analysis are contained in Tables 2 through 8, respectively.

2.2.4 Representativeness

Objectives for representativeness are defined for each sampling and analysis task and are a function of the investigative objectives. Representativeness shall be achieved through use of standard field, sampling, and analytical procedures. Representativeness is also determined by appropriate program design, with consideration of elements such as proper core locations, sampling procedures, and sampling intervals. Decisions regarding sample locations and numbers are documented in Section 3.0.

2.2.5 Comparability

Comparability is the confidence with which one data set can be compared to another data set. An objective for this QA/QC program is to produce data comparable to previously collected data. The range of field conditions encountered is considered in determining comparability. Comparability will be achieved by using standard methods for sampling and analysis, reporting

data in standard units, using Regional Reference Material (RRM), and using standard reporting formats. Field documentation using standardized data collection forms shall support the assessment of comparability.

2.2.6 Completeness

Completeness is calculated and reported for each method, matrix, and analyte combination. The number of valid results divided by the number of intended individual analyte results, expressed as a percentage, determines the completeness of the data set. For completeness requirements, valid results are all results not qualified with an "R" flag (see Table 9 for an explanation of flagging criteria). The requirement for completeness is 90 percent for the sediment samples scheduled for the initial round of analyses.

2.3 DOCUMENTATION AND RECORDS

Data and log forms produced in the field will be reviewed daily by the person recording the data, so that any errors or omissions can be corrected. All completed data sheets are removed daily from the field clipboard and photocopied; the original data sheets are filed in a fireproof file cabinet and the photocopies stored in the project file. All data transcribed from field forms into electronic forms and tables will be 100 percent verified for accuracy and freedom from transcription errors.

Laboratory documentation will consist of a case narrative, providing descriptions of any problems and corrective actions, copies of the chain-of-custody forms, tabulated analytical results, data qualifiers, and blank and matrix spike results with calculated percent recoveries and differences. A detailed documentation package (raw data, analyst's reports, extraction logs, chromatograms, etc.) will be provided by the laboratory in case the basic data review discussed in Section 5.1 encounters deficiencies requiring more thorough laboratory documentation.

Field documentation will consist of forms presented in the Appendix. All project documentation records will be kept on file at the offices of Geomatrix Consultants, Inc. (Geomatrix), in Mountlake Terrace, Washington.

3.0 DATA GENERATION AND ACQUISITION

The proposed sampling and analysis plan to meet these requirements is described in this section.

3.1 SAMPLING PROCESS DESIGN

Samples will be collected at the locations shown on Figure 1 and detailed in Table 10. In this investigation, there are three types of sampling locations:

- Type 1 sample locations: only core samples will be collected at these locations. These locations are within the footprint of the sawdust deposit;
- Type 2 sample locations: only grab samples will be collected at these locations. These locations are outside the footprint of the sawdust deposit and inside the Outer Harbor Line; and
- Type 3 sample locations: grab and core samples will be collected at these locations. These locations are outside the footprint of the sawdust deposit and inside the Outer Harbor Line.

The detailed grab and core sample collection and processing procedures are presented in the Appendix.

3.2 SAMPLING METHODS

A brief summary of sampling procedures is presented below. The detailed grab and core collection and processing procedures are presented in the Appendix.

3.2.1 Grab Samples

At the grab sampling locations (Type 2 and 3 stations), a stainless-steel, 0.2-m^2 pneumatically-operated grab sampler will be used to collect the top 10 cm of the sediment. Twenty-two (21 locations plus 1 duplicate location) will be collected during this investigation (Table 10).

3.2.2 Core Samples

At Type 1 core sampling locations (21 stations), discrete samples will be collected from each core at 1-foot *in situ* depth intervals based on field observations (see Table 10) to the proposed core depth of 4 or 15 feet below mudline or to the depth of maximum recovered sediment if full penetration is not achieved (see Table 10). If the volume of recovered sediment available within a depth interval is insufficient to perform all the required analyses, additional sediment volume from the next deeper interval will be added to provide sufficient sample volume. The

next subsequent sample will be collected from the next full 1-foot *in situ* depth interval. Approximately half of the cores from the 21 stations will be visually inspected and logged to assess the horizontal and vertical extent of the sawdust deposit. No analytical samples will be collected from these cores.

At Type 3 core sampling locations (6 stations), a composite sample will be collected from each core from 0 to 4 feet *in situ* depth below mudline. These samples will be placed on hold at the analytical laboratory pending potential analysis for PSDDA COCs (excluding volatile organic analysis).

3.3 SAMPLE HANDLING AND CUSTODY

This section outlines the protocol for field and laboratory handling and storage of samples.

3.3.1 Analysis Schedule

Table 11 provides a list of the samples proposed for initial analysis. Based on field screening and visual observations, a subset of samples collected during this investigation will be initially analyzed for one or more of the following analytical groups: metals, semi-volatile organics, dioxins, PCBs, pesticides, and conventionals. Surplus sample volume will be frozen (–18°C) and archived at the analytical laboratory. All samples collected but not initially analyzed will be archived at the analytical laboratory as described in the Appendix.

3.3.2 Additional Analyses

After receipt of the analytical data for the initial samples analyzed, a meeting will be held with the Port of Everett to discuss the results. Depending on the results of the initial round of analyses, additional analysis may be conducted.

3.3.3 Field Quality Assurance

Field QC will include the collection and analysis of a duplicate grab sample for a frequency of approximately 5 percent. Field QC samples will be collected at ST-24. Decontamination blanks will not be collected because sample material that has been in contact with grab sampler will not be used (see Appendix, Section 3.1) or sampling will be conducted using only precleaned, disposable sampling equipment (see Appendix, Section 4.0).

Samples will be handled using the chain-of-custody procedures described in the Appendix. Data and log forms produced in the field will be reviewed daily by the person recording the data, so that any errors or omissions can be corrected. All completed data sheets are removed

daily from the field clipboard and photocopied; the original data sheets are filed in a fireproof file cabinet and the photocopies stored in the project file. All data transcribed from field forms into electronic forms and tables will be 100 percent verified for accuracy and freedom from transcription errors.

3.4 ANALYTICAL METHODS

The analytical laboratory (Analytical Resources, Inc. [ARI]) Standard Operating Procedures (SOPs) are not included in this QAPP due to their proprietary nature. The specific analysis chosen for the samples must be capable of returning accurate results at the concentrations listed in Table 1. Test methods selected to achieve these results are presented in Table 12 along with the reporting limits for each analysis provided by ARI.

As described in the SMS, total PCB concentrations will be calculated by summing the detected concentrations for seven Aroclors (i.e., Aroclor 1016, 1221, 1232, 1242, 1248, 1254, and 1260). Undetected Aroclors will not be included in the calculation of total PCB values. If all seven Aroclors are reported as undetected, then the highest undetected value is reported as the total PCB value.

Total LPAHs (low-molecular-weight polycyclic aromatic hydrocarbons) will be calculated by summing the detected concentrations for naphthalene, acenaphthylene, acenaphthene, phenanthrene, anthracene, and fluorene. If all LPAHs are reported as undetected, then the highest undetected value is reported as the total LPAH value.

Total HPAHs (high-molecular-weight polycyclic aromatic hydrocarbons) will be calculated by summing the detected concentrations of fluoranthene, pyrene, benz(a)anthracene, chrysene, total benzofluoranthenes, benzo(a)pyrene, indeno(1,2,3,-c,d)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene. If all HPAHs are reported as undetected, then the highest undetected value is reported as the total HPAH value.

3.5 QUALITY CONTROL

Field QC checks include collection and analysis of a duplicate grab sample and standardized sampling documentation forms (see Appendix). Decontamination blanks will not be collected because sample material that has been in contact with the grab sampler will not be used (see Appendix, Section 3.1) or sampling will be conducted using only precleaned, disposable sampling equipment (see Appendix, Section 4.0). Laboratory QC checks include the use of standard EPA analytical methodologies (including analysis of method blanks, spikes, and

surrogates) and laboratory QC samples. These QC checks are detailed in Tables 2 through 8. Additionally, the analyses will be carried out under the laboratory's SOPs.

As specified in the laboratory's SOPs, the PCB analysis will include running suitable standards for calibration purposes. The calibration standard will be run with every analytical batch of samples. A result outside of three standard deviations for the continuing calibration is cause for corrective action, to include rerunning the batch. In addition, suitable RRM will be run with every third batch of samples, beginning with the first batch. Finally, one matrix spike/matrix-spike duplicate will be run every batch to evaluate matrix interferences and recoveries.

3.6 INSTRUMENT/EQUIPMENT TESTING, INSPECTION, MAINTENANCE, AND CALIBRATION

3.6.1 Field Equipment

Prior to each daily sampling event, the Differential Global Positioning System (DGPS) will be tested. A check point accessible to the sampling boat will be occupied. At the DGPS check point, the sampling boat will be stationed and a position reading will be taken. The DGPS position will be compared to the known check point coordinates. The DGPS position readings should agree within to within 1 to 2 m of the known check point coordinates.

3.6.2 Analytical Laboratory

Analytical instruments shall be calibrated in accordance with the analytical methods specified in the laboratory SOPs. All analytes reported shall be included in the initial and continuing calibrations, and these calibrations shall meet the acceptance criteria specified in Tables 2 through 8. Records of standard preparation and instrument calibration shall be maintained and calibration standards shall be traceable to RRMs.

Instrument calibration shall be checked at the frequency specified by the relevant analytical method, using materials prepared independently of the RRM. Multipoint calibrations shall contain the minimum number of calibration points specified by the applicable analytical method, with all points used for the calibration being contiguous. If more than the minimum number of standards are analyzed for the initial calibration, all of the standards analyzed shall be included in the initial calibration. The continuing calibration verification cannot be used as the LCS.

3.7 INSPECTION/ACCEPTANCE FOR SUPPLIES AND CONSUMABLES

The Field Manager will be responsible for ensuring that all supplies necessary to conduct the sampling, including collecting, processing, and transporting samples, are available and in good working order at the beginning of the fieldwork. The Field Manager will monitor supplies and equipment throughout sampling and replenish, or replace, as necessary.

3.8 NON-DIRECT MEASUREMENTS

No non-direct measurements will be made on this project.

3.9 DATA MANAGEMENT

The analytical and field data will be compiled into a SEDQUAL-compatible electronic data deliverable for potential submission to Ecology. The analytical data will also be maintained in ARI's electronic Laboratory Information Management System or archival system. Hard copies of the analytical laboratory data reports will be retained at the offices of Geomatrix.

4.0 ASSESSMENT AND OVERSIGHT

This section describes laboratory oversight, procedures for corrective actions, and reporting responsibilities.

4.1 ASSESSMENTS AND RESPONSE ACTIONS

4.1.1 Field

The Field Manager will be responsible for correcting equipment malfunctions during the field sampling. In addition to equipment failures, conditions that require a modification of the intent of the sampling program will be coordinated with the Port by the Field Manager or the Consultant Team Project Manager. All response actions will be documented in a field logbook.

4.1.2 Analytical Laboratory

ARI participates in Ecology's Environmental Laboratory Accreditation Program and has participated in the EPA Contract Laboratory Program. The laboratory is periodically audited by a variety of outside agencies, including EPA, Ecology, Corps of Engineers, and the Washington State Department of Health. Results of recent audits are available from ARI upon request.

Corrective actions will occur whenever the QC limits are exceeded for any method specified in Tables 2 through 8. Details of the corrective actions to be taken are contained in the laboratory SOPs for each analytical method and conform to the corrective actions outlined in the Sediment Sampling and Analysis Plan Appendix (Ecology, 2003).

Whenever a corrective action does occur, the Laboratory Manager is notified. If the corrective action is judged to be routine, such as a slight exceedance of a percent recovery limit, the corrective action will be implemented without notifying the consultant team Project Manager. If the corrective action requires reanalysis or re-extraction, the consultant team Project Manager and Laboratory Coordinator will be notified. Following removal of material for the initial analyses the samples will be frozen, which allows for a 6-month hold time. Therefore, the laboratory will be able to reanalyze/re-extract samples well within the holding time interval.

4.2 REPORTS TO MANAGEMENT

A data report summarizing the results of the characterization will be prepared by the consultant team and the Port' Project Manager for submittal to Ecology. This report will include a narrative of the following:

- field activities,
- chain-of-custody records,
- a Level 1 data review,
- data tables and maps for sample locations,
- data tables and maps summarizing the results of the analytical analyses, and
- electronic data tables including a SEDQUAL-compatible data deliverable.

5.0 DATA VALIDATION AND USABILITY

This section describes procedures for data validation, verification, and usability.

5.1 DATA REVIEW, VERIFICATION, AND VALIDATION

One hundred percent of the data received from the laboratory will be validated at a Level 1 (basic) review. This Level 1 review will include the following steps:

- Verify that the lab utilized the specified extract, analysis, and cleanup methods.
- Review sample holding time.
- Verify that sample numbers and analyses match those requested on the chain-of-custody form.
- Verify that the required reporting limits have been achieved.
- Verify that field duplicates, matrix spikes, and laboratory control samples were run at the proper frequency and have met QC criteria.
- Verify that the surrogate compound analyses have been performed and have met QC criteria.
- Verify that initial and continuing calibrations were run at the proper frequency and have met acceptance criteria.
- Verify that the lab blanks are free of contaminants.

5.2 VERIFICATION AND VALIDATION METHODS

Data that appear to have significant deficiencies will be validated using the more comprehensive Level 2 verification and review in accordance with the EPA's functional guidelines for data validation (EPA, 1999 and 2004). Following this review, data qualifiers assigned by the laboratory may be amended.

5.3 RECONCILIATION WITH USER REQUIREMENTS

Following receipt of all of the analytical data reports, the consultant team Project Manager and the Port of Everett Project Manager will review the sample results to determine if they fall within the acceptance limits and goals set forth in this QAPP. If the DQIs do not meet the project requirements, the data may be discarded and reanalysis performed. This decision will be made jointly between the consultant team and the Port of Everett. If the failure is traced to the analytical laboratory (e.g., sample handling, extraction, or instrument calibration and maintenance), techniques will be reassessed prior to reanalysis.

6.0 HEALTH AND SAFETY

All work performed under this QAPP will be conducted following Geomatrix's Corporate Health and Safety Plan.

7.0 SCHEDULE

The fieldwork for this investigation is dependent on:

1. Port approval of this QAPP; and
2. issuance of permits.

Fieldwork will start within 2 weeks following completion of the above events (assuming no permit restrictions on when the sampling may be conducted). Field activities for the sampling are expected to take up to 7 days. The schedule and duration of the field sampling, laboratory analysis, and reporting is presented below.

Task	Schedule
Collect sediment samples	1 week, Week 1
Receive initial chemical laboratory data	3 weeks, Weeks 2 through 4
Evaluate preliminary data	2 weeks, Weeks 5 and 6
Meeting with the Port to discuss results	1 week, Week 7
Potentially conduct additional analyses	Dependent on results of meeting with the Port
Perform data quality review and prepare data report	Dependent on results of meeting with the Port

8.0 PROJECT MANAGEMENT

This section provides an overview of the project organization, as well as a summary of the nature of the project and QA objectives.

8.1 PROJECT ORGANIZATION

An organizational chart showing lines of authority and reporting responsibilities is presented on Figure 2.

8.1.1 Port of Everett

The Port's responsibilities include project direction and project oversight, site security, profiling and disposal of wastes generated, personnel access badges, space allocation, site usage, and other miscellaneous support items associated with planning and performance of the work.

8.1.2 Consultant Team

Geomatrix is the prime consultant working under contract to the Port of Everett for the Former Mill A MTCA Support project.

8.1.2.1 Consultant Team Project Manager

Geomatrix's Project Manager is Cliff Whitmus. He will be responsible for the overall conduct of the work described in this QAPP.

8.1.2.2 QA Manager

Nick Bacher of Geomatrix will be the QA Manager for the project. He will be responsible for performing field and quality reviews and ensuring that the sampling and analysis is conducted as per the requirements specified in this QAPP.

8.1.2.3 Field Manager

Nick Bacher will also be the Field Manager for the project. He will be responsible for:

- Ensuring that all samples are collected in accordance with this QAPP.
- Obtaining authorization to work and anchor at the site.
- Establishing and following chain-of-custody procedures.
- Overseeing compliance with Geomatrix's Corporate Health and Safety Plan.
- Ensuring that all sediment sampling and analysis equipment as described in the Appendix is available and in working order.

8.1.2.4 Laboratory Coordinator

Cari Sayler of Sayler Data Solutions, Inc., will be the Laboratory Coordinator for the work conducted under this QAPP. She will:

- Communicate with and oversee the analytical laboratory, to ensure that project goals are met.
- Coordinate sample analysis with the analytical laboratory.

8.1.2.5 Data Management

Cari Saylor will be responsible for the analytical data management for the project. She will:

- Import the electronic data deliverable (EDD) provided by the analytical laboratory into a data management system.
- Produce analytical data tables for the Data Report that will be produce as part of this work (see Section 4.2)
- Produce the SEDQUAL compatible EDD described in Section 3.9.

8.1.2.6 Data Validation

Cari Sayler will also perform the validation of all analytical data as described in Section 5.0 of this QAPP.

8.1.2.7 Analytical Laboratory Project Manager

Analytical testing will be conducted by Analytical Resources, Inc. (ARI), Tukwila, Washington. ARI is a Washington accredited full-service chemical analytical laboratory. Mark Harris will be the ARI Project Manager.

9.0 REFERENCES

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Tables

TABLE 1

DATA QUALITY OBJECTIVES FOR THE CONSTITUENTS OF CONCERN PRACTICAL QUANTITATION REQUIREMENTS

Former Mill A MTCA Support
Everett, Washington

Chemical Parameter	Sediment Management Standards		PSDDA Screening Level or BT [3]
	SQS [1]	SQS Dry Weight Equivalent (LAET) [2]	
Metals	**mg/kg dry wt**	**mg/kg dry wt**	**mg/kg dry wt**
Antimony	—	—	150
Arsenic	57	57	
Cadmium	5.1	5.1	
Chromium	260	260	
Copper	390	390	
Lead	450	450	
Mercury	0.41	0.41	
Nickel	—	—	140
Silver	6.1	6.1	
Selenium			3
Zinc	410	410	
Nonionizable Organic Compounds			
Aromatic Hydrocarbons	**mg/kg carbon**	**µg/kg dry wt**	**µg/kg dry wt**
Total LPAH	370	5200	
Naphthalene	99	2100	
Acenaphthylene	66	1300	
Acenaphthene	16	500	
Fluorene	23	540	
Phenanthrene	100	1500	
Anthracene	220	960	
2-Methylnaphthalene	38	670	
Total HPAH	960	12000	
Fluoranthene	160	1700	
Pyrene	1000	2600	
Benz[a]anthracene	110	1300	
Chrysene	110	1400	
Total benzofluoranthenes d	230	3200	
Benzo[a]pyrene	99	1600	
Indeno[1,2,3-c,d]pyrene	34	600	
Dibenzo[a,h]anthracene	12	230	
Benzo[g,h,i]perylene	31	670	

[1] Sediment Management Standards Sediment Quality Standards (173-204-320) WAC

[2] LAET—Lowest Apparent Effects Threshold

[3] BT—Bioaccumulation Trigger

TABLE 1

DATA QUALITY OBJECTIVES FOR THE CONSTITUENTS OF CONCERN PRACTICAL QUANTITATION REQUIREMENTS

Former Mill A MTCA Support
Everett, Washington

Chemical Parameter	Sediment Management Standards		PSDDA Screening Level or BT [3]
	SQS [1]	SQS Dry Weight Equivalent (LAET) [2]	
Nonionizable Organic Compounds	**mg/kg carbon**	**µg/kg dry wt**	**µg/kg dry wt**
Chlorinated Benzenes			
1,2-Dichlorobenzene	2.3	35	
1,4-Dichlorobenzene	3.1	110	
1,2,4-Trichlorobenzene	0.81	31	
Hexachlorobenzene	0.38	22	
Phthalate Esters			
Dimethyl phthalate	53	71	
Diethyl phthalate	61	200	
Di-n-butyl phthalate	220	1400	
Butyl benzyl phthalate	4.9	63	
Bis[2-ethylhexyl]phthalate	47	1300	
Di-n-octyl phthalate	58	6200	
Miscellaneous			
Dibenzofuran	15	540	
Hexachlorobutadiene	3.9	11	
N-nitrosodiphenylamine	11	28	
Ionizable Organic Compounds	**µg/kg dry wt**	**µg/kg dry wt**	
Phenol	420	420	
2-Methylphenol	63	63	
4-Methylphenol	670	670	
2,4-Dimethylphenol	29	29	
Pentachlorophenol	360	360	
Benzyl alcohol	57	57	
Benzoic acid	650	650	

[1] Sediment Management Standards Sediment Quality Standards (173-204-320) WAC

[2] LAET—Lowest Apparent Effects Threshold

[3] BT—Bioaccumulation Trigger

TABLE 1

DATA QUALITY OBJECTIVES FOR THE CONSTITUENTS OF CONCERN PRACTICAL QUANTITATION REQUIREMENTS

Former Mill A MTCA Support
Everett, Washington

Chemical Parameter	Sediment Management Standards		PSDDA Screening Level or BT [3]
	SQS [1]	SQS Dry Weight Equivalent (LAET) [2]	
Pesticides/PCBs			
Total PCBs	12	130	
Total DDT			6.9
Aldrin			10
Alpha-Chlordane			10
Dieldrin			10
Heptachlor			10
Gamma-BHC (Lindane)			10

[1] Sediment Management Standards Sediment Quality Standards (173-204-320) WAC

[2] LAET—Lowest Apparent Effects Threshold

[3] BT—Bioaccumulation Trigger

TABLE 2

SUMMARY OF METHOD QUALITY OBJECTIVES FOR METHOD 8082—PCBs

Former Mill A MTCA Support
Everett, Washington

Quality Control Element	Frequency of Implementation	Acceptance Criteria
Initial Calibration	Daily	$r \geq 0.995$, RSD $\leq$ 20%, $r^2 \geq 0.990$
Initial Calibration Verification (ICV)	After initial calibration	%Recovery = 85 - 115%
Continuing Calibration Verification (CCV)	Every 10 samples and at end of analytical sequence	%Drift $\leq$ 15%, %D $\leq$ 15%
Method Blank (MB)	1 per sample batch	Analytes < MDL
Laboratory Control Sample (LCS)	1 per sample batch	Solids: %Recovery = 50 -130%
Matrix Spike (MS)	1 per 20 samples	%Recovery = 40 - 140%
Matrix-Spike Duplicate (MSD)	1 per 20 samples	RPD = 50%
Surrogates: Interference-Free Matrix Project Sample Matrix	Every sample as specified	 Interference-Free Matrix Solids: %Recovery = 50 - 130% Project Sample Matrix %Recovery = 40 - 140%
Target Analyte Confirmation		RPD $\leq$ 40%

RSD: relative standard deviation.

MDL: method detection limit.

RPD: relative percent difference.

TABLE 3

SUMMARY OF METHOD QUALITY OBJECTIVES FOR METHOD 6010—ICP METALS

Former Mill A MTCA Support
Everett, Washington

Quality Control Element	Description of Element	Frequency of Implementation	Acceptance Criteria
Instrumental Precision	% RSD 3 integrations (exposures)	Each calibration and calibration verification standards (ICV/CCV)	% RSD < 5%
Initial Calibration	1 std and blank	Daily	r $\geq$ 0.995
Initial Calibration Verification (ICV)	Midlevel (2nd source) verification	After initial calibration	% recovery $\pm$ 10 %
Continuing Calibration Verification (CCV)	Midlevel verification	Every 10 samples or 2 hours, whichever is more frequent, and at end of analytical sequence.	% recovery $\pm$ 10 %
Initial Calibration Blank (ICB)	Interference-Free Matrix to assess analysis contamination	After initial calibration	Analytes < RL check sample (~2x RL)
Continuing Calibration Blank (CCB)	Interference-Free Matrix to assess analysis contamination	Every 10 samples or 2 hours, whichever is more frequent, and at end of analytical sequence.	Analytes < RL check sample (~2x RL)
ICP Interelement Interference Check Samples	Matrix Interference	At beginning and end of analytical sequence or twice per 8-hour shift, whichever is more frequent	% recovery = 80 to 120 %
Method Blank (MB)	Interference-Free Matrix to assess overall method contamination	1 per sample batch or every 20 samples, whichever is more frequent	Analytes < RL check sample (~2x RL)
Laboratory-Control Sample (LCS)	Interference-Free Matrix containing all target analytes	1 per sample batch or 5% of field samples	% recovery = 80 to 120% Sporadic Marginal Failures[1]; % recovery = 80 to 140%
Matrix Spike (MS)	Sample matrix spiked with all or a subset of target analytes prior to digestion	1 per sample batch or every 20 samples, whichever is more frequent	% recovery = 75 to 125%, when sample concentration is <4 times spiked concentration for a particular analyte
Matrix Duplicate (MD) or Matrix-Spike Duplicate (MSD)	Refer to text for MD or MS	1 per sample batch or every 20 samples, whichever is more frequent	RPD $\leq$ 20% applied when analyte concentration is > RL.

[1] The number of Sporadic Marginal Failure (SMF) allowances depend on the number of target analytes reported from the analysis. In the instance of only seven metals, one SMF is allowed.

RL: reporting limit

RPD: relative percent difference

RSD: relative standard deviation

TABLE 4

SUMMARY OF METHOD QUALITY OBJECTIVES FOR METHOD 7000 SERIES—METALS VIA GFAA/CVAA

Former Mill A MTCA Support
Everett, Washington

Quality Control Element	Description of Element	Frequency of Implementation	Acceptance Criteria
Instrumental Precision	RPD of 2 injections	All standards, and ICV/CCV	RPD $\leq$ 10%
Initial Calibration	Three stds and blank	Daily	r $\geq$ 0.995
Initial Calibration Verification (ICV)	Midlevel (2nd source) verification	After initial calibration	% recovery $\pm$ 10 %
Continuing Calibration Verification (CCV)	Midlevel verification	Every 10 samples or 2 hours, whichever is more frequent, and at end of analytical sequence.	% recovery $\pm$ 10 % GFAA % recovery $\pm$ 20% CVAA
Initial Calibration Blank (ICB)	Interference-Free Matrix to assess analysis contamination	After initial calibration	Analytes < RL check sample (~2x RL)
Continuing Calibration Blank (CCB)	Interference-Free Matrix to assess analysis contamination	Every 10 samples or 2 hours, whichever is more frequent, and at end of analytical sequence.	Analytes < RL check sample (~2x RL)
Method Blank (MB)	Interference-Free Matrix to assess overall method contamination	1 per sample batch or every 20 samples, whichever is more frequent	Analytes < RL check sample (~2x RL)
Laboratory-Control Sample (LCS)	Interference-Free Matrix containing all target analytes	1 per sample batch or 5% of field samples	% recovery = 80 to 120%
Matrix Spike (MS)	Sample matrix spiked with target analytes prior to digestion	1 per sample batch or every 20 samples, whichever is more frequent	% recovery = 75 to 125%, when sample concentration is <4 times spiked concentration for a particular analyte
Matrix Duplicate (MD) or Matrix-Spike Duplicate (MSD)	Refer to text for MD or MS	1 per sample batch or every 20 samples, whichever is more frequent	RPD $\leq$ 20% applied when analyte concentration is > RL
Post-Digestion spike (PDS)	Sample digestate spiked with target analytes for each GFAA sample	As needed to confirm matrix effects	% recovery = 85 to 115%

RL: reporting limit

RPD: relative percent difference

TABLE 5

SUMMARY OF METHOD QUALITY OBJECTIVES FOR METHOD 8270D—SVOCs

Former Mill A MTCA Support
Everett, Washington

Quality Control Element	Frequency of Implementation	Acceptance Criteria
Initial Calibration	Daily	$r \geq 0.995$, RSD $\leq$ 15%, $r^2 \geq 0.990$
Initial Calibration Verification (ICV)	After initial calibration	%Recovery = 70 - 130%
Continuing Calibration Verification (CCV)	Every 6 samples and at end of analytical sequence	%Drift $\leq$ 20%, %D $\leq$ 20%
Method Blank (MB)	1 per sample batch or every 20 samples, whichever is more frequent, or when there is a change in reagents	Analytes < one half MDL
Laboratory Control Sample (LCS)	1 per sample batch or every 20 samples, whichever is more frequent	Solids: %Recovery = 50 -130%
Matrix Spike (MS)	1 per sample batch or every 20 samples, whichever is more frequent, spiked with the same analytes at the same concentration as the LCS	%Recovery = 45 - 135%
Matrix-Spike Duplicate (MSD)	1 per sample batch or every 20 samples, whichever is more frequent: used MSD when samples are not expected to contain target analytes	RPD $\leq$ 60%
Surrogates: Interference-Free Matrix Project Sample Matrix	Every sample as specified	 Interference-Free Matrix Solids: %Recovery = 45 - 135% B/N cmpds Project Sample Matrix %Recovery = 35 - 140% A cmpds
Target Analyte Confirmation		NA

RSD: relative standard deviation
MDL: method detection limit
RPD: relative percent difference

TABLE 6

SUMMARY OF METHOD QUALITY OBJECTIVES FOR METHOD 1613B—DIOXINS/FURANS

Former Mill A MTCA Support
Everett, Washington

Quality Control Element	Frequency of Implementation	Acceptance Criteria
Initial Calibration	Until CCV fails	m/z ratio within ± 15% of theoretical Signal/noise ratio ≥10:1 RR RSD ≤ 20% RRF RSD ≤ 35% RTs within windows GC resolution ≤ 25%
Mass Calibration and Mass Spectrometer Resolution	Beginning and end of each 12-hour shift	Resolving power ≥ 10,000
Window Defining Mix	Beginning of each 12-hour shift	RTs within windows
Continuing Calibration Verification (CCV)	Beginning of each 12-hour shift	m/z ratio within ± 15% of theoretical Signal/noise ratio ≥10:1 RR %D ≤ ± 20% RRF %D ≤ ± 35% RTs within windows
Method Blank (MB)	1 per extraction batch	Analytes < RL or < 5x Sample Conc.
Ongoing Precision and Recovery (OPR)	1 per sample batch	2,3,7,8-TCDD 67-158% 2,3,7,8-TCDF 75-158% 1,2,3,7,8-PeCDD 70–142% 1,2,3,7,8-PeCDF 80-134% 2,3,4,7,8-PeCDF 68-160% 1,2,3,4,7,8-HxCDD 70-164% 1,2,3,6,7,8-HxCDD 76-134% 1,2,3,7,8,9-HxCDD 64-162% 1,2,3,4,7,8-HxCDF 72-134% 1,2,3,6,7,8-HxCDF 84-130% 1,2,3,7,8,9-HxCDF 78-130% 2,3,4,6,7,8-HxCDF 70–156% 1,2,3,4,6,7,8-HpCDD 70–140% 1,2,3,4,6,7,8-HpCDF 82-132% 1,2,3,4,7,8,9-HpCDF 78-138% OCDD 78-144% OCDF 63-170 %

RR: relative response
RRF: relative response factor
RSD: relative standard deviation
%D: percent difference
RT: retention time
m/z: ion abundance

TABLE 6

SUMMARY OF METHOD QUALITY OBJECTIVES FOR METHOD 1613B—DIOXINS/FURANS

Former Mill A MTCA Support
Everett, Washington

Quality Control Element	Frequency of Implementation	Acceptance Criteria	
Labeled compound recoveries:	Each sample and QC sample	13C12-2,3,7,8-TCDF	24-169%
		13C12-1,2,3,7,8-PeCDD	25-181%
		13C12-1,2,3,7,8-PeCDF	24-185%
		13C12-2,3,4,7,8-PeCDF	21-178%
		13C12-1,2,3,4,7,8-HxCDD	32-141%
		13C12-1,2,3,6,7,8,-HxCDD	28-130%
		13C12-1,2,3,4,7,8-HxCDF	26-152%
		13C12-1,2,3,6,7,8-HxCDF	26-123%
		13C12-1,2,3,7,8,9-HxCDF	29-147%
		13C12-2,3,4,6,7,8,-HxCDF	28-136%
		13C12-1,2,3,4,6,7,8-HpCDD	23-140%
		13C12-1,2,3,4,6,7,8-HpCDF	28-143%
		13C12-1,2,3,4,7,8,9-HpCDF	26-138%
		13C12-OCDD	17-157%
		37Cl4-2,3,7,8-TCDD	35-197%
		13C12-2,3,7,8-TCDD	25-164%
2,3,7,8-TCDF Confirmation	Each sample with 2,3,7,8-TCDF detected concentration above RL	Second dissimilar column meeting all analysis criteria	

RR: relative response
RRF: relative response factor
RSD: relative standard deviation
%D: percent difference
RT: retention time
m/z: ion abundance

TABLE 7

SUMMARY OF METHOD QUALITY OBJECTIVES FOR METHOD 8081—PESTICIDES

Former Mill A MTCA Support
Everett, Washington

Quality Control Element	Frequency of Implementation	Acceptance Criteria
Initial Calibration	Until CCV fails	r ≥ 0.995, RSD ≤ 20%, r^2 ≥ 0.990
Initial Calibration Verification (ICV)	After initial calibration	%Recovery = 85% - 115%
Continuing Calibration Verification (CCV)	Every 20 samples and at end of analytical sequence	%Drift ≤ 15%, %D ≤ 15%
Degradation Check Standard	Beginning of each 12-hour shift	%Breakdown ≤15%
Method Blank (MB)	1 per sample batch	Analytes < MDL
Laboratory Control Sample (LCS)	1 per sample batch	Solids: %Recovery = 50% -130%
Matrix Spike (MS)	1 per sample batch	%Recovery = 40% - 140%
Matrix Spike Duplicate (MSD)	1 per sample batch	RPD = 50%
Surrogates: Interference-Free Matrix Project Sample Matrix	Every sample as specified	 Interference-Free Matrix Solids: %Recovery = 50% - 130% Project Sample Matrix %Recovery = 40% - 140%
Target Analyte Confirmation		RPD ≤ 40%

RSD: relative standard deviation
MDL: method detection limit
RPD: relative percent difference

TABLE 8

SUMMARY OF METHOD QUALITY OBJECTIVES FOR SEDIMENT CONVENTIONALS

Former Mill A MTCA Support
Everett, Washington

Quality Control Element	Suggested Control Limit	
	Total Organic Carbon	**Total Solids**
Initial Calibration	r > 0.995	NA
Continuing Calibrations	% recovery + 10%	NA
Calibration Blank	Analytes < RL	NA
Laboratory Control Sample (LCS)	% recovery + 20%	NA
Matrix Spike (MS)	% recovery + 25%	NA
Laboratory Triplicates	RSD < 20%	RSD < 20%
Method Blank	Analytes < RL	Analytes < RL

TABLE 9

DATA QUALIFIERS

Former Mill A MTCA Support
Everett, Washington

Qualifier	Description
J	The analyte was positively identified; the quantitation is an estimation.
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the reporting limit.
R	The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

TABLE 10

PROPOSED SAMPLE LOCATIONS

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Proposed Sample Location (SPCS WA N [4601] NAD83 Survey Feet)		Estimated Mudline Elevation (feet MLLW) [1]	Grab Samples	Core Samples (Feet Below Mudline)
		Easting	Northing			
Type 1[2]	ST-1	1298970	358699	-2.9	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-2	1298833	358825	-31.7	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-3	1298949	358783	-5.9	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-4	1299043	358781	-3.0	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-5	1298910	358850	-11.3	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-6	1299012	358850	-4.5	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-7	1299107	358863	-2.0	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-8	1298961	358938	-11.7	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-9	1299057	358945	-5.8	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-10	1299164	358938	-2.4	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-11	1299012	359026	-24.5	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	SC-12	1299113	359026	-5.3	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics

TABLE 10

PROPOSED SAMPLE LOCATIONS

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Proposed Sample Location (SPCS WA N [4601] NAD83 Survey Feet)		Estimated Mudline Elevation (feet MLLW) [1]	Grab Samples	Core Samples (Feet Below Mudline)
		Easting	Northing			
Type 1[2]	ST-13	1299215	359026	-2.8	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-14	1299164	359113	-6.2	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-15	1299103	359153	-23.7	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-16	1299266	359113	-2.6	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-17	1299215	359201	-9.1	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-18	1299334	359160	-1.9	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-19	1299292	359228	-7.7	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-20	1299243	359295	-18.1	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-21	1299367	359289	-16.3	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics

TABLE 10

PROPOSED SAMPLE LOCATIONS

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Proposed Sample Location (SPCS WA N [4601] NAD83 Survey Feet)		Estimated Mudline Elevation (feet MLLW) [1]	Grab Samples	Core Samples (Feet Below Mudline)
		Easting	Northing			
Type 2 [3]	ST-22	1298433	358033	0.0	Top 10 cm	None
	ST-23	1298229	358033	-10.3	Top 10 cm	None
	ST-24 [5]	1298127	358210	-43.3	Top 10 cm	None
	ST-25	1298331	358210	-30.3	Top 10 cm	None
	ST-26	1298229	358386	-47.2	Top 10 cm	None
	ST-27	1298433	358386	-40.7	Top 10 cm	None
	ST-28	1298331	358563	-60.4	Top 10 cm	None
	ST-30	1298433	358739	-67.7	Top 10 cm	None
	ST-31	1298637	358739	-50.9	Top 10 cm	None
	ST-33	1298793	359122	-61.4	Top 10 cm	None
	ST-35	1299146	359268	-35.1	Top 10 cm	None
	ST-36	1299044	359445	-57.1	Top 10 cm	None
	ST-38	1299452	359445	-17.5	Top 10 cm	None
	ST-40	1299350	359621	-35.4	Top 10 cm	None
	ST-41	1299248	359798	-55.1	Top 10 cm	None
Type 3 [4]	ST-29	1298535	358563	-45.8	Top 10 cm	4-foot interval from 0 to 4 feet
	ST-32	1298739	358915	-55.0	Top 10 cm	4-foot interval from 0 to 4 feet
	ST-34	1298988	359247	-50.8	Top 10 cm	4-foot interval from 0 to 4 feet
	ST-37	1299248	359445	-36.5	Top 10 cm	4-foot interval from 0 to 4 feet
	ST-39	1299208	359579	-49.4	Top 10 cm	4-foot interval from 0 to 4 feet
	ST-42	1299452	359798	-37.1	Top 10 cm	4-foot interval from 0 to 4 feet

[1] MLLW: mean lower low water. Elevations estimated from multiple bathymetric surveys conducted by Clark Leeman Land Surveying between 1985 and 1989.

[2] Type 1 sample stations are where core samples will be collected and are located within the sawdust deposit. No grab samples are collected at these locations.

[3] Type 2 sample stations are locations where only grab samples will be collected.

[4] Type 3 sample stations are locations where both grab and core samples will be collected.

[5] A duplicate grab sample will be collected at this location.

Geomatrix

TABLE 11

SAMPLE ANALYSIS SCHEDULE

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Grab Sample	Proposed Coring Depth [1]	Samples Collected	Initial Sample Interval Analyzed	Analyses [2]
Type 1	ST-1	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-2	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-3	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-4	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-5	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-6	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-7	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-8	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-9	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-10	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-11	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	SC-12	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins

[1] Depth below mudline

[2] Analytes may change based on visual sample characteristics

TABLE 11

SAMPLE ANALYSIS SCHEDULE

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Grab Sample	Proposed Coring Depth [1]	Samples Collected	Initial Sample Interval Analyzed	Analyses [2]
	ST-13	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-14	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-15	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-16	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-17	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-18	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-19	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-20	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-21	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins

[1] Depth below mudline

[2] Analytes may change based on visual sample characteristics

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TABLE 11

SAMPLE ANALYSIS SCHEDULE

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Grab Sample	Proposed Coring Depth [1]	Samples Collected	Initial Sample Interval Analyzed	Analyses [2]
Type 2	ST-22	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-23	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-24	Yes	None	Top 10 cm	Grab Sample	SMS COCs, TOC
	ST-24D	Yes	None	Top 10 cm	Grab Sample	SMS COCs, TOC
	ST-25	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-26	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-27	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-28	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-30	Yes	None	Top 10 cm	Grab Sample	SMS COCs, TOC
	ST-31	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-33	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-35	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-36	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-38	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-40	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-41	Yes	None	Top 10 cm	None	SMS COCs, TOC

[1] Depth below mudline

[2] Analytes may change based on visual sample characteristics

TABLE 11

SAMPLE ANALYSIS SCHEDULE

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Grab Sample	Proposed Coring Depth [1]	Samples Collected	Initial Sample Interval Analyzed	Analyses [2]
Type 3	ST-29	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC
	ST-32	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC
	ST-34	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC
	ST-37	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC
	ST-39	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC
	ST-42	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC

[1] Depth below mudline

[2] Analytes may change based on visual sample characteristics

TABLE 12

ANALYTICAL METHODOLOGIES AND REPORTING LIMITS

Former Mill A MTCA Support
Everett, Washington

Parameter	Sample Prep/Extraction	Analytical Method	Reporting [1] Limit
Metals			
Antimony	ARI 515S	EPA 6010	5 ppm wet wt
Arsenic	ARI 515S	EPA 6010	5 ppm wet wt
Cadmium	ARI 515S	EPA 6010	0.2 ppm wet wt
Chromium	ARI 515S	EPA 6010	0.5 ppm wet wt
Copper	ARI 515S	EPA 6010	0.2 ppm wet wt
Lead	ARI 515S	EPA 6010	2 ppm wet wt
Mercury	ARI 515S	EPA 7471A	0.05 ppm wet wt
Nickel	ARI 515S	EPA 6010	1 ppm wet wt
Silver	ARI 515S	EPA 6010	0.3 ppm wet wt
Selenium	ARI 515S	EPA 7740	0.2 ppm wet wt
Zinc	ARI 515S	EPA 6010	0.6 ppm wet wt
Nonionizable Organic Compounds			
Aromatic Hydrocarbons			
Total LPAH			
Naphthalene	Sonication	EPA 8270D	20 ppb dry wt
Acenaphthylene	Sonication	EPA 8270D	20 ppb dry wt
Acenaphthene	Sonication	EPA 8270D	20 ppb dry wt
Fluorene	Sonication	EPA 8270D	20 ppb dry wt
Phenanthrene	Sonication	EPA 8270D	20 ppb dry wt
Anthracene	Sonication	EPA 8270D	20 ppb dry wt
2-Methylnaphthalene	Sonication	EPA 8270D	20 ppb dry wt
Total HPAH			
Fluoranthene	Sonication	EPA 8270D	20 ppb dry wt
Pyrene	Sonication	EPA 8270D	20 ppb dry wt
Benz[a]anthracene	Sonication	EPA 8270D	20 ppb dry wt
Chrysene	Sonication	EPA 8270D	20 ppb dry wt
Total benzofluoranthenes			
Benzo(b)fluoranthene	Sonication	EPA 8270D	20 ppb dry wt
Benzo(k)fluoranthene	Sonication	EPA 8270D	20 ppb dry wt
Benzo[a]pyrene	Sonication	EPA 8270D	20 ppb dry wt
Indeno[1,2,3-c,d]pyrene	Sonication	EPA 8270D	20 ppb dry wt
Dibenzo[a,h]anthracene	Sonication	EPA 8270D	20 ppb dry wt
Benzo[g,h,i]perylene	Sonication	EPA 8270D	20 ppb dry wt

[1] Reporting limits obtained from ARI laboratories

TABLE 12

ANALYTICAL METHODOLOGIES AND REPORTING LIMITS

Former Mill A MTCA Support
Everett, Washington

Parameter	Sample Prep/Extraction	Analytical Method	Reporting [1] Limit
Nonionizable Organic Compounds			
Chlorinated Benzenes			
1,2-Dichlorobenzene	Sonication	EPA 8270D	20 ppb dry wt
1,4-Dichlorobenzene	Sonication	EPA 8270D	20 ppb dry wt
1,2,4-Trichlorobenzene	Sonication	EPA 8270D	20 ppb dry wt
Hexachlorobenzene	Sonication	EPA 8270D	20 ppb dry wt
Phthalate Esters			
Dimethyl phthalate	Sonication	EPA 8270D	20 ppb dry wt
Diethyl phthalate	Sonication	EPA 8270D	20 ppb dry wt
Di-n-butyl phthalate	Sonication	EPA 8270D	20 ppb dry wt
Butyl benzyl phthalate	Sonication	EPA 8270D	20 ppb dry wt
Bis[2-ethylhexyl]phthalate	Sonication	EPA 8270D	20 ppb dry wt
Di-n-octyl phthalate	Sonication	EPA 8270D	20 ppb dry wt
Miscellaneous			
Dibenzofuran	Sonication	EPA 8270D	20 ppb dry wt
Hexachlorobutadiene	Sonication	EPA 8270D	20 ppb dry wt
N-nitrosodiphenylamine	Sonication	EPA 8270D	20 ppb dry wt
Ionizable Organic Compounds			
Phenol	Sonication	EPA 8270D	20 ppb dry wt
2-Methylphenol	Sonication	EPA 8270D	20 ppb dry wt
4-Methylphenol	Sonication	EPA 8270D	20 ppb dry wt
2,4-Dimethylphenol	Sonication	EPA 8270D	20 ppb dry wt
Pentachlorophenol	Sonication	EPA 8270D	100 ppb dry wt
Benzyl alcohol	Sonication	EPA 8270D	100 ppb dry wt
Benzoic acid	Sonication	EPA 8270D	200 ppb dry wt

[1] Reporting limits obtained from ARI laboratories

TABLE 12

ANALYTICAL METHODOLOGIES AND REPORTING LIMITS

Former Mill A MTCA Support
Everett, Washington

Parameter	Sample Prep/Extraction	Analytical Method	Reporting [1] Limit
Pesticides/PCBs			
Total PCBs	Sonication	EPA Method 8082	40 ppb dry wt per Aroclor
Total DDT			
4,4'-DDE	Sonication	EPA Method 8081/PSEP	2 ppb dry wt
4,4'-DDD	Sonication	EPA Method 8081/PSEP	2 ppb dry wt
4,4'-DDT	Sonication	EPA Method 8081/PSEP	2 ppb dry wt
Aldrin	Sonication	EPA Method 8081/PSEP	1 ppb dry wt
Alpha-Chlordane	Sonication	EPA Method 8081/PSEP	1 ppb dry wt
Dieldrin	Sonication	EPA Method 8081/PSEP	2 ppb dry wt
Heptachlor	Sonication	EPA Method 8081/PSEP	1 ppb dry wt
Gamma-BHC (Lindane)	Sonication	EPA Method 8081/PSEP	1 ppb dry wt
Conventionals			
Total Organic Carbon		ARI SOP 602S	200 ppm
Total Solids		ARI SOP 639S	0.01%

[1] Reporting limits obtained from ARI laboratories

Figures

PORT GARDNER BAY

OUTER HARBOR LINE

POTENTIAL FOOTPRINT OF MTI STAGE 2 DEVELOPMENT

SAWDUST

APPROXIMATE STAGE 1 DREDGING

ST-1 ST-2 ST-3 ST-4 ST-5 ST-6 ST-7 ST-8 ST-9 ST-10 ST-11 ST-12 ST-13 ST-14 ST-15 ST-16 ST-17 ST-18 ST-19 ST-20 ST-21 ST-22 ST-23 ST-24 ST-25 ST-26 ST-27 ST-28 ST-29 ST-30 ST-31 ST-32 ST-33 ST-34 ST-35 ST-36 ST-37 ST-38 ST-39 ST-40 ST-41 ST-42

PC1-92 (>13)
PC2-92 (>14.5)
PC3-92 (>8)
PC4
PC5

PC1-92 (>13) — PC Sediment Boring Location and Number, 4/92, (Thickness of Sawdust, Ft.)

Sawdust Deposit

Area of Investigation

SC-21 — TYPE 1 Samples

SS-16 — TYPE 2 Samples

SS-9 — TYPE 3 Samples

Photo Courtesy of City of Everett

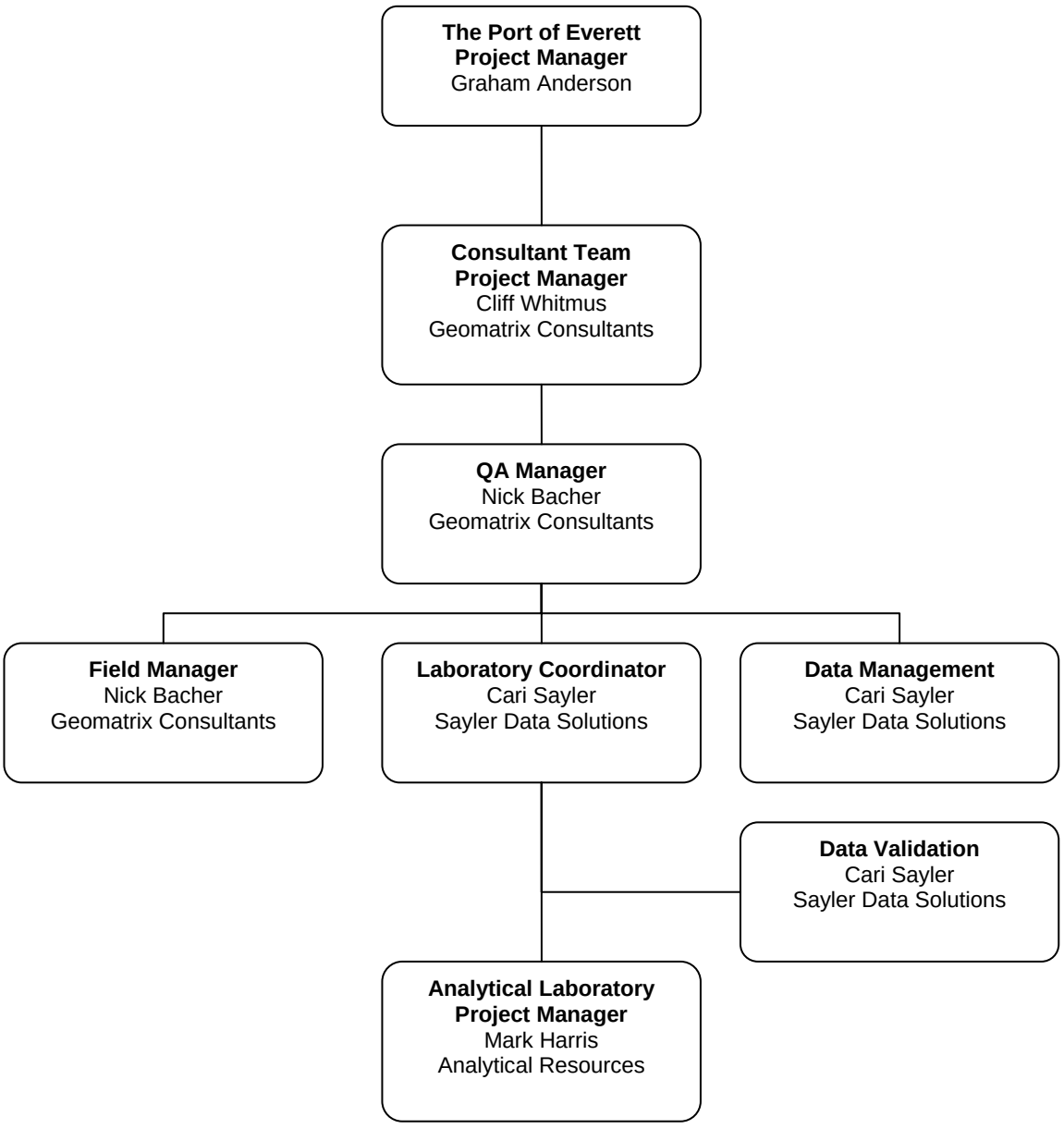
APPROXIMATE SCALE IN FEET

0 75 150 300

PROPOSED SEDIMENT SAMPLE LOCATIONS
Former Mill A MTCA Support Sample Collection
Everett, Washington
for the Port of Everett

By: GSM	Date: 1-17-07	Project No. 13116.000
Geomatrix		Figure 1

South Terminal Sample Locations.dwg



Geomatrix	**Former Mill A MTCA Support Sample Collection Everett, Washington for Port of Everett**	**Figure 2 Project Team Organization**

Geomatrix

Appendix

Sample Collection Procedures

Sample Collection Procedures

Former Mill A MTCA Support

Everett, Washington

Prepared for:

Port of Everett
Everett, Washington

Prepared by:

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March 2007

Project No. 13116.000

Geomatrix

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SAMPLE COLLECTION PROCEDURES

Former Mill A MTCA Support
Sample Collection

1.0 GENERAL

Surficial sediment grabs and/or cores will be collected at up to 43 locations (42 sample locations plus one duplicate location; Figure 1). Table 1 presents a list of grab and core sampling locations, estimated mudline elevations, coordinates, and proposed core depths. Cores will be driven to the proposed sample depths or until refusal. If penetration is less than 50 percent of the proposed drive depth or if recovery is insufficient to meet the study needs, a second attempt will be made to obtain a satisfactory core. Station ST-24 will have a duplicate grab collected within approximately 2 m (6.5 feet) of the original grab location to serve as a field duplicate.

2.0 SAMPLE COLLECTION METHODS

This section outlines procedures for collection of grab sample and core samples.

2.1 GRABS

Surficial sediment samples will be collected using a modified stainless-steel, 0.2-m^2 pneumatically-operated grab sampler. The planned sampling locations are shown on Figure 1. Grab sample stations will be located with a Differential Global Positioning System set up on board the sampling vessel. The sampler will be decontaminated prior to arrival at the site in accordance with Section 4.0.

The sampler will be deployed and retrieved with minimum swinging out of the water. Excessive swinging can cause the sampler to trigger prematurely upon deployment and disturb the sediment sample upon retrieval. Swinging is minimized by heading the survey vessel into any waves when the sampler is out of the water and by attaching handling lines to the cable operated by the sampling team.

Because form drag and skin friction of the sampler can produce a bow wave when the device is lowered too quickly, it is essential that the sampler enter the sediment at a relatively slow speed. The lowering speed of the sampler upon entering the sediment must be 0.3 m/sec or less (~1 foot/sec). Lowering rates through the water column can be faster until the sampler is several meters from the bottom as long as the speed at sediment entry is 0.3 m/sec or less. Swell and chop can significantly degrade samples because of effects on the entry speed of the sampler (vertical ship motion alternately adds to and subtracts from entry velocity). These factors will be considered when swell and chop are present.

After the sampler contacts the bottom, it is initially retrieved slowly to permit the device to close properly. After the jaws are closed, a constant retrieval speed will be maintained to avoid jerking the sampler and possibly disturbing the sample. The sampler will be secured as soon as possible after being brought on board.

2.2 CORES

Sediment samples will be collected with the MudMole™ pneumatic core sampler. The sampler consists of a 4-inch square aluminum core tube with a pneumatic-powered driving assembly attached to the top with a quick-release pin. The planned sampling locations are shown on Figure 1. Core sample stations will be located with a Differential Global Positioning System

set up on board the sampling vessel. Borings at the planned locations have mudline elevations ranging from approximately –2 feet to –55 feet mean lower low water (MLLW). All core tubes will be cleaned before being taken into the field and the ends sealed to prevent contamination. The decontamination procedure is described in Section 4.0.

The core sampler uses the impact from the linear pneumatic hammer delivering approximately 300 blows per minute to drive the core tube into the sediment. The bottom of each core tube will be fitted with a hinged core catcher to prevent loss of the sediment during extraction. Air to operate the pneumatic corer will be provided by an industrial air compressor located on the deck of the sampling vessel. The sampler will be operated by personnel on the sampling vessel in shallow waters, and by a diver in deeper waters.

After reaching the selected sampling location, the core sampler will be lowered to the bottom using a winch. Once the core tube has entered the sediment, the operator will turn the air hammer on. At approximately 2-foot intervals, the operator will suspend the driving operation and measure the penetration and recovery of the core. The internal recovery will be measured by lowering a weighted tape measure down the inside of the core tube until the weight contacts the surface of the sediment. The penetration will be measured using a second tape measure and reference marks on the outside of the core tube. The penetration and recovery information will be recorded during the drilling operation. During diver operations, the penetration and recovery readings are relayed to the sampling vessel by means of a wireless underwater diver communication system. After driving the core to the desired depth, the air hammer will be turned off. The final set of penetration and recovery measurements will be made, the actual sampling position will be logged, and the lifting winch will be used to extract the core.

The paired penetration and recovery measurements will be used to account for thinning and compaction of the sediments during driving. An on-deck top-of-sediment measurement from the top of the core tube to the surface of the sediment within the core tube will be made to account for any movement or loss of sediment in the core tube as the core catcher closes during extraction. The penetration and recovery data and the on-deck top-of-sediment measurement will be entered into a spreadsheet program to generate a bore log (Figure 2). Each bore log will include a bore graph of penetration versus recovery that can be used during processing to identify the *in situ* depth of different sediment horizons. The X axis on the bore graph is the distance to a sediment layer (in feet) referenced to the top of the tube, and the Y axis is the *in situ* depth (feet) below mudline. The solid line is the on-deck recovery (used in the processing of the core), and the gray dashed line is the *in situ* recovery.

The bore logs for this project will have predefined *in situ* sampling depths entered in the table on the right side of the bore log (Figure 2). The distance that each *in situ* sampling depth is from the top of the tube will be estimated using the on-deck recovery curve. The *in situ* depth of a sediment structure or a sampling interval can be interpolated from the on-deck recovery information using the measured distance from the top of the tube.

The bore log with bore graph will be printed either on board the sampling vessel or in the field laboratory from data recorded during the core driving. The field data form or the completed bore log will be kept with the core during transport and processing. The bore log provides a record of each core. Additional cores may be collected at a station if the depth of penetration or the recovery is insufficient to meet the sampling and analysis needs of the study.

3.0 SAMPLE PROCESSING METHODS

This section describes procedures for sample handling and processing.

3.1 GRABS

After the sampler has been secured, the sediment sample will be inspected carefully before being accepted. The following acceptability criteria should be satisfied:

- The sampler is not overfilled with the sample such that the sediment surface is pressed against the top of the sampler.
- Overlying water is present (indicates minimal leakage).
- The overlying water is not excessively turbid (clear water indicates minimal sample disturbance).
- The sediment surface is relatively flat (indicates minimal disturbance or winnowing).
- The penetration depth is at least 15 cm for a 10-cm-deep surficial sample.

If a sample does not meet any one of these criteria, it will be rejected.

If the sample is acceptable, the overlying water must be removed. The water is slowly siphoned off near one side of the sampler with a minimum of sample disturbance. Once the overlying water has been removed, the surficial sediment can be removed. Sediment samples from the grabs will be placed directly from the grab into 1-liter glass jars (i.e., no homogenization). Sample material that is, or has been, in direct contact with the grab sampler will not be placed in the sample container.

Table 2 lists the proposed grab sample locations and an initial sample analysis schedule. Approximately 1 liter of sediment will be needed for all the required analyses. Table 3 lists by analyte the holding time requirements and required sample containers.

3.2 CORES

Core processing will follow the health and safety requirements specified in the Corporate Health and Safety Plan. The handling and processing of sediment cores will occur within a secured exclusion zone using Level D protection. Only one core tube will be handled and processed at a time. Cores will be held for a maximum of 24 hours before processing.

Unprocessed cores held more than 4 hours will be chilled with ice. Core tubes will be transported and stored horizontally.

Procedures will be followed during the processing of the cores to minimize the effects of carry-down of shallower and potentially more contaminated sediments into deeper, less-contaminated sediments. Carry-down may result from wall friction between the sediment and the inside surface of the core tube. This form of carry-down is evident as a bending or a downward deflection of a horizontal soil stratum near the edges of the core tube. Carry-down may also be the result of sediment with low cohesive properties collecting behind the hinged core catcher and being carried down one side of the core tube. Carry-down may contaminate clean, deeper strata with contaminated sediments from shallower strata, confusing the interpreted distribution of chemical contamination within a core.

The steps in processing core tubes to minimize the effects of carry-down are as follows. The core tube will be placed on sawhorses and oriented with the hinged side of the core catcher to the side. The uppermost side of the core tube will be removed using a circular saw. The depth of cut on the saw will be set to just slightly over the wall thickness of the aluminum tube. A thin layer (approximately 1-cm, or 0.38-inch thick) will be removed from the exposed surface of the sediment with a decontaminated stainless-steel scraper. The surface layer of sediment will be removed starting at the bottom of the core tube and moving toward the top. This method minimizes potential contamination of clean, deeper layers with material from shallower, potentially more contaminated layers.

The exposed sediment surface of the core will be photo-documented using either still photos or video. A qualified field geologist will log each core for Universal Soil Classification and note the presence of any soil structures, odors, or visible oil sheens. Sediment descriptions and the interpreted *in situ* depths of each sediment horizon will be transcribed into a summary log (Figure 3).

Table 2 lists the proposed core locations, sample segments, and an initial sample analysis schedule. Stainless-steel plates will be inserted between each 1-foot *in situ* depth interval. Sediments from each segment will be collected from the center of the core starting at the inserted plate marking the top of the segment. Sediment touching the sides of the core tube will be left in place. Approximately 1 liter of sediment will be needed for all the required analyses. Table 3 lists by analyte the holding time requirements and required sample containers. Sediment will be collected from each segment starting from below each inserted plate and

extending down the core tube until sufficient sample volume is obtained. The distance down the tube that sediment is removed will be recorded to provide information on the actual collection interval for each sample.

Sediment samples from the cores (either for initial analysis or archiving) will be placed directly from the core tube into 1-liter glass jars (i.e., no homogenization). The remaining sample volume will be placed in a 1-liter glass sample jar.

4.0 EQUIPMENT DECONTAMINATION

Sample containers, instruments, working surfaces, technician protective gear, and other items that may come into contact with sediment sample material must meet high standards of cleanliness. Sample containers will be provided by Analytical Resources, Inc., and are pre-cleaned, certified, and individually labeled with a lot number traceable to a Certificate of Analysis.

All core tubes and sediment-handling equipment will be cleaned and decontaminated prior to arrival at the site. Aluminum core tubes will be discarded after use. The grab sampler will be pre-cleaned prior to arrival at the site and cleaned between each use using the procedure described below. All equipment and instruments used to remove sediment from the sampler or to homogenize samples will be stainless steel and will be decontaminated before and in between each use. The Geomatrix standard decontamination procedure for the grab sampler, core tubes, and other sample handling equipment is modeled after Puget Sound Estuary Program (PSEP) protocols (PSEP, 1997); however, the decontamination procedure will not use any acid or solvent rinses (the final rinse will use distilled water). The decontamination procedure is as follows:

1. Prewash rinse with tap water.
2. First wash with solution of tap water and Alconox soap (brush).
3. Second rinse with tap water.
4. Second wash with solution of tap water and Alconox soap (brush).
5. Final rinse with tap water.
6. Final rinse with distilled water.
7. Coverage (no contact) of all decontaminated items with aluminum foil.
8. Storage in clean, closed container prior to use.

5.0 SAMPLE DESIGNATIONS

All samples will be assigned a unique identification code. Core and grab samples will be designated by a numeric code consisting of a project number code and sample number code (e.g., 1311600001). The sample labels will be sequentially printed in the field starting at sample 1211600001. Using a sequentially-numeric code streamlines the sample process and reduces the risk of mislabeled sample jars.

6.0 SAMPLE HANDLING

Unopened and unprocessed core tubes will be kept in sight of the sampling crew or in a secure area at all times. Sediment samples also will be kept in sight of the sampling crew or in a secure, locked vehicle at all times. Samples will be transported to the Geomatrix office at the end of the day for storage (samples will be placed in coolers with "blue ice" or frozen) until transferred to the testing laboratories. Transfer of samples from Geomatrix custody to the laboratory will be documented using chain-of-custody procedures (Figure 4). If someone other than the sample collector transports samples to the laboratory, the collector will sign and date the chain-of-custody form and insert the name of the person or firm transporting the samples under "transported by" before sealing the container with a Custody Seal.

Samples not scheduled for the initial analysis round will be archived and stored at the analytical laboratory in a secure area. Storage requirements for all archived samples will include freezing and storage of the samples in a temperature-monitored freezer at –18°C.

7.0 FIELD QUALITY CONTROL REQUIREMENTS

Data and log forms produced in the field will be reviewed daily by the person recording the data, so that any errors or omissions can be corrected. All completed data sheets will be removed daily from the field clipboard and photocopied; the original data sheets will be filed in a fireproof file cabinet and the photocopies stored in the project file. All data transcribed from field forms into electronic forms and tables will be 100 percent verified for accuracy and freedom from transcription errors.

8.0 WASTE MANAGEMENT

All waste derived during this investigation will be placed in proper containers, labeled, characterized, and disposed of by the Port of Everett or Geomatrix in accordance with the appropriate regulations.

9.0 REFERENCE

PSEP (Puget Sound Estuary Program), 1997, Recommended Guidelines for Sampling Marine Sediment, Water Column, and Tissue in Puget Sound: Prepared for the U.S. Environmental Protection Agency and Puget Sound Water Quality Action Team.

Appendix Tables

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TABLE 1

PROPOSED SAMPLE LOCATIONS

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Proposed Sample Location (SPCS WA N [4601] NAD83 Survey Feet)		Estimated Mudline Elevation (feet MLLW) [1]	Grab Samples	Core Samples (Feet Below Mudline)
		Easting	Northing			
Type 1 [2]	ST-1	1298970	358699	-2.9	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-2	1298833	358825	-31.7	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-3	1298949	358783	-5.9	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-4	1299043	358781	-3.0	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-5	1298910	358850	-11.3	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-6	1299012	358850	-4.5	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-7	1299107	358863	-2.0	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-8	1298961	358938	-11.7	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-9	1299057	358945	-5.8	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-10	1299164	358938	-2.4	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-11	1299012	359026	-24.5	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	SC-12	1299113	359026	-5.3	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics

TABLE 1

PROPOSED SAMPLE LOCATIONS

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Proposed Sample Location (SPCS WA N [4601] NAD83 Survey Feet)		Estimated Mudline Elevation (feet MLLW) [1]	Grab Samples	Core Samples (Feet Below Mudline)
		Easting	Northing			
Type 1 [2]	ST-13	1299215	359026	-2.8	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-14	1299164	359113	-6.2	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-15	1299103	359153	-23.7	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-16	1299266	359113	-2.6	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-17	1299215	359201	-9.1	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-18	1299334	359160	-1.9	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-19	1299292	359228	-7.7	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-20	1299243	359295	-18.1	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics
	ST-21	1299367	359289	-16.3	None	1-foot intervals from 0 to 15 feet depending on visual sample characteristics

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TABLE 1

PROPOSED SAMPLE LOCATIONS

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Proposed Sample Location (SPCS WA N [4601] NAD83 Survey Feet)		Estimated Mudline Elevation (feet MLLW) [1]	Grab Samples	Core Samples (Feet Below Mudline)
		Easting	Northing			
Type 2 [3]	ST-22	1298433	358033	0.0	Top 10 cm	None
	ST-23	1298229	358033	-10.3	Top 10 cm	None
	ST-24 [5]	1298127	358210	-43.3	Top 10 cm	None
	ST-25	1298331	358210	-30.3	Top 10 cm	None
	ST-26	1298229	358386	-47.2	Top 10 cm	None
	ST-27	1298433	358386	-40.7	Top 10 cm	None
	ST-28	1298331	358563	-60.4	Top 10 cm	None
	ST-30	1298433	358739	-67.7	Top 10 cm	None
	ST-31	1298637	358739	-50.9	Top 10 cm	None
	ST-33	1298793	359122	-61.4	Top 10 cm	None
	ST-35	1299146	359268	-35.1	Top 10 cm	None
	ST-36	1299044	359445	-57.1	Top 10 cm	None
	ST-38	1299452	359445	-17.5	Top 10 cm	None
	ST-40	1299350	359621	-35.4	Top 10 cm	None
	ST-41	1299248	359798	-55.1	Top 10 cm	None
Type 3 [4]	ST-29	1298535	358563	-45.8	Top 10 cm	4-foot interval from 0 to 4 feet
	ST-32	1298739	358915	-55.0	Top 10 cm	4-foot interval from 0 to 4 feet
	ST-34	1298988	359247	-50.8	Top 10 cm	4-foot interval from 0 to 4 feet
	ST-37	1299248	359445	-36.5	Top 10 cm	4-foot interval from 0 to 4 feet
	ST-39	1299208	359579	-49.4	Top 10 cm	4-foot interval from 0 to 4 feet
	ST-42	1299452	359798	-37.1	Top 10 cm	4-foot interval from 0 to 4 feet

[1] MLLW: mean lower low water. Elevations estimated from multiple bathymetric surveys conducted by Clark Leeman Land Surveying between 1985 and 1989.

[2] Type 1 sample stations are where core samples will be collected and are located within the sawdust deposit. No grab samples are collected at these locations.

[3] Type 2 sample stations are locations where only grab samples will be collected.

[4] Type 3 sample stations are locations where both grab and core samples will be collected.

[5] A duplicate grab sample will be collected at this location.

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TABLE 2

SAMPLE ANALYSIS SCHEDULE

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Grab Sample	Proposed Coring Depth [1]	Samples Collected	Initial Sample Interval Analyzed	Analyses [2]
Type 1	ST-1	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-2	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-3	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-4	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-5	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-6	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-7	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-8	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-9	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-10	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-11	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	SC-12	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins

[1] Depth below mudline

[2] Analytes may change based on visual sample characteristics

TABLE 2

SAMPLE ANALYSIS SCHEDULE

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Grab Sample	Proposed Coring Depth [1]	Samples Collected	Initial Sample Interval Analyzed	Analyses [2]
	ST-13	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-14	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-15	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-16	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-17	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-18	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-19	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-20	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins
	ST-21	None	15 feet	1-foot intervals from 0 to 15 feet depending on visual classification	Dependent on Visual Classification	Phenols, Dioxins

[1] Depth below mudline

[2] Analytes may change based on visual sample characteristics

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TABLE 2

SAMPLE ANALYSIS SCHEDULE

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Grab Sample	Proposed Coring Depth [1]	Samples Collected	Initial Sample Interval Analyzed	Analyses [2]
Type 2	ST-22	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-23	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-24	Yes	None	Top 10 cm	Grab Sample	SMS COCs, TOC
	ST-24D	Yes	None	Top 10 cm	Grab Sample	SMS COCs, TOC
	ST-25	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-26	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-27	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-28	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-30	Yes	None	Top 10 cm	Grab Sample	SMS COCs, TOC
	ST-31	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-33	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-35	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-36	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-38	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-40	Yes	None	Top 10 cm	None	SMS COCs, TOC
	ST-41	Yes	None	Top 10 cm	None	SMS COCs, TOC

[1] Depth below mudline

[2] Analytes may change based on visual sample characteristics

TABLE 2

SAMPLE ANALYSIS SCHEDULE

Former Mill A MTCA Support
Everett, Washington

Sample Type	Station Name	Grab Sample	Proposed Coring Depth [1]	Samples Collected	Initial Sample Interval Analyzed	Analyses [2]
Type 3	ST-29	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC
	ST-32	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC
	ST-34	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC
	ST-37	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC
	ST-39	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC
	ST-42	Yes	8 feet	Grab Sample: Top 10 cm Core Sample: 4-foot interval from 0 to 4 feet below mudline	Grab Sample	SMS COCs, TOC

[1] Depth below mudline

[2] Analytes may change based on visual sample characteristics

TABLE 3

SAMPLE CONTAINERS AND HOLDING TIMES FOR ANALYSES

Former Mill A MTCA Support
Everett, Washington

Analyte	Initial Round of Analyses		Additional Rounds of Analyses	
	Holding Time	**Sample Containers**	**Holding Time**	**Sample Container**
Total Organic Carbon (TOC)	14 days (4°C)	1-liter glass (combined)	6 months (-18°C)	1-liter glass (combined; with sufficient headspace in sample container to allow for expansion during freezing)
Total Solids	14 days (4°C)		6 months (-18°C)	
Semivolatiles, PCBs, dioxins	14 days to extraction (4°C) 40 days after extraction (4°C)		1 year (-18°C) 14 days to extraction (4°C) after thawing 40 days after extraction (4°C)	
Metals (except mercury)	6 months (4°C)		2 years (-18°C)	
Mercury	28 days (-18°C)		28 days (-18°C)	

Appendix Figures

PORT GARDNER BAY

OUTER HARBOR LINE

POTENTIAL FOOTPRINT OF MTI STAGE 2 DEVELOPMENT

SAWDUST

APPROXIMATE STAGE 1 DREDGING

ST-1 ST-2 ST-3 ST-4 ST-5 ST-6 ST-7 ST-8 ST-9 ST-10 ST-11 ST-12 ST-13 ST-14 ST-15 ST-16 ST-17 ST-18 ST-19 ST-20 ST-21 ST-22 ST-23 ST-24 ST-25 ST-26 ST-27 ST-28 ST-29 ST-30 ST-31 ST-32 ST-33 ST-34 ST-35 ST-36 ST-37 ST-38 ST-39 ST-40 ST-41 ST-42

PC1-92 (>13)
PC2-92 (>14.5)
PC3-92 (>8)
PC4
PC5

PC1–92 (>13) PC Sediment Boring Location and Number, 4/92, (Thickness of Sawdust, Ft.)

Sawdust Deposit

Area of Investigation

SC-21 TYPE 1 Samples

SS-16 TYPE 2 Samples

SS-9 TYPE 3 Samples

Photo Courtesy of City of Everett

APPROXIMATE SCALE IN FEET

0 75 150 300

PROPOSED SEDIMENT SAMPLE LOCATIONS
Former Mill A MTCA Support Sample Collection
Everett, Washington
for the Port of Everett

By: GSM	Date: 1-17-07	Project No. 13116.000
Geomatrix		Figure 1

South Terminal Sample Locations.dwg

Project: **Station:**

Project No:

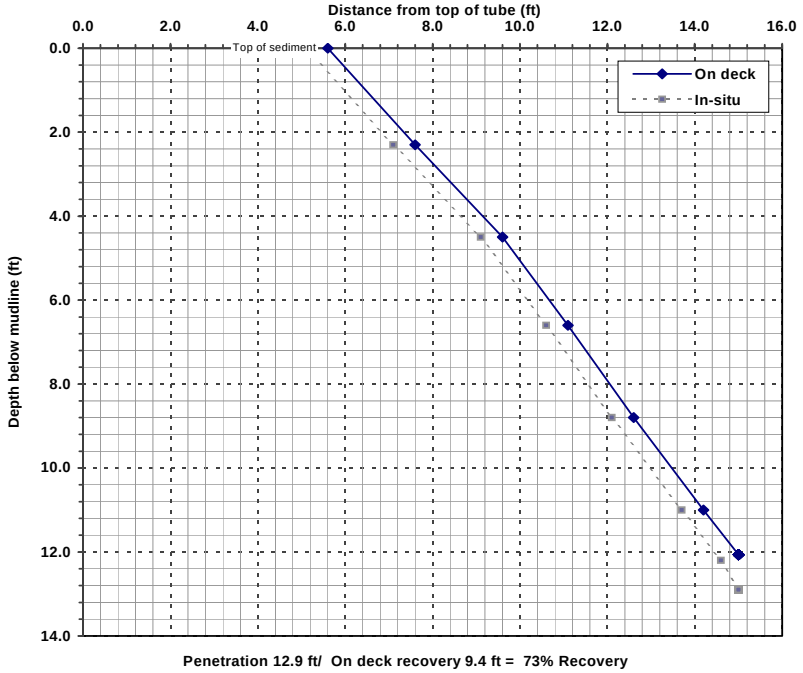
Collected by: Gary Maxwell

Date: 5/16/01 **Time:** 10:35

Water depth: 14.0 ft **Mudline:** -6.0 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: Sunny Driven to refusal



Penetration 12.9 ft/ On deck recovery 9.4 ft = 73% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-2.3	2	87%
2.3-4.5	2	91%
4.5-6.6	1.5	71%
6.6-8.8	1.5	68%
8.8-11	1.6	73%
11-12.2	0.9	75%
12.2-12.9	0.4	57%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	5.6
1	6.47
2	7.34
3	8.24
4	9.15
5	9.96
6	10.67
7	11.37
8	12.05
9	12.75
10	13.47
11	14.20
12	14.95
13	No sample
14	No sample
15	No sample

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Former Mill A MTCA Support
Sample Collection
Everett, Washington
for Port of Everett

Figure 2
Example of Bore Log

Project: **Station:**

Project No:

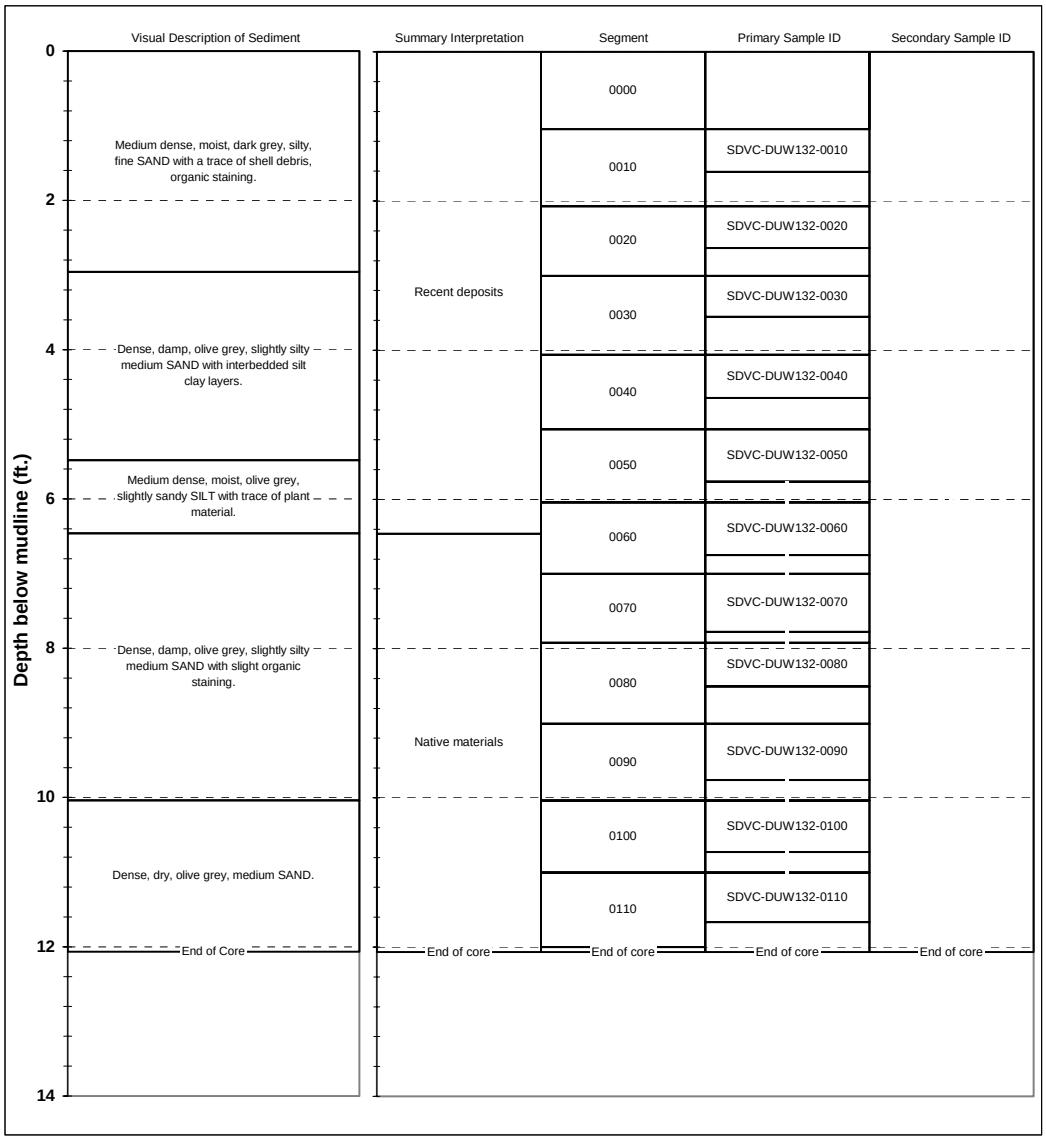
Maximum depth of retained sediment: 12.1 ft

Mudline elevation: -6.0 **ft (MLLW)** **Percent recovery (on-deck):** 73%

	Core collection	Laboratory processing
Date:	5/16/01	5/16/01
Time:	10:35	13:30

Field Log: Robert Gilmour

Summary Log: Robert Gilmour



Geomatrix	**Former Mill A MTCA Support Sample Collection Everett, Washington for Port of Everett**	**Figure 3 Example of Core Summary Log**

Geomatrix Consultants
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043
(425) 697-4340

CHAIN OF CUSTODY

Place COC Form Number Label Here
or write in seq. number below.

Recorded by: ____________

Checked by: ____________

Sample	Date/Time	Analysis Containers: PCBs/TOC	Archive										
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers

Laboratory Sample Receipt	
Number of Sample Containers in Shipping Container	
Shipping Container Chain of Custody Seal Intact (Y/N)	
Receipt Condition Comments (e.g., thawed, warm)	

Relinquished By	Transported By	Received By
Name: Date: Time:		Name: Date: Time:
Name: Date: Time:		Name: Date: Time:
Name: Date: Time:		Name: Date: Time:

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Former Mill A MTCA Support
Sample Collection
Everett, Washington
for Port of Everett

Figure 4
Example of
Chain-of-Custody Form

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Appendix B

Core Sample Collection Field Forms

[ST-01]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-8-07

Time: 0916

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST-01

Tube Length (ft): 19.6

Water Depth (ft): 9.0

Est. Tide Height (ft) (MLLW)

Est. Mudline: (MLLW)

Comments:

Position Information

Coordinate Datum:

Northing 358700

Easting 1298972

On Deck Top of Sediment 9.1

Penetration Tape Reading	Recovery Tape Reading	Comments
12.5	12.9	
10.7	11.3	
9.3	10.3	
7.1	9.5	
5.9	8.9	
5.8	8.9	retrieval

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-01

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/8/2007	5/8/07
Start Time:	9:16	10:00

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
9.2	Top of sediment
	9.2-10.4: SW: well-graded w/gravel. sand, black, moderately loose. V. trace H_2S odor. 40% large rip rap Salt-pep. 3" angular 50% sand, ~~10%~~ gravel, ~~10-15%~~ silt, ~~20%~~ 5% 5% twigs, roots, trace wood chips
	10.4-11.5: SP: poorly graded sand, gray, sand is coarse, moderately dense, 90% sand, 5-10% fine gravel salt & pepper.
	11.5-13.3: ~~SP~~ SP: poorly graded sand, gray, mod. loose, trace wood chips. Sand is med. 80% sand, 10% silt, 5-10% fine gravel, rounded.
	13.3-14.6: SP: poorly graded sand, gray, mod. dense, sand ~~is~~ is med to fine.

Distance top/bottom	Sample ID label
9.2 / 9.8	Geomatrix Consultants 13116000016 Description Form Initials: CJW Date: 6 MAY 07 Time:

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Mountlake Terrace, WA 98043
(425) 697-4340
fax (425) 697-4370

Mudmole™ Bore Log

Project: Port of Everett

Station: ST-01

Position: NAD 83 WA N

358700 Northing

1298972 Easting

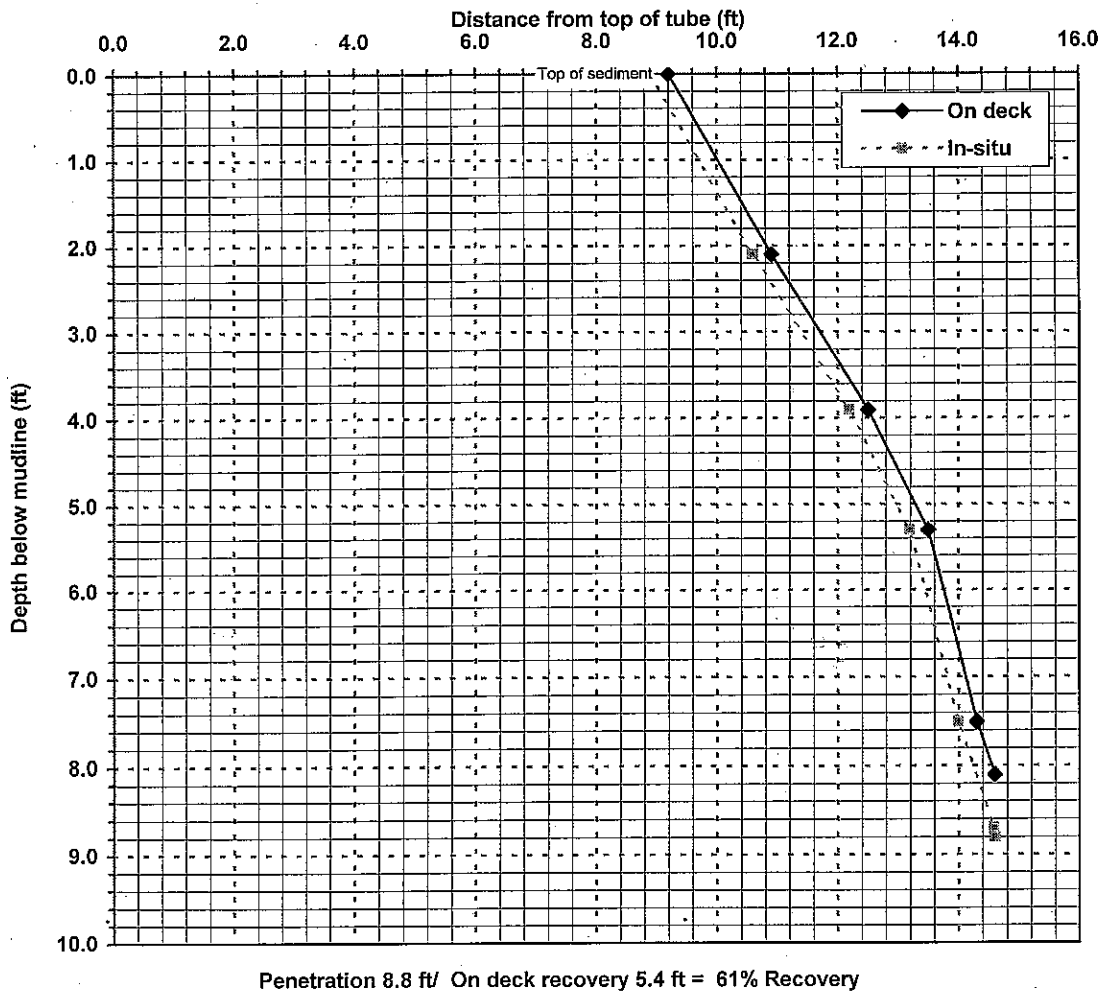
Collected by: GSM

Date: 5/8/2007 **Time:** 9:16

Water depth: 9.0 ft **Mudline:** -9.0 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 8.8 ft/ On deck recovery 5.4 ft = 61% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-2.1	1.7	81%
2.1-3.9	1.6	89%
3.9-5.3	1	71%
5.3-7.5	0.8	36%
7.5-8.7	0.6	50%
8.7-8.8	0.01	10%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	9.2
1	10.01
2	10.82
3	11.70
4	12.57
5	13.29
6	13.75
7	14.12
8	14.55
9	No sample
10	No sample
11	No sample
12	No sample
13	No sample
14	No sample
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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fax (425) 697-4370

[ST-02]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-14-07

Time: 0836

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: SS-2

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 31.4

Northing 358824

Est. Tide Height (ft) (MLLW)

Easting 1298830

Est. Mudline: (MLLW)

On Deck Top of Sediment 7.7

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
17.4	17.9	
13.1	13.8	
10.4	11.2	
7.3	8.4	
6.8	7.9	very slow pen.
6.4	7.5	refusal

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(425) 697-4340

Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-2

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/14/2007	5/14/07
Start Time:	8:36	1400

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
7.6	Top of sediment
	7.6-8.8: crushed shells with silt, black, moderately dense, ~~trace~~ bark frags. 70% shells, 20% silt, 10% bark,
	8.8-9.4: wood chips and bark up to 1" and angular, 45% chips 45% bark, 10% silt/sand.
	@9.5' coarse layer of yellow frags weak smell.
	9.8-10.7: ML: silt, gray, mod soft, shells. 80% silt, 15% shells, 5% fine sand trace H_2S.
	10.7-13.8: saw dust, black, mod. loose, scattered bark pieces, some silt. sandy 85% ~~sand~~, 10% silt, 5% bark, trace to mod H_2S
	13.8-16.3: ML: silt with sand, gray, mod-soft, whole shells, large piece of wood with worm holes 70% silt, 20% sand, 10% shells @ 15.7'
	16.3-20.6: SP, ~~poorly graded sand~~ poorly sorted sand, gray, mod dense. 100% med. sand.

Distance top/bottom	Sample ID labels
12.0 / 13.0	Geomatrix Consultants 13116000038 Description Form Initials: CJW Date: 14 MAY 07 Time: 1400

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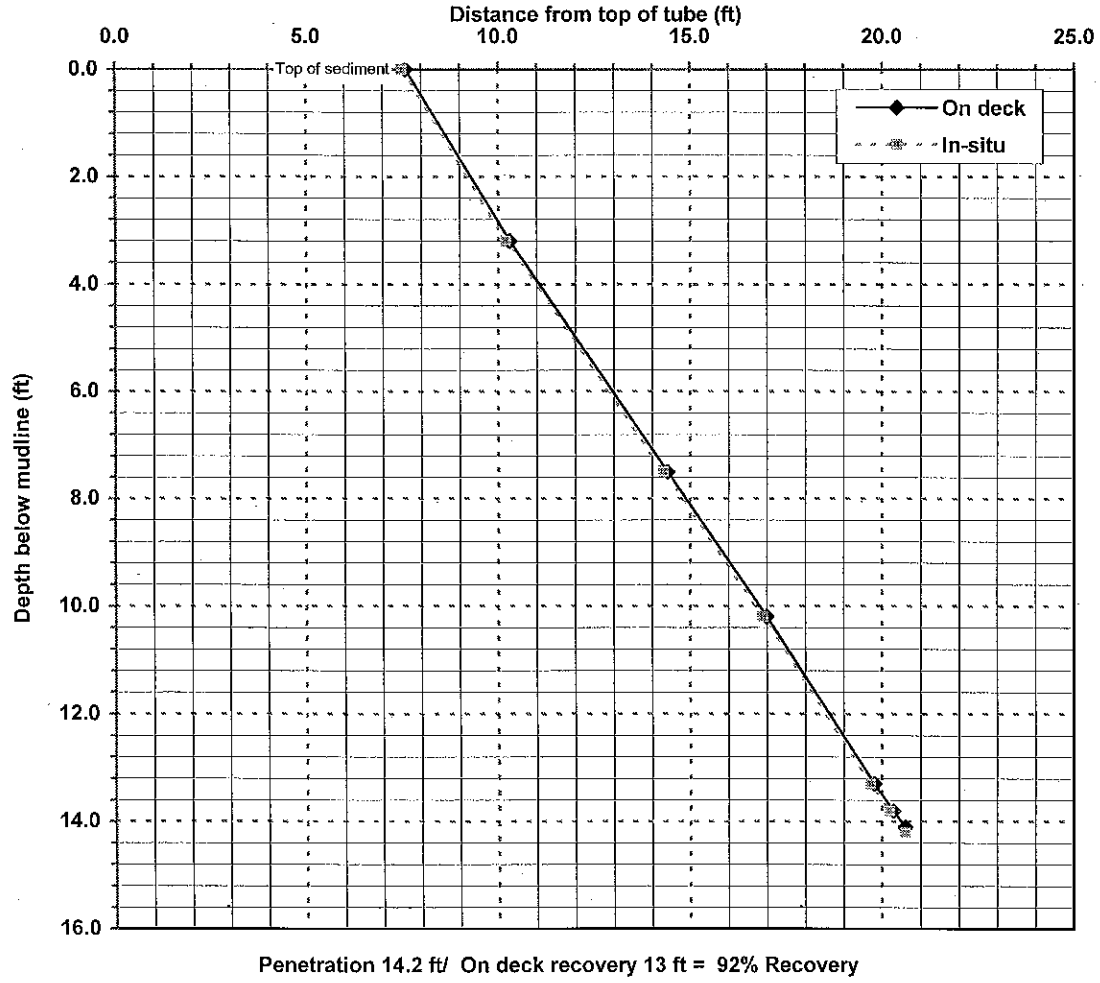
fax (425) 697-4370

Mudmole™ Bore Log

Project: Port of Everett
Station: ST-2
Position: NAD 83 WA N
Collected by: GSM 358824 Northing
Date: 5/14/2007 **Time:** 8:36 1298830 Easting
Water depth: 31.4 ft **Mudline:** -31.4 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 14.2 ft/ On deck recovery 13 ft = 92% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-3.2	2.7	84%
3.2-7.5	4.1	95%
7.5-10.2	2.6	96%
10.2-13.3	2.8	90%
13.3-13.8	0.5	100%
13.8-14.2	0.4	100%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	7.6
1	8.44
2	9.29
3	10.13
4	11.06
5	12.02
6	12.97
7	13.92
8	14.88
9	15.84
10	16.81
11	17.72
12	18.63
13	19.53
14	20.50
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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[ST-03]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-7-07

Time: 1123

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST-03

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 9.5

Northing 358785

Est. Tide Height (ft) (MLLW)

Easting 1298947

Est. Mudline: (MLLW)

On Deck Top of Sediment 11.0

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
18.2	18.6	
15.9	17.0	
12.3	15.6	
9.8	14.6	slow penetration
6.8	13.4	
5.0	12.5	
3.9	11.7	
2.9	10.9	very slow

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-03

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/7/2007	5/7/07
Start Time:	11:23	12:25

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
10.9	Top of sediment
	10.9-12.4 SM with wood chips. 25% wood chips silty sand, black, med. H_2S odor, med. loose, 55% sand 20% silt chips to 1/4" and decomposing
12' large 4"x4" piece of ballast or rock	
	12.4-12.9 SP, gray, medium sand.
	12.9-13.3 wood chips fresh up to 1/2" and black medium sand.
	13.3-13.8: SP, gray, coarse sand
	13.8-18.4 black, slightly decomp. wood chips with med-cr black sand wood 85% ~~chips/15%~~ ~~wood~~ saw dust ~~sand~~ moderate to strong H_2S odor.
	18.4-19.1: olive gray green, wood chips (fine < 1/4") and fine-med gray sand, mod. H_2S odor, 80% chips 20% sand. Saw dust 5-10%
	19.1-19.9: SP: gray, med dense, 10% fresh wood chips up to 1/2". Sand is fine-medium
	19.9-20.6: SP, gray, med dense medium to fine

Distance top/bottom	Sample ID labels
10.9 / 12	Geomatrix Consultants 13116000003 Description Form Initials: CJW Date: 7 May 07 Time: 1225
13.8 / 15.1	Geomatrix Consultants 13116000004 Description Form Initials: CJW Date: 7 May 07 Time: 1225
16.5 / 17.6	Geomatrix Consultants 13116000005 Description Form Initials: CJW Date: 7 May 07 Time: 1225
18.2 / 19.2	Geomatrix Consultants 13116000006 Description Form Initials: CJW Date: 7 May 07 Time: 1225

Mudmole™ Bore Log

Project: Port of Everett

Station: ST-03

Position: NAD 83 WA N

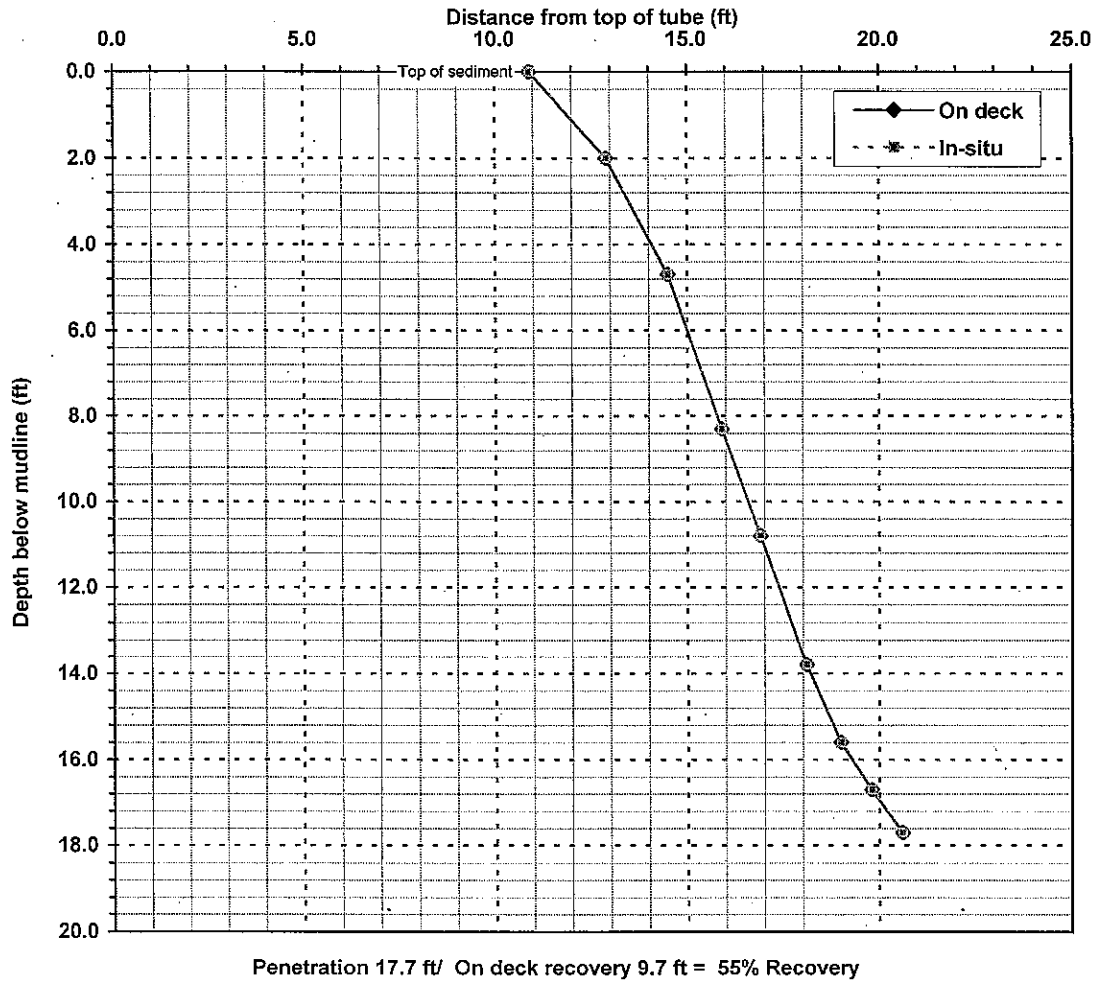
Collected by: GSM — 358785 Northing

Date: 5/7/2007 **Time:** 11:23 — 1298947 Easting

Water depth: 9.5 ft **Mudline:** -9.5 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 17.7 ft/ On deck recovery 9.7 ft = 55% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-2	2	100%
2-4.7	1.6	59%
4.7-8.3	1.4	39%
8.3-10.8	1	40%
10.8-13.8	1.2	40%
13.8-15.6	0.9	50%
15.6-16.7	0.8	73%
16.7-17.7	0.8	80%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	10.9
1	11.90
2	12.90
3	13.49
4	14.09
5	14.62
6	15.01
7	15.39
8	15.78
9	16.18
10	16.58
11	16.98
12	17.38
13	17.78
14	18.20
15	18.70
16	19.29
17	20.04
18	No sample
19	No sample
20	No sample

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[ST-05]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-7-07

Time: 12:40

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST-5

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 13.0

Northing 358852

Est. Tide Height (ft) (MLLW)

Easting 1298910

Est. Mudline: (MLLW)

On Deck Top of Sediment 7.7

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
19.7	19.7	
17.2	17.6	
15.2	15.5	
12.7	13.6	
10.1	12.2	
8.4	11.4	
6.1	10.2	
3.9	9.3	
1.4	8.3	
0.2	7.6	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-5

	Core collection	Laboratory
Date:	5/7/2007	5/7/07
Start Time:	12:40	1330

Laboratory processing by: NPB

Comments:

Place Field ID Label Here

All distances are measured from top of core tube.

Distance ft	Visual sample description
7.7	Top of sediment 7.7-8.1: SM, silty sand, blackish gray, 60% sand, 20% silt, 10% wood chips, roots, soft. shells, trace to mod H_2S.
	8.1-9.8 wood chips up to 1" and fresh, mod. H_2S, 90% chips, 10% med. gray sand.
	9.8-12.1: wood chips up to 1.5" and SM: silty sand, gray, mod to strong H_2S. soft, twigs. bark fragments. 50% wood/50% SM
	12.1-19.9: 5% wood chips fresh and 85% black coarse sawdust. ~~[illegible]~~ mod H_2S. 15.1-16 ~~95% wood chips~~ 95% sawdust ? (margin notes: chips up to 1.5" and oblong. 13.4-14.6 / 18.4-19.9: 60/40 more saw dust than wood chips; 15% fine sand gray as well)
	19.9-20.6 SM. gray silty sand, trace crushed shell frags and wood chips. 60% sand, 40% silt.

Distance top/bottom	Sample ID labels
8.6 / 9.9	Geomatrix Consultants 13116000007 Description Form Initials: CJW Date: 7 may 07 Time: 1330
13.0 / 14.4	Geomatrix Consultants 13116000008 Description Form Initials: CJW Date: 7 may 07 Time: 1330
16.5 / 18.0	Geomatrix Consultants 13116000009 Description Form Initials: CJW Date: 7 may 07 Time: 1330

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Core Description Form
Field version

Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-5

Position: NAD 83 WA N

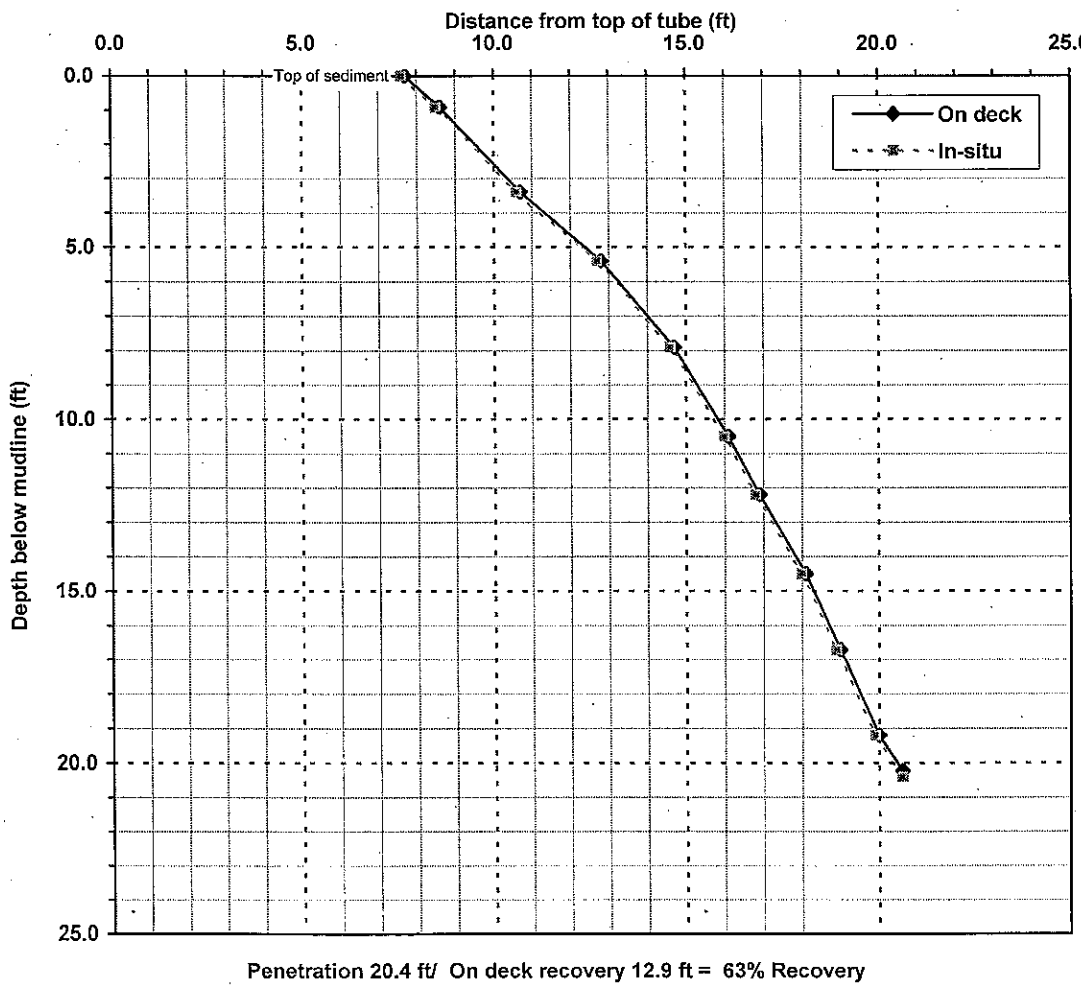
Collected by: GSM 358852 Northing

Date: 5/7/2007 **Time:** 12:40 1298910 Easting

Water depth: 13.0 ft **Mudline:** -13.0 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 20.4 ft/ On deck recovery 12.9 ft = 63% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-0.90000000000000	0.9	100%
0.900000000000002-3	2.1	84%
3.4-5.4	2.1	105%
5.4-7.9	1.9	76%
7.9-10.5	1.4	54%
10.5-12.2	0.8	47%
12.2-14.5	1.2	52%
14.5-16.7	0.9	41%
16.7-19.2	1	40%
19.2-20.4	0.7	58%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	7.7
1	8.68
2	9.52
3	10.36
4	11.33
5	12.38
6	13.26
7	14.02
8	14.75
9	15.29
10	15.83
11	16.34
12	16.81
13	17.32
14	17.84
15	18.30
16	18.71
17	19.12
18	19.52
19	19.92
20	20.47

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[ST-06]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-14-07

Time: 1358

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 6

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 12.0

Northing 358841

Est. Tide Height (ft) (MLLW)

Easting 129908

Est. Mudline: (MLLW)

On Deck Top of Sediment 13.4

Comments: Attempt 1 station under piling - moved offshore ~ 7 ft

Penetration Tape Reading	Recovery Tape Reading	Comments
		Attempt 1 hit log? just under surface of mud
18.6		Attempt 2 14 ft offshore of station - hit refusal at 2 ft - end of core tube crushed
18.6	19.1	Attempt 3 moved SW of station
16.6	18.0	
13.2	16.0	
10.0	14.0	
9.0	13.6	
8.0	13.3	refusal

2 - 20' cores used

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-6

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/14/2007	5/14/07
Start Time:	13:58	1450

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
13.5	Top of sediment
	13.5-14.9: SP: poorly-sorted, blackish gray sand, mod. dense, trace H_2S odor. bark pieces and wood splinters. 60% sand, 10% silt, 30% rafting debris.
	14.9-20.6: Sawdust with wood chips, black mod. loose, mod H_2S. wood up to 1" and angular. 75-85% sawdust 15-25% wood chips

Distance top/bottom	Sample ID labels
16.0 / 17.0	Geomatrix Consultants 13116000039 Description Form Initials: CJW Date: 14 May 07 Time: 1450
19.0 / 20.0	Geomatrix Consultants 13116000040 Description Form Initials: CJW Date: 14 May 07 Time: 1450

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Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-6

NAD 83 WA N

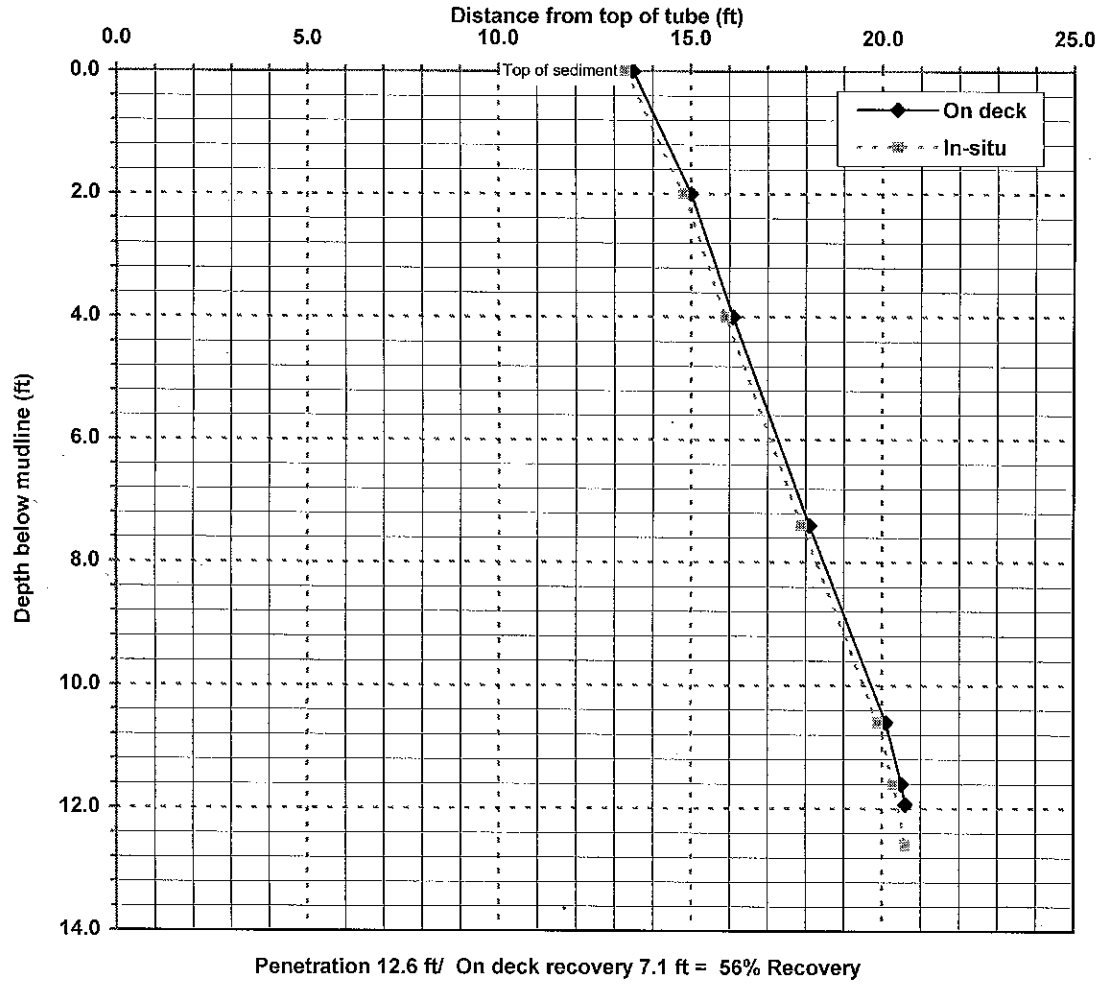
Collected by: GSM Northing

Date: 5/14/2007 **Time:** 13:58 Easting

Water depth: 12.0 ft **Mudline:** -12.0 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 12.6 ft/ On deck recovery 7.1 ft = 56% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-2	1.5	75%
2-4	1.1	55%
4-7.4	2	59%
7.4-10.6	2	63%
10.6-11.6	0.4	40%
11.6-12.6	0.3	30%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	13.5
1	14.25
2	15.00
3	15.55
4	16.10
5	16.69
6	17.28
7	17.86
8	18.48
9	19.10
10	19.73
11	20.26
12	No sample
13	No sample
14	No sample
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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[ST-08]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-11-07

Time: 1310

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 8

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 19.5

Northing 358938

Est. Tide Height (ft) (MLLW)

Easting 1298963

Est. Mudline: (MLLW)

On Deck Top of Sediment 11.8

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
17.6	18.1	
14.4	16.5	
11.9	15.6	
9.4	14.9	
7.0	14.1	
3.9	13.2	
2.0	12.6	
0.2	11.6	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-8

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/11/2007	5/11/07
Start Time:	13:10	14:10

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
11.8	Top of sediment
	11.8-15.0: SM: sand with silt and rafting debris, gray, med. dense. mod to strong H_2S. 30% sand, 10% silt, 60% rafting debris (bark, splinters) up to 1.5"
	15.0-19.6: sawdust with wood chips, black, mod. loose, mod. H_2S odor. 75% saw dust 25% wood chips to 3/4" and fresh
	19.6-20.6: ML: silt w/sand, gray, mod. soft, trace H_2S, trace shells. 80% silt/20% sand.

Distance top/bottom	
13.0 / 14.0	Geomatrix Consultants 13116000028 Description Form Initials: CJW Date: 11 MAY 07 Time: 1410
16.3 / 17.3	Geomatrix Consultants 13116000029 Description Form Initials: CJW Date: 11 MAY 07 Time: 1410
18.5 / 19.5	Geomatrix Consultants 13116000030 Description Form Initials: CJW Date: 11 MAY 07 Time: 1410

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Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-8

Position: NAD 83 WA N

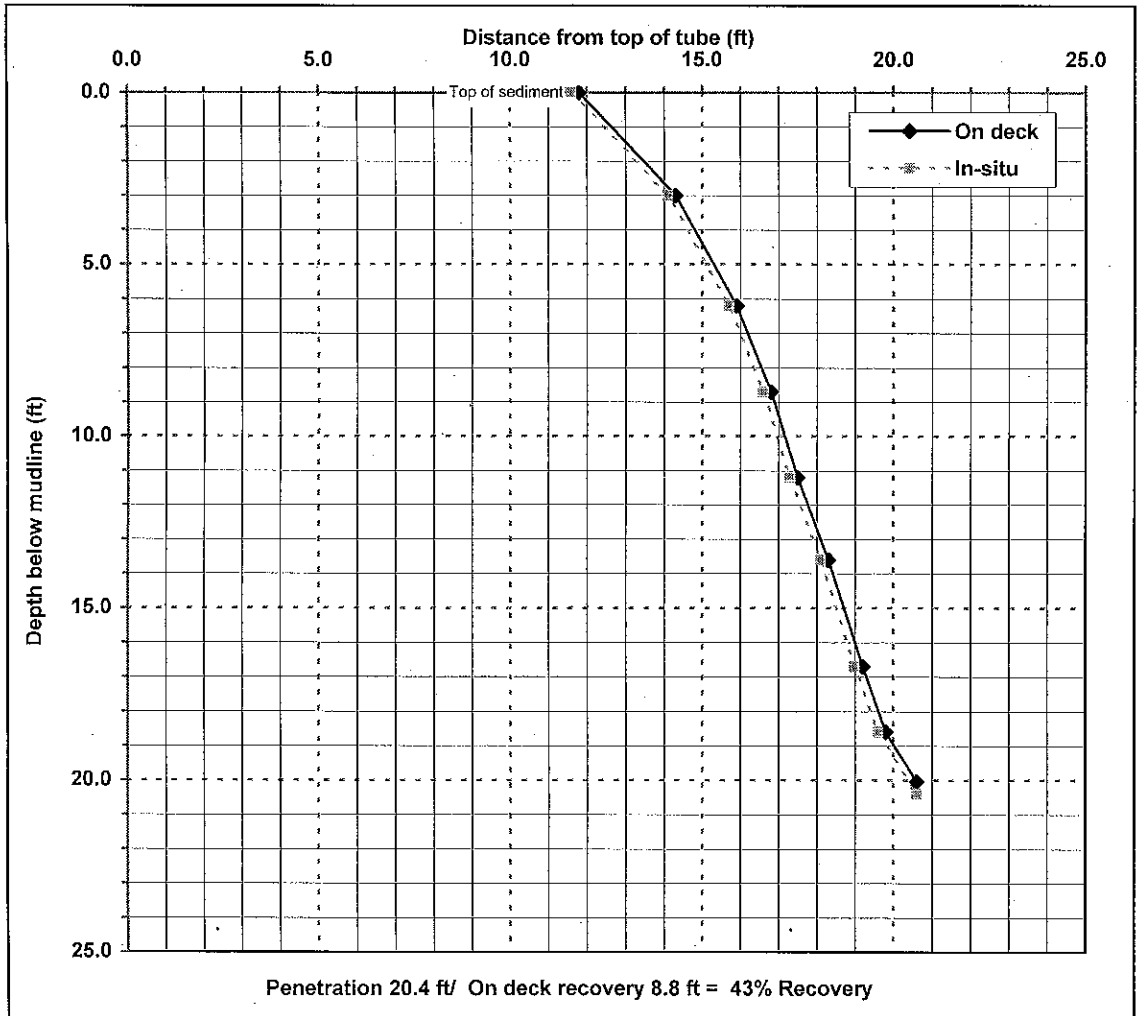
Collected by: GSM 358938 Northing

Date: 5/11/2007 **Time:** 13:10 1298963 Easting

Water depth: 19.5 ft **Mudline:** -19.5 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 20.4 ft/ On deck recovery 8.8 ft = 43% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-3	2.5	83%
3-6.2	1.6	50%
6.2-8.7	0.9	36%
8.7-11.2	0.7	28%
11.2-13.6	0.8	33%
13.6-16.7	0.9	29%
16.7-18.6	0.6	32%
18.6-20.4	1	56%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	11.8
1	12.63
2	13.47
3	14.30
4	14.80
5	15.30
6	15.80
7	16.19
8	16.55
9	16.88
10	17.16
11	17.44
12	17.77
13	18.10
14	18.42
15	18.71
16	19.00
17	19.29
18	19.61
19	20.02
20	20.58

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[ST-09]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-8-07

Time: 0959

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 9

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 13.7

Northing 358943

Est. Tide Height (ft) (MLLW)

Easting 1299058

Est. Mudline: (MLLW)

On Deck Top of Sediment 9.6

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
17.8	18.5	
15.2	16.5	
12.8	15.5	
9.7	13.9	
7.9	12.9	
6.6	12.5	
3.8	12.1	
1.8	10.8	
0.2	9.5	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-9

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/8/2007	5/8/07
Start Time:	9:59	1107

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
9.6	Top of sediment
	9.6-10.6: SP: poorly graded sand, gray, medium sand, med-dense, 10% small 1/8" wood chips, large bark piece 4" @ 10.2'
	10.6-17.2: black sawdust w/ 20-25% fresh 3/4" wood chips trace to mod H_2S odor. med. dense.
	80% sawdust
	14.2
	17.2-~~18.2~~: olive green, rafting debris (large pieces 3" of bark, bark splinters 20% sand med. olive green. 80% sand/20% bark below 17.8.
	80% bark.
	trace creosote odor
	trace H_2S odor.
	no sheen
	18.2-20.6: SP: poorly graded sand, gray, med. dense, Sand is medium.

Distance top/bottom	
10.8 / 11.8	Geomatrix Consultants 13116000017 Description Form Initials: CJW Date: 8 may 07 Time: 1100
13.4 / 14.4	Geomatrix Consultants 13116000018 Description Form Initials: CJW Date: 8 may 07 Time: 1100
15.9 / 16.9	Geomatrix Consultants 13116000019 Description Form Initials: CJW Date: 8 may 07 Time: 1100
17.3 / 18.1	Geomatrix Consultants 13116000020 Description Form Initials: CJW Date: 8 may 07 Time: 1100

Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-9

NAD 83 WA N

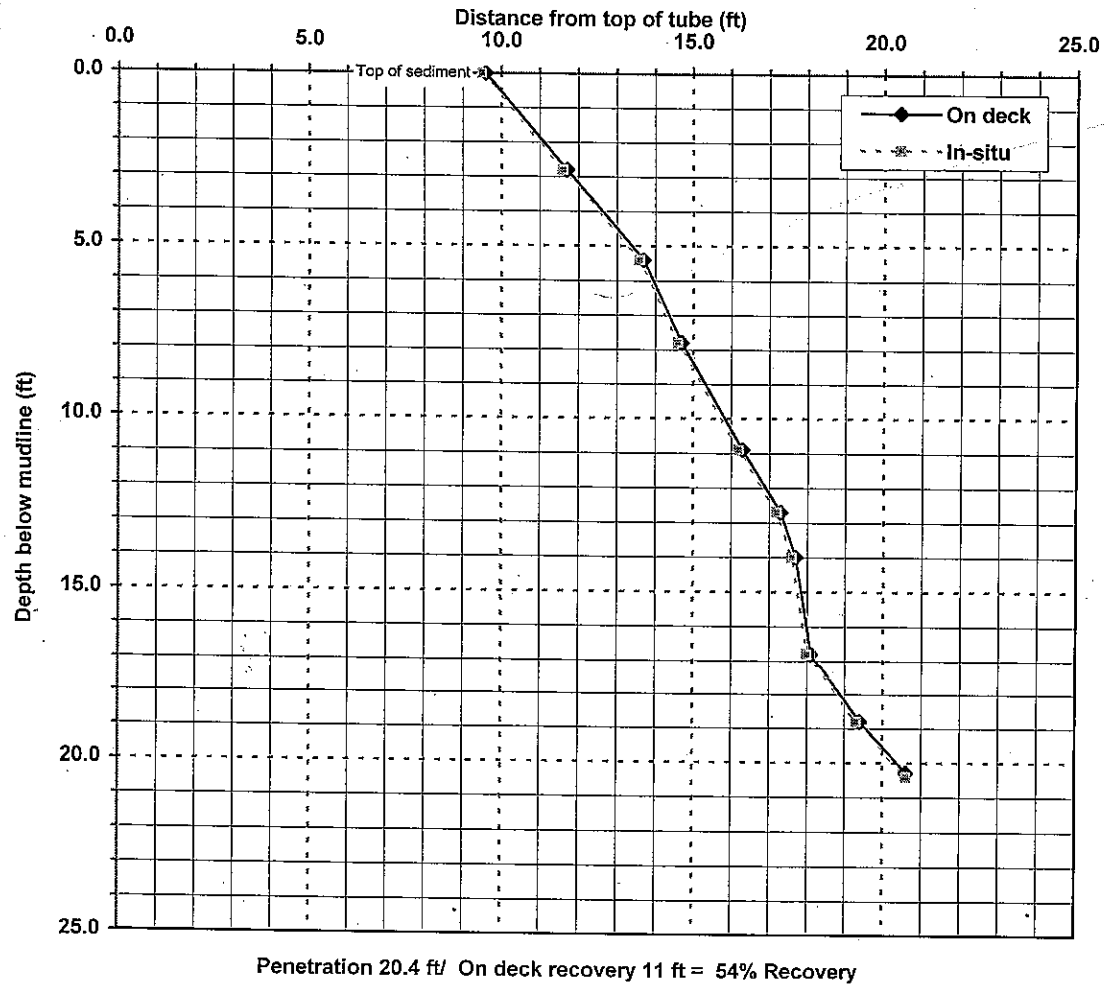
Collected by: GSM Northing

Date: 5/8/2007 **Time:** 9:59 Easting

Water depth: 0.0 ft **Mudline:** 13.7 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 20.4 ft/ On deck recovery 11 ft = 54% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-2.8	2.1	75%
2.8-5.4	2	77%
5.4-7.8	1	42%
7.8-10.9	1.6	52%
10.9-12.7	1	56%
12.7-14	0.4	31%
14-16.8	0.4	14%
16.8-18.8	1.3	65%
18.8-20.4	1.3	81%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	9.6
1	10.35
2	11.10
3	11.85
4	12.62
5	13.39
6	13.95
7	14.37
8	14.80
9	15.32
10	15.84
11	16.36
12	16.91
13	17.39
14	17.70
15	17.84
16	17.99
17	18.23
18	18.88
19	19.56
20	20.38

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[ST-11]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-7-07

Time: 13:27

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 11

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 23.0

Northing 359030

Est. Tide Height (ft) (MLLW)

Easting 1299011

Est. Mudline: (MLLW)

On Deck Top of Sediment 9.5

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
		broke thru hard surface
16.4	18.4	
14.2	17.1	
12.9	16.4	
9.2	14.3	
6.8	13.0	
4.8	12.3	
2.8	11.1	
1.4	10.2	
0.2	9.4	
		tip of core dented

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-11

	Core collection	Laboratory
Date:	5/7/2007	5/7/07
Start Time:	13:27	1500

Comments: ______

Place Field ID Label Here

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
9.5	Top of sediment
85% saw dust and shells	9.5-15.1: fine wood chunks, twigs, saw dust, black and 10-15% medium sand. creosote treated piling @ 10.4-11.1, creosote odor and sheen to 12.9'. moderate H_2S odor 12.9-15.1', and small product blebs
	15.1-17.7: ML: silt, with crushed shells, mod. H_2S odor and v. faint creosote like odor, 60% silt, 10% sand, 30% shells. gray, soft. large wood piece @ base.
	17.7-20.6: SP, gray, med. dense, med. sand to fn sand. native trace H_2S odor.

Distance top/bottom	
9.5 / 12.9	Geomatrix Consultants 13116000010 Description Form Initials: CJW Date: 7 may07 Time: 1500
16.6 / 17.6	Geomatrix Consultants 13116000011 Description Form Initials: CJW Date: 7 may07 Time: 1500

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Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-11

NAD 83 WA N

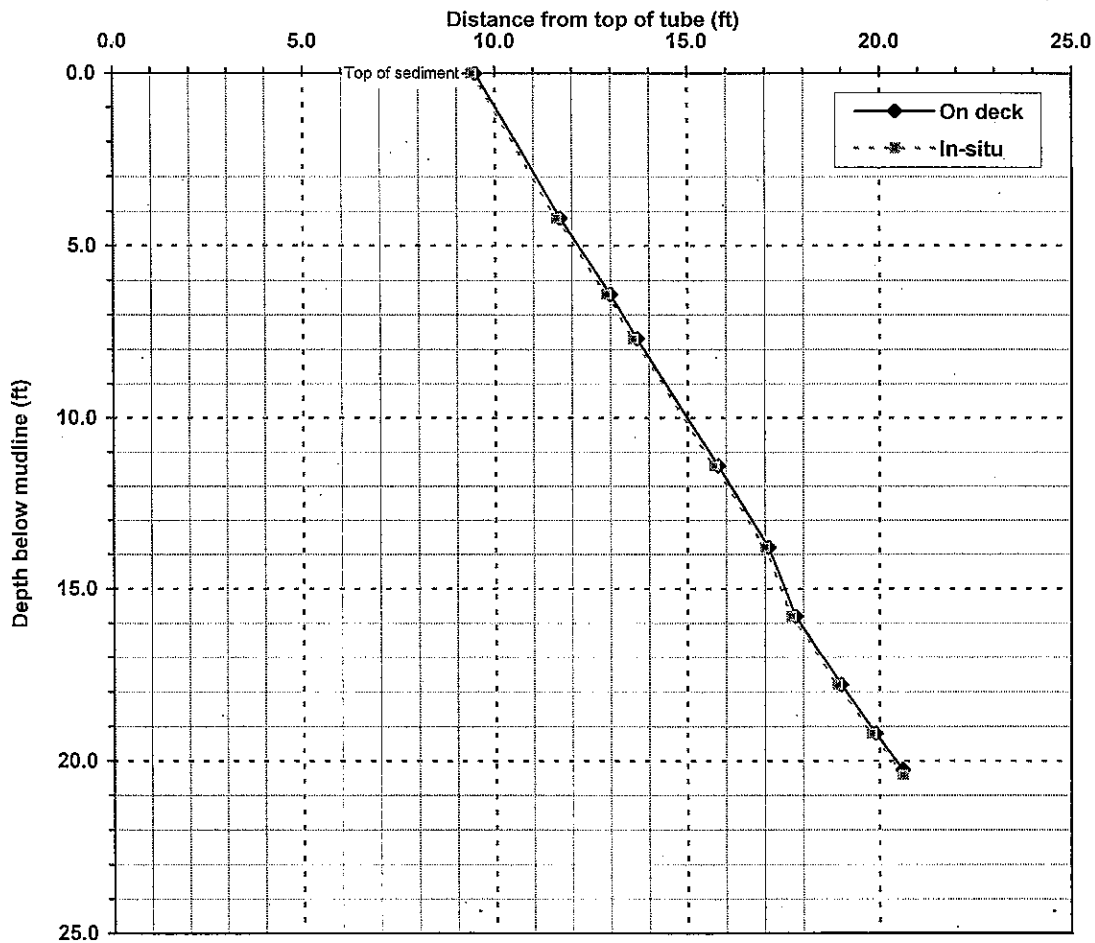
Collected by: GSM Northing

Date: 5/7/2007 **Time:** 13:27 Easting

Water depth: 23.0 ft **Mudline:** -23.0 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 20.4 ft/ On deck recovery 11.1 ft = 54% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-4.2	2.2	52%
4.2-6.4	1.3	59%
6.4-7.7	0.7	54%
7.7-11.4	2.1	57%
11.4-13.8	1.3	54%
13.8-15.8	0.7	35%
15.8-17.8	1.2	60%
17.8-19.2	0.9	64%
19.2-20.4	0.8	67%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	9.5
1	10.02
2	10.55
3	11.07
4	11.60
5	12.17
6	12.76
7	13.32
8	13.87
9	14.44
10	15.01
11	15.57
12	16.13
13	16.67
14	17.17
15	17.52
16	17.92
17	18.52
18	19.13
19	19.77
20	20.43

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[ST-12]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-14-07

Time: 1449

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 12

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 15.4

Northing ~~396~~ 359027

Est. Tide Height (ft) (MLLW)

Easting 1299117

Est. Mudline: (MLLW)

On Deck Top of Sediment 11.6

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
16.2	16.6	
12.2	13.8	
9.4	11.4	
9.2	11.2	
9.2	11.2	refusal

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-12

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/14/2007	5/14/07
Start Time:	14:49	1545

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
11.6	Top of sediment
	11.6-20.6 sawdust, black, mod loose, mod. H_2S. 10% wood chips angular 1" to 13.0 then massive saw dust to 19.5 where ~~some~~ some 2" large barky pieces are found.

Distance top/bottom	
13.5 / 14.5	Geomatrix Consultants 13116000041 Description Form Initials: CJW Date: 14 May 07 Time: 1545
16.0 / 17.0	Geomatrix Consultants 13116000042 Description Form Initials: CJW Date: 14 May 07 Time: 1545
19.0 / 20.0	Geomatrix Consultants 13116000043 Description Form Initials: CJW Date: 14 May 07 Time: 1545

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Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-12

NAD 83 WA N

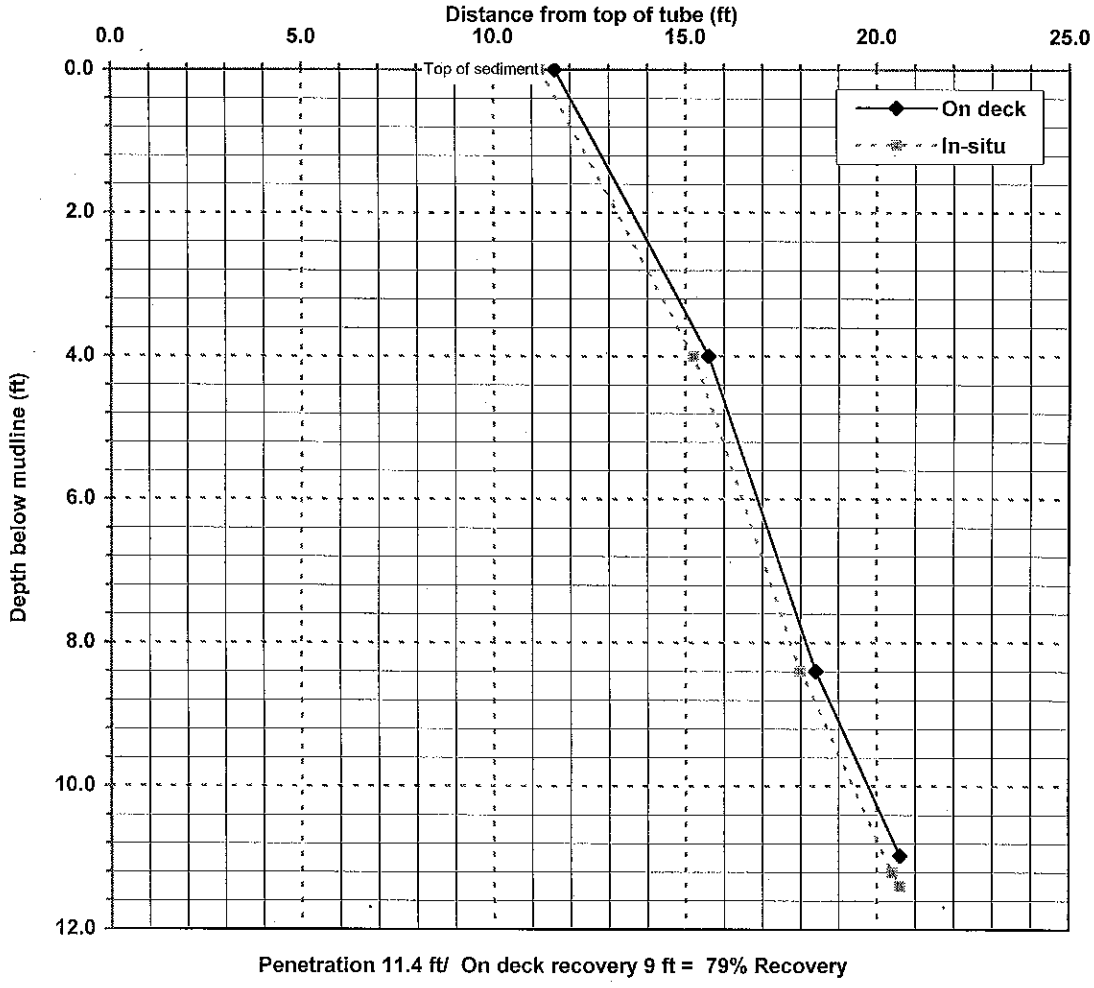
Collected by: GSM Northing

Date: 5/14/2007 **Time:** 14:49 Easting

Water depth: 15.4 ft **Mudline:** -15.4 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 11.4 ft/ On deck recovery 9 ft = 79% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-4	4	100%
4-8.4	2.8	64%
8.4-11.2	2.4	86%
11.2-11.4	0.2	100%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	11.6
1	12.60
2	13.60
3	14.60
4	15.60
5	16.24
6	16.87
7	17.51
8	18.15
9	18.91
10	19.77
11	No sample
12	No sample
13	No sample
14	No sample
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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[ST-13]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-8-07

Time: ~~1153~~ 1220

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 13

Position Information

Tube Length (ft): 14.6

Coordinate Datum:

Water Depth (ft): ~~7.5~~ ~~7.6~~ 8.2

Northing 359031

Est. Tide Height (ft) (MLLW)

Easting 1299202

Est. Mudline: (MLLW)

On Deck Top of Sediment

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
		Attempt 1 refusal at 1.4 A pen
		Black silt, gravel, wood debris
		in tip of core
~~12.5~~		Attempt 2 - moved offshore
		~ 10 A =
		2.1 A penetration to refusal
13.9	13.8	Attempt 3 ~ 23 A offshore
10.5	12.5	off station
9.6	10.6	refusal

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[ST-14]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-8-07

Time: 1046

Project: Port of Everett Former Mill A

Recorder: CSM

Station Name: ST 14

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 15.1

Northing 359117

Est. Tide Height (ft) (MLLW)

Easting 1299162

Est. Mudline: (MLLW)

On Deck Top of Sediment 6.1

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
17.0	18.8	
14.6	16.8	
		hit hard object - broke part suddenly
11.2	13.0	
9.8	12.1	
6.5	9.9	
4.3	8.3	
2.4	7.1	
0.2	5.8	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-14

	Core collection	Laboratory
Date:	5/8/2007	5/8/07
Start Time:	10:46	1145

Comments:

Place Field ID Label Here

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
6.3	Top of sediment
	6.3-7.7: 30% red bark & twigs, ~~35%~~ 30% sawdust black, 40% SP, gray SP= 90% sand, 10% silt, sand fn-med mod. dense trace H_2S odor.
	7.7-14.7: sawdust, black moderate to strong H_2S odor, V. trace mod. dense 90% saw. wood chips 10% fn sand.
	14.7-15.8: ML: gray silt large wood (bark) piece @ 14.8 4"x2" trace creosote odor, 70% ML / 30% wood chunks
	15.8-19.6: ML silt, gray mod. stiff ~/ 40% crushed shells. ~~60%~~ 60% silt, 10% sand. moderate H_2S odor
	19.6-20.6: SP: poorly graded sand, gray, mod. dense, sand is medium. ~~V.~~ V. trace shells.

Distance top/bottom	
8.0 / 8.9	Geomatrix Consultants 13116000021 Description Form Initials: CJW Date: 8 MAY 07 Time: 1145
11.3 / 12.2	Geomatrix Consultants 13116000022 Description Form Initials: CJW Date: 8 MAY 07 Time: 1145
13.9 / 14.6	Geomatrix Consultants 13116000023 Description Form Initials: CJW Date: 8 MAY 07 Time: 1145

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Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-14

NAD 83 WA N

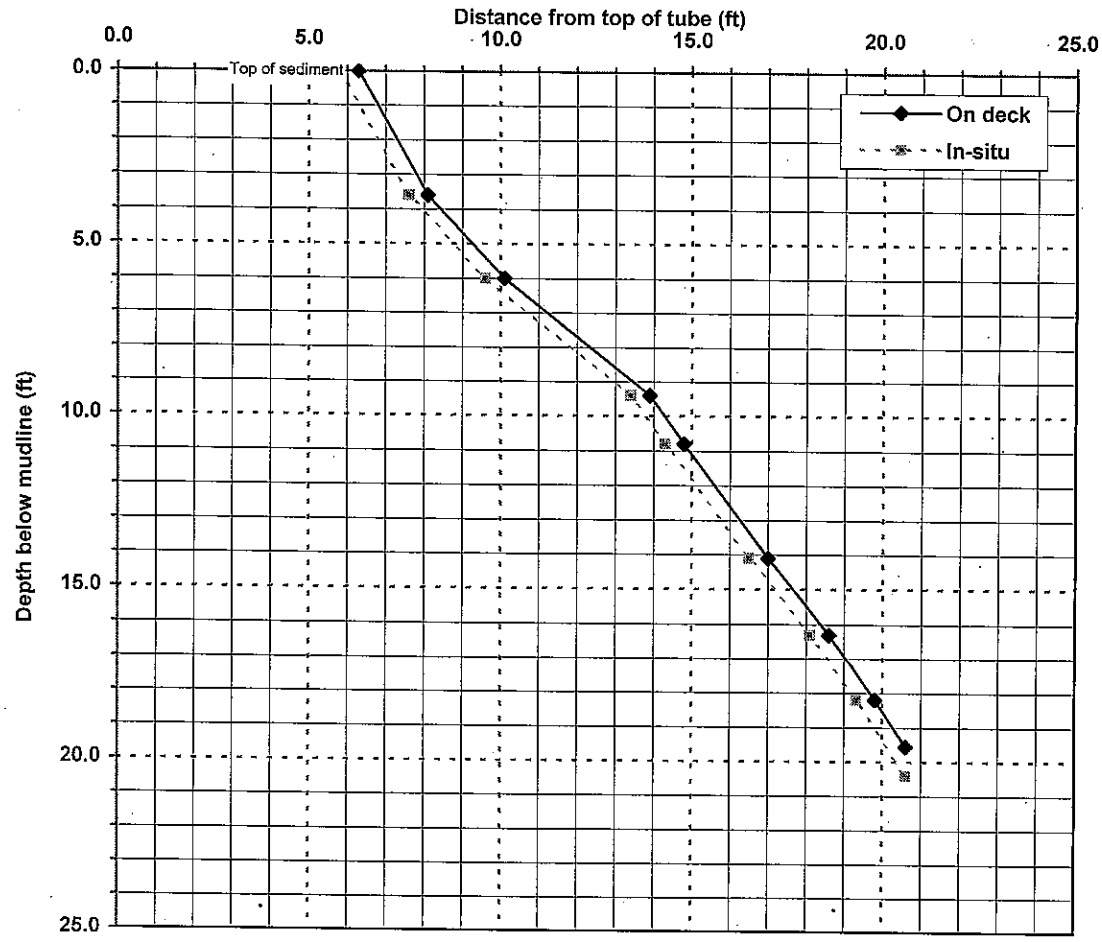
Collected by: GSM Northing

Date: 5/8/2007 **Time:** 10:46 Easting

Water depth: 15.1 ft **Mudline:** -15.1 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 20.4 ft/ On deck recovery 14.3 ft = 70% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-3.6	1.8	50%
3.6-6	2	83%
6-9.4	3.8	112%
9.4-10.8	0.9	64%
10.8-14.1	2.2	67%
14.1-16.3	1.6	73%
16.3-18.2	1.2	63%
18.2-20.4	1.3	59%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	6.3
1	6.80
2	7.30
3	7.80
4	8.43
5	9.27
6	10.10
7	11.22
8	12.34
9	13.45
10	14.29
11	14.93
12	15.60
13	16.27
14	16.93
15	17.65
16	18.38
17	19.04
18	19.67
19	20.27
20	No sample

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[ST-15]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-7-07

Time: 14:33

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 15 R2

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 19.0

Northing 359148

Est. Tide Height (ft) (MLLW)

Easting 1299900

Est. Mudline: (MLLW)

On Deck Top of Sediment 5.2

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
		Attempt 1 refusal at surface
		Attempt 2
15.0	15.0	
11.6	12.1	
8.9	11.1	
8.4	10.9	
5.4	9.1	
2.2	6.5	
0.2	4.8	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-15

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/7/2007	5/7/07
Start Time:	14:33	1545

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
5.2	Top of sediment
	5.2-12.9 sawdust & v. small wood chips & crushed shells, 5-10% sand fn. med. dense, trace to mod. H_2S. black 85% sawdust 5% shells 5% wood chips farnt creosote odor to 8.2' trace gritty. creosote blebs,
	12.9-17.0 ML with shells up to 1". whole shells to 14.7 then mostly crushed. 60+% shells and 30% ML, gray, trace to mod. H_2S.
	17.0-20.6 Sp, gray, med. dense, trace shell fragments, med. sand.

Distance top/bottom
0 / 7.4
10.1 / 11.9

Geomatrix Consultants
13116000013
Description Form
Initials: CJW
Date: 7 MAY 07 Time: 1545

Geomatrix Consultants
13116000012
Description Form
Initials: CJW
Date: 7 MAY 07 Time: 1545

Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-15

Position: NAD 83 WA N

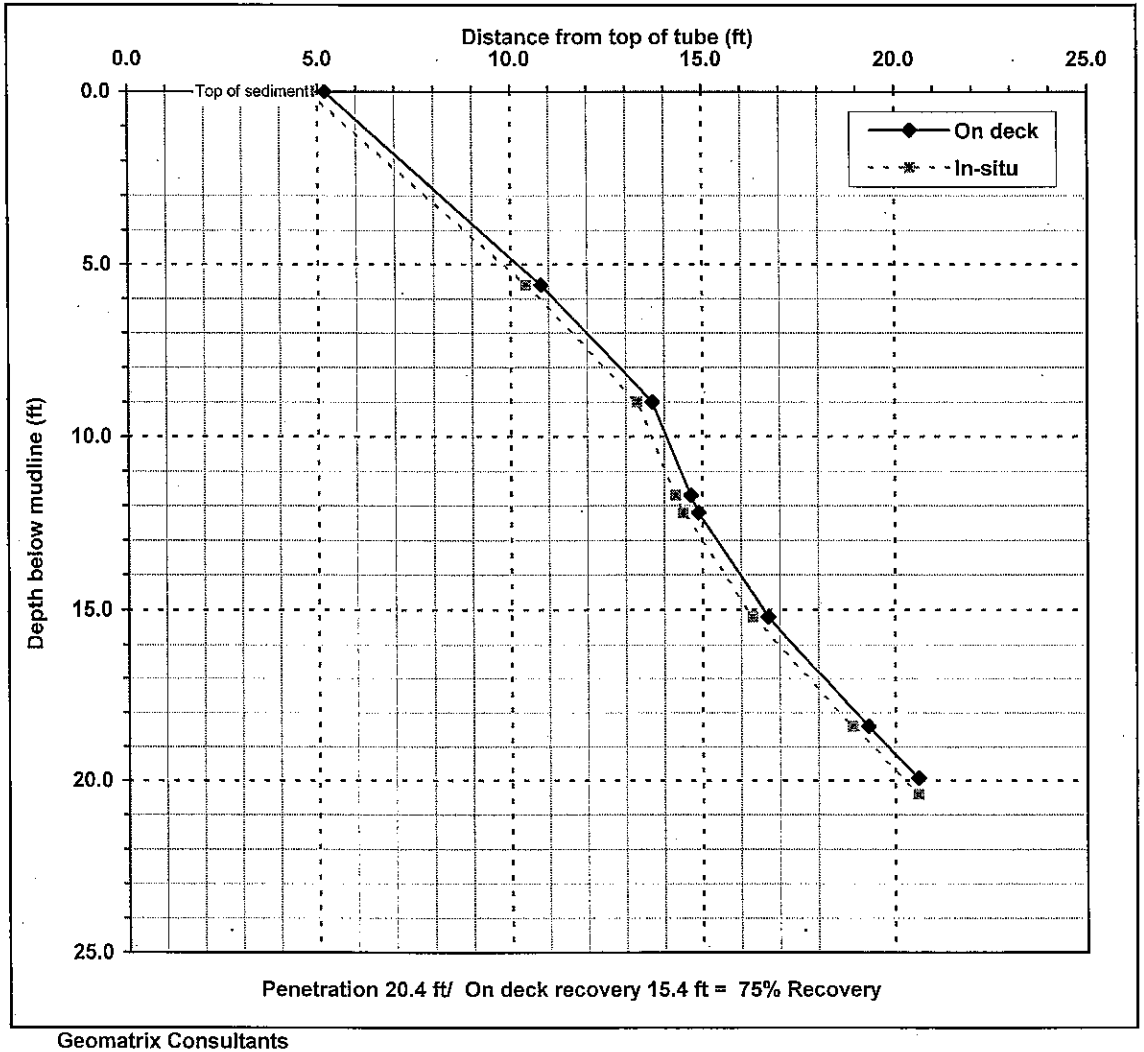
Collected by: GSM 359148 Northing

Date: 5/7/2007 **Time:** 14:33 1299100 Easting

Water depth: 19.0 ft **Mudline:** -19.0 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 20.4 ft/ On deck recovery 15.4 ft = 75% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-5.6	5.6	100%
5.6-9	2.9	85%
9-11.7	1	37%
11.7-12.2	0.2	40%
12.2-15.2	1.8	60%
15.2-18.4	2.6	81%
18.4-20.4	1.7	85%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	5.2
1	6.20
2	7.20
3	8.20
4	9.20
5	10.20
6	11.14
7	11.99
8	12.85
9	13.70
10	14.07
11	14.44
12	14.82
13	15.38
14	15.98
15	16.58
16	17.35
17	18.16
18	18.98
19	19.81
20	No sample

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[ST-17]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-14-07

Time: 1136

Project: Port of Everett Former Mill A

Recorder: SSM

Station Name: ST 17

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 13.2

Northing 359199

Est. Tide Height (ft) (MLLW)

Easting 1299215

Est. Mudline: (MLLW)

On Deck Top of Sediment 7.2

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
17.0	17.7	
14.3	15.5	
11.4	12.9	
9.4	11.8	
6.4	10.2	
4.4	8.7	
2.9	7.5	
2.4	7.0	refusal

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-17

	Core collection	Laboratory
Date:	5/14/2007	5/14/07
Start Time:	11:36	1320

Place Field ID Label Here

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
7.2	Top of sediment
	7.2-13.8: saw dust, black, mod. loose, trace H_2S odor, ~~trace~~ 10% turgs/roots to 8.2. 2 2" bark pieces @ 11.6.
	13.8-15.7: ML: silt, gray, med. stiff, trace H_2S, trace shells and occassional bark fragment. 90% silt, ~~10% sand~~ 5% sand, 5% shells
	15.7-18.0: SAA but with crushed shells and no bark 60% silt, 35% shells, 10% sand.
	18.0-20.6: SP: poorly-graded sand, gray, mod-dense, trace shells and wood fragments, 100% med. sand

Distance top/bottom	Geomatrix Sample ID labels
9.0 / 10.0	Geomatrix Consultants 13116000036 Description Form Initials: CJW Date: 14MAY07 Time: 1320
12.0 / 13.0	Geomatrix Consultants 13116000037 Description Form Initials: CJW Date: 14MAY07 Time: 1320

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Mudmole™ Bore Log

Project: Port of Everett

Station: ST-17

Position: NAD 83 WA N

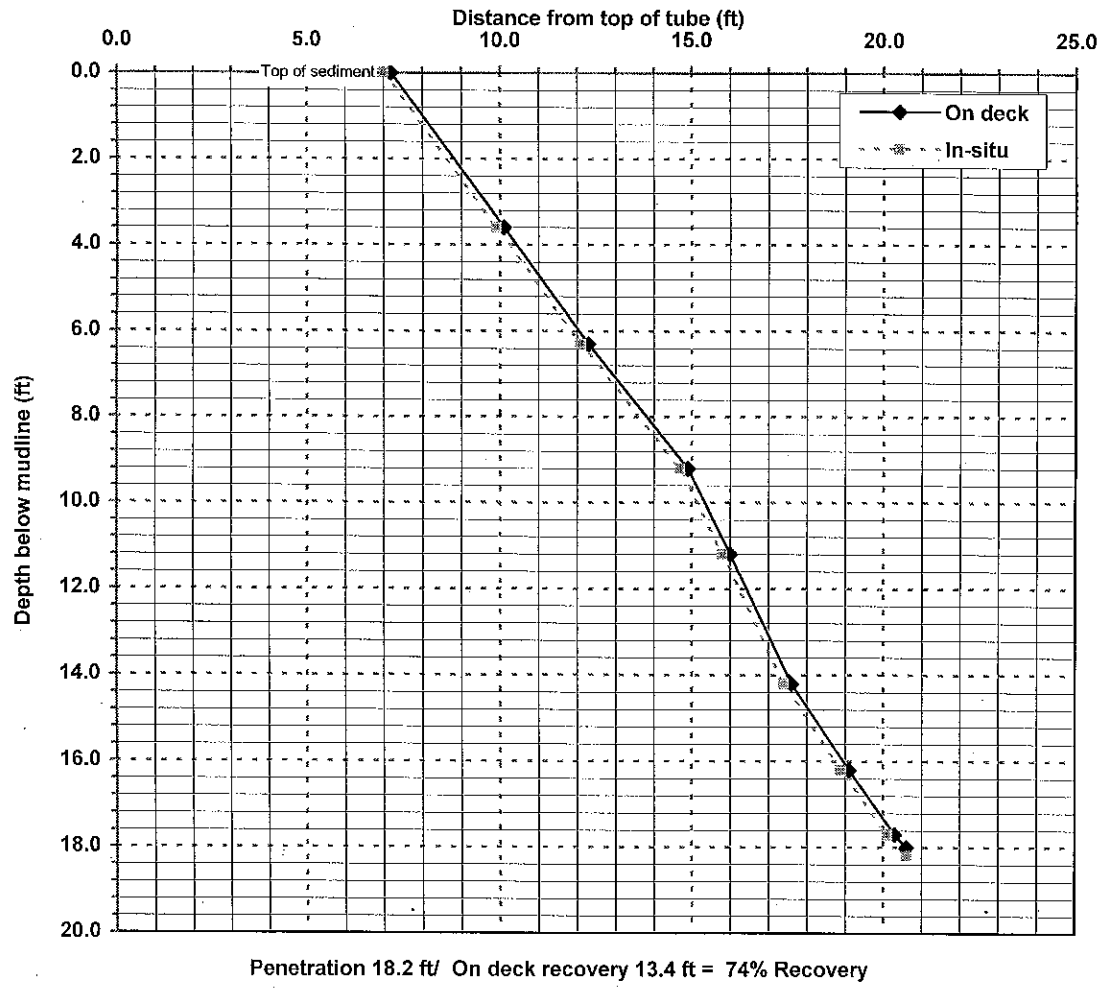
Collected by: GSM — 359199 Northing

Date: 5/14/2007 **Time:** 11:36 — 1299215 Easting

Water depth: 13.2 ft **Mudline:** -13.2 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 18.2 ft/ On deck recovery 13.4 ft = 74% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-3.6	2.9	81%
3.6-6.3	2.2	81%
6.3-9.2	2.6	90%
9.2-11.2	1.1	55%
11.2-14.2	1.6	53%
14.2-16.2	1.5	75%
16.2-17.7	1.2	80%
17.7-18.2	0.5	100%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	7.2
1	8.01
2	8.81
3	9.62
4	10.43
5	11.24
6	12.06
7	12.93
8	13.82
9	14.72
10	15.34
11	15.89
12	16.43
13	16.96
14	17.49
15	18.20
16	18.95
17	19.74
18	18.20
19	No sample
20	No sample

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[ST-19]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-11-07

Time: ~~0845~~ 0940

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 19

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): ~~13.5~~ 15

Northing 359233

Est. Tide Height (ft) (MLLW)

Easting 1299267

Est. Mudline: (MLLW)

On Deck Top of Sediment 15.8

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
Attempt 1		
18.8	19.3	refusal
		core packed with wood debris
Attempt 2		
		moved ~ 20 ft offshore
17.9	18.7	
16.2	15.6	tool bouncing alot - very slow pen.
15.4	15.4	refusal

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-19

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/11/2007	5/11/07
Start Time:	9:40	1620

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
15.8	Top of sediment
	15.8-20.6:
	sawdust, black mod. loose, & trace to mod. H_2S odor.
	90% sawdust, 5% fn sand, 5% wood chips. Large piece of bark @ 15.9 (3")
	3" wood splinter fresh @ ~~15~~ 19.2

Distance top/bottom	Sample ID labels
17.6 / 18.6	Geomatrix Consultants 13116000026 Description Form Initials: CJW Date: 11 MAY 07 Time: 1020

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Mudmole™ Bore Log

Project: Port of Everett

Station: ST-19

Position: NAD 83 WA N

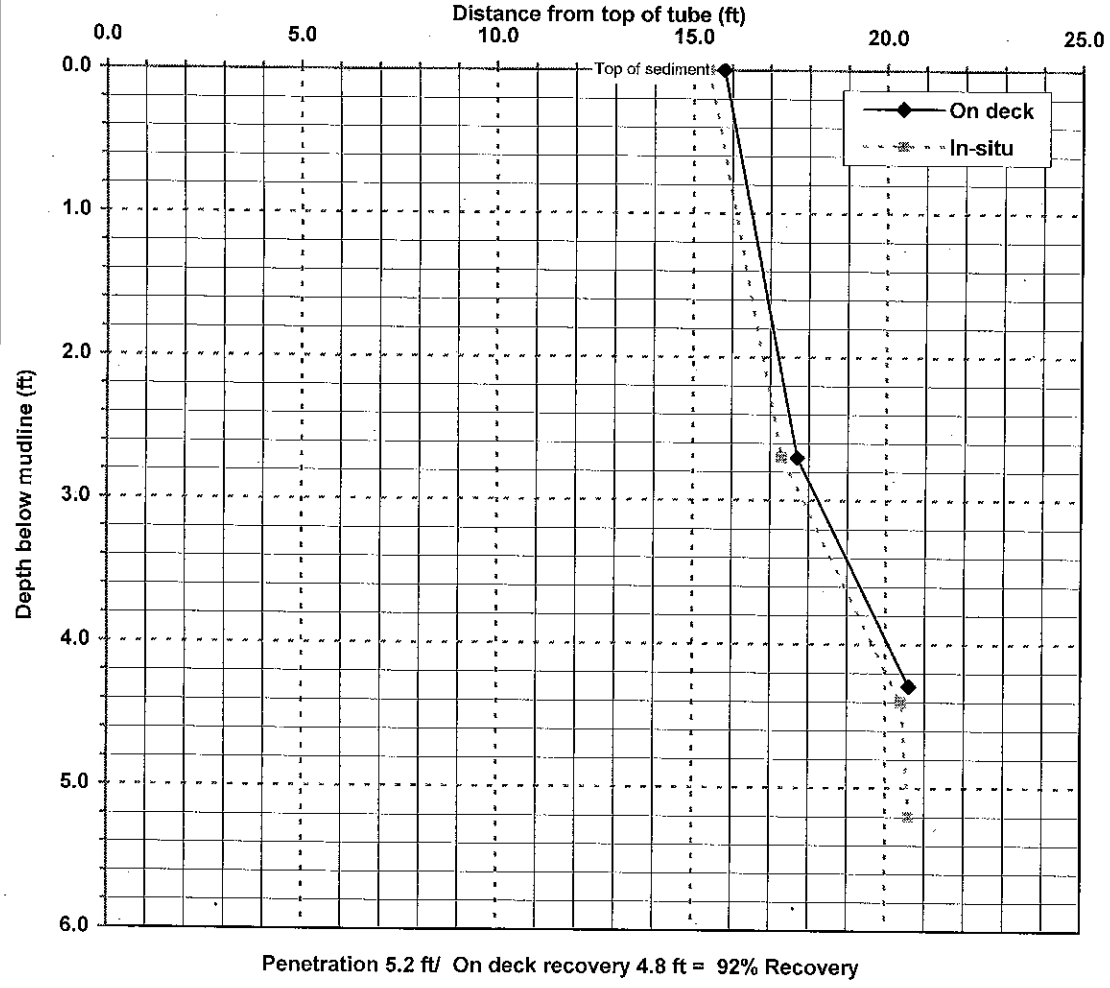
Collected by: GSM — 359233 Northing

Date: 5/11/2007 **Time:** 9:40 — 1299267 Easting

Water depth: 20.6 ft **Mudline:** -20.6 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 5.2 ft/ On deck recovery 4.8 ft = 92% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-2.7	1.9	70%
2.7-4.4	3.1	182%
4.4-5.2	0.2	25%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	15.8
1	16.50
2	17.21
3	18.25
4	20.07
5	No sample
6	No sample
7	No sample
8	No sample
9	No sample
10	No sample
11	No sample
12	No sample
13	No sample
14	No sample
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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[ST-20]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-7-07

Time: 1552

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 20

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 20.4

Northing 359297

Est. Tide Height (ft) (MLLW)

Easting 1299241

Est. Mudline: (MLLW)

On Deck Top of Sediment 7.2

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
16.3	18.2	
14.8	17.4	
11.9	15.7	
9.0	13.5	
7.0	12.1	
4.2	10.2	
2.0	8.6	
0.2	7.0	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-20

	Core collection	Laboratory
Date:	5/7/2007	5/7/07
Start Time:	15:52	1700

Comments:

Laboratory processing by: NPB.

All distances are measured from top of core tube.

Distance ft	Visual sample description
7.2	Top of sediment 7.2-10.1: ML and wood splinters (rafting material) brownish and ML is gray. silt 30% silt 40% ~~ML~~ / 50% ~~wood~~ wood 10% sand fine 10% crushed shells. trace H_2S odor. 10.1-18.4: sawdust, crushed shells, small wood pieces, black, mod. H_2S odor. med. dense 80 ~~40~~% sawdust 10 ~~30~~% crushed shells 10 ~~30~~% small wood pieces. 14.4-20.6 SP, gray, med. dense, trace shell frags. sand is med.

Distance top/bottom	
13.0 / 14.0	Geomatrix Consultants 13116000014 Description Form Initials: CJW Date: 7 MAY 07 Time: 1700
16.0 / 17.0	Geomatrix Consultants 13116000015 Description Form Initials: CJW Date: 7 MAY 07 Time: 1700

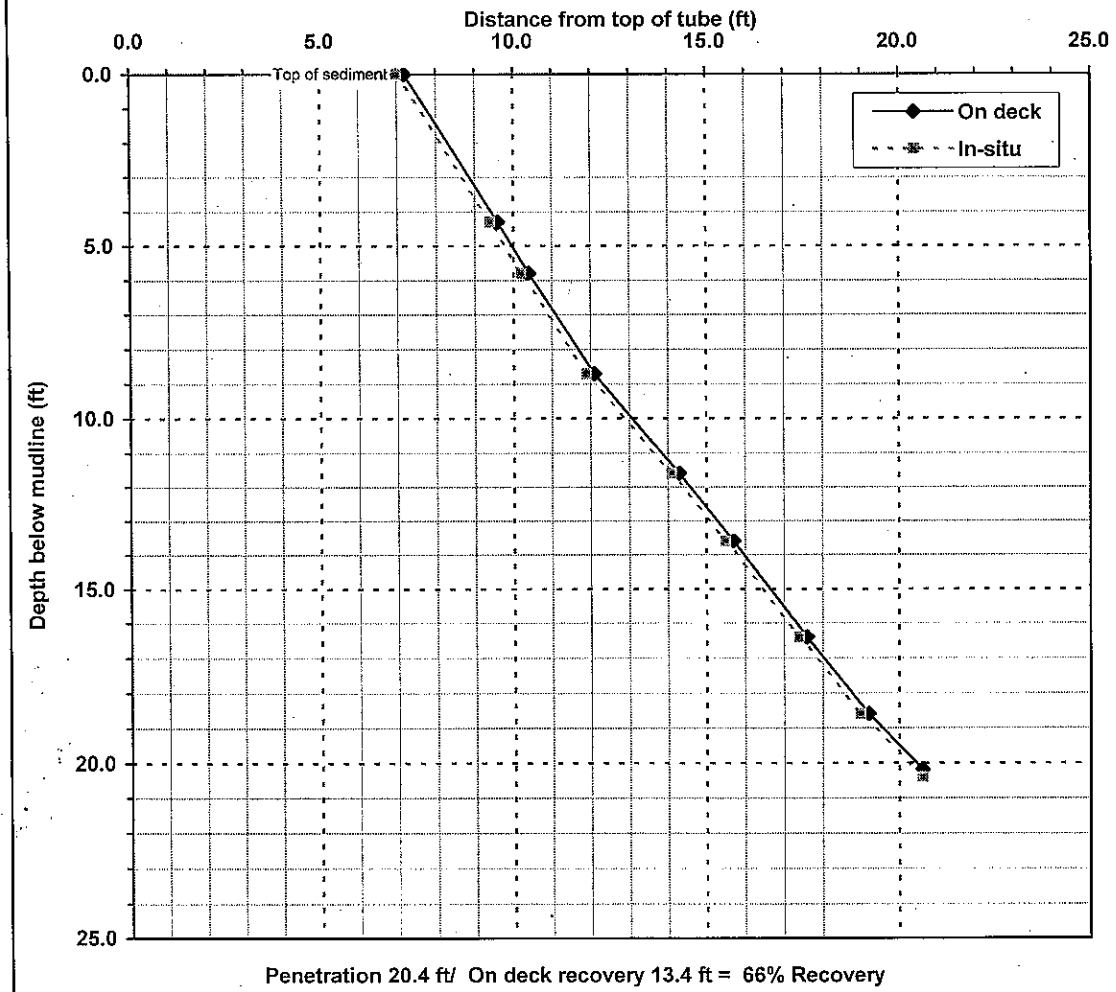
Place Field ID Label Here

Mudmole™ Bore Log

Project: Port of Everett
Station: ST-20
Position: NAD 83 WA N
359297 Northing
1299241 Easting
Collected by: GSM
Date: 5/7/2007 **Time:** 15:52
Water depth: 20.4 ft **Mudline:** -20.4 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 20.4 ft/ On deck recovery 13.4 ft = 66% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-4.3	2.4	56%
4.3-5.8	0.8	53%
5.8-8.7	1.7	59%
8.7-11.6	2.2	76%
11.6-13.6	1.4	70%
13.6-16.4	1.9	68%
16.4-18.6	1.6	73%
18.6-20.4	1.6	89%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	7.2
1	7.76
2	8.32
3	8.87
4	9.43
5	9.97
6	10.52
7	11.10
8	11.69
9	12.33
10	13.09
11	13.84
12	14.58
13	15.28
14	15.97
15	16.65
16	17.33
17	18.04
18	18.76
19	19.56
20	20.44

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[ST-21]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-11-07

Time: 1146

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 21

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 19.3

Northing 359290

Est. Tide Height (ft) (MLLW)

Easting 1299372

Est. Mudline: (MLLW)

On Deck Top of Sediment 8.8

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
16.3	17.9	
13.4	16.4	
10.7	15.0	
7.6	13.6	
5.0	12.0	
2.5	10.4	
0.2	8.4	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-21

Core collection	Laboratory
Date: 5/11/2007	5/11/07
Start Time: 11:46	1300

Place Field ID Label Here

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
8.8	Top of sediment
	8.8-12.9: ML with rafting debris, gray/brown, mod. soft, mod. H_2S. bark and wood splinters to 2". 60% ML 40% wood
	12.9-13.5: ML: silt with sand, gray, mod soft trace H_2S odor, 75% silt 25% sand, trace wood chips
	13.5 ~~14.5~~ - 15.5: rafting debris with silt and sand, brown splinters to ½" and ob long. mod H_2S odor. 70% rafting 15% sand 15% silt.
	15.5-20.6 SP: poorly graded sand, gray, mod dense, medium sand, trace shells. trace to mod H_2S

Distance top/bottom	Sample ID labels
14.0 / 15.0	Geomatrix Consultants 13116000027 Description Form Initials: CJW Date: 11 MAY 07 Time: 1300

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Mudmole™ Bore Log

Project: Port of Everett

Station: ST-21

Position: NAD 83 WA N

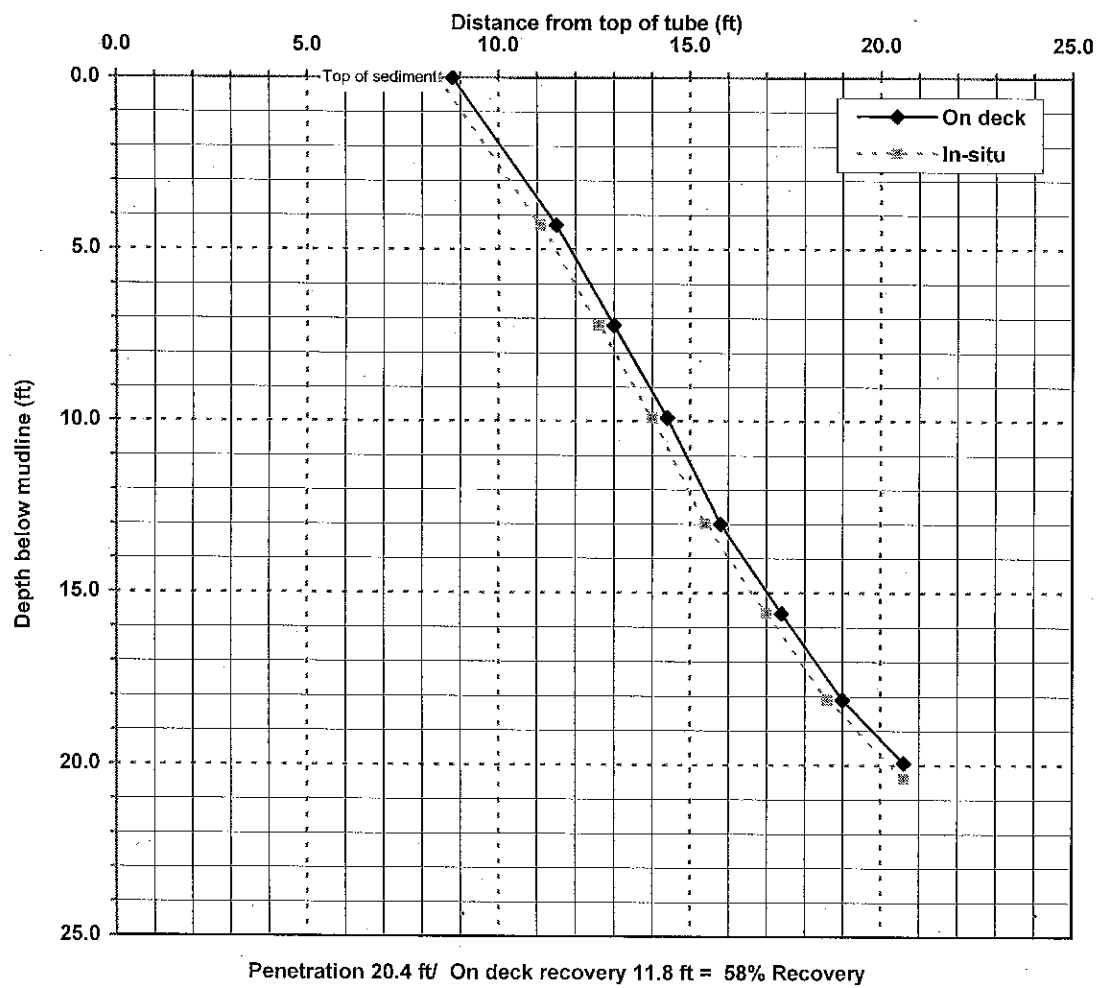
Collected by: GSM — 359290 Northing

Date: 5/11/2007 **Time:** 11:46 — 1299372 Easting

Water depth: 19.3 ft **Mudline:** -19.3 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 20.4 ft/ On deck recovery 11.8 ft = 58% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-4.3	2.7	63%
4.3-7.2	1.5	52%
7.2-9.9	1.4	52%
9.9-13	1.4	45%
13-15.6	1.6	62%
15.6-18.1	1.6	64%
18.1-20.4	2	87%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	8.8
1	9.43
2	10.06
3	10.68
4	11.31
5	11.86
6	12.38
7	12.90
8	13.41
9	13.93
10	14.45
11	14.90
12	15.35
13	15.80
14	16.42
15	17.03
16	17.66
17	18.30
18	18.94
19	19.78
20	No sample

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fax (425) 697-4370

[ST-29]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-7-07

Time: 0929

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST-29

Position Information

Tube Length (ft): 10.3

Coordinate Datum:

Water Depth (ft): 51.9

Northing 358563

Est. Tide Height (ft) (MLLW)

Easting 1298537

Est. Mudline: (MLLW)

On Deck Top of Sediment 1.2

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
7.9	8.1	
5.5	6.6	
4.8	5.2	
2.5	2.8	
0.2	0.7	
	1.2 on deck	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-29

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/7/2007	5/7/07
Start Time:	9:29	10~~:29~~35

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
1.2	Top of sediment
	1.2-1.6: SM: black, ~~silty~~ sand w/ silt, roots, twigs, large pieces of rounded gravel @ base. trace shells. ~~75~~ 80% sand/20% silt
	1.6-3.0: ML: silt w/ sand, grayish black, trace twigs ~~roots~~ trace shells grades to unit below 60% silt/40% sand
	trace - mod. H_2S
	3.0-4.4: SM: sand w silt, grayish black, ~~75%~~ 60% sand / 40% silt trace shells/twigs.
	trace H_2S.
	4.4-10.3: SP: poorly graded sand, gray, med. dense, sand is medium, trace crushed shell pieces. trace H_2S odor @ base.

Distance top/bottom
1.2 / 4.4

Sample ID labels

Geomatrix Consultants
13116000001
Description Form
Initials: CJW
Date: 7 may 07 Time: 1035

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Mudmole™ Bore Log

Project: Port of Everett

Station: ST-29

Position: NAD 83 WA N

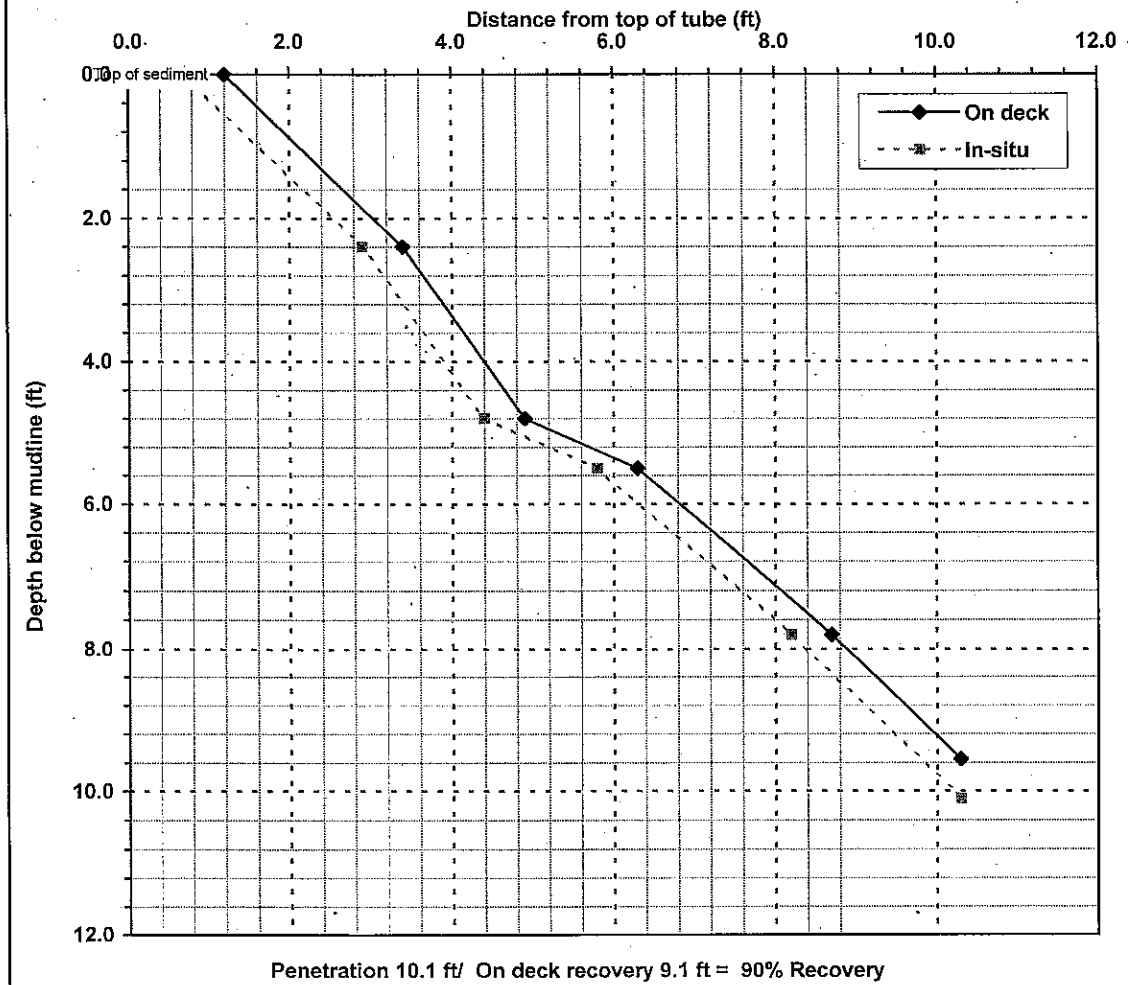
Collected by: GSM — 358563 Northing

Date: 5/7/2007 **Time:** 9:29 — 1298537 Easting

Water depth: 51.9 ft **Mudline:** -51.9 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 10.1 ft/ On deck recovery 9.1 ft = 90% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-2.4	2.2	92%
2.4-4.8	1.5	63%
4.8-5.5	1.4	200%
5.5-7.8	2.4	104%
7.8-10.1	2.1	91%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	1.2
1	2.12
2	3.03
3	3.78
4	4.40
5	5.30
6	6.82
7	7.87
8	8.88
9	9.80
10	No sample
11	No sample
12	No sample
13	No sample
14	No sample
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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[ST-32]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-7-07

Time: 1024

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 32

Position Information

Tube Length (ft): 10.3

Coordinate Datum:

Water Depth (ft): 57

Northing 358913

Est. Tide Height (ft) (MLLW)

Easting 1298741

Est. Mudline: (MLLW)

On Deck Top of Sediment 1.8

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
8.5	8.0	
6.5 ~~9.3~~	6.8	
4.8	5.3	
3.0	3.6	
1.9	2.6	
0.2	1.3	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-32

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/7/2007	5/7/07
Start Time:	10:24	11:35

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
1.3	Top of sediment
	1.3-5.2 ML: silt, gray, trace to mod. H_2S. ~~80~~ 80% silt, 10% sand, 10% bark. soft to 2.2 w/ large pieces of bark. then moderately stiff, 10% bark and 10% sand. trace shell fragments grades to ~~soft~~ ~~below~~ silt w/ sand @ 3.4. ~~3.2~~ ~~70~~% silt, 20% sand, 10% bark pieces.
	5.2-7.9: SM: sand w/ silt, mod. dense, gray, trace H_2S 60% sand, 30% silt, 10% bark pieces and shell frags.
	7.9-9.8: SP: poorly graded sand, gray, mod. dense, trace crushed shell frags sand is medium to fine.

Distance top/bottom	
1.3 / 5.0	Geomatrix Consultants 13116000002 Description Form Initials: CJW Date: 7 May 07 Time: 1135

Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-32

Position: NAD 83 WA N

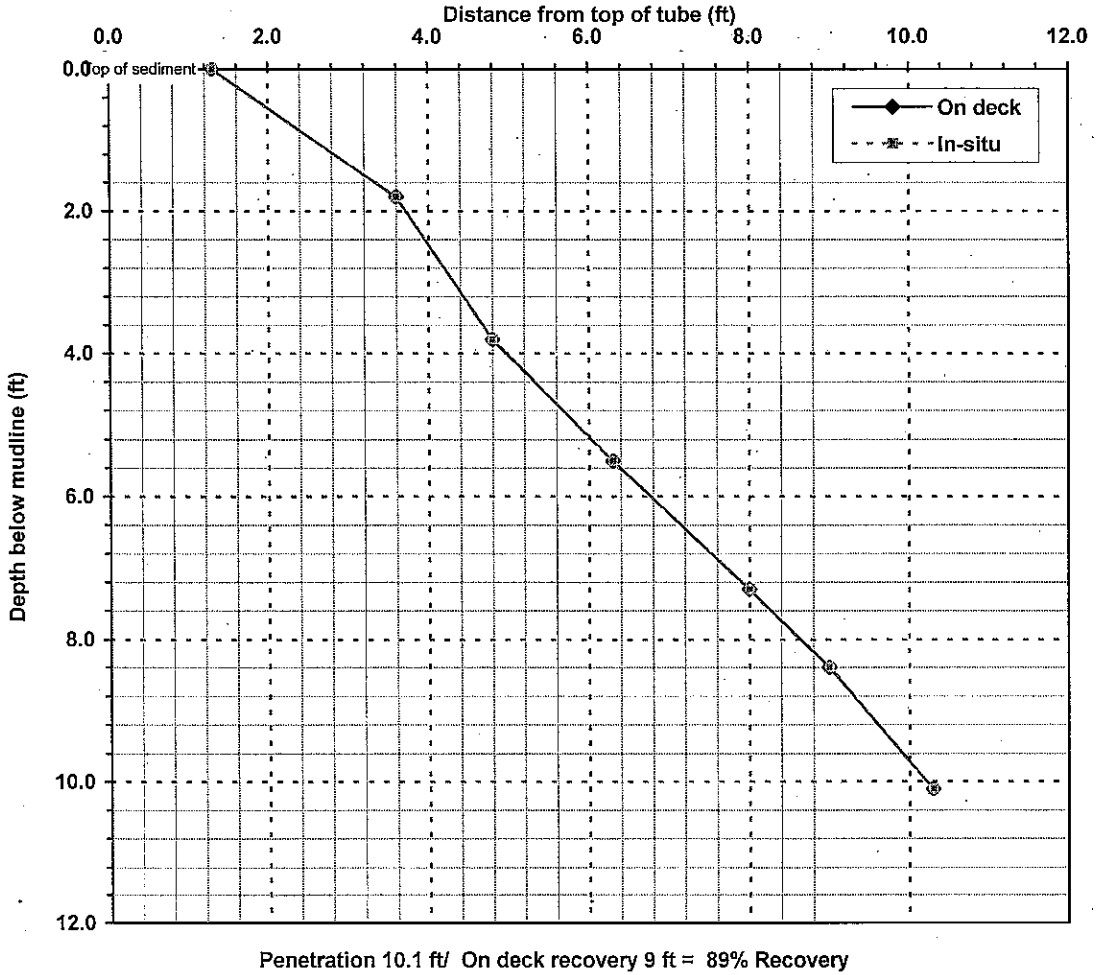
Collected by: GSM 358913 Northing

Date: 5/7/2007 **Time:** 10:24 1298741 Easting

Water depth: 57.0 ft **Mudline:** -57.0 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 10.1 ft/ On deck recovery 9 ft = 89% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-1.8	2.3	128%
1.8-3.8	1.2	60%
3.8-5.5	1.5	88%
5.5-7.3	1.7	94%
7.3-8.4	1	91%
8.4-10.1	1.3	76%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	1.3
1	2.58
2	3.72
3	4.32
4	4.98
5	5.86
6	6.77
7	7.72
8	8.64
9	9.46
10	10.22
11	No sample
12	No sample
13	No sample
14	No sample
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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File name ST-32
Bore Log (mudline)

[ST-34]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-9-07

Time: 948

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 34

Position Information

Tube Length (ft): 10.3

Coordinate Datum:

Water Depth (ft): 58.8

Northing 359248

Est. Tide Height (ft) (MLLW)

Easting 1298990

Est. Mudline: (MLLW)

On Deck Top of Sediment

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
6-8	~~R8~~ 7.7	
5.2	6-3	
3.8	5.0	
1.8	4.7	
0.2	2.6	

Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-34

	Core collection	Laboratory
Date:	5/9/2007	5/9/07
Start Time:	9:48	1240

Comments:

Place Field ID Label Here

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description	Distance top/bottom
2.4	Top of sediment @ 2.4 2.4-5.8: ML: gray, mod. silt silt with sand, trace to mod. H_2S. 15% wood chips/bark/splinters 65% silt, 20% sand. grades to Selan 5.8-8.0: SM, gray, mod. dense sand with silt. <5% wood chips/bark pieces, mod. H_2S odor. 65% fine-med sand, 15% silt. 8.0-10.3 SP: poorly graded sand, gray, mod. dense, trace white crushed shells sand is fine-med. trace H_2S odor	2.4 4.45

Geomatrix Consultants
13116000025
Description Form
Initials: CJW
Date: 9 May 07 Time: 1240

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Mudmole™ Bore Log

Project: Port of Everett

Station: ST-34

Position: NAD 83 WA N

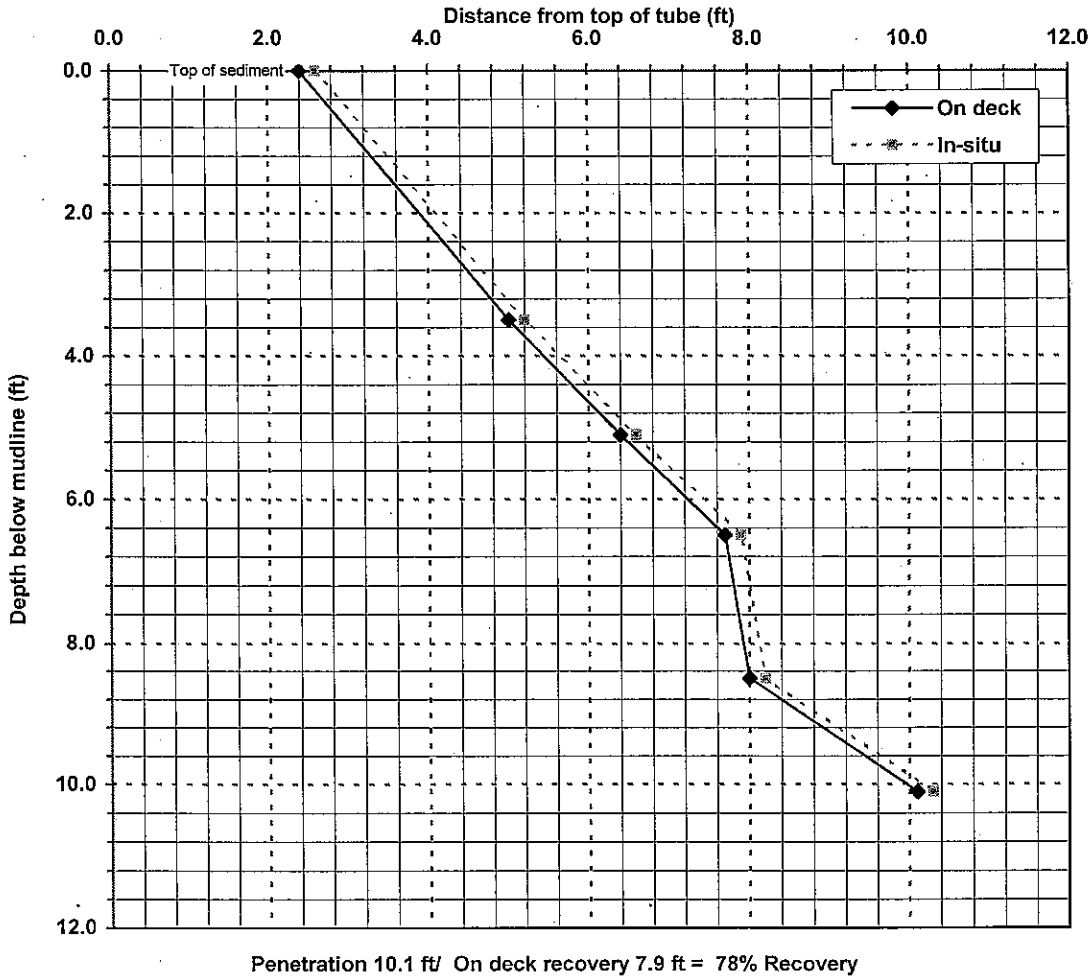
Collected by: GSM — 359248 Northing

Date: 5/9/2007 **Time:** 9:48 — 1296990 Easting

Water depth: 58.8 ft **Mudline:** -58.8 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 10.1 ft/ On deck recovery 7.9 ft = 78% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-3.5	2.6	74%
3.5-5.1	1.4	88%
5.1-6.5	1.3	93%
6.5-8.5	0.3	15%
8.5-10.1	2.1	131%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	2.4
1	3.14
2	3.89
3	4.63
4	5.44
5	6.31
6	7.24
7	7.78
8	7.93
9	8.66
10	9.97
11	No sample
12	No sample
13	No sample
14	No sample
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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[ST-37]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-11-07

Time: 1020

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 37

Position Information

Tube Length (ft): 10.3

Coordinate Datum:

Water Depth (ft): 41.9

Northing 359445

Est. Tide Height (ft) (MLLW)

Easting 1299244

Est. Mudline: (MLLW)

On Deck Top of Sediment 2.4

Comments: large pieces of bark on bottom - 80% coverage

Penetration Tape Reading	Recovery Tape Reading	Comments
8.1	8.5	
5.7	6.3	
3.1	4.6	
1.1	2.9	
0.2	1.9	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-37

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/11/2007	5/11/07
Start Time:	10:20	1100

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
2.4	Top of sediment
	2.4-4.7: ML: silt with sand and wood chips, greenish gray, mod. soft. trace H_2S odor, trace twigs roots.
	85/15 silt sand 4.2-4.6 silt ball ML trace wood 60% silt, 10% sand, 30% wood ~~chips~~ chips
	4.7-7.8: sawdust, black, mod. loose, mod. H_2S smell 75% sawdust with wood splinters bark frags. ~~25% silt~~ ~~15% silt~~ 10% silt/sand 15% wood splinters silt ball 5.8-6.2 85/15 silt sand w/ large piece of bark.
	7.8-10.3 SP: poorly-graded sand, gray, mod. dense, 100% med. sand. V. trace shell frags trace H_2S.

Distance top/bottom	Sample ID labels
2.4 / 5.9	Geomatrix Consultants 13116000024 Description Form Initials: CJW Date: 11 May 07 Time: 1100

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Mudmole™ Bore Log

Project: Port of Everett

Station: ST-37

Position: NAD 83 WA N

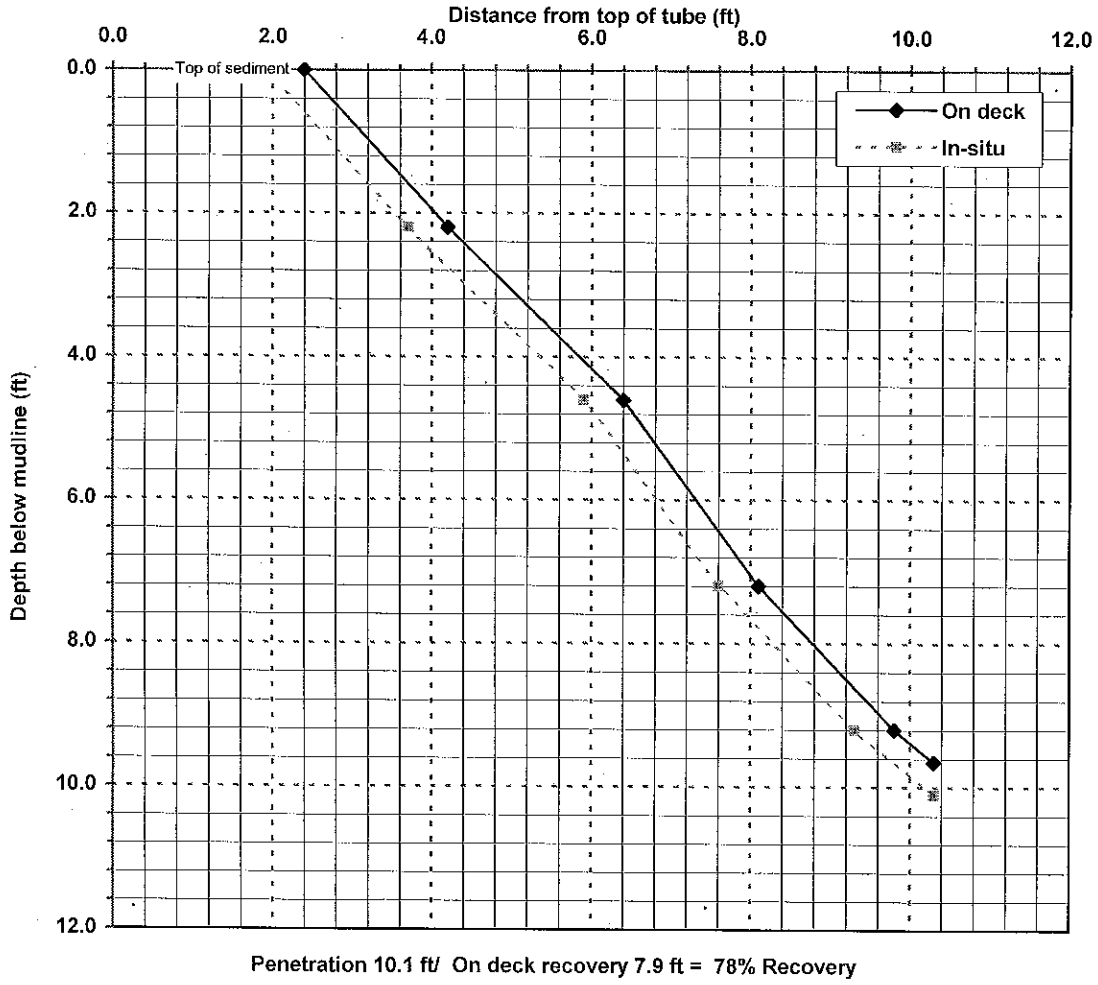
Collected by: GSM — 359445 Northing

Date: 5/11/2007 **Time:** 10:20 — 1299244 Easting

Water depth: 41.9 ft **Mudline:** -41.9 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 10.1 ft/ On deck recovery 7.9 ft = 78% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-2.2	1.8	82%
2.2-4.6	2.2	92%
4.6-7.2	1.7	65%
7.2-9.2	1.7	85%
9.2-10.1	1	111%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	2.4
1	3.22
2	4.04
3	4.93
4	5.85
5	6.66
6	7.32
7	7.97
8	8.78
9	9.63
10	No sample
11	No sample
12	No sample
13	No sample
14	No sample
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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[ST-39]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-14-07

Time: 1016

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 39

Position Information

Tube Length (ft): 4 10.3

Coordinate Datum:

Water Depth (ft): 48.9

Northing 359583

Est. Tide Height (ft) (MLLW)

Easting 129908

Est. Mudline: (MLLW)

On Deck Top of Sediment 2.3

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
8.0	8.3	
3.8	6.4	
3.0	4.2	
1.8	3.3	
0.2	2.0	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-39

	Core collection	Laboratory
Date:	5/14/2007	5/14/07
Start Time:	10:16	1115

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
2.3	Top of sediment
	2.3-~~8~~ 7.3: ML: silt with sand, gray, mod. soft, trace to mod. H_2S. scattered twigs, wood splinters wood chunks < 5% total, sand ~~8~~ fn. 70 silt, 25% sand. 5% misc.
	7.3-10.3: SP: poorly-sorted sand, gray, mod. dense, trace H_2S odor, trace white shells. Sand is med.

Distance top/bottom
2.3
5.8

Place Field ID Label Here

Geomatrix Consultants
13116000033
Description Form
Initials: CJW
Date: 14 MAY 07 Time: 1115

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Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-39

NAD 83 WA N

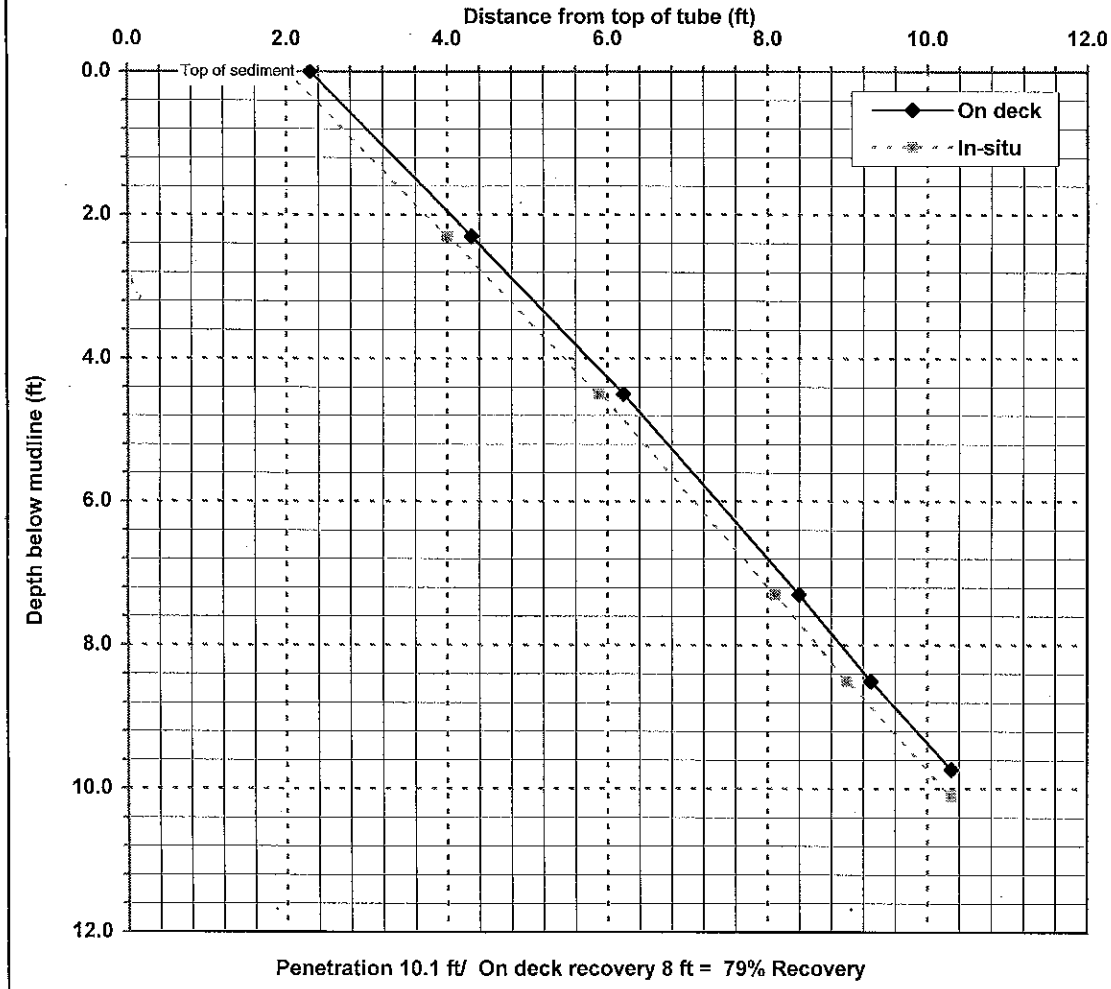
Collected by: GSM Northing

Date: 5/14/2007 **Time:** 10:16 Easting

Water depth: 48.9 ft **Mudline:** -48.9 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 10.1 ft/ On deck recovery 8 ft = 79% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-2.3	2	87%
2.3-4.5	1.9	86%
4.5-7.3	2.2	79%
7.3-8.5	0.9	75%
8.5-10.1	1.3	81%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	2.3
1	3.17
2	4.04
3	4.90
4	5.77
5	6.59
6	7.38
7	8.16
8	8.93
9	9.71
10	No sample
11	No sample
12	No sample
13	No sample
14	No sample
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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[ST-42]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-11-07

Time: 1540

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 42

Position Information

Tube Length (ft): 14.6

Coordinate Datum:

Water Depth (ft): 46

Northing 359802

Est. Tide Height (ft) (MLLW)

Easting 1299451

Est. Mudline: (MLLW)

On Deck Top of Sediment 4.3

Comments:

Penetration Tape Reading	Recovery Tape Reading	Comments
9.9	10.6	
7.2	8.3	
4.6	5.9	
2.5	4.0	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-42

	Core collection	Laboratory
Date:	5/11/2007	5/11/07
Start Time:	15:40	1615

Place Field ID Label Here

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
4.3	Top of sediment
	4.3-6.6: ML: silt with sand, gray, mod. stiff, trace H_2S odor, trace fresh wood chips, 75% silt, 25% fine to med sand.
	picture 1 2" clam in the piece @ 6.4' vesiculated.
	6.6-14.6: SP: poorly-graded sand, gray, mod dense, trace H_2S odor, trace shells and native wood chunks, 100% sand.

Distance top/bottom
4.3
7.7

Sample ID labels

Geomatrix Consultants
13116000032
Description Form
Initials: CJW
Date: 11 May 07 Time: 1615

Mudmole™ Bore Log

Project: Port of Everett **Station:** ST-42

NAD 83 WA N

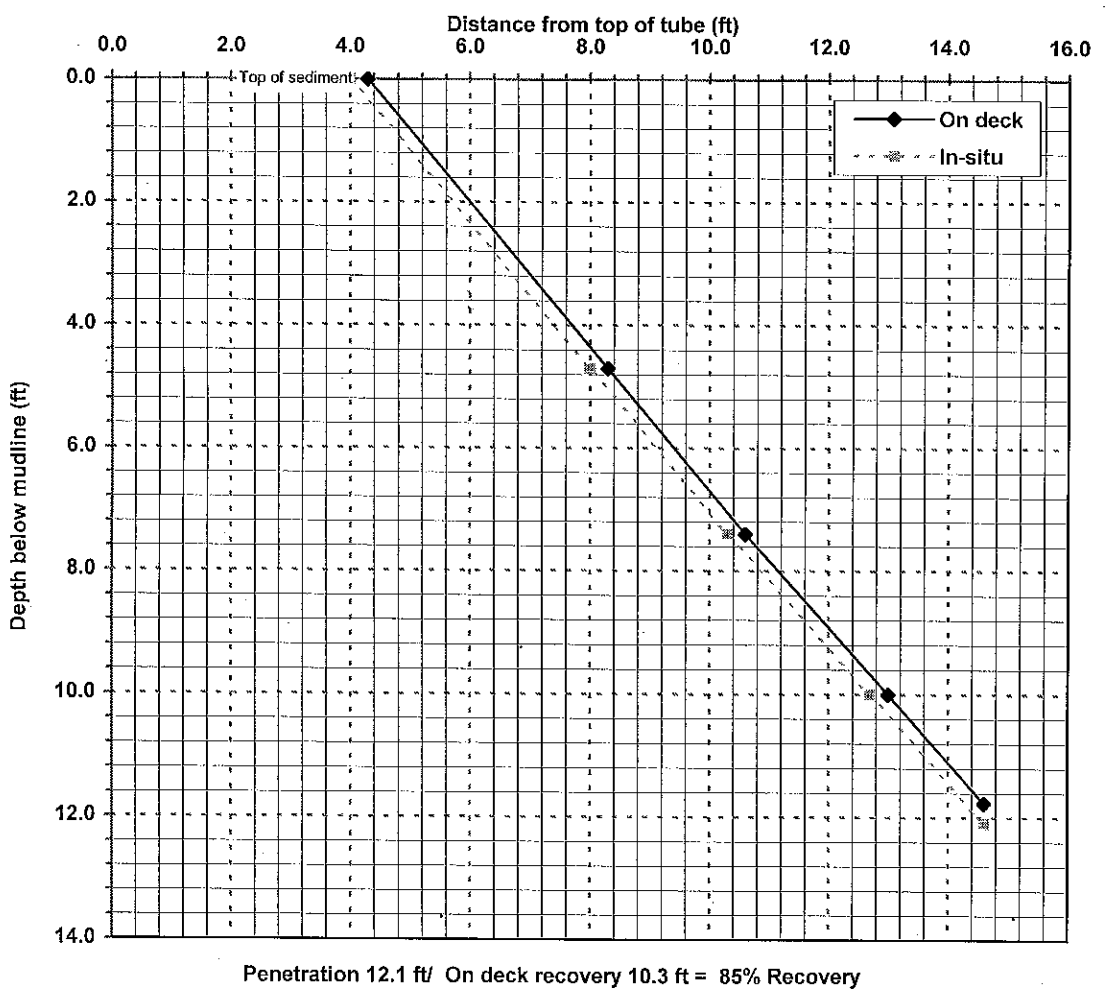
Collected by: GSM Northing

Date: 5/11/2007 **Time:** 15:40 Easting

Water depth: 46.0 ft **Mudline:** -46.0 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 12.1 ft/ On deck recovery 10.3 ft = 85% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-4.7	4	85%
4.7-7.4	2.3	85%
7.4-10	2.4	92%
10-12.1	1.9	90%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	4.3
1	5.15
2	6.00
3	6.85
4	7.70
5	8.56
6	9.41
7	10.26
8	11.15
9	12.08
10	13.00
11	13.90
12	No sample
13	No sample
14	No sample
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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[ST-43]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-11-07

Time: 1416

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 43

Position Information

Tube Length (ft): 14.6

Coordinate Datum:

Water Depth (ft): 45.4

Northing 359111

Est. Tide Height (ft) (MLLW)

Easting 1298991

Est. Mudline: (MLLW)

On Deck Top of Sediment 3.4

Comments: additional station - 100% wood debris cover on bottom

Penetration Tape Reading	Recovery Tape Reading	Comments
9.8	10.6	
6.5	8.4	
3.9	6.4	
2.1	4.9	
0.2	3.0	

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-43

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/11/2007	5/11/07
Start Time:	14:16	1515

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
3.4	Top of sediment
	3.4-8.0: ~~ML~~ SM: sand with silt, mod. loose, grayish black, wood splinters to 2", mod. H_2S. 50% sand, 20% silt, 30% splinters
	6.0-7.1: ML: silt with sand, gray, mod. soft, trace to mod. H_2S. trace wood splinters. ~~50~~ 80% silt, 20% sand.
	7.1-9.6: sawdust, black, mod. loose, mod. H_2S, trace wood chunks 95% sawdust
	9.6-14.6: SP: poorly-graded sand, gray, mod. dense, trace shells, trace H_2S sand is medium.

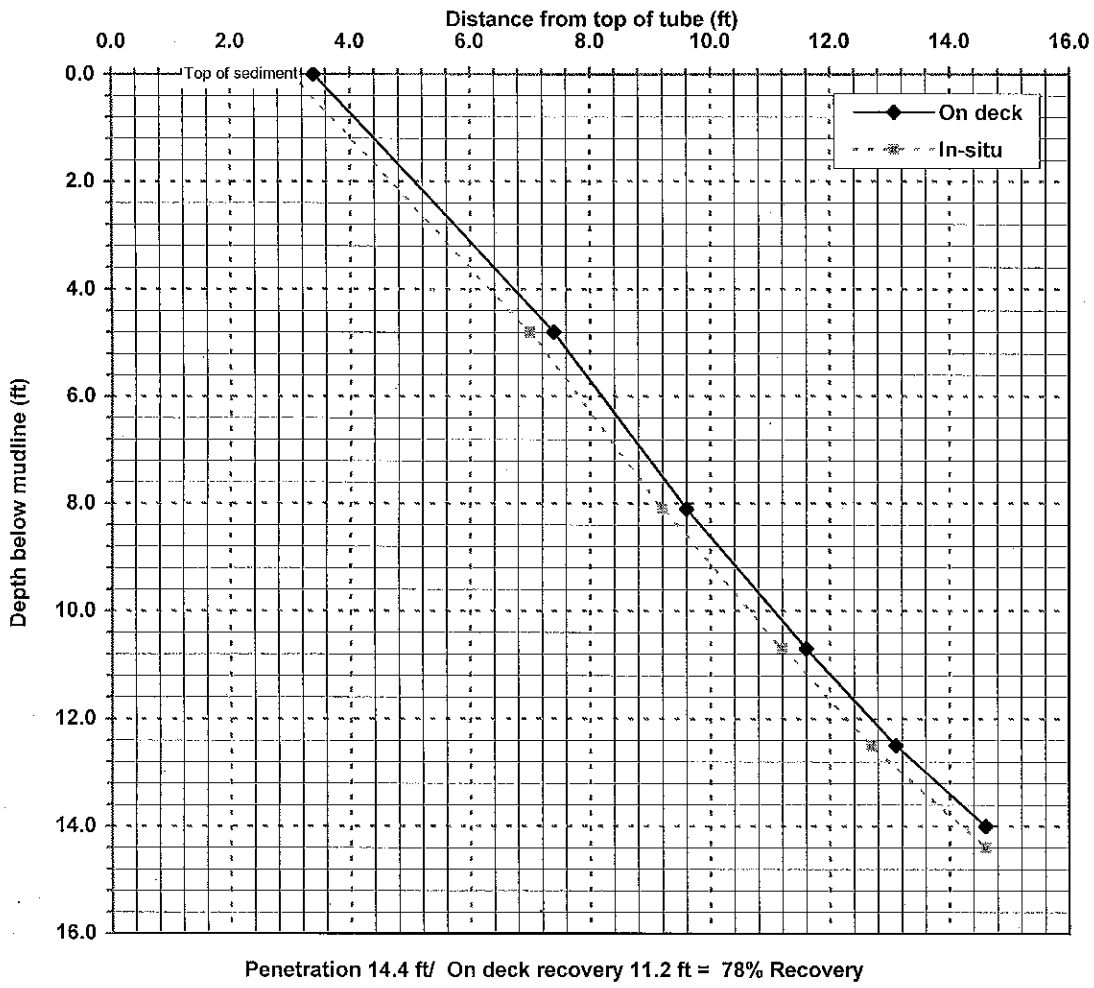
Distance top/bottom	
8.0 / 9.0	Geomatrix Consultants 13116000031 Description Form Initials: CJW Date: 11 May 07 Time: 1515

Mudmole™ Bore Log

Project: Port of Everett
Station: ST-43
Position: NAD 83 WA N
Collected by: GSM
359111 Northing
Date: 5/11/2007 **Time:** 14:16
1298991 Easting
Water depth: 45.4 ft **Mudline:** -45.4 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 14.4 ft/ On deck recovery 11.2 ft = 78% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-4.8	4	83%
4.8-8.1	2.2	67%
8.1-10.7	2	77%
10.7-12.5	1.5	83%
12.5-14.4	1.9	100%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	3.4
1	4.23
2	5.07
3	5.90
4	6.73
5	7.53
6	8.20
7	8.87
8	9.53
9	10.29
10	11.06
11	11.85
12	12.68
13	13.60
14	14.40
15	No sample
16	No sample
17	No sample
18	No sample
19	No sample
20	No sample

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[ST-44]

Geomatrix Consultants MudMole Bore Log Collection Information

Place Field ID Label Here

Date: 5-14-07

Time: 0915

Project: Port of Everett Former Mill A

Recorder: GSM

Station Name: ST 44

Position Information

Tube Length (ft): 20.6

Coordinate Datum:

Water Depth (ft): 32.0

Northing 358 944

Est. Tide Height (ft) (MLLW)

Easting 1298897

Est. Mudline: (MLLW)

On Deck Top of Sediment 6-8

Comments: added station

Penetration Tape Reading	Recovery Tape Reading	Comments
15.9	18.0	
12.7	14.8	
8.2	12.3	
4.9	7.5	
3.0	7.3	very slow
1.9	6.4	refusal

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Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-44

Place Field ID Label Here

	Core collection	Laboratory
Date:	5/14/2007	5/14/07
Start Time:	9:15	1245

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
6.4	Top of sediment
	6.4-7.7: SM: sand with silt and crushed shells, black, mod-dense, med. H_2S. 40% sand, 15% silt, 45% shells
	7.7-8.9: SAA but only 15% shells and 30% bark and twigs
	8.9-12.2: ML: silt with sand and wood debris (bark, twigs) gray, mod. soft, mod. H_2S. 60% silt, 15% sand 25% wood
	12.2-15.1: wood chunks & bark, dark brown, mod. loose, strong H_2S odor, wood chunks angular, up to 1". bark up to 1" 50/50 bark/wood chunks 45/45 10 ME/SM
	15.1-20.6 SP: poorly-graded sand, gray, trace shells, trace H_2S Sand is medium dense

Distance top/bottom	
12.2 / 13.2	Geomatrix Consultants 13116000034 Description Form Initials: CSW Date: 14 MAY 07 Time: 1245
14.0 / 15.0	Geomatrix Consultants 13116000035 Description Form Initials: CJW Date: 14 MAY 07 Time: 1245

Mudmole™ Core Description Form

Project: Port of Everett

Station: ST-44

	Core collection	Laboratory
Date:	5/14/2007	5/14/07
Start Time:	9:15	1245

Place Field ID Label Here

Comments:

Laboratory processing by: NPB

All distances are measured from top of core tube.

Distance ft	Visual sample description
6.4	Top of sediment
	6.4-7.7: SM: sand with silt and crushed shells, black, mod-dense, mod. H_2S. 40% sand, 15% silt, 45% shells
	7.7-8.9: SAA but only 15% shells and 30% bark and twigs
	8.9-12.2: ML: silt with sand and wood debris (bark, twigs) gray, mod. soft mod. H_2S. 60% silt, 15% sand 25% wood
	12.2-15.1: wood chunks & bark, dark brown, mod. loose, strong H_2S odor, wood chunks angular, up to 1", bark up to 1". ~~50/50~~ bark/ 45/45 ~~wood~~ chunks 10 ML/SM
	15.1-20.6 SP: poorly-graded sand, gray, medium dense, trace shells trace H_2S Sand is medium

Distance top/bottom	Sample ID labels
12.2 / 13.2	Geomatrix Consultants 13116000034 Description Form Initials: CJW Date: 14 MAY 07 Time: 1245
14.0 / 15.0	Geomatrix Consultants 13116000035 Description Form Initials: CJW Date: 14 MAY 07 Time: 1245

Mudmole™ Bore Log

Project: Port of Everett

Station: ST-44

Position: NAD 83 WA N

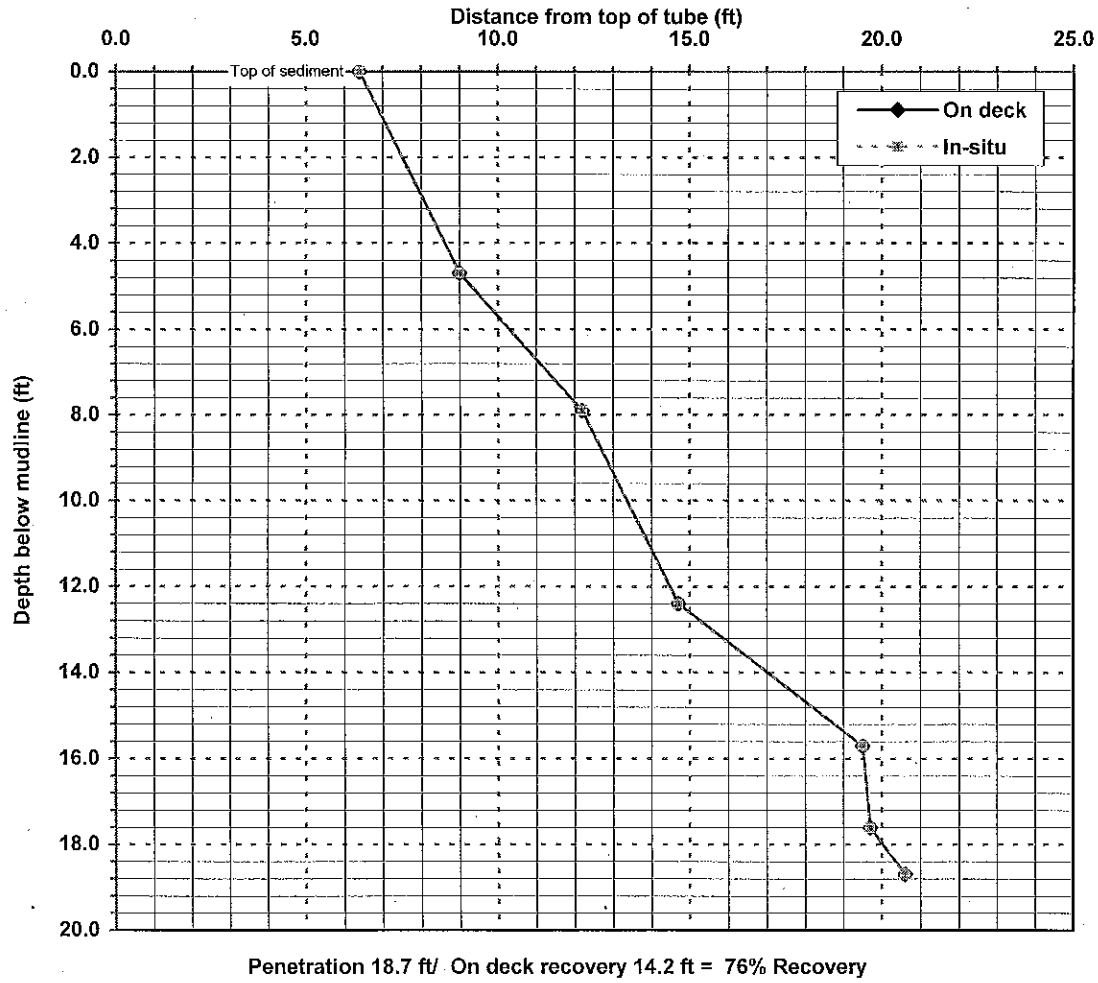
Collected by: GSM — 358944 Northing

Date: 5/14/2007 **Time:** 9:15 — 1298897 Easting

Water depth: 32.0 ft **Mudline:** -32.0 ft MLLW (estimated using tide tables)

Place Field ID Label Here

Weather/Comments: N/A



Penetration 18.7 ft/ On deck recovery 14.2 ft = 76% Recovery

Penetration interval (ft)	Interval recovery (ft)	Percent recovery
0-4.7	2.6	55%
4.7-7.9	3.2	100%
7.9-12.4	2.5	56%
12.4-15.7	4.8	145%
15.7-17.6	0.2	11%
17.6-18.7	0.9	82%

Depth below mudline (ft)	Distance from top of tube (ft)
Mudline	6.4
1	6.95
2	7.51
3	8.06
4	8.61
5	9.30
6	10.30
7	11.30
8	12.26
9	12.81
10	13.37
11	13.92
12	14.48
13	15.57
14	17.03
15	18.48
16	19.53
17	19.64
18	20.03
19	No sample
20	No sample

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Appendix C

Core Summary Logs

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CHANGES TO SUMMARY BORE LOGS
Former Mill A MTCA Support Sample Collection
Everett, Washington

General Comments and Universal Changes

SAA stands for Same as Above

Trace is 5% or less

Density or Consistency

- ► Medium is presented as moderate
- ► For silt units moderately firm is presented as moderately stiff
- ► Descriptions in parentheses are interpretations based on visual records of the cores.

If trace constituents were not include in the percentages recorded on the field sheets, then the trace amounts were taken from the dominant constituent percentages.

Wood chunks or chips appear to be a coarse machined product, unstained or appeared fresh or recent, that are angular and uniform in size.

Rafting debris includes chunks of bark (often with reddish tints), wood splinters or fibrous wood chunks. Rafting debris may include twigs.

Summary Log	Interval	Changes
ST-1	0 to 1.5 ft	Large riprap <3-inch description changed to angular gravel description in surface unit.
ST-3	1.6 to 2 ft	Moderately dense description added to unit.
ST-3	2 to 2.7 ft	Moderately dense description added to unit.
ST-3	2.7 to 3.5 ft	Moderately dense description added to unit.
ST-3	3.5 to 14.4 ft	Moderately dense description added to unit.
ST-3	14.4 to 15.7 ft	Moderately dense description added to unit.
ST-3	15.7 to 16.8 ft	Moderately dense description added to unit.
ST-3	16.8 to 17.7 ft	Moderately dense description added to unit.
ST-3	14.4 to 15.7 ft	80% wood chips/20% sand changed to 75%2/0%5% to reflect presence of 5% sawdust.
ST-5	0 to 0.4 ft	60% sand/20% silt /10%/wood and shells changed to 70%/20%/10% to equal 100%.
ST-5	19 to 20 ft	60% sand/40% silt changed to 55%/40%/5% to reflect presence of trace constituents.
ST-6	2 to 12 ft	Sawdust and wood chip percentages recorded as ranges on field form, average percentage recorded on bore log.
ST-8	18 to 20 ft	80% silt/20% sand changed to 75%/20%/5% to reflect presence of trace constituents.
ST-11	0 to 10 ft	Moderately loose description estimated from photographs.
ST-14	10.7 to 12.2 ft	Moderately stiff description added to unit.
ST-15	8 to 15.5 ft	Moderately stiff description added to unit.
ST-17	14.8 to 18 ft	100% sand changed to 95%/5% to reflect trace amount of shells and wood fragments.
ST-21	8.1 to 12.3 ft	Moderately dense description added to unit.
ST-21	7 to 8 ft	75% silt/25% sand changed to 70%/25%/5% to reflect presence of trace constituents (wood chips).
ST-29	0 to 0.4 ft	80% sand/20% silt changed to 75%2/0%5% to reflect presence of 5% twigs, shells, gravel. Moderately loose added to description of unit.
ST-29	0.4 to 2 ft	60% silt/40% sand changed to 55%/40%/5% to reflect presence of trace constituents (twigs and shells). Moderately stiff added to description of the unit.
ST-29	2 to 4 ft	60% sand/40% silt changed to 55%/40%/5% to reflect presence of trace constituents (twigs and shells).
ST-37	6.8 to 9.6 ft	100% sand changed to 95%/5% to reflect trace amount of shells.
ST-42	0 to 2.8 ft	75% silt/25% sand changed to 70%/25%/5% to reflect presence of trace constituents (wood chips).
ST-42	2.8 to 11.8 ft	100% sand changed to 95%/5% to reflect trace amount of shells and native wood chunks. Sand estimated as medium from photos.
ST-43	3.2 to 4.4 ft	80% silt/20% sand to 75%/20%/5% wood splinters (trace).

Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-1**

Maximum depth of retained sediment: 8.1 ft

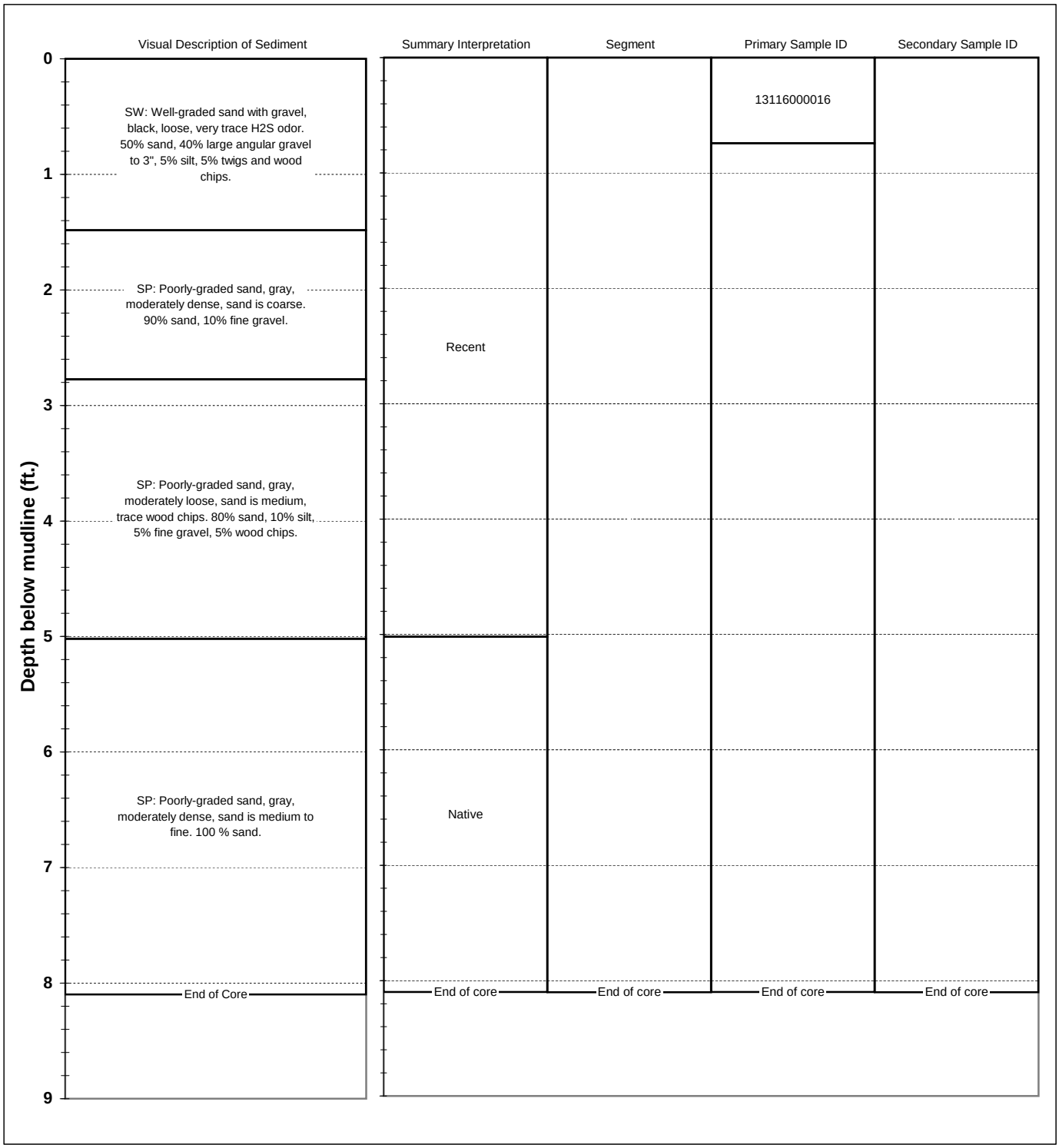
Mudline elevation: -0.7 **ft MLLW**

Percent recovery (on-deck): 61%

	Core collection	Laboratory processing
Date:	5/8/2007	5/8/2007
Time:	9:16	10:00

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-2**

Maximum depth of retained sediment: 14.1 ft

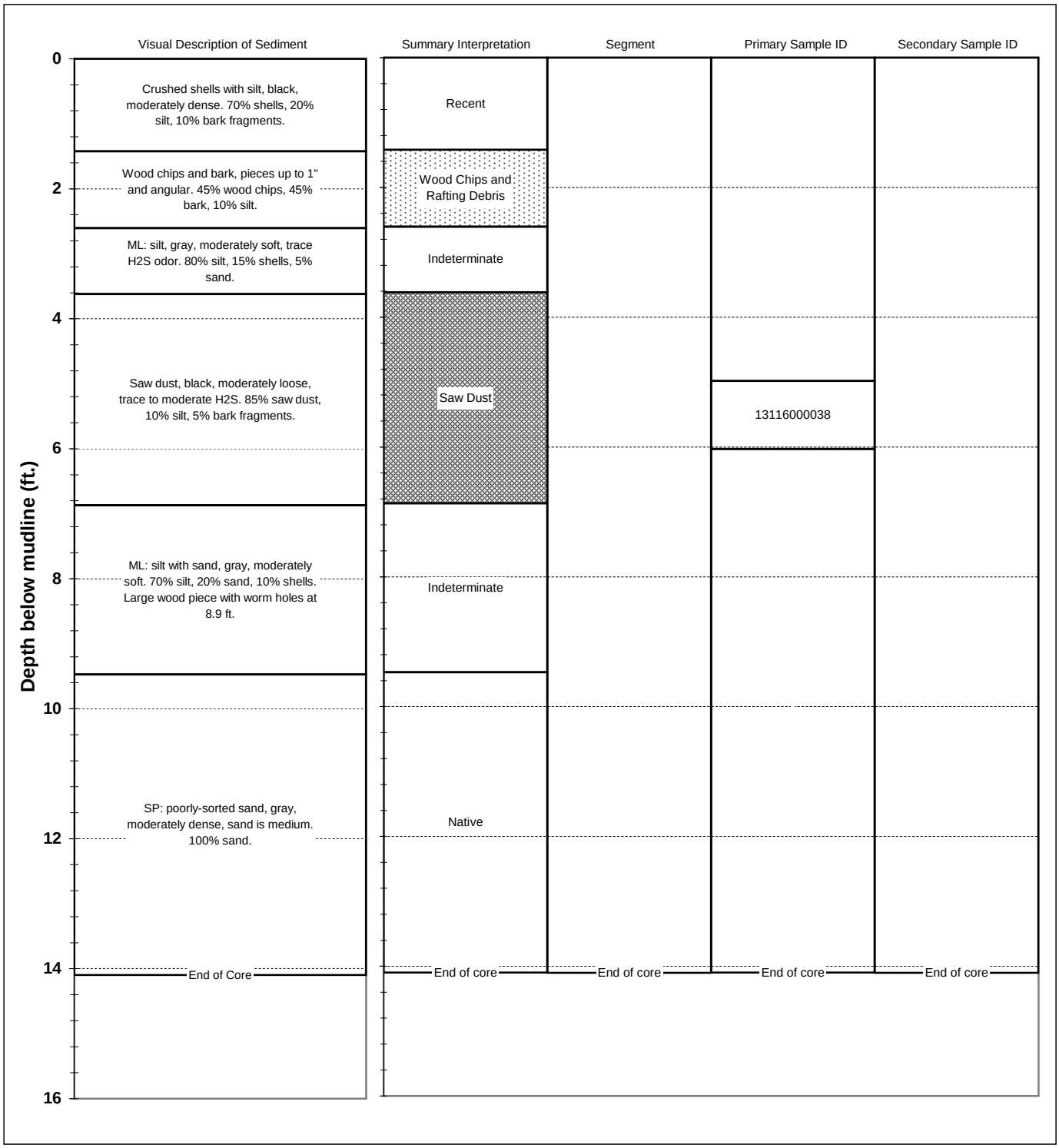
Mudline elevation: -31.0 **ft MLLW**

Percent recovery (on-deck): 92%

	Core collection	Laboratory processing
Date:	5/14/2007	5/14/2007
Time:	8:36	14:00

Field Log: NPB

Summary Log: RHG



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File name: ST-2rhg.xls
Summary Core Log

Mudmole™ Core Summary Log

Project: Port of Everett

Station: ST-3

Maximum depth of retained sediment: 17.7 ft

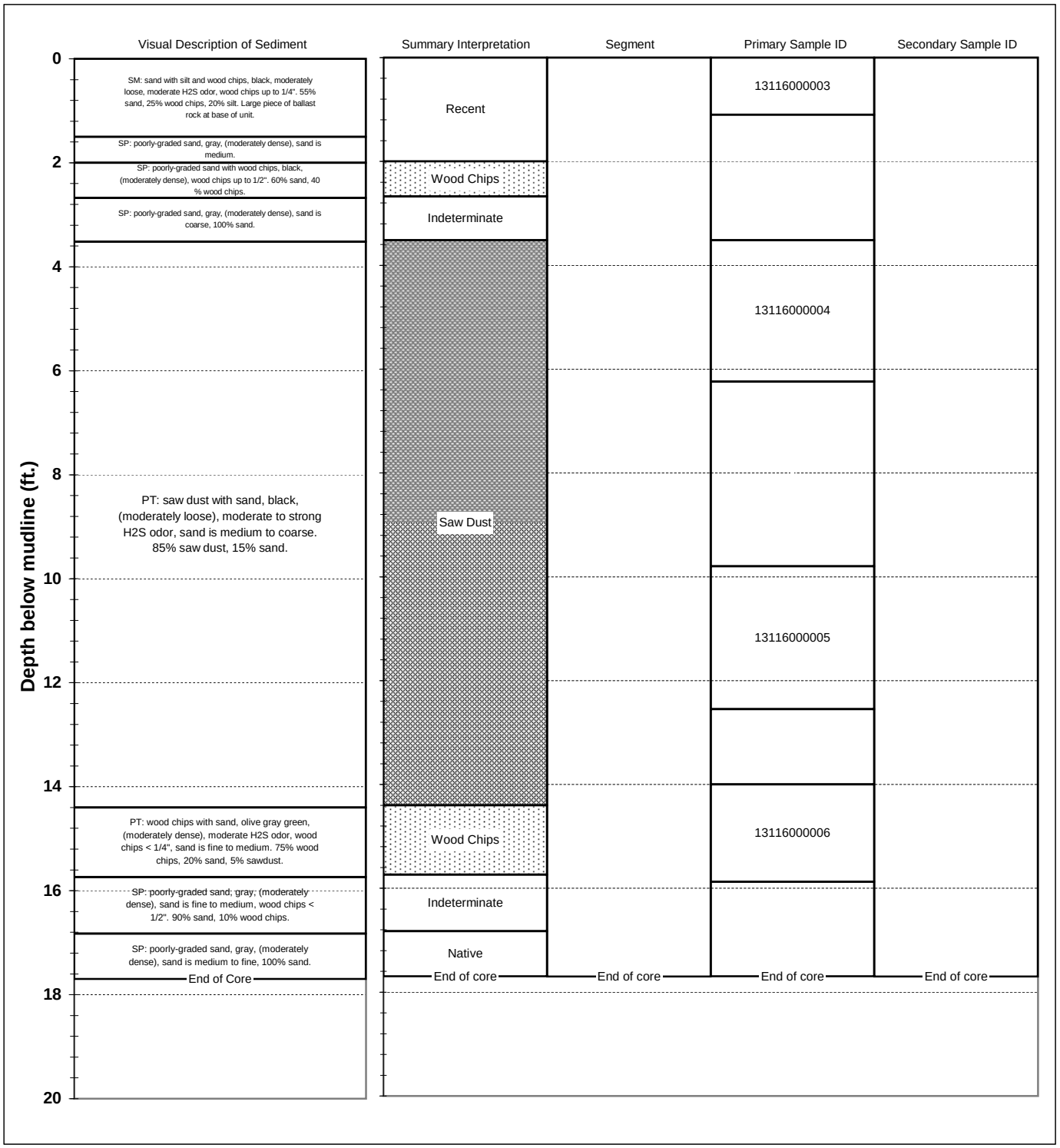
Mudline elevation: -5.4 **ft MLLW**

Percent recovery (on-deck): 55%

	Core collection	Laboratory processing
Date:	5/7/2007	5/7/2007
Time:	11:23	12:25

Field Log: NPB

Summary Log: RHG



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File name: ST-3rhg.xls
Summary Core Log

Mudmole™ Core Summary Log

Project: Port of Everett

Station: ST-5

Maximum depth of retained sediment: 20.2 ft

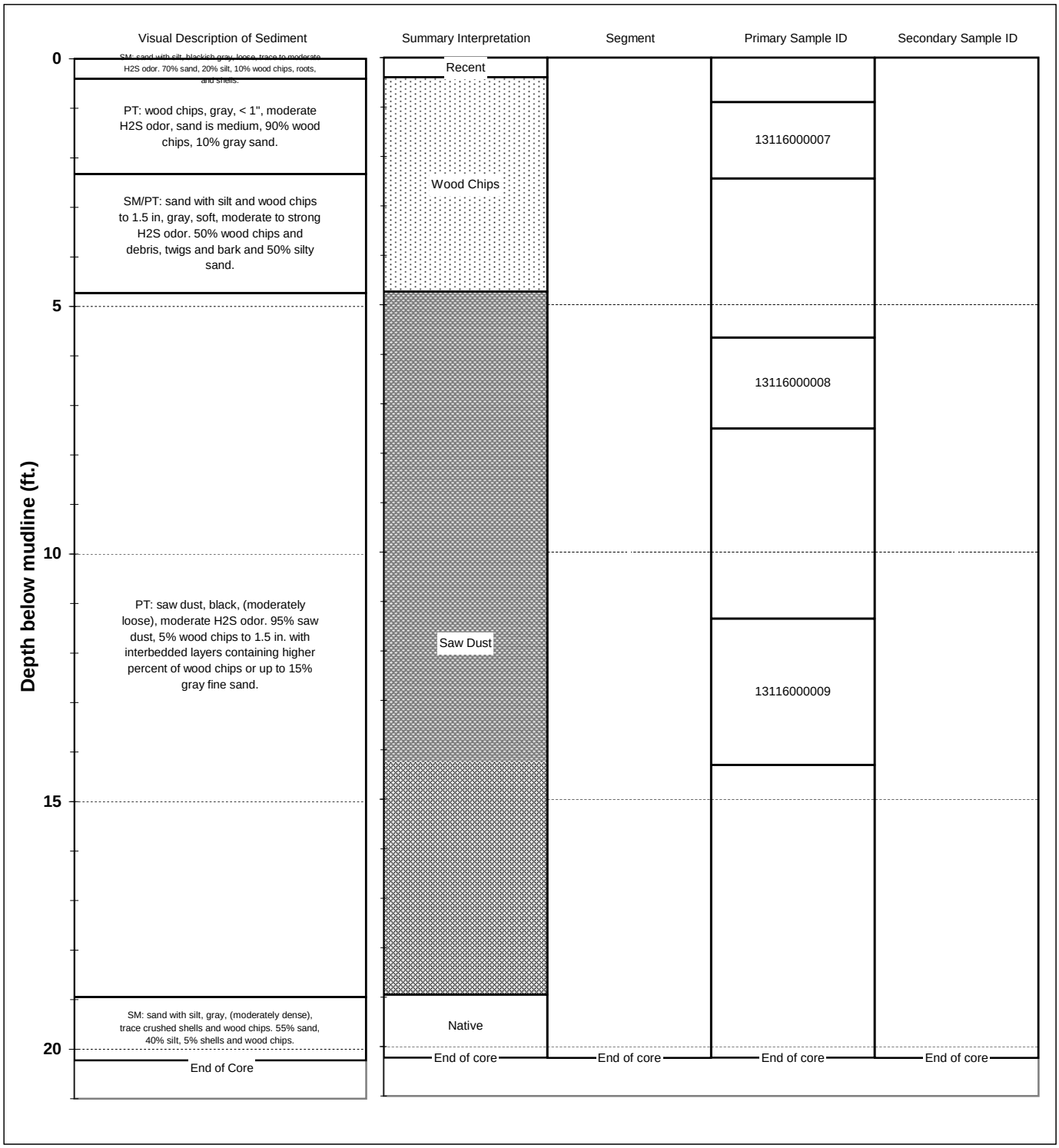
Mudline elevation: -11.4 **ft MLLW**

Percent recovery (on-deck): 63%

	Core collection	Laboratory processing
Date:	5/7/2007	5/7/2007
Time:	12:40	13:30

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-6**

Maximum depth of retained sediment: 11.9 ft

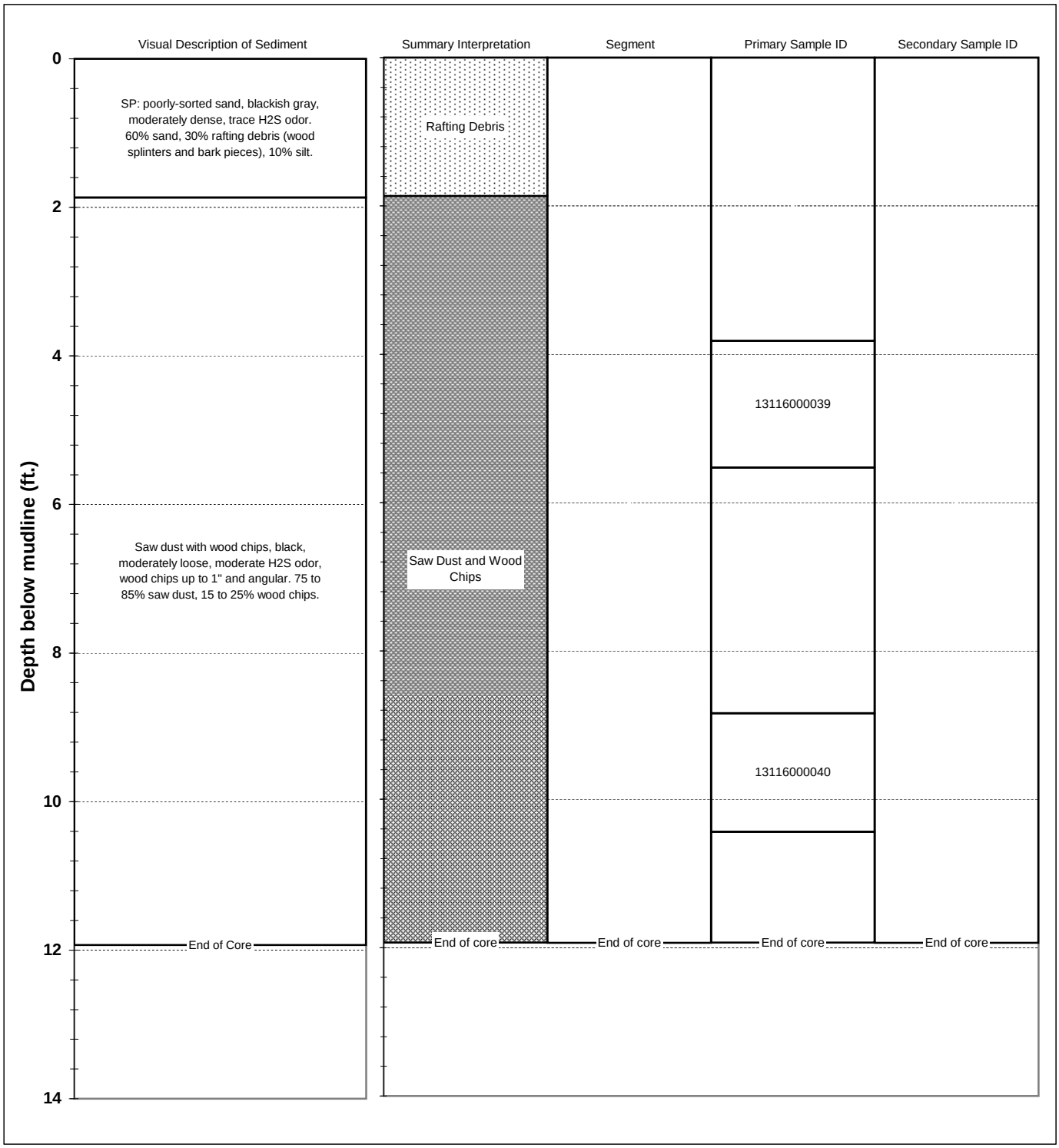
Mudline elevation: -4.8 **ft MLLW**

Percent recovery (on-deck): 56%

	Core collection	Laboratory processing
Date:	5/14/2007	5/14/2007
Time:	13:58	14:50

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-8**

Maximum depth of retained sediment: 20.0 ft

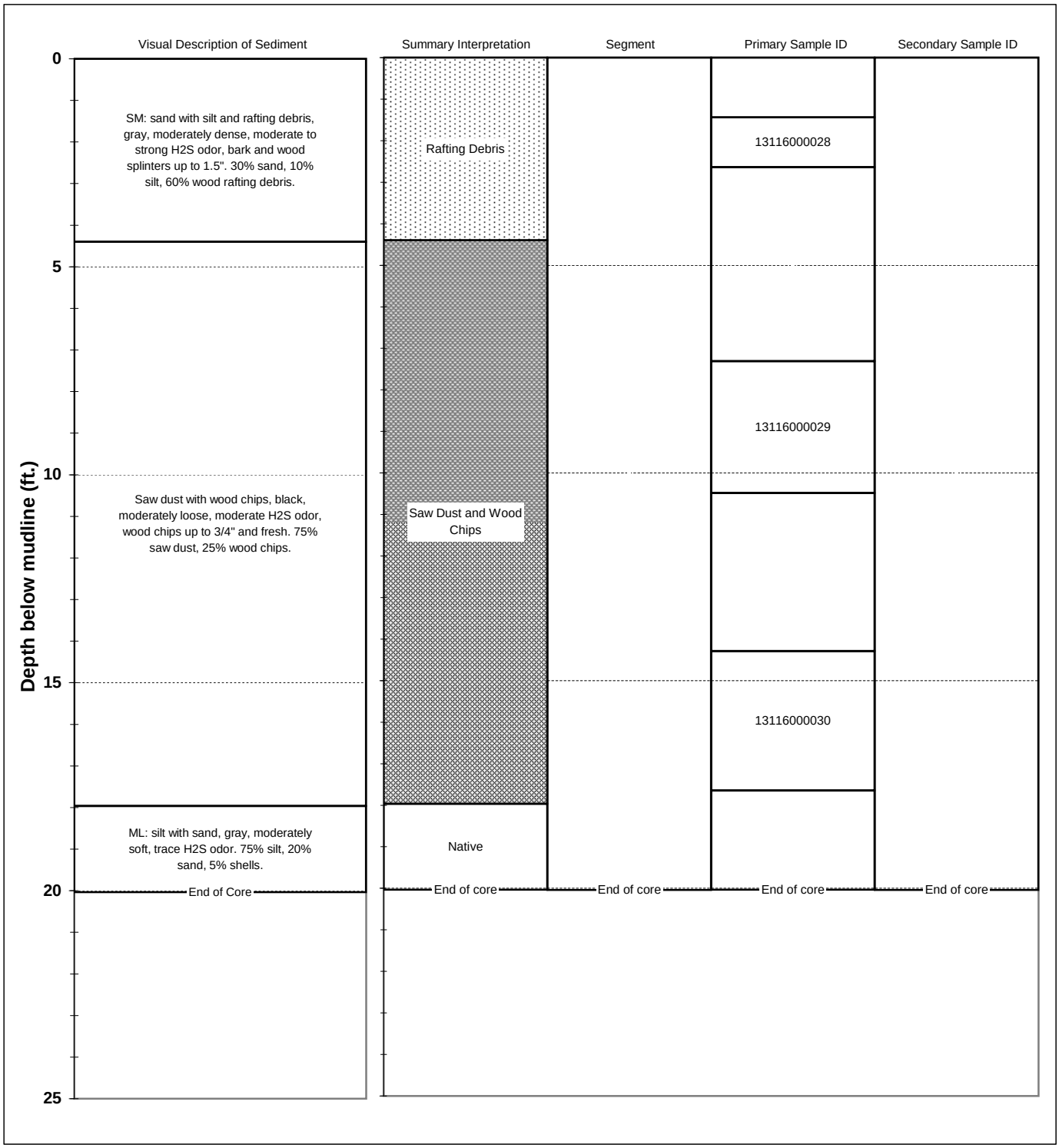
Mudline elevation: -12.1 **ft MLLW**

Percent recovery (on-deck): 43%

	Core collection	Laboratory processing
Date:	5/11/2007	5/11/2007
Time:	13:10	14:10

Field Log: NPB

Summary Log: RHG



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File name: ST-8rhg.xls
Summary Core Log

Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-9**

Maximum depth of retained sediment: 20.3 ft

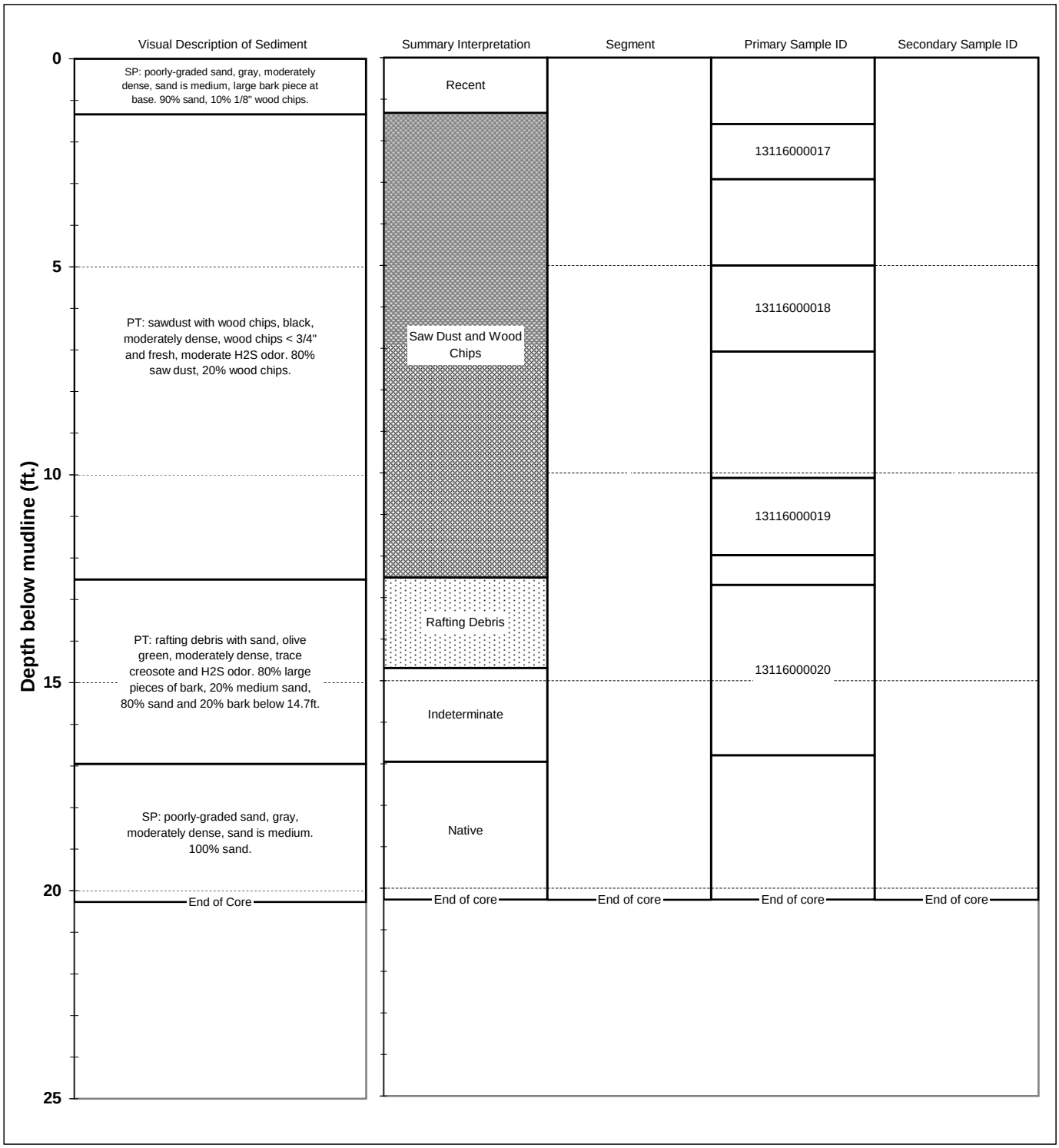
Mudline elevation: -6.1 **ft MLLW**

Percent recovery (on-deck): 54%

	Core collection	Laboratory processing
Date:	5/8/2007	5/8/2007
Time:	9:59	11:00

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-11**

Maximum depth of retained sediment: 20.3 ft

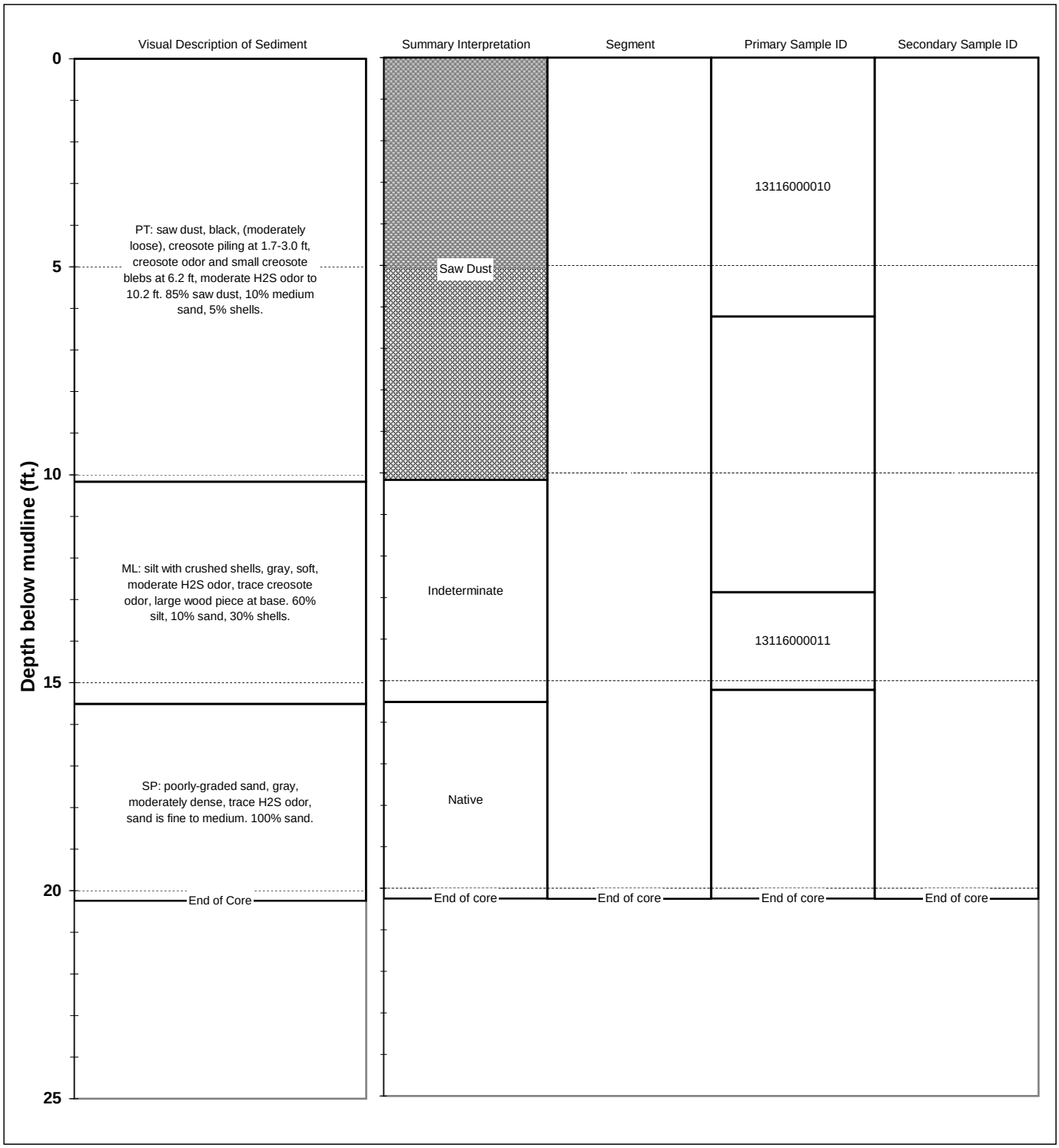
Mudline elevation: -22.8 **ft MLLW**

Percent recovery (on-deck): 54%

	Core collection	Laboratory processing
Date:	5/7/2007	5/7/2007
Time:	13:27	15:00

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-12**

Maximum depth of retained sediment: 11.0 ft

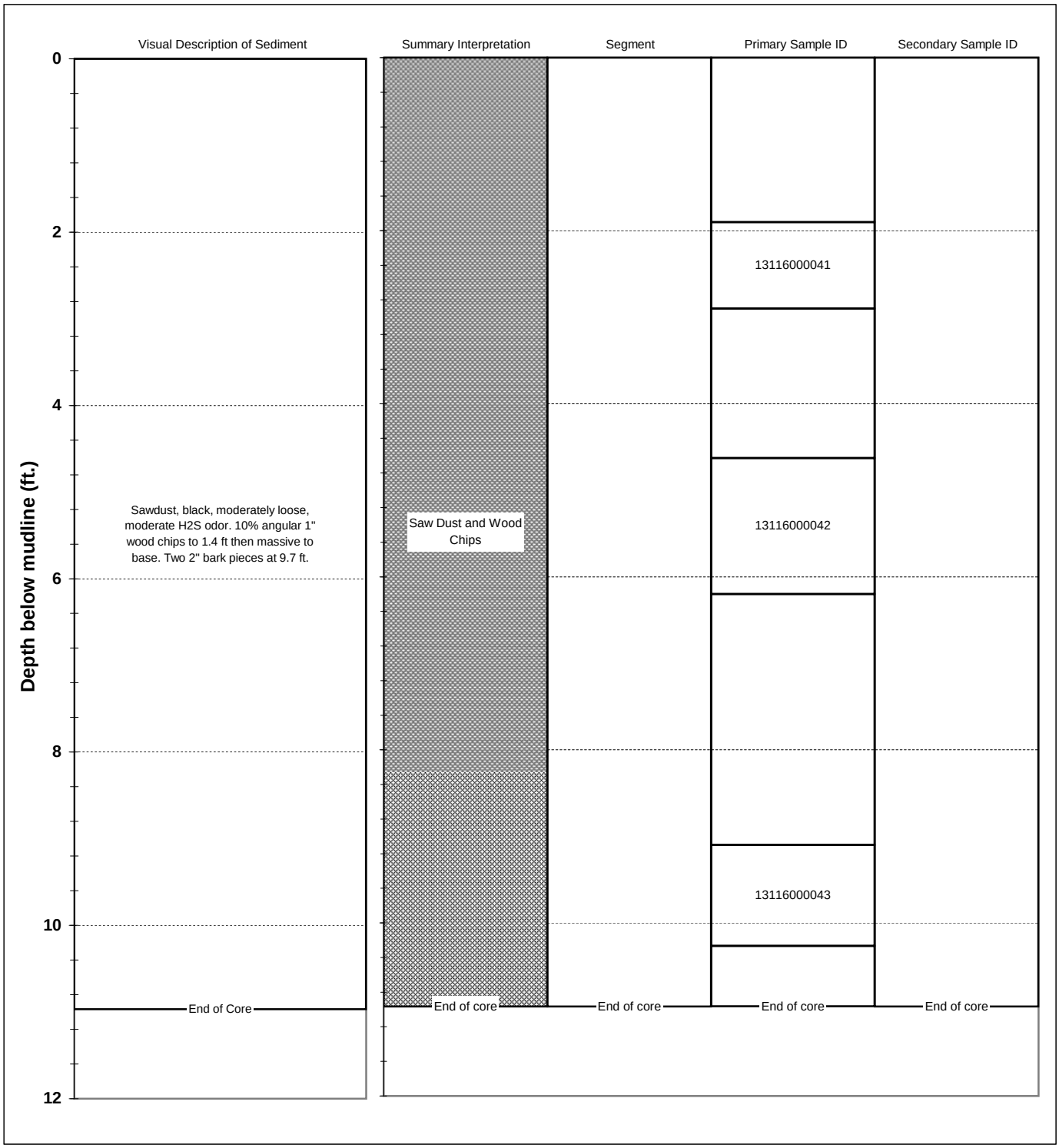
Mudline elevation: -6.6 **ft MLLW**

Percent recovery (on-deck): 79%

	Core collection	Laboratory processing
Date:	5/14/2007	5/14/2007
Time:	14:49	15:45

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-14**

Maximum depth of retained sediment: 19.6 ft

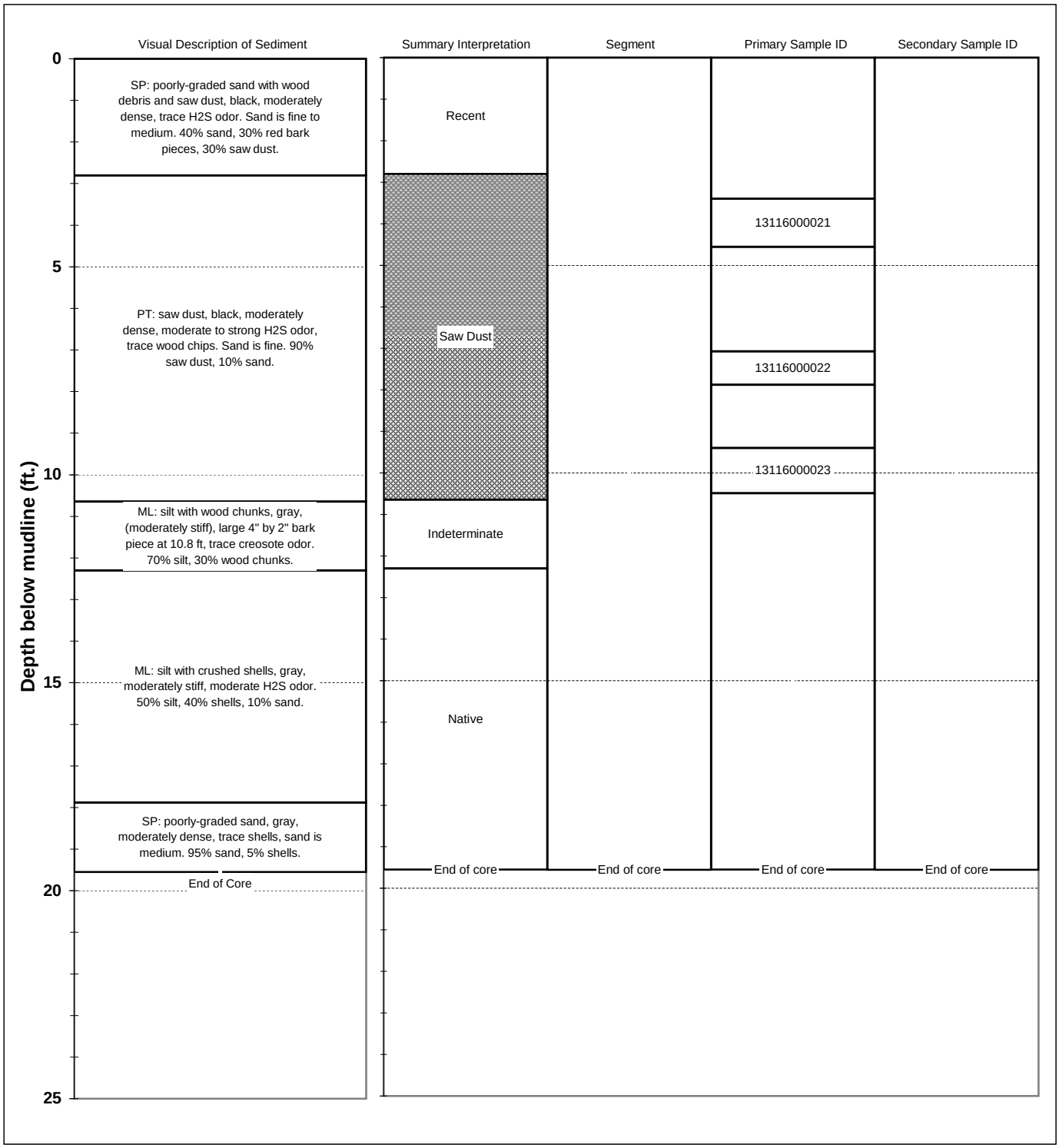
Mudline elevation: -8.5 **ft MLLW**

Percent recovery (on-deck): 70%

	Core collection	Laboratory processing
Date:	5/8/2007	5/8/2007
Time:	10:46	11:45

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-15**

Maximum depth of retained sediment: 19.9 ft

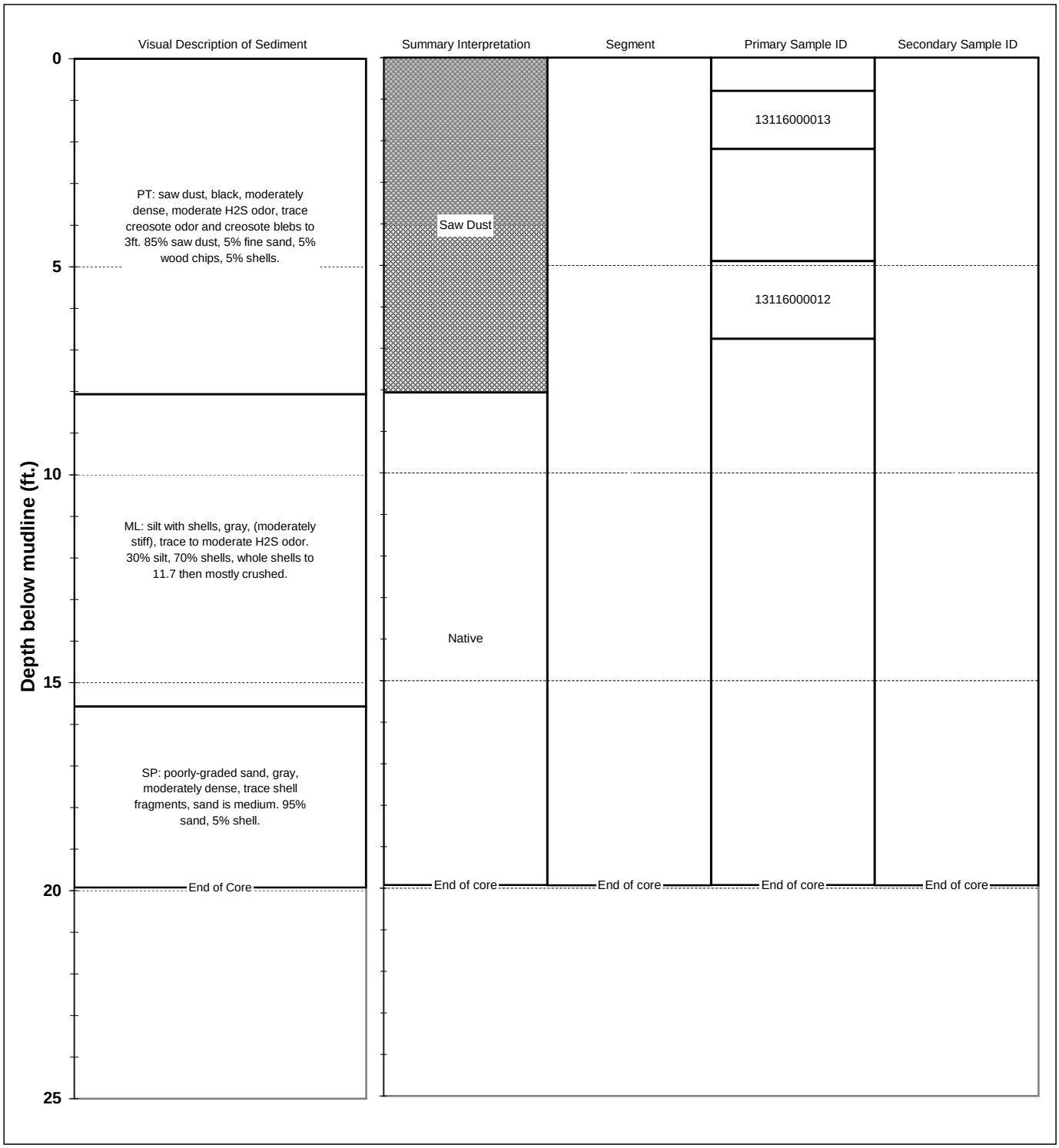
Mudline elevation: -19.8 **ft MLLW**

Percent recovery (on-deck): 75%

	Core collection	Laboratory processing
Date:	5/7/2007	5/7/2007
Time:	14:33	15:45

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-17**

Maximum depth of retained sediment: 18.0 ft

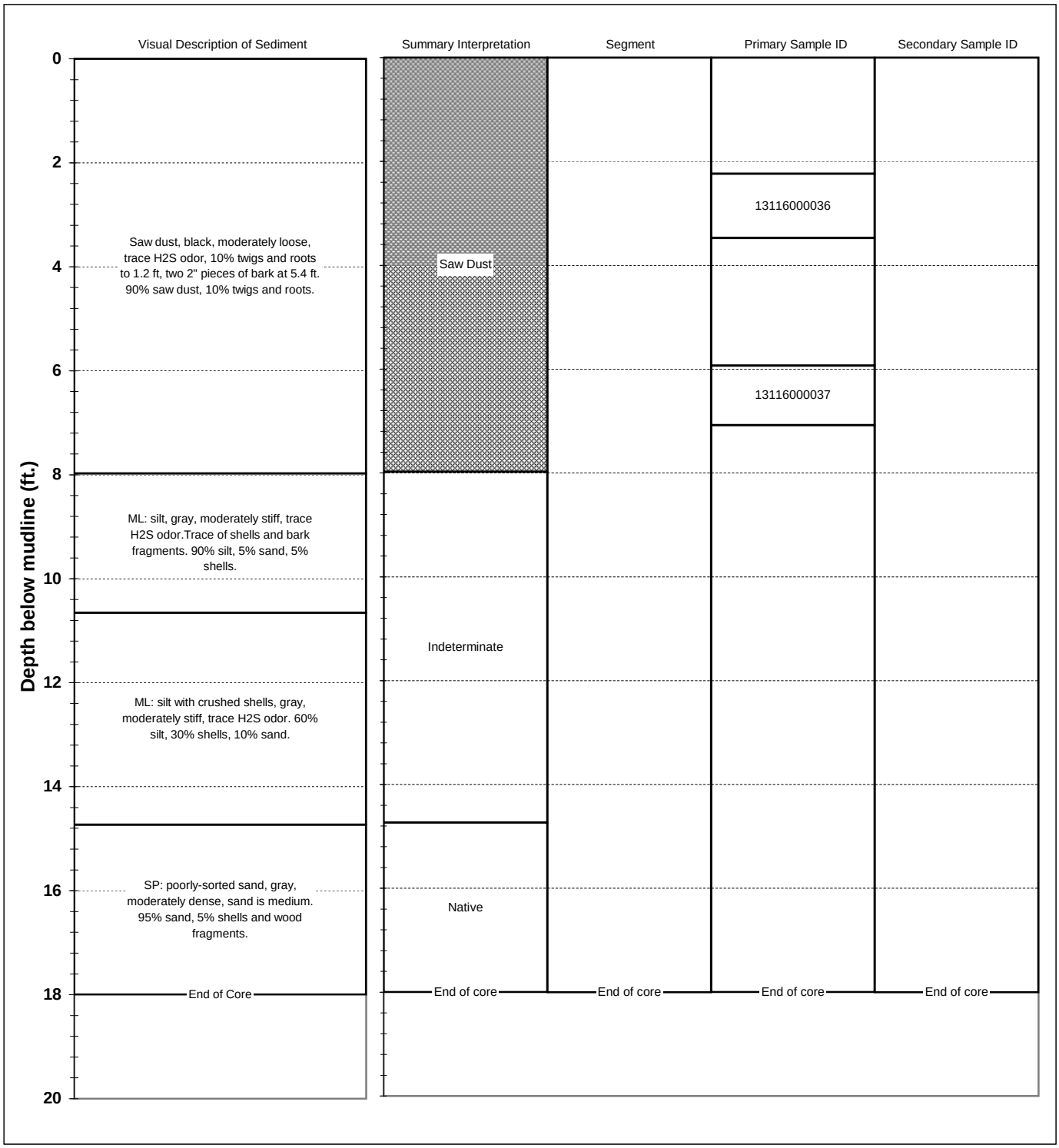
Mudline elevation: -11.7 **ft MLLW**

Percent recovery (on-deck): 74%

	Core collection	Laboratory processing
Date:	5/14/2007	5/14/2007
Time:	11:36	13:20

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-19**

Maximum depth of retained sediment: 4.3 ft

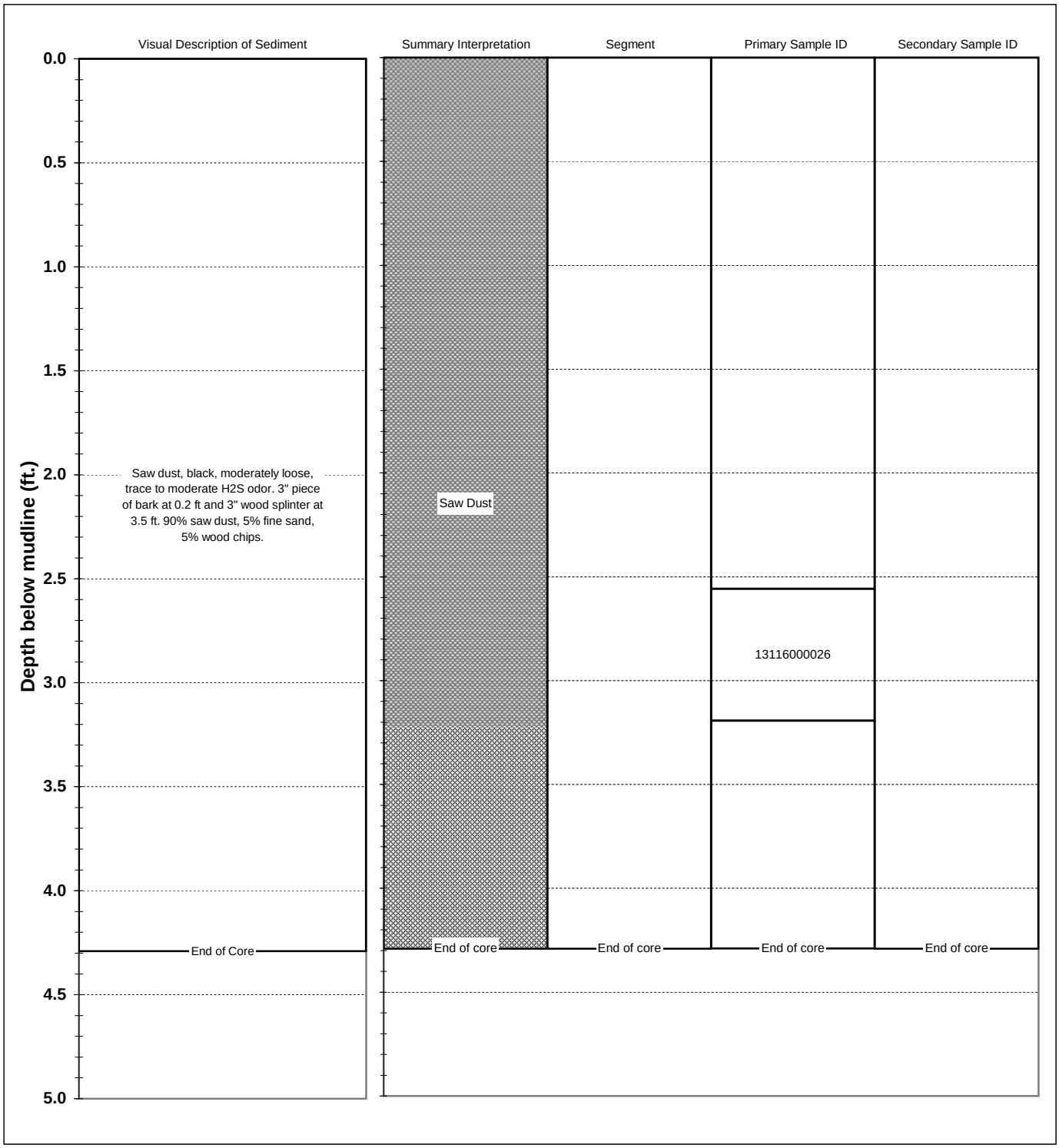
Mudline elevation: -14.9 **ft MLLW**

Percent recovery (on-deck): 92%

	Core collection	Laboratory processing
Date:	5/11/2007	5/11/2007
Time:	9:40	10:20

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-20**

Maximum depth of retained sediment: 20.2 ft

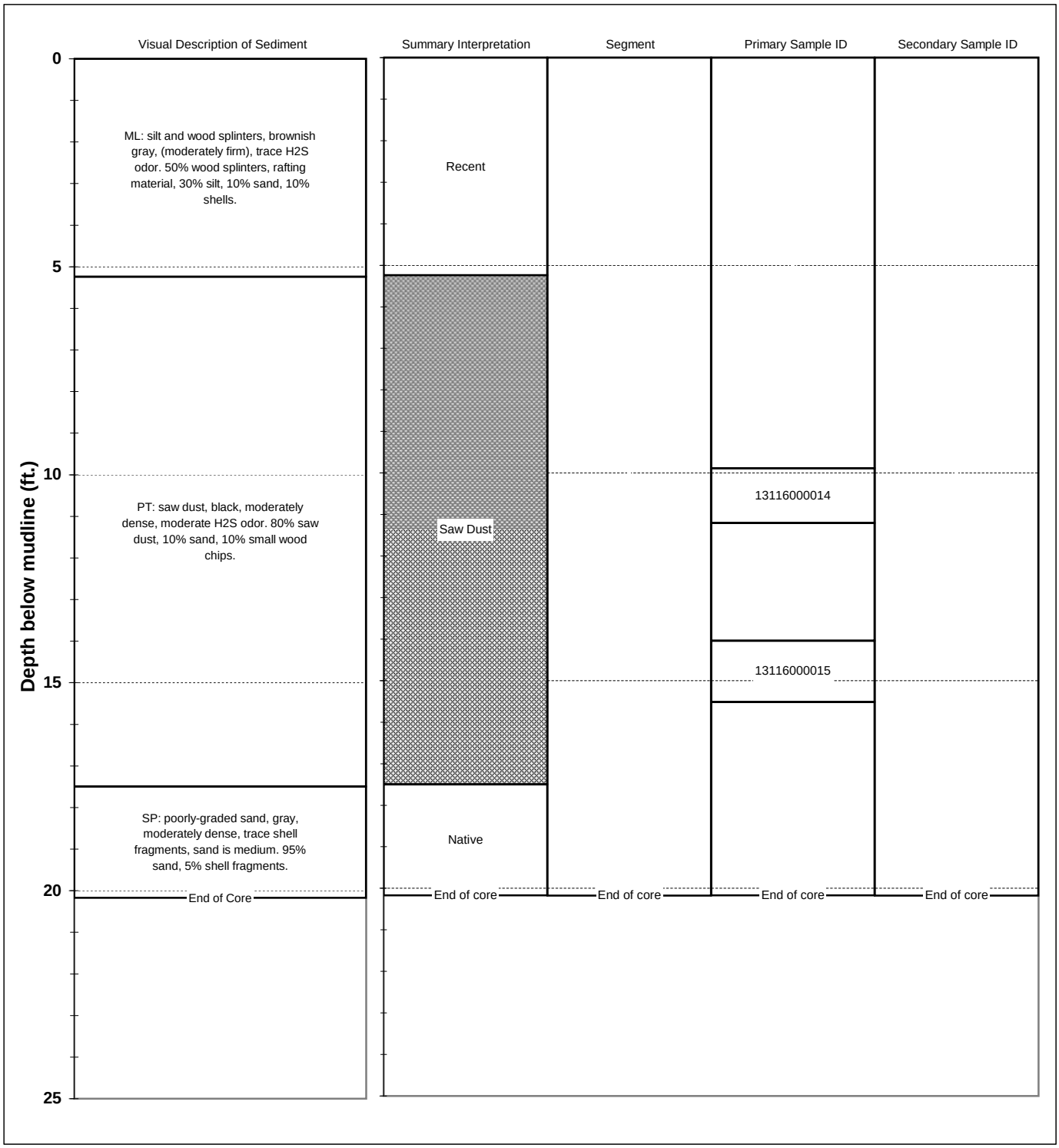
Mudline elevation: -20.9 **ft MLLW**

Percent recovery (on-deck): 66%

	Core collection	Laboratory processing
Date:	5/7/2007	5/7/2007
Time:	15:52	17:00

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-21**

Maximum depth of retained sediment: 19.9 ft

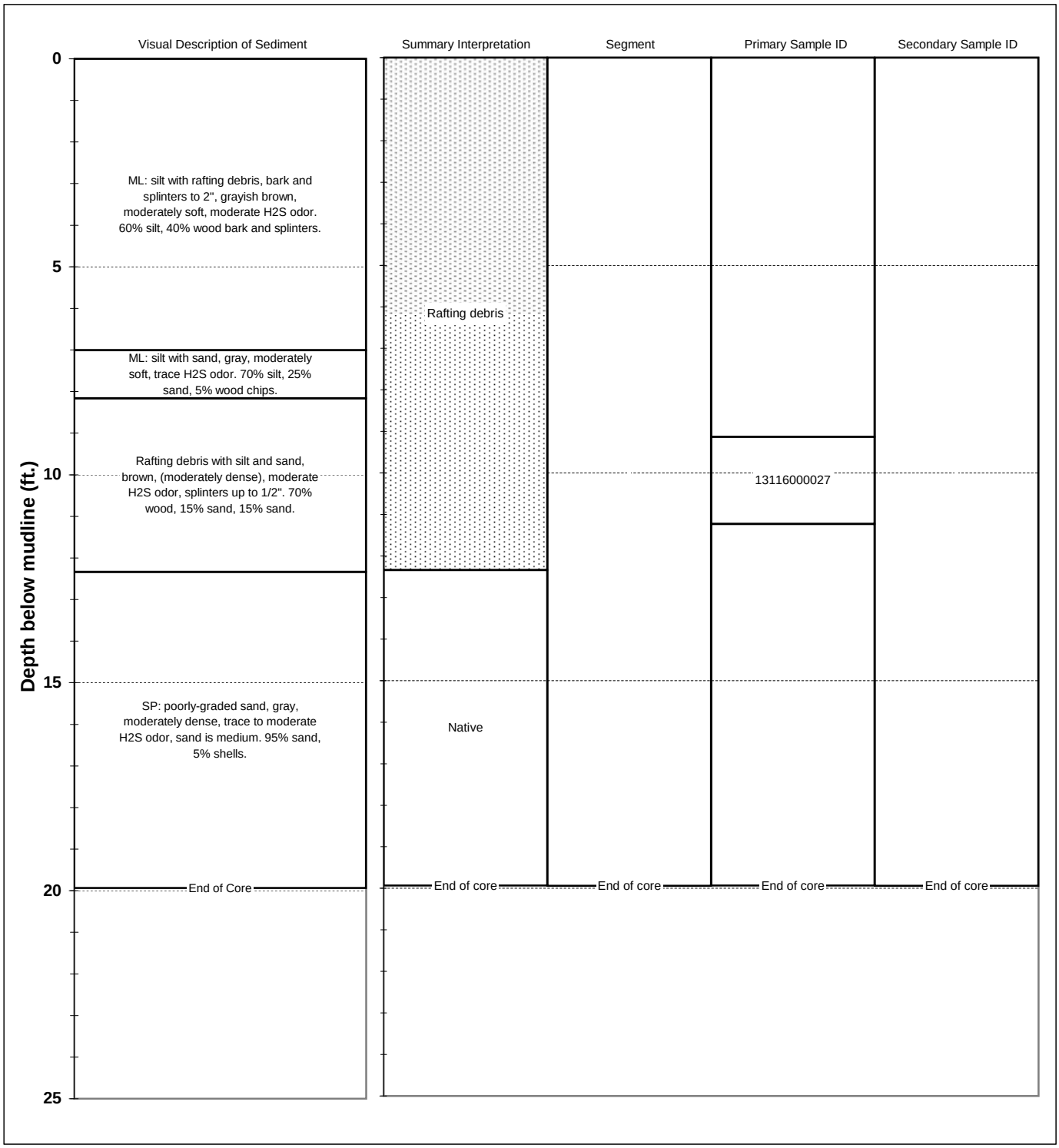
Mudline elevation: -11.9 **ft MLLW**

Percent recovery (on-deck): 58%

	Core collection	Laboratory processing
Date:	5/11/2007	5/11/2007
Time:	11:46	13:00

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-29**

Maximum depth of retained sediment: 9.6 ft

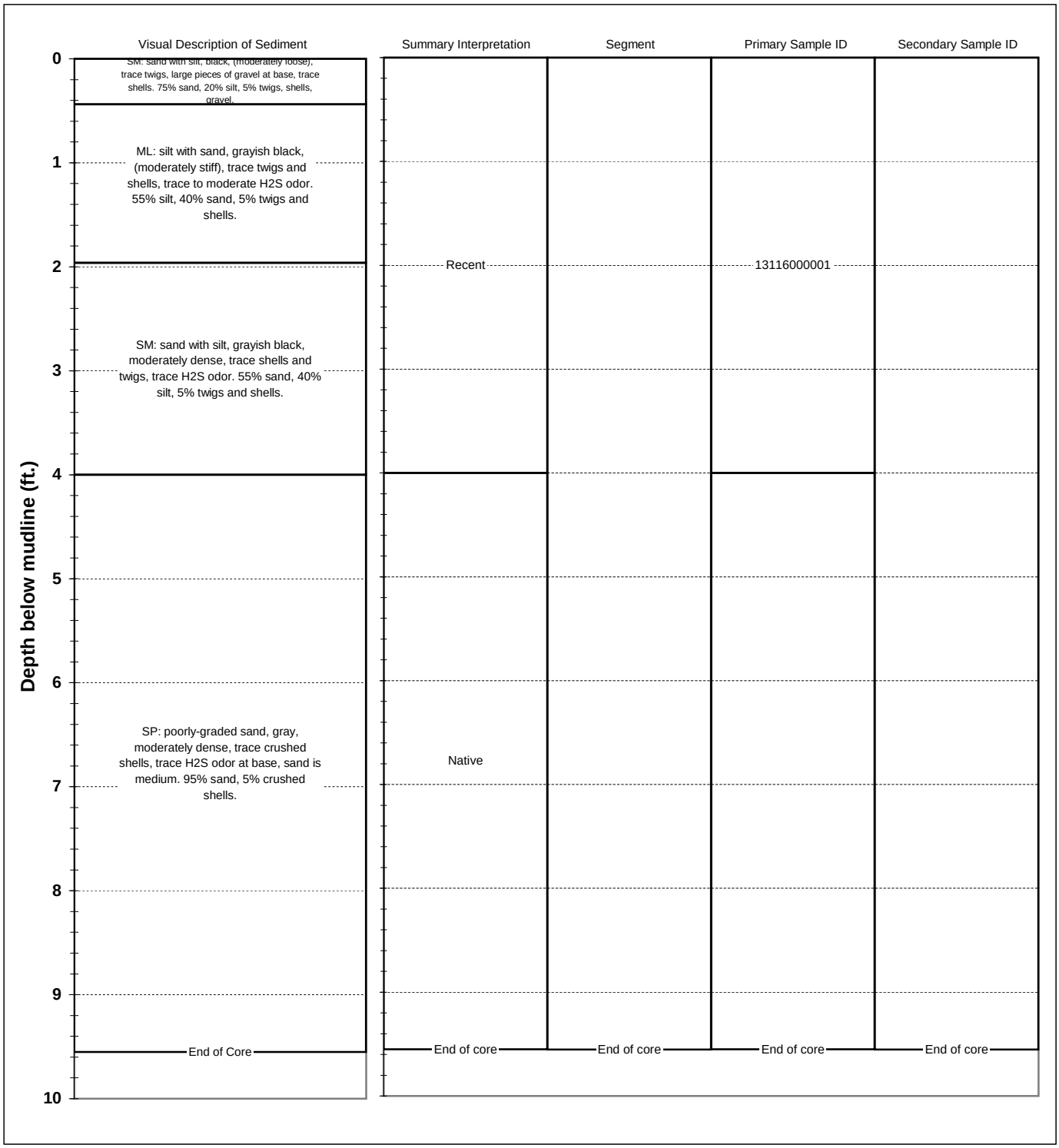
Mudline elevation: -44.4 **ft MLLW**

Percent recovery (on-deck): 90%

	Core collection	Laboratory processing
Date:	5/7/2007	5/7/2007
Time:	9:29	10:35

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-32**

Maximum depth of retained sediment: 10.1 ft

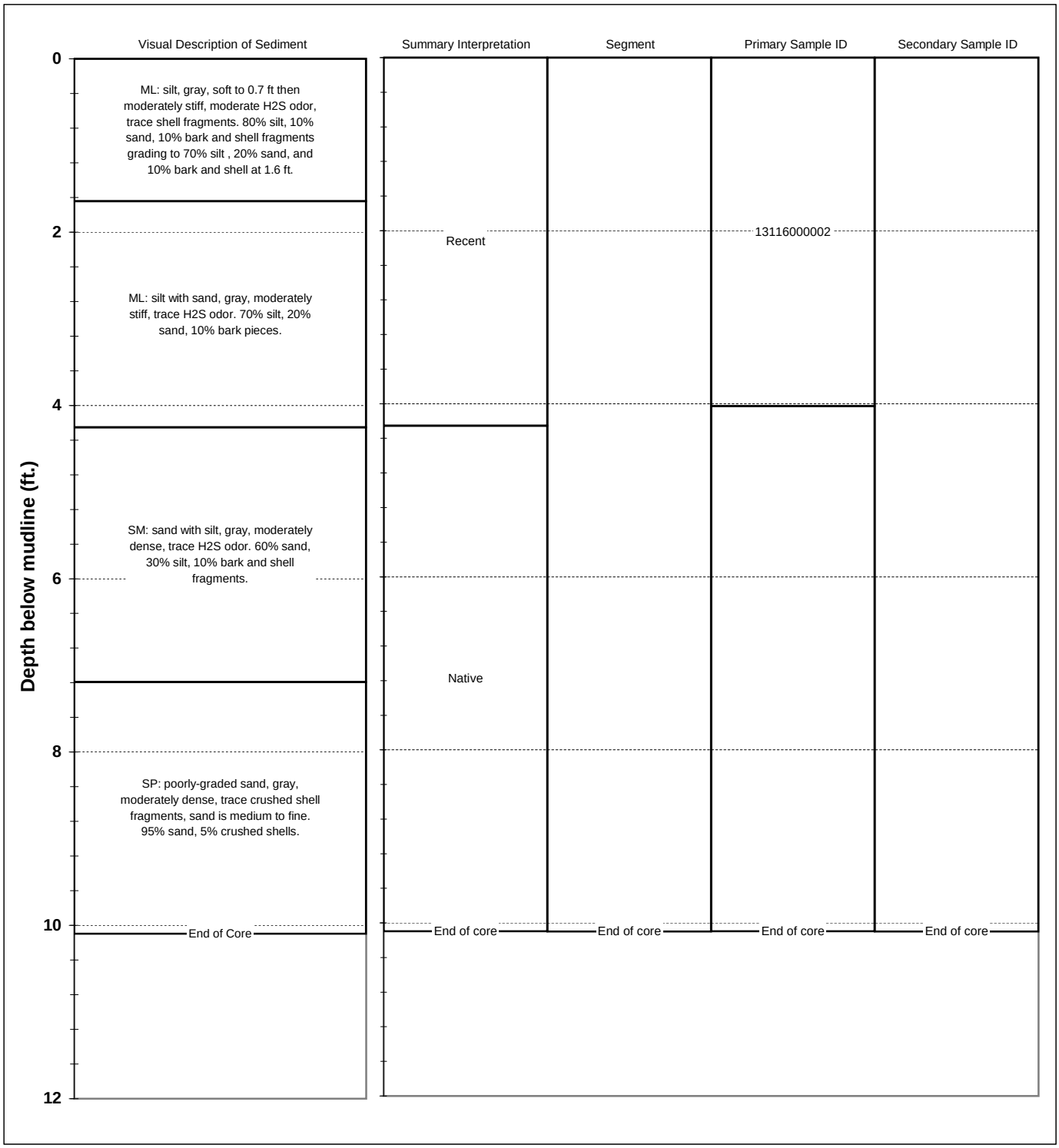
Mudline elevation: -51.0 **ft MLLW**

Percent recovery (on-deck): 89%

	Core collection	Laboratory processing
Date:	5/7/2007	5/7/2007
Time:	10:24	11:35

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-34**

Maximum depth of retained sediment: 10.1 ft

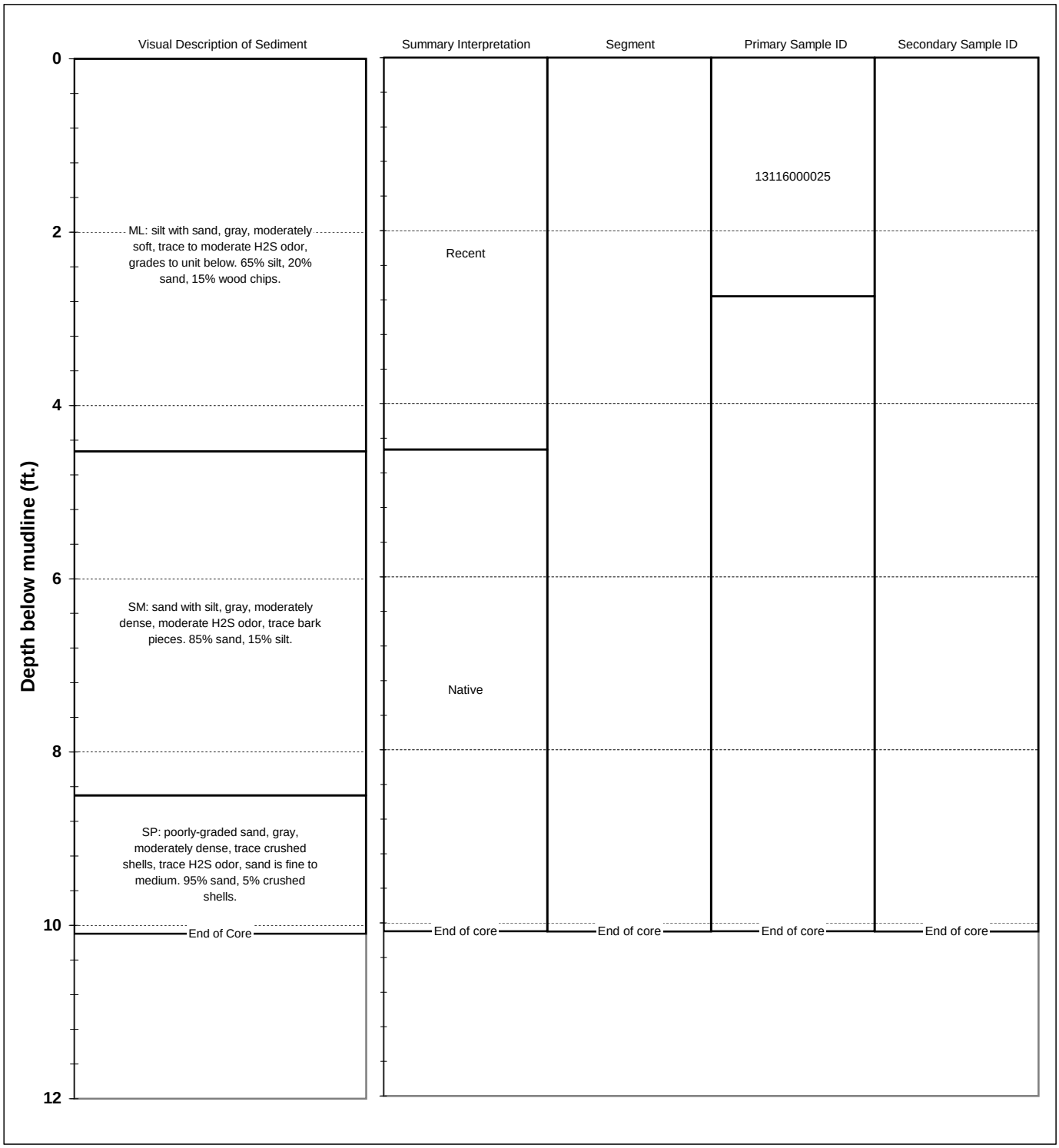
Mudline elevation: -50.8 **ft MLLW**

Percent recovery (on-deck): 78%

	Core collection	Laboratory processing
Date:	5/9/2007	5/9/2007
Time:	9:48	12:40

Field Log: NPB

Summary Log: RHG



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File name: ST-34rhg.xls
Summary Core Log

Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-37**

Maximum depth of retained sediment: 9.7 ft

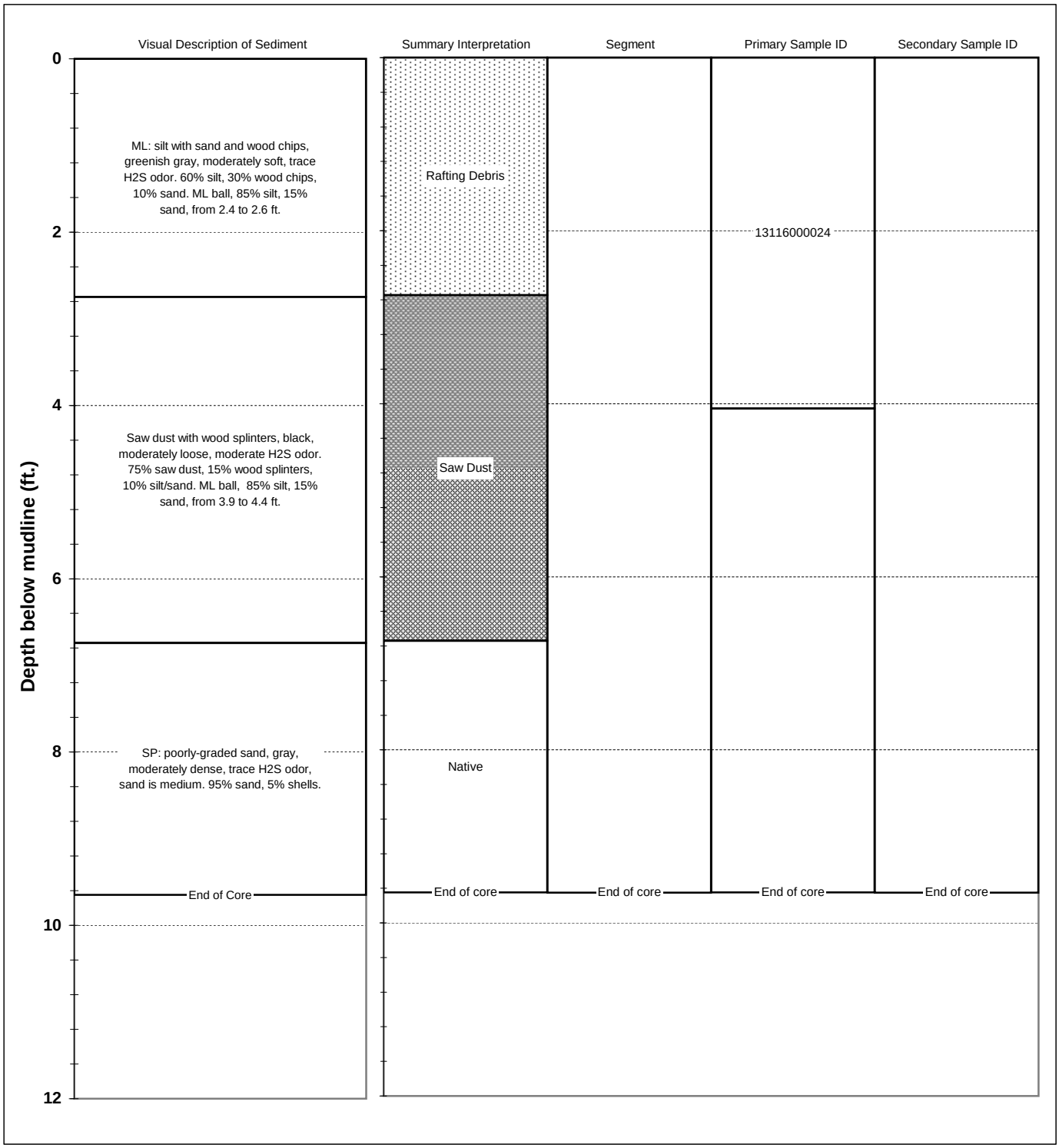
Mudline elevation: -35.5 **ft MLLW**

Percent recovery (on-deck): 78%

	Core collection	Laboratory processing
Date:	5/11/2007	5/11/2007
Time:	10:20	11:00

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-39**

Maximum depth of retained sediment: 9.7 ft

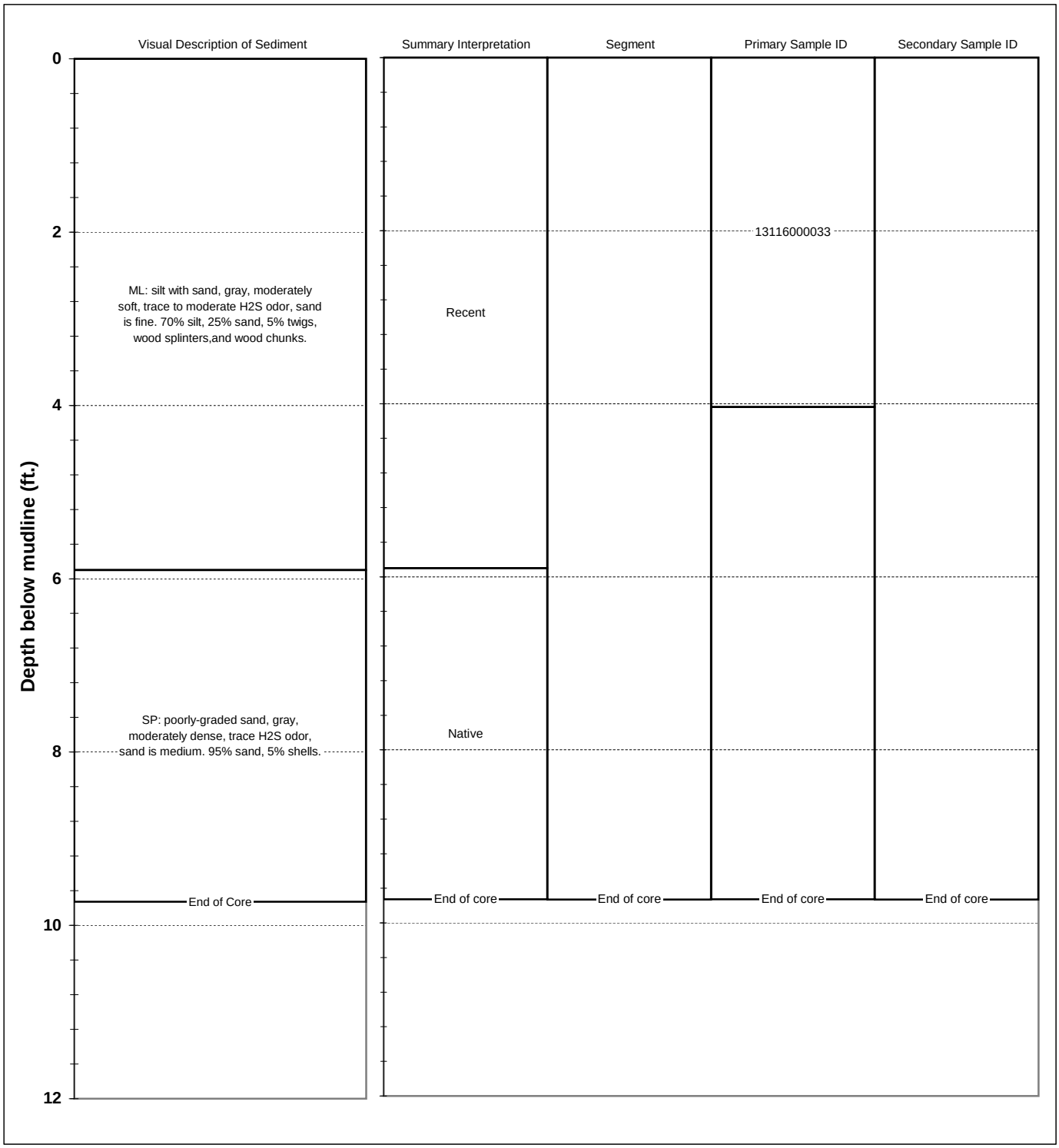
Mudline elevation: -49.2 **ft MLLW**

Percent recovery (on-deck): 79%

	Core collection	Laboratory processing
Date:	5/14/2007	5/14/2007
Time:	10:16	11:15

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-42**

Maximum depth of retained sediment: 11.8 ft

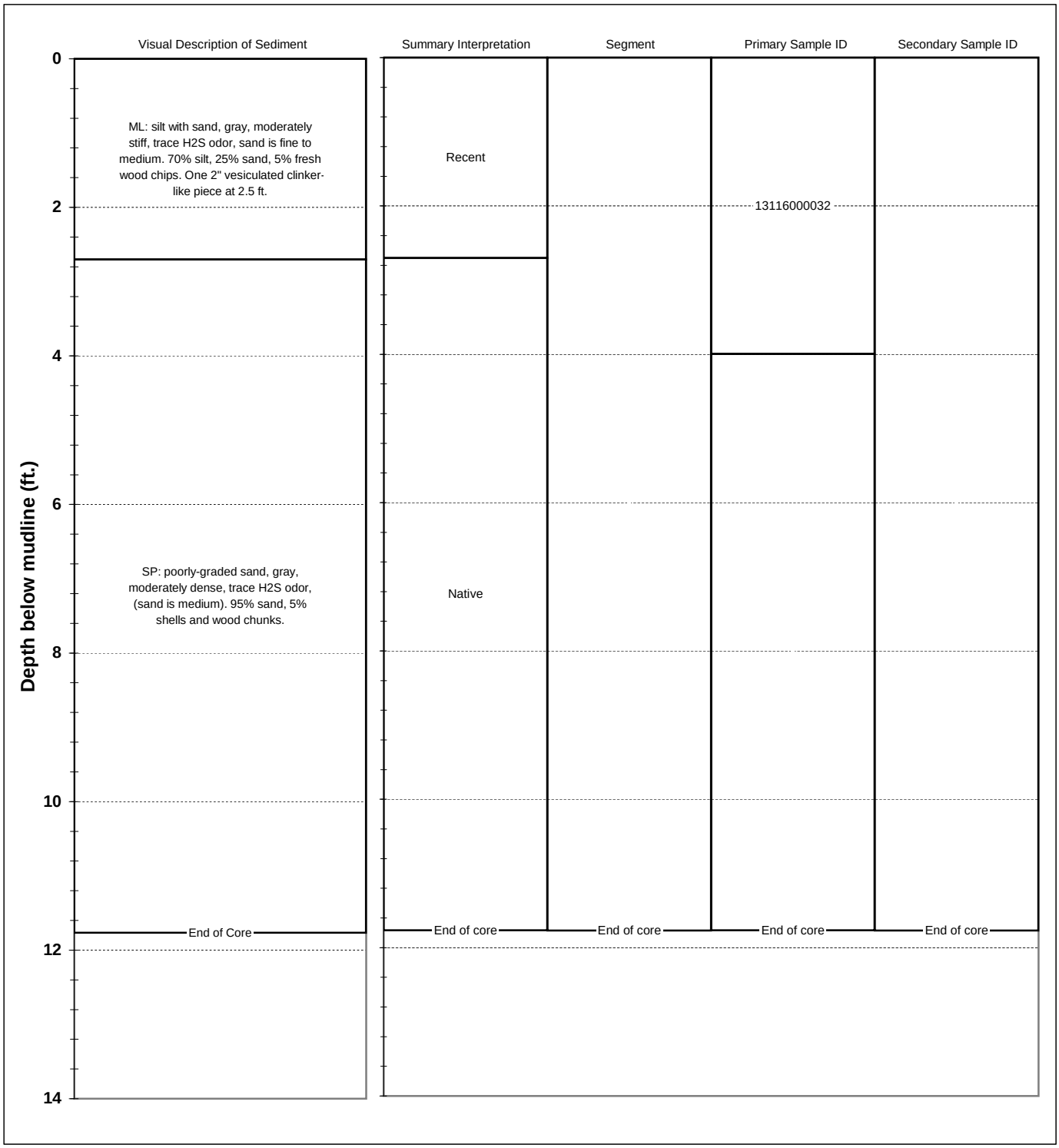
Mudline elevation: -41.0 **ft MLLW**

Percent recovery (on-deck): 85%

	Core collection	Laboratory processing
Date:	5/11/2007	5/11/2007
Time:	15:40	16:15

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-43**

Maximum depth of retained sediment: 14.0 ft

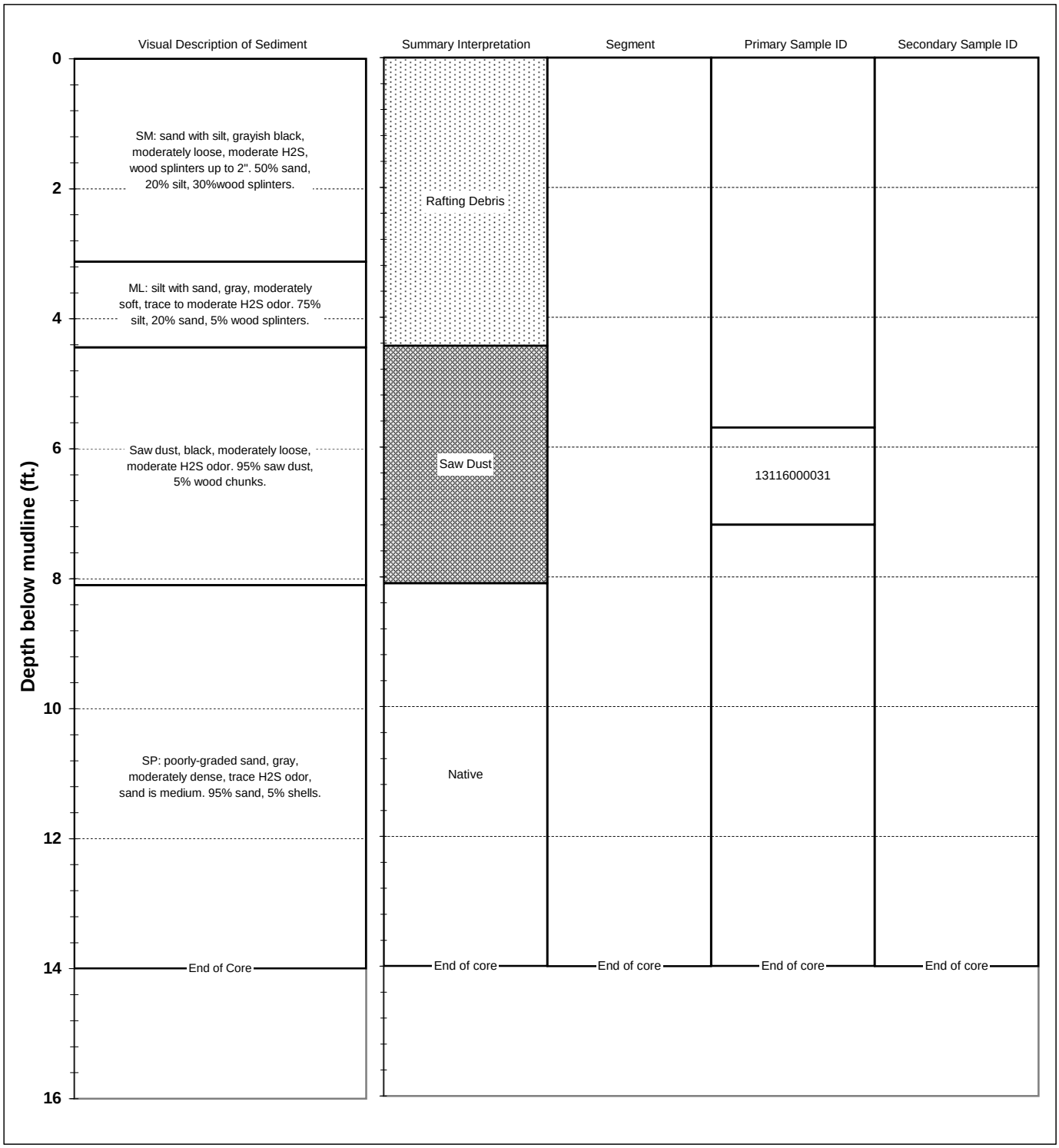
Mudline elevation: -38.7 **ft MLLW**

Percent recovery (on-deck): 78%

	Core collection	Laboratory processing
Date:	5/11/2007	5/11/2007
Time:	14:16	15:15

Field Log: NPB

Summary Log: RHG



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Mudmole™ Core Summary Log

Project: Port of Everett

Station: **ST-44**

Maximum depth of retained sediment: 18.7 ft

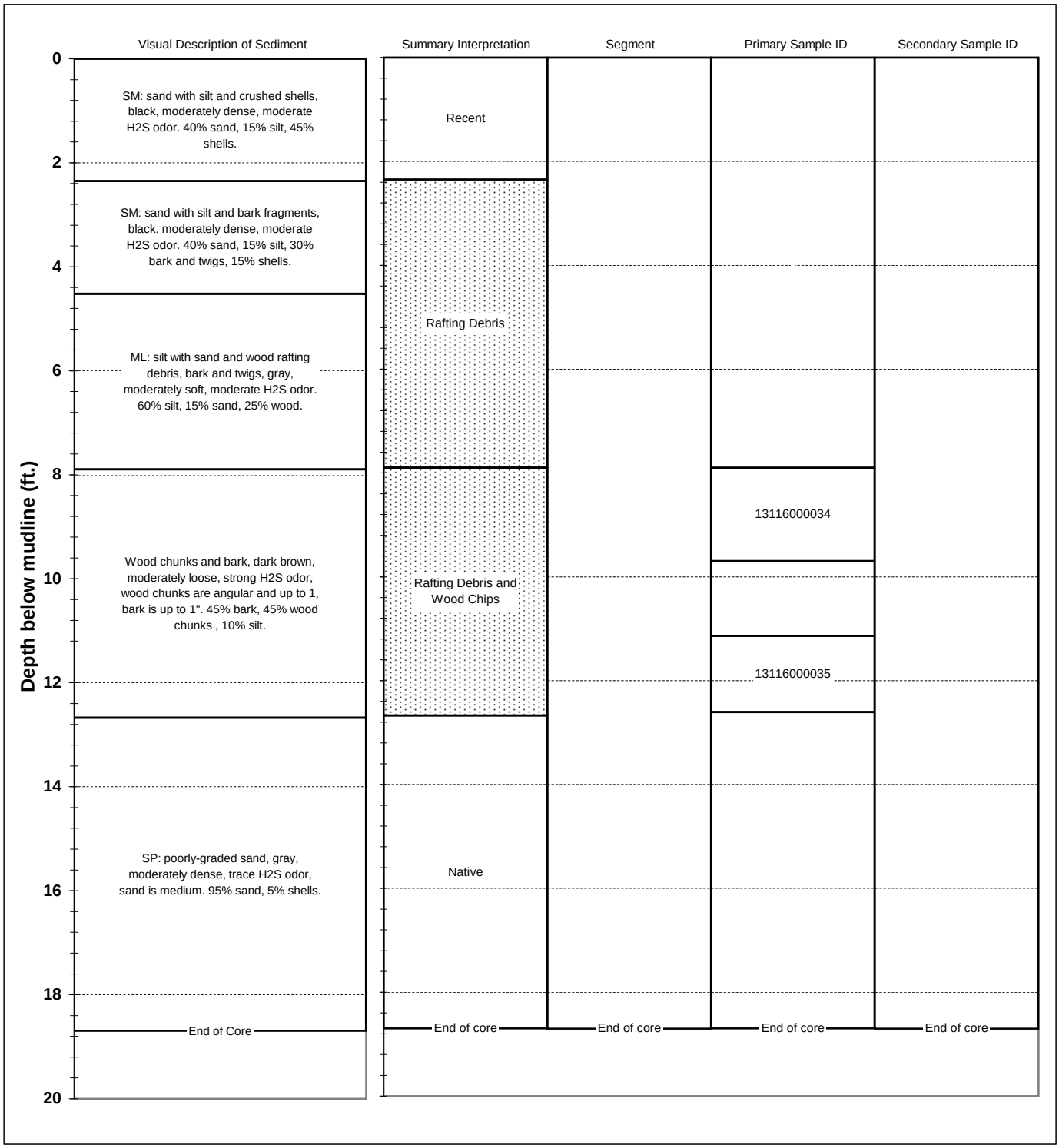
Mudline elevation: -32.3 **ft MLLW**

Percent recovery (on-deck): 76%

	Core collection	Laboratory processing
Date:	5/14/2007	5/14/2007
Time:	9:15	12:45

Field Log: NPB

Summary Log: RHG



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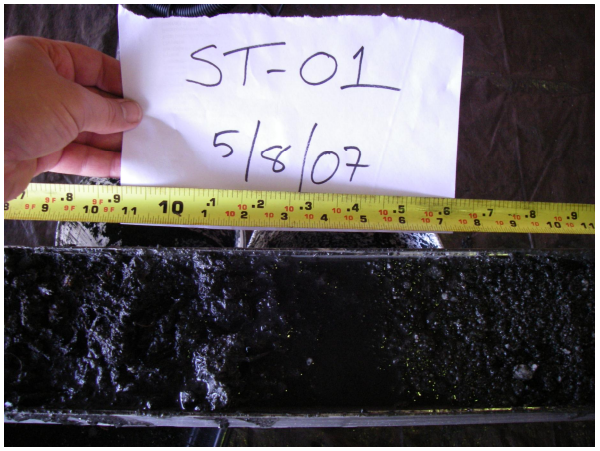
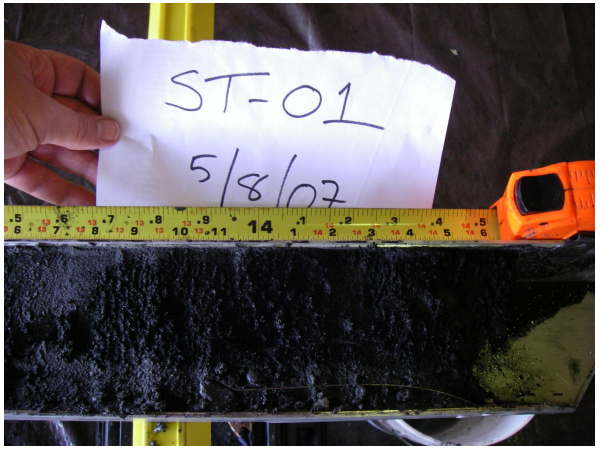
Appendix D

Core Photo Logs

PHOTO APPENDIX
Former Mill A MTCA Support
Everett, Washington

ST-1





ST-2

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ST-2
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ST-2
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ST-3

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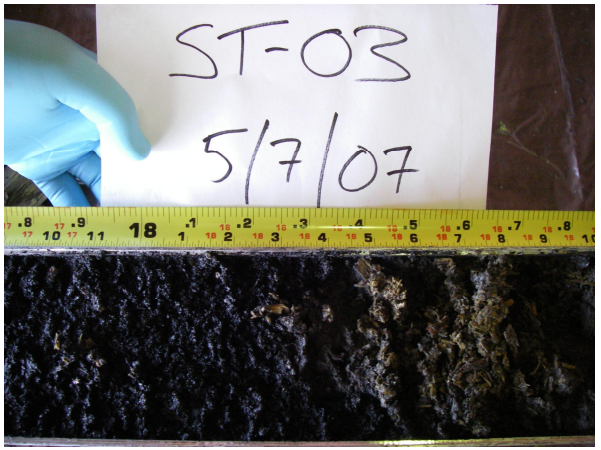
ST-3
(continued)



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ST-5

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ST-5
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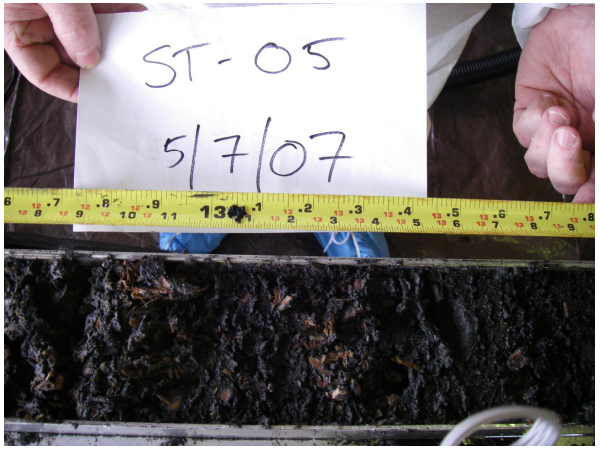

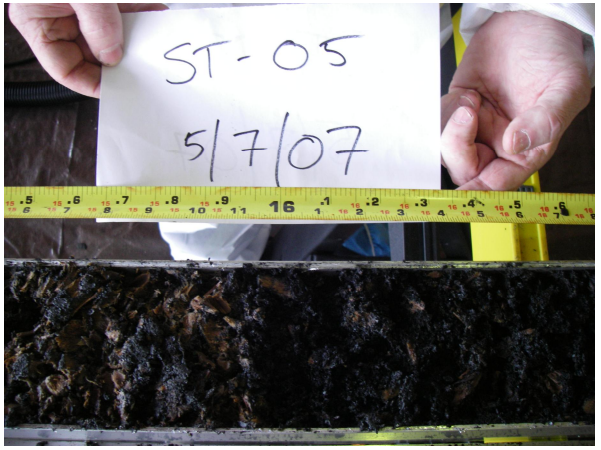

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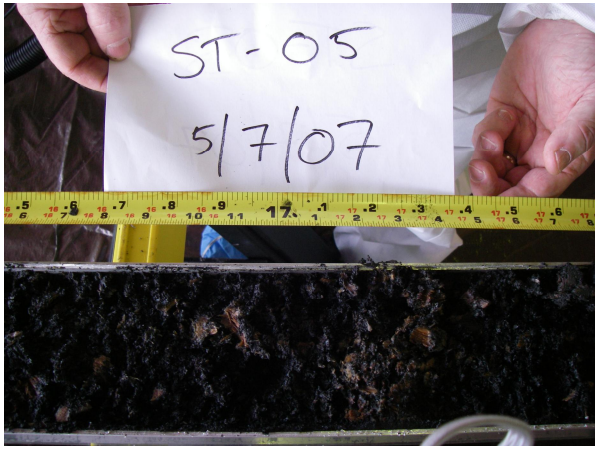

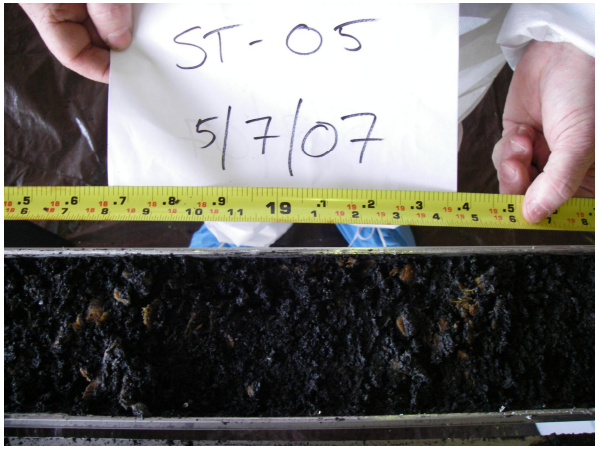

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ST-6
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ST-9

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ST-9
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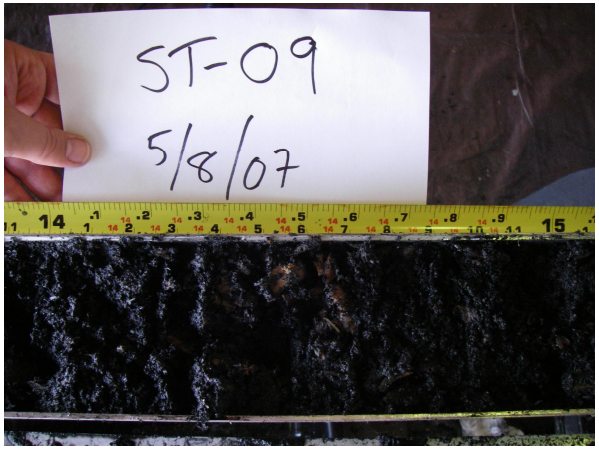

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ST-9
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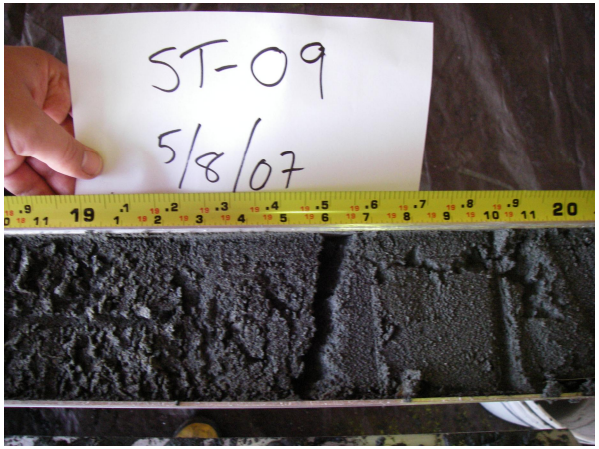

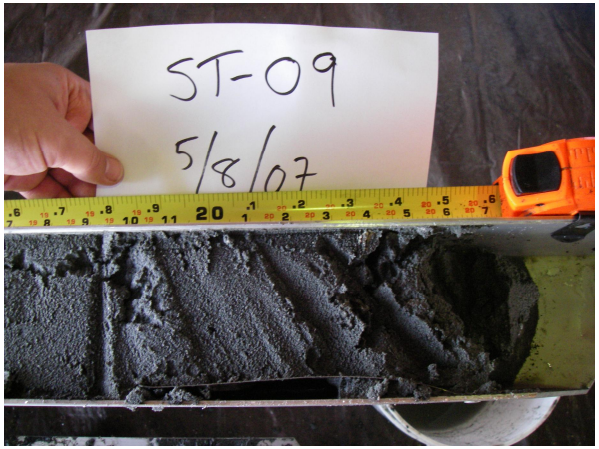

ST-11

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ST-11
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ST-11
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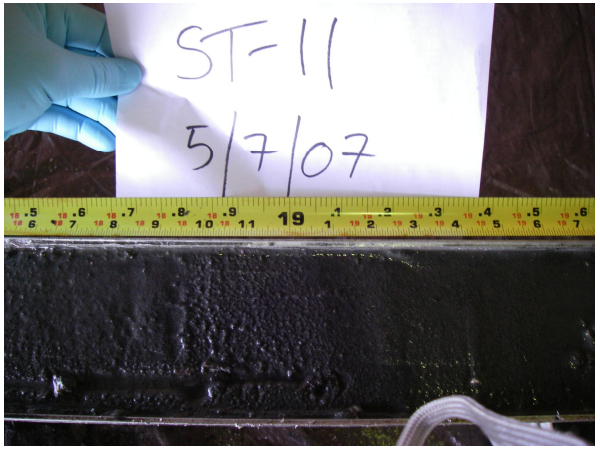

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ST-12
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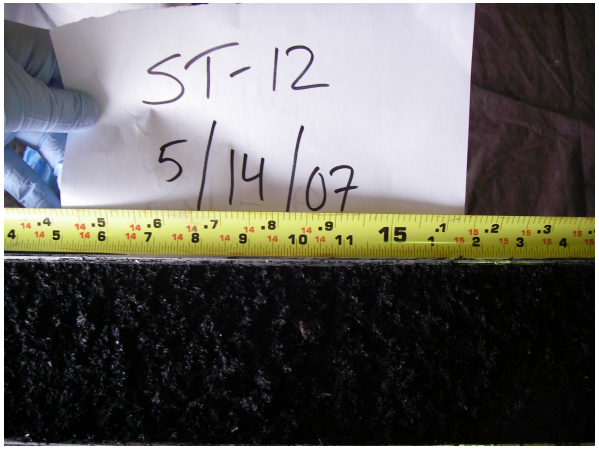

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ST-12
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ST-14

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ST-14
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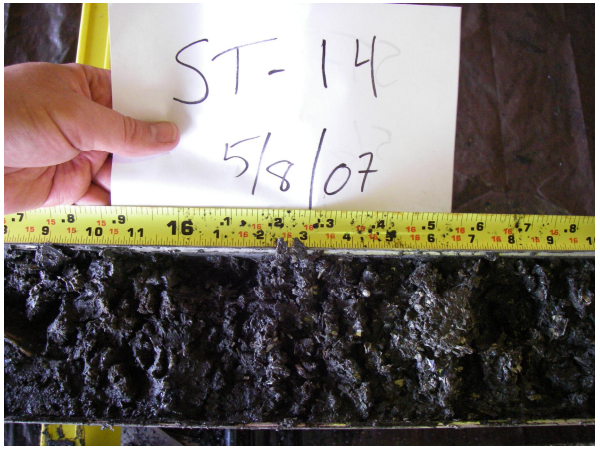
ST-14
(continued)



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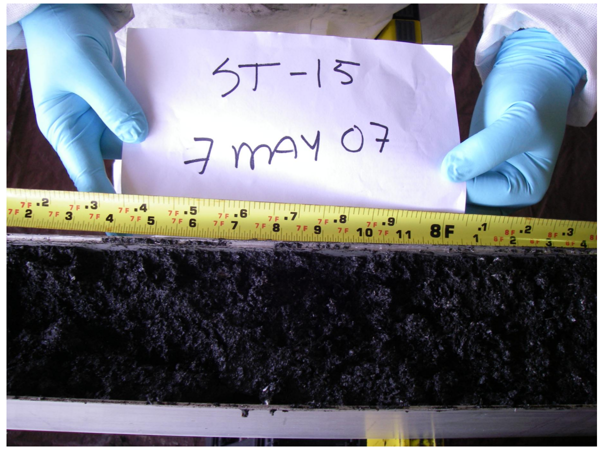

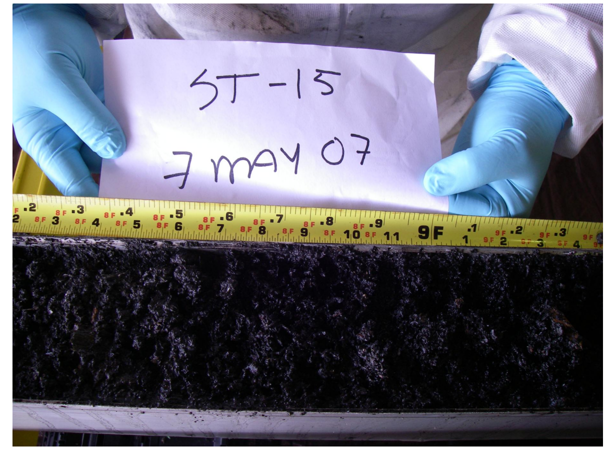

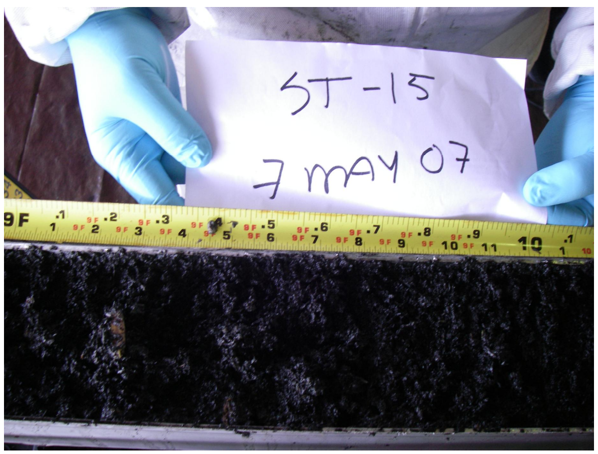

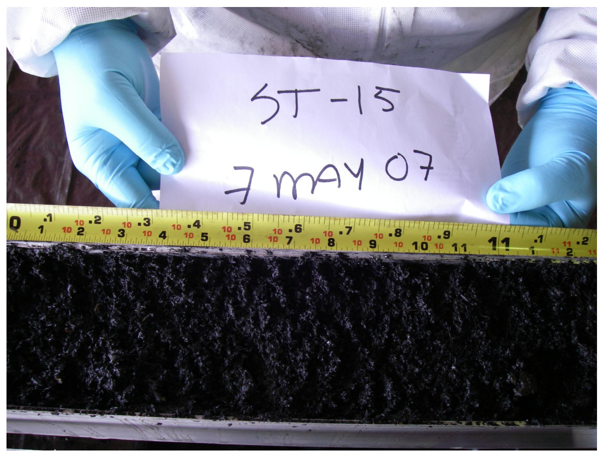

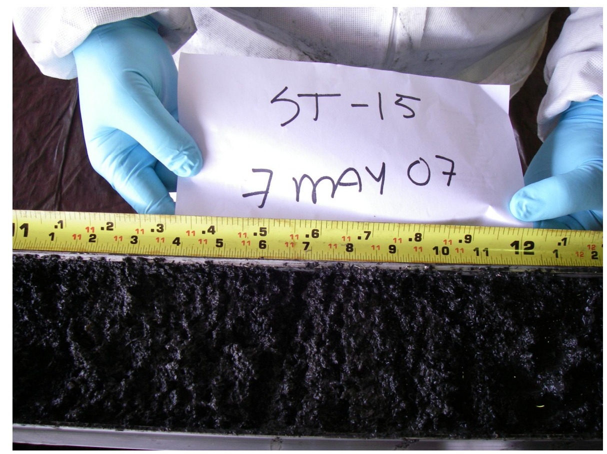

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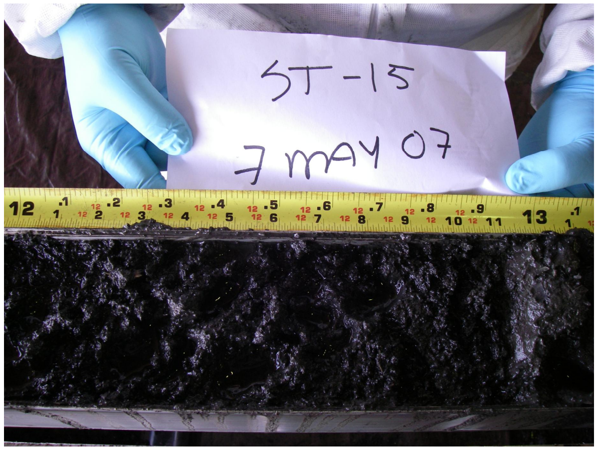

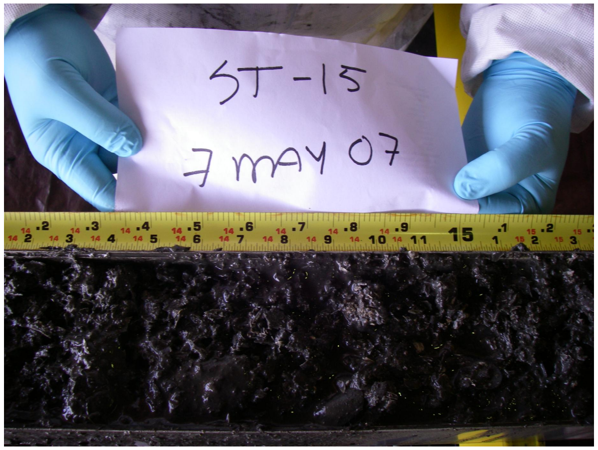

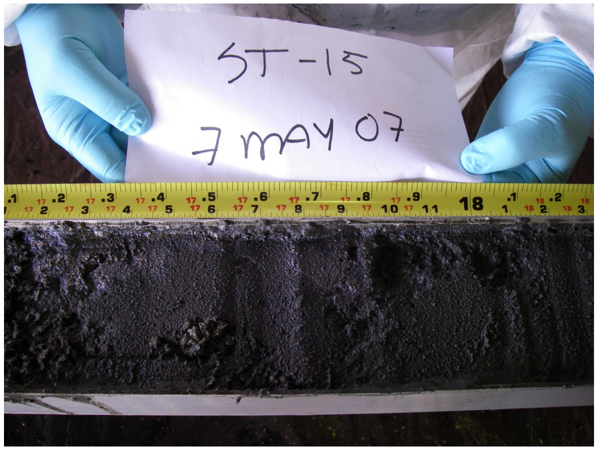

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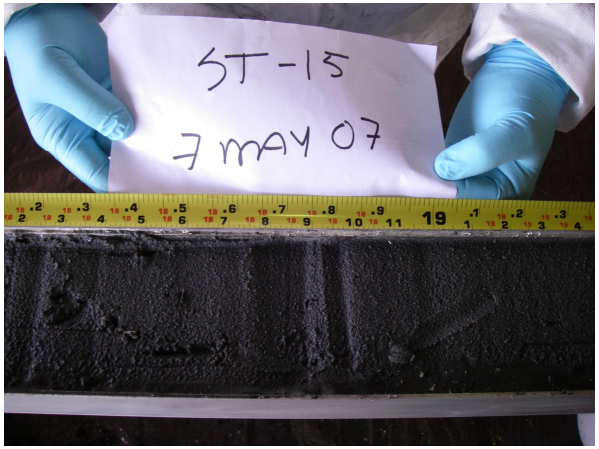

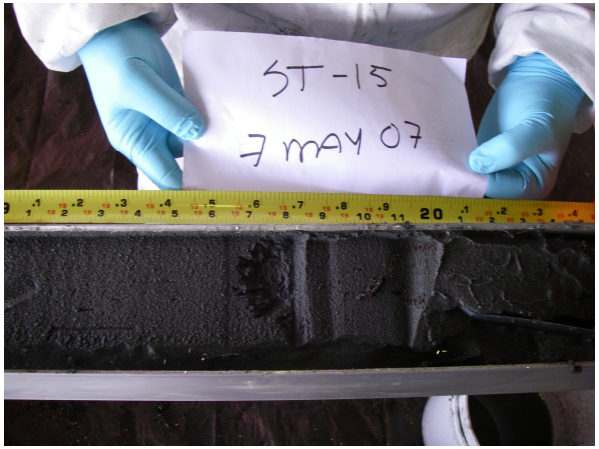

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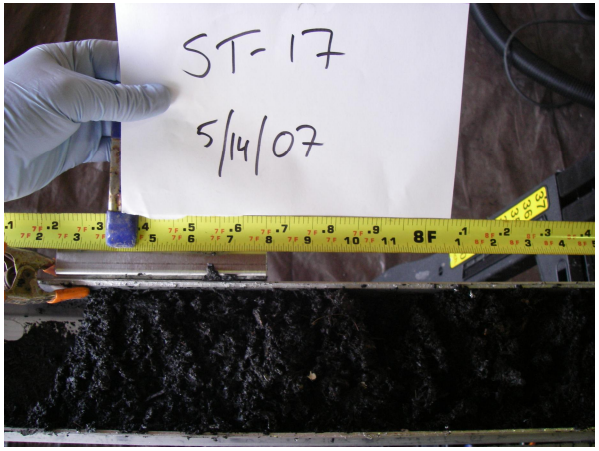

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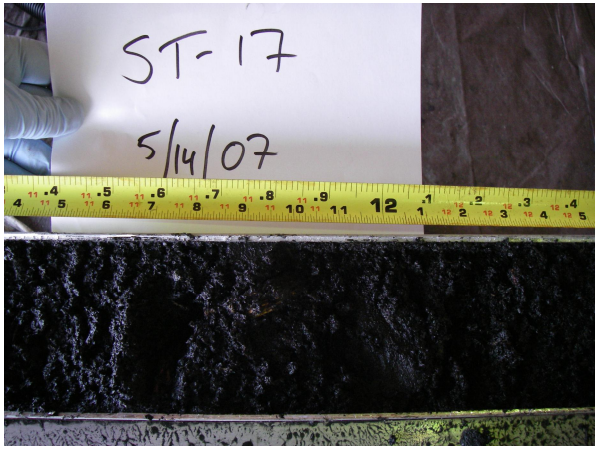

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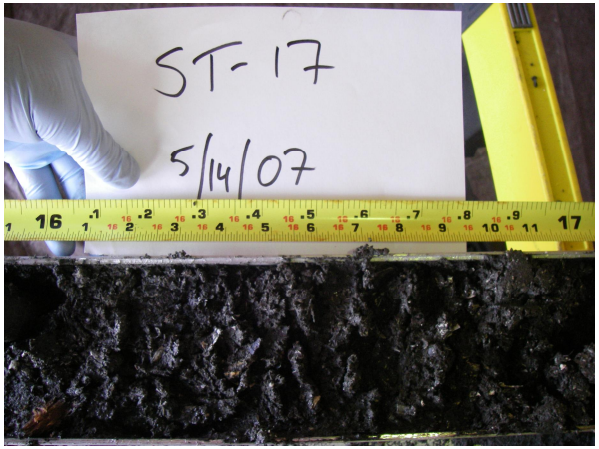
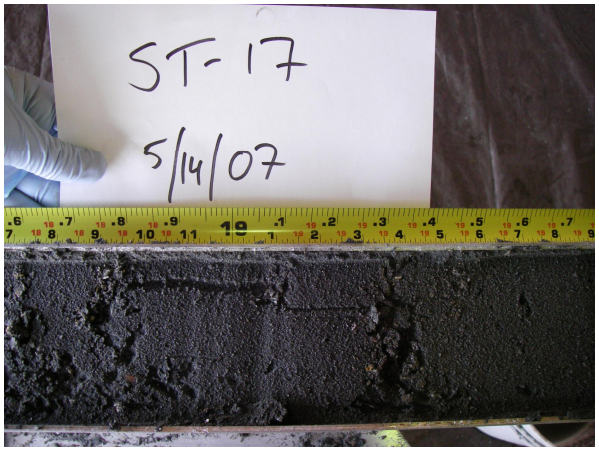
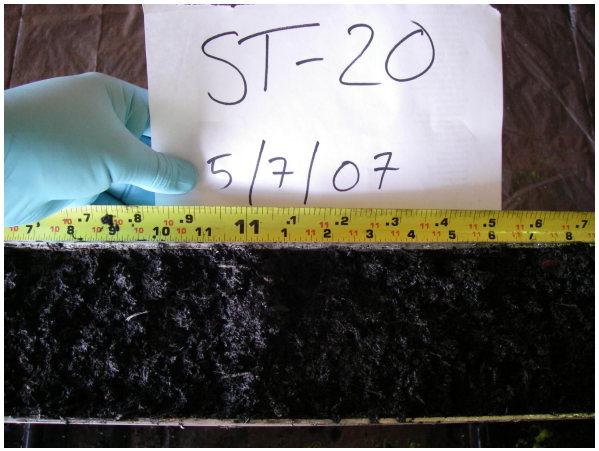




ST-19

ST-20



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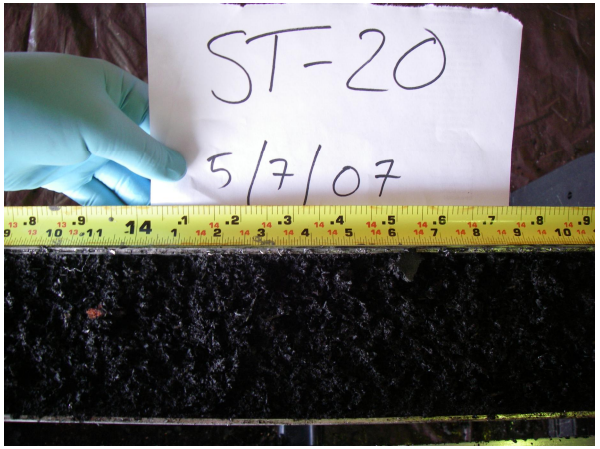

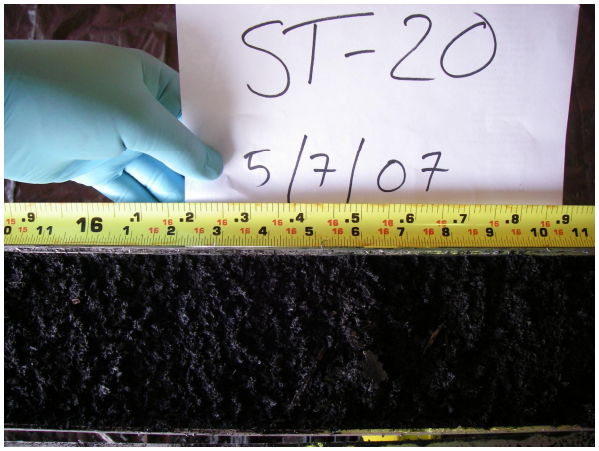

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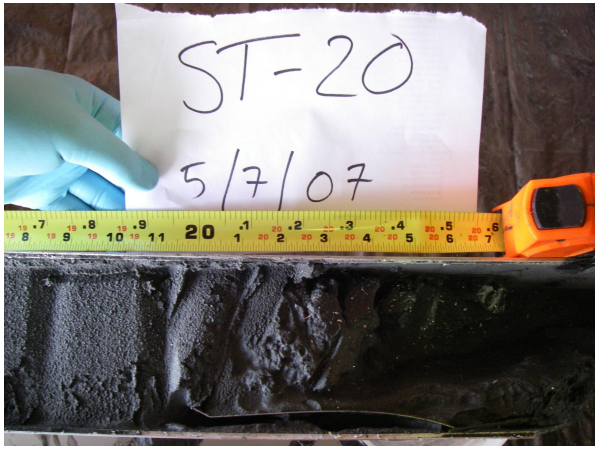

ST-21

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ST-21
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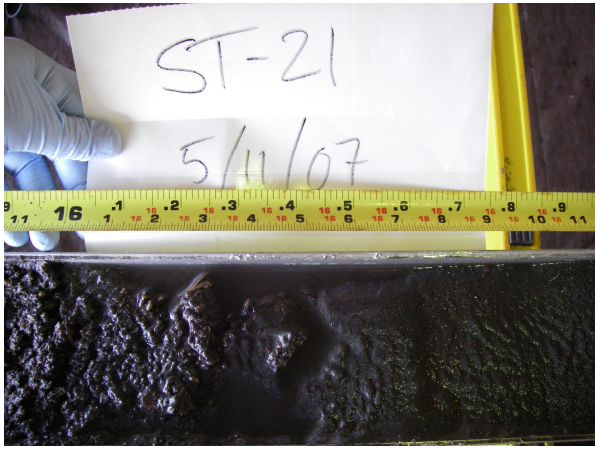

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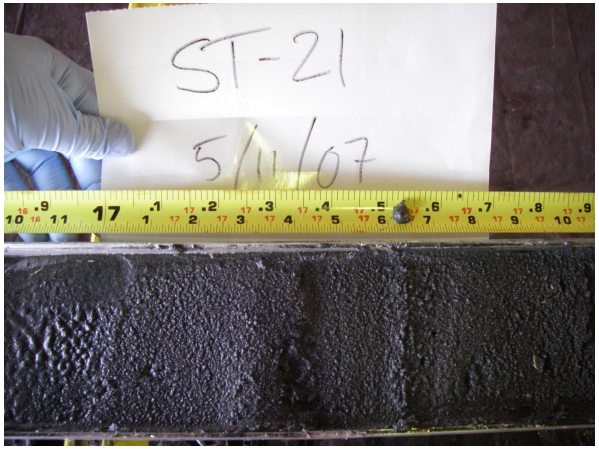

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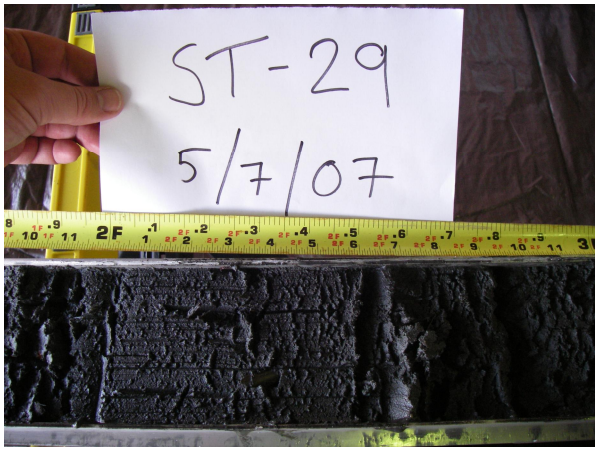

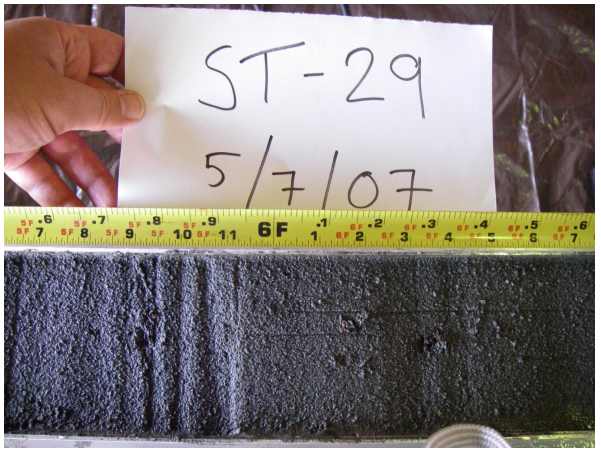

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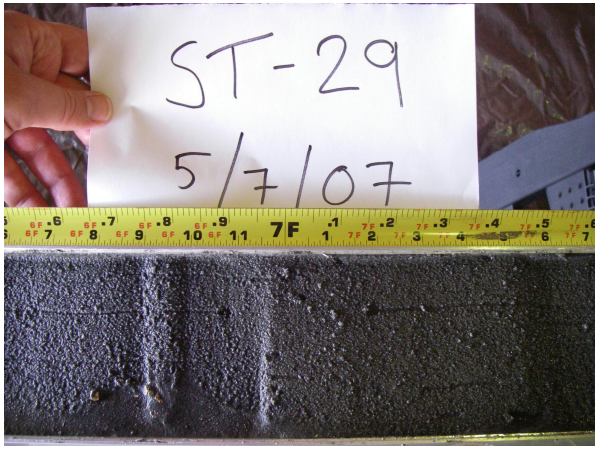

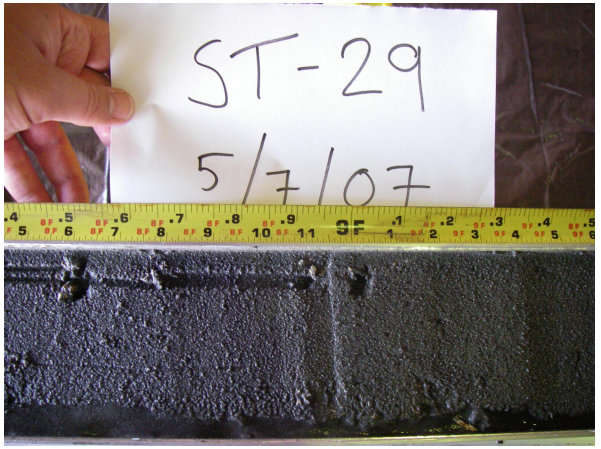

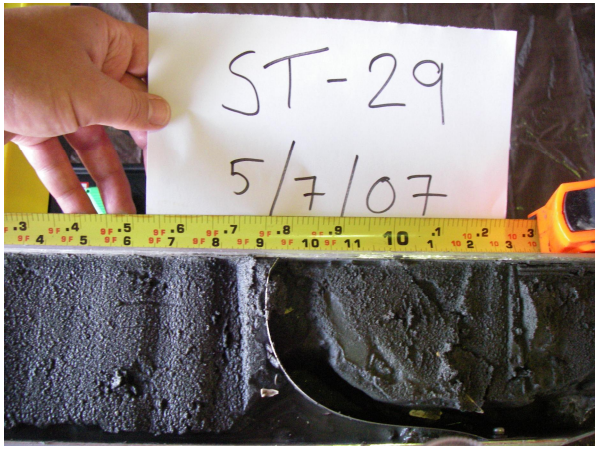

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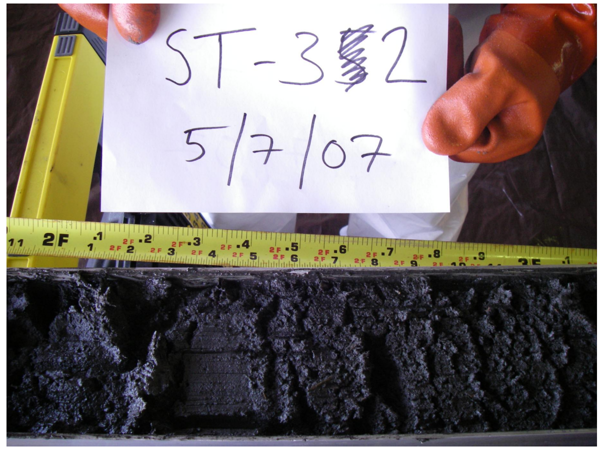

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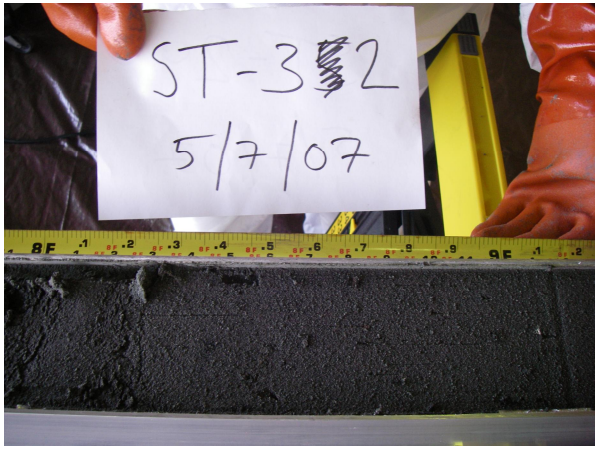

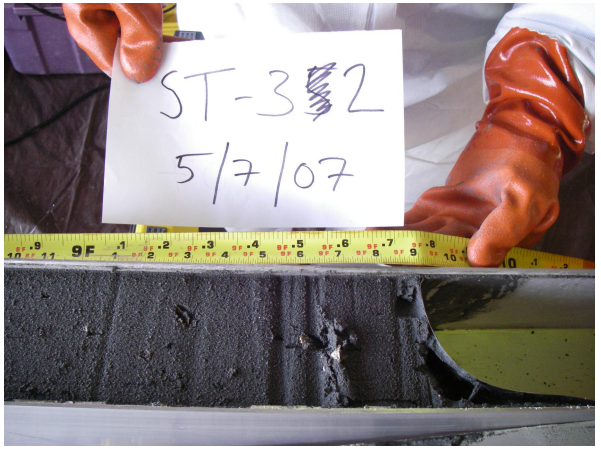

ST-34

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ST-34
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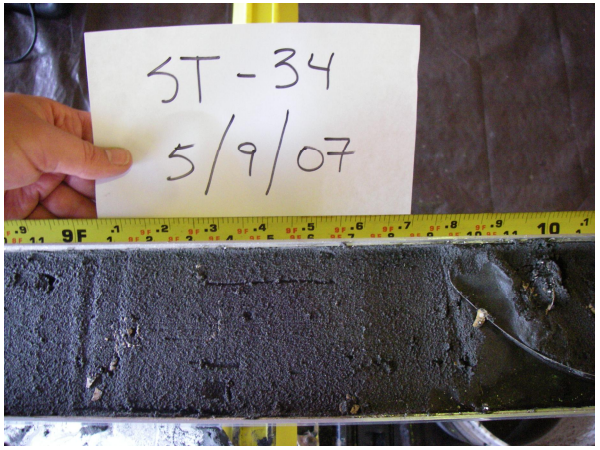

ST-37

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ST-37
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ST-39

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ST-39
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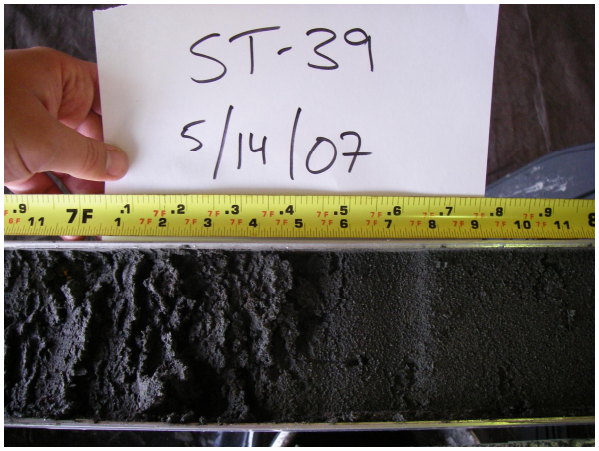

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ST-42

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ST-42
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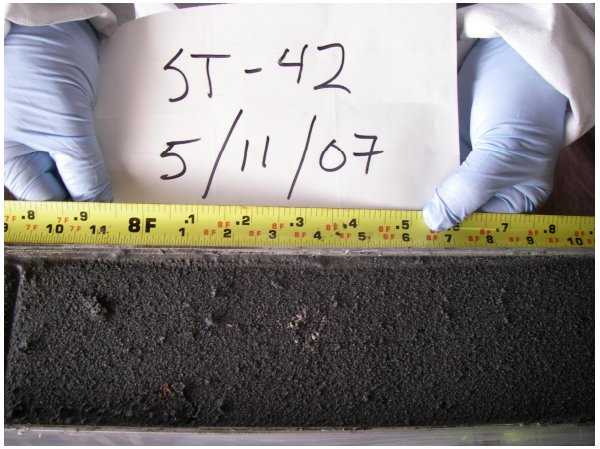
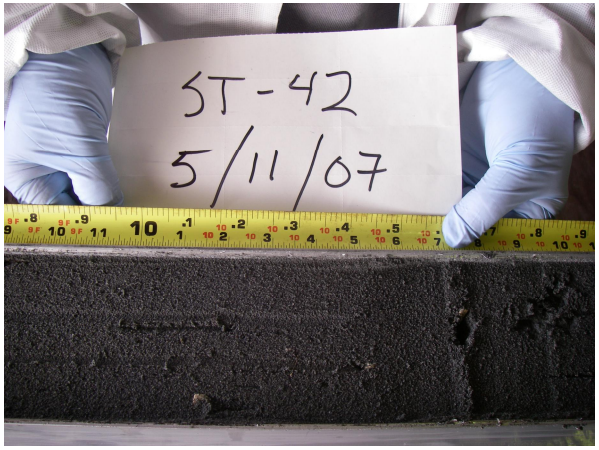
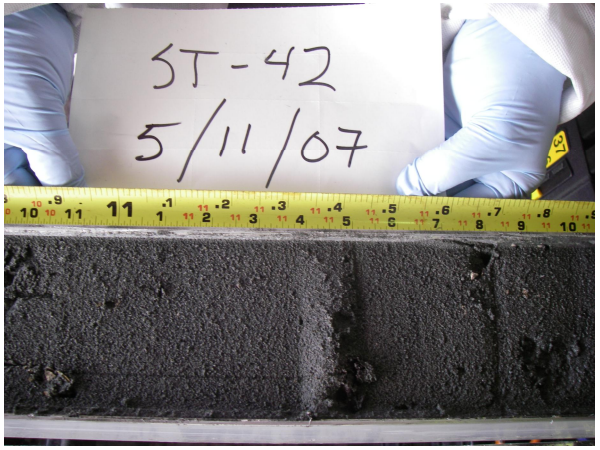
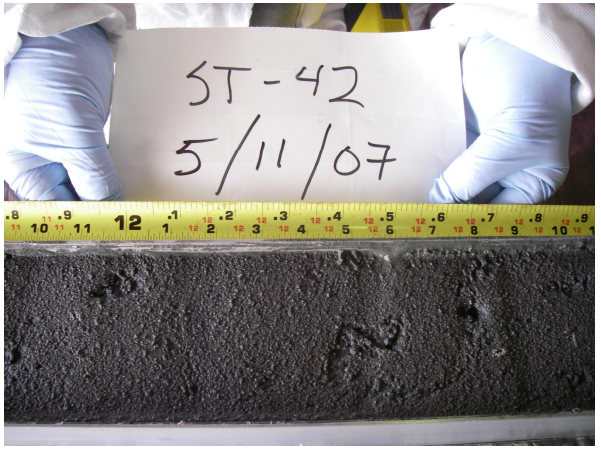








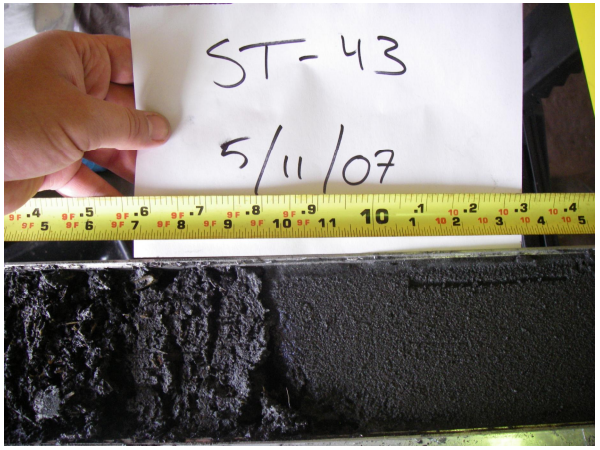
(continued)

ST-42
(continued)

ST-43

(continued)

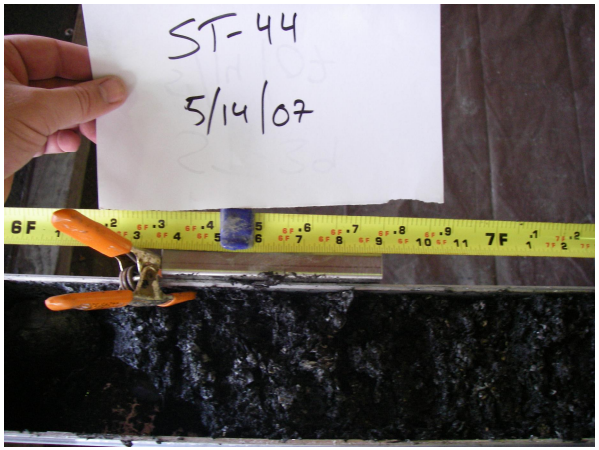
ST-43
(continued)



(continued)

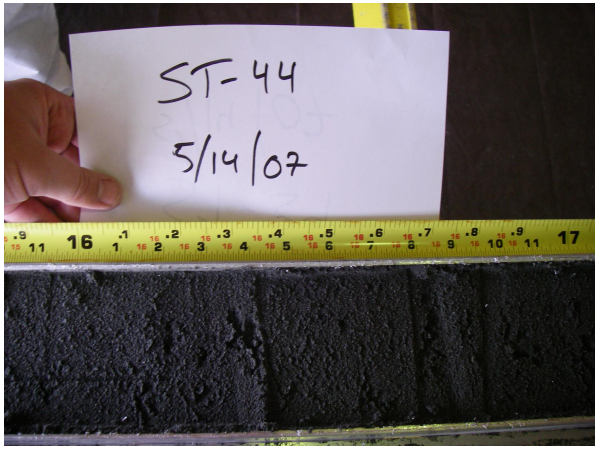
ST-43
(continued)

ST-44



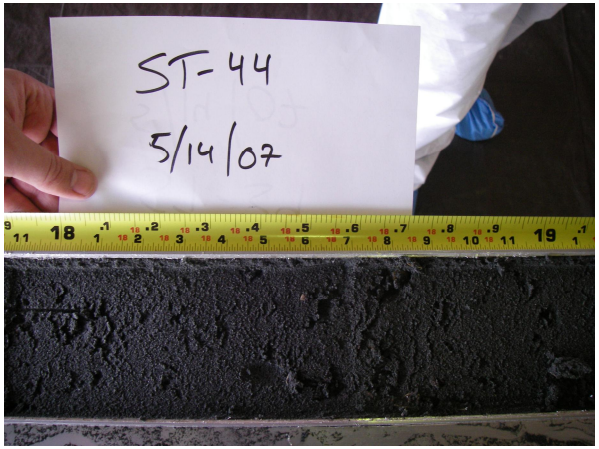
(continued)

ST-44
(continued)



(continued)

ST-44
(continued)



Geomatrix

Appendix E

Qualitative Sample Characteristic Forms for Grab Samples

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
		Port of Everett Former Mill A	ST-22

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358032	1298432	on beach				1031

Penetration Depth	Penetration Unit	Initials	Sulfide	VOA	Weather	Fines (%)
0	cm				cloudy	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics: same as subsurface.

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet Wet Moist Damp Dry

Color **(Circle major & underline modifying)**
Light Medium Dark Olive Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
Fine Medium Coarse Gravel Sand Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose (Loose) Medium Dense Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
(Very Wet) Wet Moist Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
Fine (Medium) Coarse Gravel (Sand) Silt Clay SP: 95/5

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Comments:
On beach.
massive beach sand.

Geomatrix Consultants
13116000055
Description Form
Initials: GSM
Date: 5-16-07 Time: _____

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-16-07	Port of Everett Former Mill A	ST 23

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358 031	1298232	1.3	A		02VV	1016

Penetration						
Depth	Unit	Initials	Sulfide	VOA	Weather	Fines (%)
20	c m	GSM			cloudy	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics: SAME as subsurf.

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet Wet Moist Damp Dry

Color **(Circle major & underline modifying)**
Light Medium Dark Olive Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
Fine Medium Coarse Gravel Sand Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose (Loose) Medium Dense Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
Fine (Medium) Coarse Gravel (Sand) Silt Clay SP. 98/5

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay beach sand.

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Comments:
Massive beach sand.

Geomatrix Consultants
13116000054
Description Form
Initials: GSM
Date: 5-16-07 Time: 10 16

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST-24

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358212	1298126	39.7	A		22VV	0916

Penetration						
Depth	Unit	Initials	Sulfide	VOA	Weather	Fines (%)
0.8	c m ft				sun	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose (Medium Dense) Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000100
Description Form
Initials: GSM
Date: 5-15-07 Time: 0916

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 24 D

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358206	1298132				9.2 W	0952

Penetration						
Depth	Unit	Initials	Sulfide	VOA	Weather	Fines (%)
0.65	~~c~~ ft ~~m~~	GSM			sunny	

Surficial Wood Estimate:

Contact Points

_____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Moisture

Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**

Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**

(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace

Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose (Medium Dense) Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture

Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**

Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**

(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace

Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000101
Description Form
Initials: GSM
Date: 5-15-07 Time: 0952

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-16-07	Port of Everett Former Mill A	SS 25

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358204	129 8322	30.9			0.2VV	1001

Penetration			Initials	Sulfide	VOA	Weather	Fines (%)
Depth	Unit						
20	(c)	m	GSM			cloudy	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: 5% seaweed % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Moisture
Very Wet (Wet) Moist Damp Dry

Color (Circle major & underline modifying)
(Light) Medium Dark Olive (Gray) Brown Black Other _____

Major Constituent (Circle major & underline modifying)
Fine Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose (Medium Dense) Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet (Wet) Moist Damp Dry

Color (Circle major & underline modifying)
Light (Medium) Dark Olive (Gray) Brown Black Other _____

Major Constituent (Circle major & underline modifying)
Fine (Medium) Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand (Silt) Clay SP 95/5

Biological: trace twigs, roots % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Comments:
up against Dolphin - as close to station as possible

Geomatrix Consultants
1[illegible]16000053
Description Form
Initials: GSM
Date: 5-16-07 Time: 1001

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-16-07	Port of Everett Former Mill A	ST 26

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358390	1298 222	45.8	ft		0.2VV	0950

Penetration							
Depth	Unit	Initials	Sulfide	VOA	Weather	Fines (%)	
	c m	GSM			cloudy		

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: trace shells % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet (Wet) Moist Damp Dry

Color (Circle major & underline modifying)
(Light) Medium Dark Olive (Gray) Brown Black Other _____

Major Constituent (Circle major & underline modifying)
Fine Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
(Fine) Medium Coarse Gravel (Sand) (Silt) Clay _____ ML

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose (Medium Dense) Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet (Wet) Moist Damp Dry

Color (Circle major & underline modifying)
(Light) Medium Dark Olive (Gray) Brown Black Other _____

Major Constituent (Circle major & underline modifying)
(Fine) (Medium) Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand (Silt) Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Comments:
Start: 0950/5

Geomatrix Consultants
13116000052
Description Form
Initials: GSM
Date: 5-16-07 Time: 0950

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-16-07	Port of Everett Former Mill A	ST 27

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358388	1298436	39.4	ft		0.2 VV	0930

Penetration							
Depth	Unit	Initials	Sulfide	VOA	Weather	Fines (%)	
20	(c) m	BSM			PC		

Surficial Wood Estimate: 15% bark

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: 15% shells % **Debris:** 15% % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
(Very Wet) Wet Moist Damp Dry

Color (Circle major & underline modifying)
(Light) Medium Dark Olive (Gray) Brown Black Other _____

Major Constituent (Circle major & underline modifying)
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand (Silt) Clay _____

Subsurface sediment characteristics:

Density / Consistency

(Sand / Gravel -) Very Loose (Loose) (Medium Dense) Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet (Wet) Moist Damp Dry

Color (Circle major & underline modifying)
(Light) Medium Dark Olive (Gray) Brown Black Other 10% twigs

Major Constituent (Circle major & underline modifying)
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand (Silt) Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Comments:

80/20 sand

Geomatrix Consultants
13116000051
Description Form
Initials: BSM
Date: 5-16-07 Time: 0930

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-16-07	Port of Everett Former Mill A	ST 28

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358562	1298329	59	8		02VV	0908

Penetration							
Depth	Unit	Initials	Sulfide	VOA	Weather	Fines (%)
	c m	GSM				

Surficial Wood Estimate: 25% bark

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: 3% anemone % **Debris:** 25 % **Oil Sheen:** (None) Trace (<5%) _____ %

Moisture
Very Wet Wet Moist Damp Dry

Color **(Circle major & underline modifying)**
(Light) Medium Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand (Silt) Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose (Loose) Medium Dense Dense Very Dense

Silt / Clay - Very Soft (Soft) Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
(Light) Medium Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand (Silt) Clay _____

Biological: 0 % **Debris:** 25 % **Oil Sheen:** (None) Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000050
Description Form
Initials: GSM
Date: 5-16-07 Time: 0908

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 29

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358564	1298542	46			22 VV	1035

Penetration Depth	Penetration Unit	Initials	Sulfide	VOA	Weather	Fines (%)
0.7	~~c~~ m ft	GSM			Sun	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** 35 % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose Medium Dense Dense Very Dense

Silt / Clay - Very Soft (Soft) Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000103
Description Form
Initials: GSM
Date: 5-15-07 Time: 1035

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 30

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358740	1298433	68	ft	1	0.2 VV	1009

Penetration		Initials	Sulfide	VOA	Weather	Fines (%)
Depth	Unit					
0.7	~~cm~~ ft					

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** 95 % (wood) **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose Medium Dense Dense Very Dense

Silt / Clay - Very Soft (Soft) Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000102
Description Form
Initials: GSM
Date: 5-15-07 Time: 1059

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-16-07	Port of Everett Former Mill A	ST 31

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358756	1298591	51.1	ft		0.2 VV	1050

Penetration			Initials	Sulfide	VOA	Weather	Fines (%)
Depth	Unit						
	c	m	GSM			sun	

Surficial Wood Estimate: 20%

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** 20% bark % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
(Light) Medium Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
Fine Medium Coarse Gravel Sand Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand (Silt) Clay _____

Subsurface sediment characteristics:

Density / Consistency

(Sand / Gravel -) Very Loose Loose (Medium Dense) Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
Fine (Medium) Coarse Gravel (Sand) Silt Clay SM 85/15

Minor Constituent with trace
Fine Medium Coarse Gravel Sand (Silt) Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Comments:

Attempt 1 debris - cable
Station very close to tool barge
Attempt 2 moved offshore

Geomatrix Consultants
13116000056
Description Form
Initials: GSM
Date: 5-16-07 Time: 1050

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 32

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
358917	1298738	56	~~ft~~		03VV	1105

Penetration		Initials	Sulfide	VOA	Weather	Fines (%)
Depth	Unit					
0.7	~~cm~~ ft	GSM			Sun	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** wood 35 % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) ~~Gray~~ Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose (Loose) Medium Dense Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
Light Medium (Dark) Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** wire cable % **Oil Sheen:** (None) Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000104
Description Form
Initials: GSM
Date: 5-15-07 Time: 1105

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
		Port of Everett Former Mill A	ST 33

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
359125	1298799	71			0.2VV	1526

Penetration		Initials	Sulfide	VOA	Weather	Fines (%)
Depth	Unit					
07	~~cm~~ ft	GSM			sun	

Surficial Wood Estimate:

Contact Points ____ X 5 = ____ %

Surficial sediment characteristics:

Biological: ____ % **Debris:** wood Trace % **Oil Sheen:** (None) Trace (<5%) ____ %

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other ____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay ____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay ____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose Medium Dense Dense Very Dense

Silt / Clay - Very Soft (Soft) Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark Olive (Gray) Brown Black Other ____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay ____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay ____

Biological: ____ % **Debris:** ____ % **Oil Sheen:** (None) Trace (<5%) ____ %

Comments:

Geomatrix Consultants
13116000049
Description Form
Initials: GSM
Date: 5-15-07 Time: 1526

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 34

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
359249	1298992	50	A		22W	1127

Penetration		Initials	Sulfide	VOA	Weather	Fines (%)
Depth	Unit					
0.7	~~cm~~ ft	GSM			SUN	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics: WOOD

Biological: _____ % **Debris:** 15 % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose (Loose) Medium Dense Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light Medium (Dark) (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000105
Description Form
Initials: GSM
Date: 5-15-07 Time: 1127

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 35

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
359266	1299143	41			02VV	1507

Penetration						
Depth	Unit	Initials	Sulfide	VOA	Weather	Fines (%)
0.6	~~c~~ m ft				sun	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** 100 (WOOD) % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose Medium Dense Dense Very Dense

Silt / Clay - (Very Soft) Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
Light Medium (Dark) Olive (Gray) Brown (Black) Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000048
Description Form
Initials: GSM
Date: 5-15-07 Time: 1507

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST-36

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
359448	1299041	62	ft		0.2VV	1452

Penetration						
Depth	Unit	Initials	Sulfide	VOA	Weather	Fines (%)
0.6	c m	GSM			Sun	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose (Medium Dense) Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000047
Description Form
Initials: GSM
Date: 5-15-07 Time: 1452

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 37

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
3599243	1299243	36	ft		0.2W	1147

Penetration		Initials	Sulfide	VOA	Weather	Fines (%)
Depth	Unit					
0.7	~~cm~~ ft	GSM			Sun	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** 15 % (WOOD) **Oil Sheen:** None Trace (<5%) _____ %

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose (Loose) Medium Dense Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000106
Description Form
Initials: GSM
Date: 5-15-07 Time: 1147

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 38

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
359444	1299444	22	ft		0.2VV	1431

Penetration		Initials	Sulfide	VOA	Weather	Fines (%)
Depth	Unit					
0.6	~~cm~~ ft	GSM			Sun	

Surficial Wood Estimate:

Contact Points ____ X 5 = ____ %

Surficial sediment characteristics:

Biological: ____ % **Debris:** Wood Trace % **Oil Sheen:** None (Trace (<5%)) ____ %

Moisture
Very Wet Wet (Moist) Damp Dry

Color (Circle major & underline modifying)
Light (Medium) Dark (Olive) Gray Brown Black Other ____

Major Constituent (Circle major & underline modifying)
(Fine) Medium Coarse Gravel (Sand) Silt Clay ____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay ____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose (Medium Dense) Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet Wet (Moist) Damp Dry

Color (Circle major & underline modifying)
Light Medium (Dark) Olive (Gray) Brown (Black) Other ____

Major Constituent (Circle major & underline modifying)
(Fine) Medium Coarse Gravel (Sand) Silt Clay ____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay ____

Biological: ____ % **Debris:** ____ % **Oil Sheen:** None Trace (<5%) 30 %

Comments:

Geomatrix Consultants
13116000046
Description Form
Initials: GSM
Date: 5-15-07 Time: 1431

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 39

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
359581	1299205	52	A		0.2VV	1313

Penetration		Initials	Sulfide	VOA	Weather	Fines (%)
Depth	Unit					
0.6	~~cm~~ ft	GSM			SUN	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** WOOD 10 % **Oil Sheen:** (None) Trace (<5%) _____ %

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel Sand (Silt) Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose (Loose) Medium Dense Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet (Wet) Moist Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000107
Description Form
Initials: GSM
Date: 5-15-07 Time: 1313

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 40

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
359623	1299345	42	A		02VV	1412

Penetration Depth	Penetration Unit	Initials	Sulfide	VOA	Weather	Fines (%)
0.7	cm	GSM			Sun	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose (Loose) Medium Dense Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Comments:
Ghost shrimp in jaws

Geomatrix Consultants
13116000045
Description Form
Initials: GSM
Date: 5-15-07 Time: 1412

QUALITATIVE SAMPLE CHARACTERISTICS

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	ST 41

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
359799	1299242	59	ft		0.2VV	1353

Penetration Depth	Penetration Unit	Initials	Sulfide	VOA	Weather	Fines (%)
0.6	c m ft	GSM			sun	

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose (Medium Dense) Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000044
Description Form
Initials: GSM
Date: 5-15-07 Time: 1353

QUALITATIVE SAMPLE CHARACTERISTICS

Page 9 of ____

Coordinate Datum	Date (mm/dd/yy)	Project	Sample Identification Number
	5-15-07	Port of Everett Former Mill A	SS 42

Coordinates		Water Depth				Time
North	East	Depth	Unit	Rep	Gear	
359799	1299449	46	ft		0.2W	1333

Penetration		Initials	Sulfide	VOA	Weather	Fines (%)
Depth	Unit					
0.6	~~cm~~ ft					

Surficial Wood Estimate:

Contact Points _____ X 5 = _____ %

Surficial sediment characteristics:

Biological: _____ % **Debris:** _____ % **Oil Sheen:** (None) Trace (<5%) _____ %

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light (Medium) Dark (Olive) Gray Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Subsurface sediment characteristics:

Density / Consistency

Sand / Gravel - Very Loose Loose (Medium Dense) Dense Very Dense

Silt / Clay - Very Soft Soft Medium Stiff Stiff Very Stiff Hard

Moisture
Very Wet Wet (Moist) Damp Dry

Color **(Circle major & underline modifying)**
Light Medium (Dark) Olive (Gray) Brown Black Other _____

Major Constituent **(Circle major & underline modifying)**
(Fine) Medium Coarse Gravel (Sand) Silt Clay _____

Minor Constituent with trace
Fine Medium Coarse Gravel Sand Silt Clay _____

Biological: _____ % **Debris:** _____ % **Oil Sheen:** None Trace (<5%) _____ %

Comments:

Geomatrix Consultants
13116000108
Description Form
Initials: GSV
Date: 5-15-07 Time: 1333

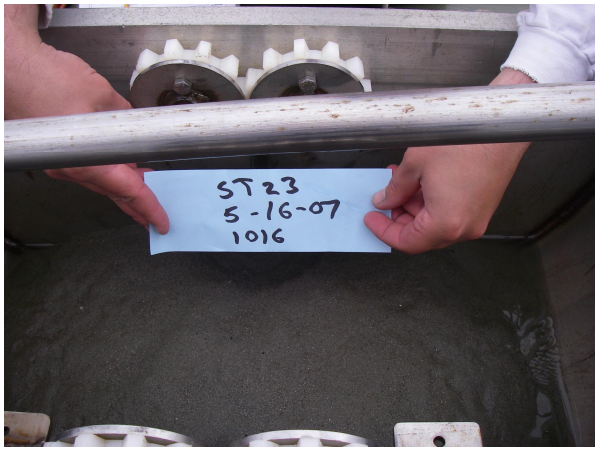
Geomatrix

Appendix F

Grab Photo Logs

GRAB SAMPLES

ST-22



ST-23

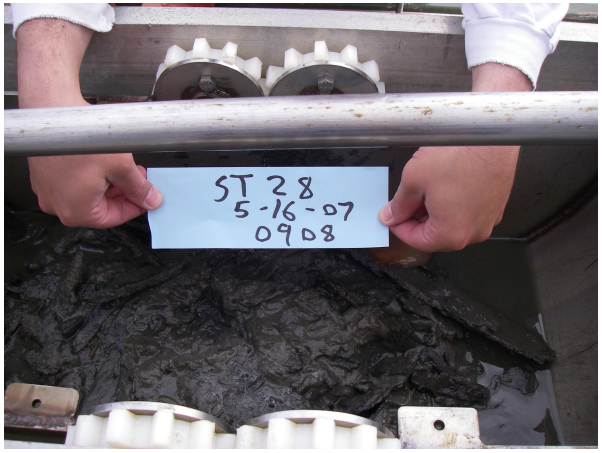
ST-24

ST-24D

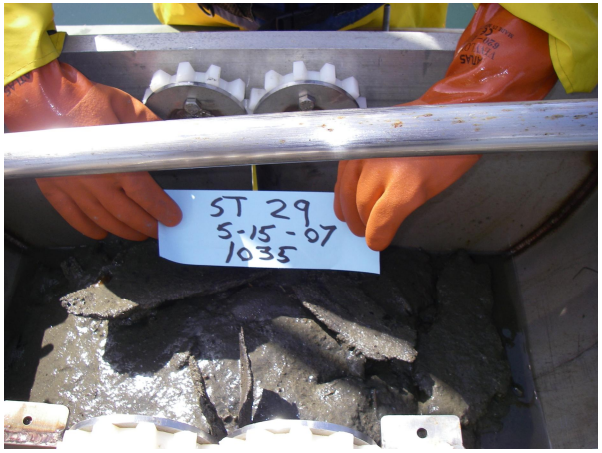
ST-25

ST-26

ST-27

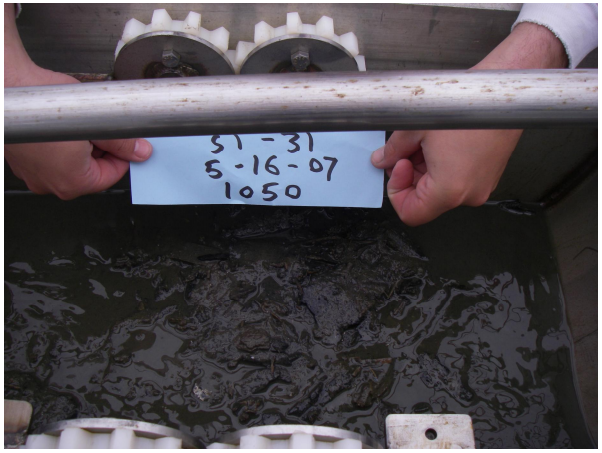


ST-28

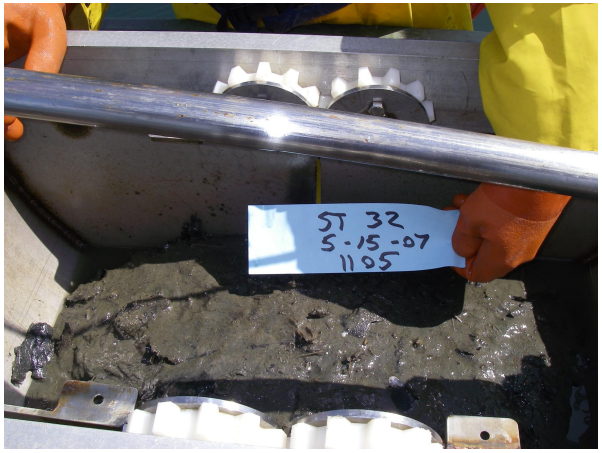


ST-29

ST-30

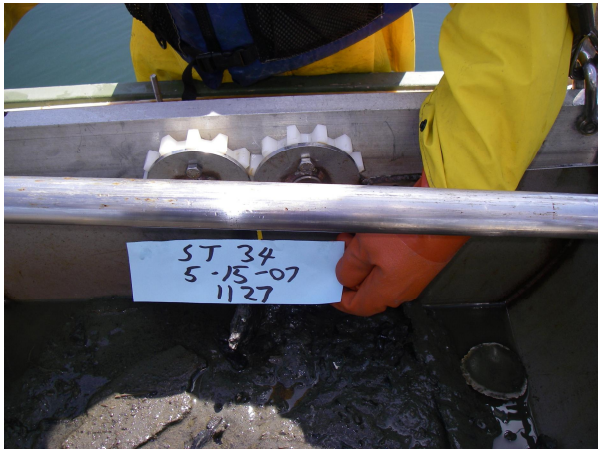


ST-31



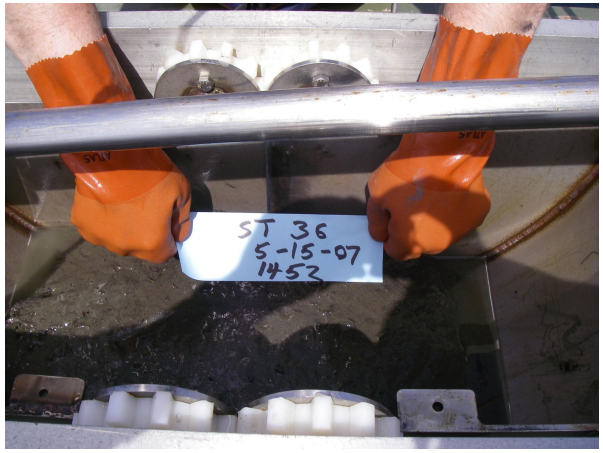
ST-32

ST-33



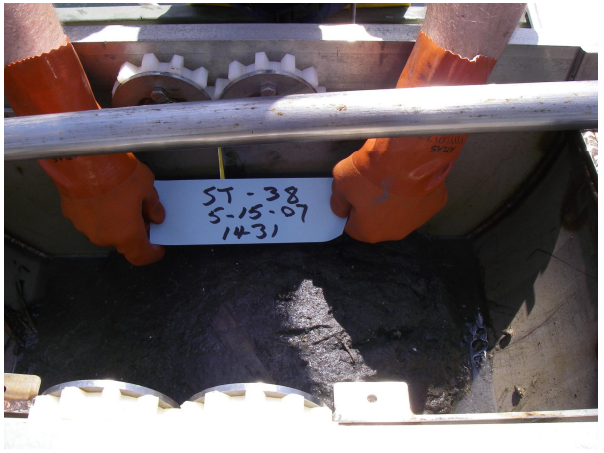
ST-34

ST-35



ST-36

ST-37



ST-38

ST-39

ST-40

ST-41

ST-42

Geomatrix

Appendix G

Chain-of-Custody Forms

LD21

Geomatrix Consultants
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043
(425) 697-4340

CHAIN OF CUSTODY

Recorded by: GSM

Checked by: _____

Place COC Form Number Label Here or write in seq. number below:

Analysis Containers												
PCBs/TOC	Archive											

Geomatrix Consultants
13116000100
COC Form
Initials: GSM
Date: 5-15-07 Time: 0916

Date: / Time: | 1 | | | | | | | | | | | | Number of containers

Geomatrix Consultants
13116000101
COC Form
Initials: GSM
Date: 5-15-07 Time: 0952

Date: / Time: | 1 | | | | | | | | | | | | Number of containers

Geomatrix Consultants
13116000102
COC Form
Initials: GSM
Date: 5-15-07 Time: 1009

Date: / Time: | 1 | | | | | | | | | | | | Number of containers

Geomatrix Consultants
13116000103
COC Form
Initials: GSM
Date: 5-15-07 Time: 1035

Date: / Time: | 1 | | | | | | | | | | | | Number of containers

Geomatrix Consultants
13116000104
COC Form
Initials: GSM
Date: 5-15-07 Time: 1105

Date: / Time: | 1 | | | | | | | | | | | | Number of containers

Place Sample ID Label Here or Write ID Number Here

Date: / Time: | | | | | | | | | | | | | Number of containers

Place Sample ID Label Here or Write ID Number Here

Date: / Time: | | | | | | | | | | | | | Number of containers

Laboratory/Analysis Comments
ARI Contact: Mark HArris Sediment Management Standards Chemicals of Concern (see attached list) TOC All analysis from single 1-l container **Samples require homogenization before analysis**

Relinquished By	Transported By	Received By
Name: Tim Foulis Date: 5/17/07 Time: 1325	NS	Name: Bob Conlon Date: 5/17/07 Time: 1425
Name: Date: Time:		Name: Date: Time:
Name: Date: Time:		Name: Date: Time:

Geomatrix Consultants
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043
(425) 697-4340

LD21

CHAIN OF CUSTODY

Recorded by: GSM

Checked by: _____

Place COC Form Number Label Here or write in seq. number below	Analysis Containers: PCBs/TOC	Archive											
Geomatrix Consultants 13116000105 COC Form Initials: GSM Date: 5-15-07 Time: 1127	1												
Geomatrix Consultants 13116000106 COC Form Initials: GSM Date: 5-15-07 Time: 1147	1												
Geomatrix Consultants 13116000107 COC Form Initials: GSM Date: 5-15-07 Time: 1313	1												
Geomatrix Consultants 13116000108 COC Form Initials: GSM Date: 5-15-07 Time: 1333	1												
Place Sample ID Label Here or Write ID Number Here													
Place Sample ID Label Here or Write ID Number Here													
Place Sample ID Label Here or Write ID Number Here													

Date: / Time: — Number of containers

Laboratory/Analysis Comments

ARI Contact: Mark HArris
Sediment Management Standards Chemicals of Concern (see attached list)
TOC
All analysis from single 1-l container
Samples require homogenization before analysis

Relinquished By	Transported By	Received By
Name: [illegible] Date: 5/17/07 Time: 0825	NR	Name: Bob Coughlin Date: 5/17/07 Time: 825
Name: Date: Time:		Name: Date: Time:
Name: Date: Time:		Name: Date: Time:

Geomatrix Consultants 10405
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043
(425) 697-4340

CHAIN OF CUSTODY

Place COC Form Number Label Here
or write in seq. number below.

Recorded by: CJW

Checked by: _____

Analysis Containers													
PCBs/TOC	Archive												

Geomatrix Consultants
13116000001
COC Form
Initials: CJW
Date: 7 may 07 Time: 1035

Date: / Time: — Number of containers

Geomatrix Consultants
13116000002
COC Form
Initials: CJW
Date: 7 may 07 Time: 1145

Date: / Time: — Number of containers

Geomatrix Consultants
13116000003
COC Form
Initials: CJW
Date: 7 may 07 Time: 1225

Date: / Time: — Number of containers

Geomatrix Consultants
13116000004
COC Form
Initials: CJW
Date: 7 may 07 Time: 1225

Date: / Time: — Number of containers

Geomatrix Consultants
13116000005
COC Form
Initials: CJW
Date: 7 may 07 Time: 1225

Date: / Time: — Number of containers

Geomatrix Consultants
13116000006
COC Form
Initials: CJW
Date: 7 may 07 Time: 1225

Date: / Time: — Number of containers

Geomatrix Consultants
13116000007
COC Form
Initials: CJW
Date: 7 may 07 Time: 1330

Date: / Time: — Number of containers

Sediment Management Standards Chemicals of Concern (see attached list)
TOC
All analysis from single 1-l container
Samples require homogenization before analysis

Relinquished By	Transported By	Received By
Name: [illegible]		Name: [illegible]
Date: 5/8/07		Date: 5/8/07
Time: 0738		Time: 0738
Name:		Name:
Date:		Date:
Time:		Time:
Name:		Name:
Date:		Date:
Time:		Time:

Geomatrix Consultants
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043
(425) 697-4340

4.1, 5.8°C

CHAIN OF CUSTODY

Place COC Form Number Label Here
or write in seq. number below

Recorded by: _____

Checked by: _____

	Analysis Containers													
	PCBs/TOC	Archive												
Geomatrix Consultants 13116000008 COC Form Initials: CJW Date: 7 MAY 07 Time: 1330		1												Number of containers
Geomatrix Consultants 13116000009 COC Form Initials: CJW Date: 7 MAY 07 Time: 1330		1												Number of containers
Geomatrix Consultants 13116000010 COC Form Initials: CJW Date: 7 MAY 07 Time: 1500		1												Number of containers
Geomatrix Consultants 13116000011 COC Form Initials: CJW Date: 7 MAY 07 Time: 1500		1												Number of containers
Geomatrix Consultants 13116000012 COC Form Initials: CJW Date: 7 MAY 07 Time: 1545		1												Number of containers
Geomatrix Consultants 13116000013 COC Form Initials: CJW Date: 7 MAY Time: 1545		1												Number of containers
Geomatrix Consultants 13116000014 COC Form Initials: CJW Date: 7 MAY Time: 1700		1												Number of containers

ARI Contact: Mark HArris
Sediment Management Standards Chemicals of Concern (see attached list)
TOC
All analysis from single 1-l container
Samples require homogenization before analysis

Relinquished By	Transported By	Received By
Name: [signature]	Nick Bachu	Name: [signature]
Date: 5/5/07		Date: 5/8/07
Time: 0738		Time: 0738
Name:		Name:
Date:		Date:
Time:		Time:
Name:		Name:
Date:		Date:
Time:		Time:

Geomatrix Consultants
6505 – 216th Street SW, Suite 100
Mountlake Terrace, WA 98043
(425) 697-4340

CHAIN OF CUSTODY

Recorded by: ____________

Checked by: ____________

Place COC Form Number Label Here or write in seq. number below

Geomatrix Consultants
13116000015
COC Form
Initials: CJW
Date: 7 MAY Time: 1700

Sample ID	Date/Time	PCBs/TOC	Archive										Number of containers
(COC label above)	Date: Time:		1										Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers

Laboratory/Analysis Comments

ARI Contact: Mark HArris
Sediment Management Standards Chemicals of Concern (see attached list)
TOC
All analysis from single 1-l container
Samples require homogenization before analysis

Relinquished By	Transported By	Received By
Name: [signature] Date: 5/8/07 Time: 0738	KB	Name: [signature] Date: 5/8/07 Time: 0738
Name: Date: Time:		Name: Date: Time:
Name: Date: Time:		Name: Date: Time:

Geomatrix Consultants
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Mountlake Terrace, WA 98043
(425) 697-4340

K425

CHAIN OF CUSTODY

1.1 °C Ice-yes

Place COC Form Number Label Here or write in seq. number below.

Recorded by: ______

Checked by: ______

COC Form Label	Date / Time	PCBs/TOC	Archive										
Geomatrix Consultants 13116000016 COC Form Initials: CJW Date: 8 May 07 Time: 1000	Date: Time:		1										Number of containers
Geomatrix Consultants 13116000017 COC Form Initials: CJW Date: 8 May 07 Time: 1100	Date: Time:		1										Number of containers
Geomatrix Consultants 13116000018 COC Form Initials: CJW Date: 8 May 07 Time: 1100	Date: Time:		1										Number of containers
Geomatrix Consultants 13116000019 COC Form Initials: CJW Date: 8 May 07 Time: 1100	Date: Time:		1										Number of containers
Geomatrix Consultants 13116000020 COC Form Initials: CJW Date: 8 May 07 Time: 1100	Date: Time:		1										Number of containers
Geomatrix Consultants 13116000021 COC Form Initials: CJW Date: 8 May 07 Time: 1145	Date: Time:												Number of containers
Geomatrix Consultants 13116000022 COC Form Initials: CJW Date: 8 May 07 Time: 1145	Date: Time:												Number of containers

Laboratory/Analysis Comments

ARI Contact: Mark HArris
Sediment Management Standards Chemicals of Concern (see attached list)
TOC
All analysis from single 1-l container
Samples require homogenization before analysis

Relinquished By	Transported By	Received By
Name: [signature] Date: 5/9/07 Time: 0738	NB	Name: [signature] Date: 5/9/07 Time: 0738
Name: Date: Time:		Name: Date: Time:
Name: Date: Time:		Name: Date: Time:

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CHAIN OF CUSTODY

Place COC Form Number Label Here or write in seq. number below.

Recorded by: ____________

Checked by: ____________

Geomatrix Consultants
13116000023
COC Form
Initials: CJW
Date: 8 may 07 Time: 1145

Sample ID	Date/Time	PCBs/TOC	Archive										Number of containers
(COC label above)	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers
Place Sample ID Label Here or Write ID Number Here	Date: Time:												Number of containers

Laboratory/Analysis Comments

ARI Contact: Mark HArris
Sediment Management Standards Chemicals of Concern (see attached list)
TOC
All analysis from single 1-l container
Samples require homogenization before analysis

Relinquished By	Transported By	Received By
Name: [signature] Date: 5/9/07 Time: 0738	NB	Name: [signature] Date: 5/9/7 Time: 0738
Name: Date: Time:		Name: Date: Time:
Name: Date: Time:		Name: Date: Time:

-0.8, 0.4, 1.6, 3.6°C Ice-yes

KZ33

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CHAIN OF CUSTODY

Recorded by: _____

Checked by: _____

Place COC Form Number Label Here or write in seq. number below	Date / Time	Analysis Containers: PCBs/TOC	Analysis Containers: Archive	Number of containers
Geomatrix Consultants 13116000025 COC Form Initials: CJW Date: 9 MAY 07 Time: 1240	Date: Time:		1	
Place Sample ID Label Here or Write ID Number Here	Date: Time:			
Place Sample ID Label Here or Write ID Number Here	Date: Time:			
Place Sample ID Label Here or Write ID Number Here	Date: Time:			
Place Sample ID Label Here or Write ID Number Here	Date: Time:			
Place Sample ID Label Here or Write ID Number Here	Date: Time:			
Place Sample ID Label Here or Write ID Number Here	Date: Time:			

Laboratory/Analysis Comments
ARI Contact: Mark HArris Sediment Management Standards Chemicals of Concern (see attached list) TOC All analysis from single 1-l container **Samples require homogenization before analysis**

Relinquished By	Transported By	Received By
Name: Ken Bull Date: 5/17/07 Time: 0825	NB	Name: Bob Coghlan Date: 5/17/07 Time: 825
Name: Date: Time:		Name: Date: Time:
Name: Date: Time:		Name: Date: Time:

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CHAIN OF CUSTODY

Place COC Form Number Label Here
or write in seq. number below.

Recorded by: _____

Checked by: _____

		Analysis Containers												
		PCBs/TOC	Archive											
Geomatrix Consultants 13116000026 COC Form Initials: CJW Date: 11 MAY 07 Time: 1020	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000024 COC Form Initials: CJW Date: 11 MAY 07 Time: 1100	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000027 COC Form Initials: CJW Date: 11 MAY 07 Time: 1300	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000028 COC Form Initials: CJW Date: 11 MAY 07 Time: 1410	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000029 COC Form Initials: CJW Date: 11 MAY 07 Time: 1410	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000030 COC Form Initials: CJW Date: 11 MAY 07 Time: 1410	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000031 COC Form Initials: CJW Date: 11 MAY 07 Time: 1515	Date: Time:		1											Number of containers

ARI Contact: Mark HArris
Sediment Management Standards Chemicals of Concern (see attached list)
TOC
All analysis from single 1-l container
Samples require homogenization before analysis

Relinquished By	Transported By	Received By
Name: [signature] Date: 5/17/07 Time: 0825	Name: NB	Name: Date: 5/17/07 Time: 806
Name: Date: Time:		Name: Date: Time:
Name: Date: Time:		Name: Date: Time:

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Mountlake Terrace, WA 98043
(425) 697-4340

CHAIN OF CUSTODY

Place COC Form Number Label Here or write in seq. number below.

Recorded by: ____________

Checked by: ____________

Label	Date/Time	PCBs/TOC	Archive											
Geomatrix Consultants 13116000033 COC Form Initials: CJW Date: 14 May 07 Time: 1115	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000034 COC Form Initials: CJW Date: 14 May 07 Time: 1245	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000035 COC Form Initials: CJW Date: 14 May 07 Time: 1245	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000036 COC Form Initials: CJW Date: 14 May 07 Time: 1320	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000037 COC Form Initials: CJW Date: 14 May 07 Time: 1320	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000038 COC Form Initials: CJW Date: 14 May 07 Time: 1400	Date: Time:		1											Number of containers
Geomatrix Consultants 13116000039 COC Form Initials: CJW Date: 14 May 07 Time: 1450	Date: Time:		1											Number of containers

ARI Contact: Mark HArris
Sediment Management Standards Chemicals of Concern (see attached list)
TOC
All analysis from single 1-l container
Samples require homogenization before analysis

Relinquished By	Transported By	Received By
Name: [signature] Date: 5/17/07 Time: 0825	NB	Name: [signature] Date: 5/17/07 Time: 825
Name: Date: Time:		Name: Date: Time:
Name: Date: Time:		Name: Date: Time:

Geomatrix

Appendix H

Analytical Laboratory Data Forms

FRONTIER
ANALYTICAL LABORATORY

June 19, 2007

FAL Project ID: 4475

Mr. Mark Harris
Analytical Resources Incorporated
4611 South 134th Place
Tukwila, WA 98168-3240

Dear Mr. Harris,

Enclosed are the results for Frontier Analytical Laboratory project **4475**. This corresponds to ARI Project; **LA62** and Project ID; Port of Everett. The four sediment samples received on 5/30/2007 were extracted and analyzed by EPA Method 1613 for tetra through octa chlorinated dibenzo dioxins and dibenzo furans. Analytical Resources Incorporated requested a turnaround time of fifteen business days for project **4475**.

The following Level I report consists of an Analytical Data section and a Sample Receipt section. The Analytical Data section contains our project-sample tracking log and the analytical results. The Sample Receipt section contains your original chain of custody, our sample login form and a sample photo. The Electronic Data Deliverable (EDD) you requested has been sent to you via email. The enclosed results are specifically for the samples referenced in this report only. These results meet all NELAC requirements and shall not be reproduced except in full.

If you have any questions regarding project **4475**, please contact me at (916) 934-0900. Thank you for choosing Frontier Analytical Laboratory for your analytical testing needs.

Sincerely,

Bradley B. Silverbush
Director of Operations

Frontier Analytical Laboratory

Sample Tracking Log

FAL Project ID: **4475**

Received on: **05/30/2007** Project Due: **06/21/2007** Storage: **R2**

FAL Sample ID	Dup	Client Project ID	Client Sample ID	Requested Method	Matrix	Sampling Date	Sampling Time
4475-001-0001-SA	0	LA62	13116000007	EPA 1613 D/F	Sediment	05/07/2007	01:30 pm
4475-002-0001-SA	0	LA62	13116000013	EPA 1613 D/F	Sediment	05/07/2007	03:45 pm
4475-003-0001-SA	0	LA62	13116000019	EPA 1613 D/F	Sediment	05/08/2007	11:00 am
4475-004-0001-SA	0	LA62	13116000037	EPA 1613 D/F	Sediment	05/14/2007	01:20 pm

FAL Sample ID	Notes
4475-001-0001-SA	Using hand written sampling time and date from bottle label for our tracking purposes.
4475-002-0001-SA	Using hand written sampling time and date from bottle label for our tracking purposes.
4475-003-0001-SA	Using hand written sampling time and date from bottle label for our tracking purposes.
4475-004-0001-SA	Using hand written sampling time and date from bottle label for our tracking purposes.

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 4475-001-MB
Client ID: Method Blank
Matrix: Sediment
Batch No: X1173

Date Extracted: 06-13-2007
Date Received: NA
Amount: 10.00 g

ICal: PCDDFAL3-6-5-07
GC Column: DB5
Units: pg/g

Acquired: 06-14-2007
1998 WHO TEQ: 0.00

Compound	Conc	DL	Qual	1998 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	ND	0.0783		-	0.0463				
1,2,3,7,8-PeCDD	ND	0.0946		-	0.0277				
1,2,3,4,7,8-HxCDD	ND	0.255		-	0.0904				
1,2,3,6,7,8-HxCDD	ND	0.267		-	0.100	Total TCDD	ND	0.0783	
1,2,3,7,8,9-HxCDD	ND	0.292		-	0.0918	Total PeCDD	ND	0.0946	
1,2,3,4,6,7,8-HpCDD	ND	0.298		-	0.0806	Total HxCDD	ND	0.292	
OCDD	ND	0.548		-	0.191	Total HpCDD	ND	0.298	
2,3,7,8-TCDF	ND	0.0795		-	0.0373				
1,2,3,7,8-PeCDF	ND	0.118		-	0.0383				
2,3,4,7,8-PeCDF	ND	0.115		-	0.0426				
1,2,3,4,7,8-HxCDF	ND	0.0675		-	0.0282				
1,2,3,6,7,8-HxCDF	ND	0.0665		-	0.0285				
2,3,4,6,7,8-HxCDF	ND	0.0775		-	0.0322				
1,2,3,7,8,9-HxCDF	ND	0.118		-	0.0289	Total TCDF	ND	0.115	
1,2,3,4,6,7,8-HpCDF	ND	0.124		-	0.0383	Total PeCDF	ND	0.118	
1,2,3,4,7,8,9-HpCDF	ND	0.145		-	0.0403	Total HxCDF	ND	0.118	
OCDF	ND	0.527		-	0.104	Total HpCDF	ND	0.145	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	89.3	25.0 - 164	
13C-1,2,3,7,8-PeCDD	78.5	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	88.4	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	87.0	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	92.3	23.0 - 140	
13C-OCDD	88.0	17.0 - 157	
13C-2,3,7,8-TCDF	97.4	24.0 - 169	
13C-1,2,3,7,8-PeCDF	84.7	24.0 - 185	
13C-2,3,4,7,8-PeCDF	86.2	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	85.5	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	86.5	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	86.8	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	92.0	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	87.4	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	131	26.0 - 138	
13C-OCDF	93.0	17.0 - 157	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	95.3	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 6/15/07

Reviewed By: _____
Date: 6/15/07

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 4475-001-OPR
Client ID: OPR
Matrix: Sediment
Batch No: X1173

Date Extracted: 06-13-2007
Date Received: NA
Amount: 10.00 g

ICal: PCDDFAL3-6-5-07
GC Column: DB5
Units: ng/ml

Acquired: 06-14-2007
1998 WHO TEQ: NA

Compound	Conc	QC Limits	Qual
2,3,7,8-TCDD	10.5	6.70 - 15.8	
1,2,3,7,8-PeCDD	51.7	35.0 - 71.0	
1,2,3,4,7,8-HxCDD	52.3	35.0 - 82.0	
1,2,3,6,7,8-HxCDD	51.8	38.0 - 67.0	
1,2,3,7,8,9-HxCDD	54.6	32.0 - 81.0	
1,2,3,4,6,7,8-HpCDD	52.9	35.0 - 70.0	
OCDD	105	78.0 - 144	
2,3,7,8-TCDF	10.9	7.50 - 15.8	
1,2,3,7,8-PeCDF	51.1	40.0 - 67.0	
2,3,4,7,8-PeCDF	52.1	34.0 - 80.0	
1,2,3,4,7,8-HxCDF	51.8	36.0 - 67.0	
1,2,3,6,7,8-HxCDF	52.8	42.0 - 65.0	
2,3,4,6,7,8-HxCDF	52.1	35.0 - 78.0	
1,2,3,7,8,9-HxCDF	52.0	39.0 - 65.0	
1,2,3,4,6,7,8-HpCDF	52.6	41.0 - 61.0	
1,2,3,4,7,8,9-HpCDF	56.3	39.0 - 69.0	
OCDF	110	63.0 - 170	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	104	20.0 - 175	
13C-1,2,3,7,8-PeCDD	98.2	21.0 - 227	
13C-1,2,3,4,7,8-HxCDD	91.3	21.0 - 193	
13C-1,2,3,6,7,8-HxCDD	94.2	25.0 - 163	
13C-1,2,3,4,6,7,8-HpCDD	103	26.0 - 166	
13C-OCDD	109	13.0 - 198	
13C-2,3,7,8-TCDF	114	22.0 - 152	
13C-1,2,3,7,8-PeCDF	108	21.0 - 192	
13C-2,3,4,7,8-PeCDF	112	13.0 - 328	
13C-1,2,3,4,7,8-HxCDF	90.0	19.0 - 202	
13C-1,2,3,6,7,8-HxCDF	92.6	21.0 - 159	
13C-2,3,4,6,7,8-HxCDF	93.7	22.0 - 176	
13C-1,2,3,7,8,9-HxCDF	101	17.0 - 205	
13C-1,2,3,4,6,7,8-HpCDF	97.1	21.0 - 158	
13C-1,2,3,4,7,8,9-HpCDF	130	20.0 - 186	
13C-OCDF	107	13.0 - 198	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	110	31.0 - 191	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 6/15/07

Reviewed By: _____
Date: 6/15/07

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 4475-001-SA
Client ID: 13116000007
Matrix: Sediment
Batch No: X1173

Date Extracted: 06-13-2007
Date Received: 05-30-2007
Amount: 10.28 g
% Solids: 22.93

ICal: PCDDFAL3-6-5-07
GC Column: DB5
Units: pg/g

Acquired: 06-15-2007
1998 WHO TEQ: 18.6

Compound	Conc	DL	Qual	1998 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	0.967	-		0.967	0.0463				
1,2,3,7,8-PeCDD	1.57	-	J	1.57	0.0277				
1,2,3,4,7,8-HxCDD	2.57	-		0.257	0.0904				
1,2,3,6,7,8-HxCDD	5.85	-		0.585	0.100	Total TCDD	166	-	
1,2,3,7,8,9-HxCDD	3.21	-		0.321	0.0918	Total PeCDD	90.4	-	
1,2,3,4,6,7,8-HpCDD	91.8	-		0.918	0.0806	Total HxCDD	103	-	
OCDD	552	-		0.0552	0.191	Total HpCDD	189	-	
2,3,7,8-TCDF	105	-	F	10.5	0.0373				
1,2,3,7,8-PeCDF	3.01	-		0.150	0.0383				
2,3,4,7,8-PeCDF	3.51	-		1.76	0.0426				
1,2,3,4,7,8-HxCDF	4.29	-		0.429	0.0282				
1,2,3,6,7,8-HxCDF	2.49	-		0.249	0.0285				
2,3,4,6,7,8-HxCDF	2.75	-		0.275	0.0322				
1,2,3,7,8,9-HxCDF	0.781	-	J	0.0781	0.0289	Total TCDF	274	-	D,M
1,2,3,4,6,7,8-HpCDF	43.8	-		0.438	0.0383	Total PeCDF	51.7	-	D,M
1,2,3,4,7,8,9-HpCDF	1.74	-	J	0.0174	0.0403	Total HxCDF	67.2	-	
OCDF	68.3	-		0.00683	0.104	Total HpCDF	132	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	106	25.0 - 164	
13C-1,2,3,7,8-PeCDD	87.1	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	81.5	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	90.8	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	94.5	23.0 - 140	
13C-OCDD	90.7	17.0 - 157	
13C-2,3,7,8-TCDF	109	24.0 - 169	
13C-1,2,3,7,8-PeCDF	100	24.0 - 185	
13C-2,3,4,7,8-PeCDF	105	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	79.3	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	88.2	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	87.1	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	98.9	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	93.1	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	106	26.0 - 138	
13C-OCDF	81.7	17.0 - 157	

Cleanup Surrogate

37Cl-2,3,7,8-TCDD	111	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 6/15/07

Reviewed By: _____
Date: 6/15/07

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 4475-002-SA
Client ID: 13116000013
Matrix: Sediment
Batch No: X1173

Date Extracted: 06-13-2007
Date Received: 05-30-2007
Amount: 10.17 g
% Solids: 35.09

ICal: PCDDFAL3-6-5-07
GC Column: DB5
Units: pg/g

Acquired: 06-15-2007
1998 WHO TEQ: 36.2

Compound	Conc	DL	Qual	1998 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	2.72	-		2.72	0.0463				
1,2,3,7,8-PeCDD	5.22	-		5.22	0.0277				
1,2,3,4,7,8-HxCDD	13.6	-		1.36	0.0904				
1,2,3,6,7,8-HxCDD	33.1	-		3.31	0.100	Total TCDD	377	-	
1,2,3,7,8,9-HxCDD	17.8	-		1.78	0.0918	Total PeCDD	214	-	
1,2,3,4,6,7,8-HpCDD	799	-		7.99	0.0806	Total HxCDD	476	-	
OCDD	8930	-		0.893	0.191	Total HpCDD	1910	-	
2,3,7,8-TCDF	50.2	-	F	5.02	0.0373				
1,2,3,7,8-PeCDF	7.31	-		0.366	0.0383				
2,3,4,7,8-PeCDF	8.76	-		4.38	0.0426				
1,2,3,4,7,8-HxCDF	10.2	-		1.02	0.0282				
1,2,3,6,7,8-HxCDF	5.34	-		0.534	0.0285				
2,3,4,6,7,8-HxCDF	6.20	-		0.620	0.0322				
1,2,3,7,8,9-HxCDF	3.57	-		0.357	0.0289	Total TCDF	311	-	D,M
1,2,3,4,6,7,8-HpCDF	58.5	-		0.585	0.0383	Total PeCDF	120	-	D,M
1,2,3,4,7,8,9-HpCDF	3.42	-		0.0342	0.0403	Total HxCDF	173	-	
OCDF	103	-		0.0103	0.104	Total HpCDF	175	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	102	25.0 - 164	
13C-1,2,3,7,8-PeCDD	85.6	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	84.4	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	89.9	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	106	23.0 - 140	
13C-OCDD	122	17.0 - 157	
13C-2,3,7,8-TCDF	106	24.0 - 169	
13C-1,2,3,7,8-PeCDF	97.6	24.0 - 185	
13C-2,3,4,7,8-PeCDF	104	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	86.9	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	89.7	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	93.6	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	103	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	100	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	122	26.0 - 138	
13C-OCDF	105	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	109	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 6/15/07

Reviewed By: _____
Date: 6/15/07

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 4475-003-SA
Client ID: 13116000019
Matrix: Sediment
Batch No: X1173

Date Extracted: 06-13-2007
Date Received: 05-30-2007
Amount: 9.99 g
% Solids: 29.96

ICal: PCDDFAL3-6-5-07
GC Column: DB5
Units: pg/g

Acquired: 06-15-2007
1998 WHO TEQ: 38.0

Compound	Conc	DL	Qual	1998 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	5.85	-		5.85	0.0463				
1,2,3,7,8-PeCDD	11.9	-		11.9	0.0277				
1,2,3,4,7,8-HxCDD	20.8	-		2.08	0.0904				
1,2,3,6,7,8-HxCDD	23.6	-		2.36	0.100	Total TCDD	3110	-	
1,2,3,7,8,9-HxCDD	19.5	-		1.95	0.0918	Total PeCDD	1440	-	
1,2,3,4,6,7,8-HpCDD	153	-		1.53	0.0806	Total HxCDD	1310	-	
OCDD	138	-		0.0138	0.191	Total HpCDD	277	-	
2,3,7,8-TCDF	25.2	-	F	2.52	0.0373				
1,2,3,7,8-PeCDF	10.6	-		0.530	0.0383				
2,3,4,7,8-PeCDF	12.9	-		6.45	0.0426				
1,2,3,4,7,8-HxCDF	6.89	-		0.689	0.0282				
1,2,3,6,7,8-HxCDF	7.59	-		0.759	0.0285				
2,3,4,6,7,8-HxCDF	8.78	-		0.878	0.0322				
1,2,3,7,8,9-HxCDF	2.58	-		0.258	0.0289	Total TCDF	496	-	D,M
1,2,3,4,6,7,8-HpCDF	16.7	-		0.167	0.0383	Total PeCDF	197	-	D,M
1,2,3,4,7,8,9-HpCDF	2.48	-	J	0.0248	0.0403	Total HxCDF	80.8	-	D,M
OCDF	5.59	-		0.000559	0.104	Total HpCDF	27.6	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	97.9	25.0 - 164	
13C-1,2,3,7,8-PeCDD	76.6	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	82.2	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	85.4	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	96.3	23.0 - 140	
13C-OCDD	93.1	17.0 - 157	
13C-2,3,7,8-TCDF	99.9	24.0 - 169	
13C-1,2,3,7,8-PeCDF	91.5	24.0 - 185	
13C-2,3,4,7,8-PeCDF	87.7	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	82.1	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	86.7	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	90.8	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	96.9	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	93.9	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	116	26.0 - 138	
13C-OCDF	87.0	17.0 - 157	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	102	35.0 - 197

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 6/15/07

Reviewed By: _____
Date: 6/15/07

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EPA Method 1613
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 4475-004-SA
Client ID: 13116000037
Matrix: Sediment
Batch No: X1173

Date Extracted: 06-13-2007
Date Received: 05-30-2007
Amount: 10.14 g
% Solids: 21.73

ICal: PCDDFAL3-6-5-07
GC Column: DB5
Units: pg/g

Acquired: 06-15-2007
1998 WHO TEQ: 127

Compound	Conc	DL	Qual	1998 WHO Tox	MDL	Compound	Conc	DL	Qual
2,3,7,8-TCDD	18.6	-		18.6	0.0463				
1,2,3,7,8-PeCDD	46.4	-		46.4	0.0277				
1,2,3,4,7,8-HxCDD	64.8	-		6.48	0.0904				
1,2,3,6,7,8-HxCDD	79.0	-		7.90	0.100	Total TCDD	7200	-	
1,2,3,7,8,9-HxCDD	63.8	-		6.38	0.0918	Total PeCDD	3990	-	
1,2,3,4,6,7,8-HpCDD	500	-		5.00	0.0806	Total HxCDD	4040	-	
OCDD	592	-		0.0592	0.191	Total HpCDD	878	-	
2,3,7,8-TCDF	87.4	-	F	8.74	0.0373				
1,2,3,7,8-PeCDF	37.0	-		1.85	0.0383				
2,3,4,7,8-PeCDF	33.3	-		16.6	0.0426				
1,2,3,4,7,8-HxCDF	23.6	-		2.36	0.0282				
1,2,3,6,7,8-HxCDF	22.8	-		2.28	0.0285				
2,3,4,6,7,8-HxCDF	25.9	-		2.59	0.0322				
1,2,3,7,8,9-HxCDF	7.36	-		0.736	0.0289	Total TCDF	1730	-	D,M
1,2,3,4,6,7,8-HpCDF	74.0	-		0.740	0.0383	Total PeCDF	622	-	D,M
1,2,3,4,7,8,9-HpCDF	8.95	-		0.0895	0.0403	Total HxCDF	268	-	D,M
OCDF	61.3	-		0.00613	0.104	Total HpCDF	150	-	

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	106	25.0 - 164	
13C-1,2,3,7,8-PeCDD	87.0	25.0 - 181	
13C-1,2,3,4,7,8-HxCDD	85.9	32.0 - 141	
13C-1,2,3,6,7,8-HxCDD	90.6	28.0 - 130	
13C-1,2,3,4,6,7,8-HpCDD	110	23.0 - 140	
13C-OCDD	104	17.0 - 157	
13C-2,3,7,8-TCDF	118	24.0 - 169	
13C-1,2,3,7,8-PeCDF	108	24.0 - 185	
13C-2,3,4,7,8-PeCDF	112	21.0 - 178	
13C-1,2,3,4,7,8-HxCDF	89.7	26.0 - 152	
13C-1,2,3,6,7,8-HxCDF	94.5	26.0 - 123	
13C-2,3,4,6,7,8-HxCDF	95.6	28.0 - 136	
13C-1,2,3,7,8,9-HxCDF	104	29.0 - 147	
13C-1,2,3,4,6,7,8-HpCDF	108	28.0 - 143	
13C-1,2,3,4,7,8,9-HpCDF	126	26.0 - 138	
13C-OCDF	92.9	17.0 - 157	

Cleanup Surrogate			
37Cl-2,3,7,8-TCDD	109	35.0 - 197	

A	Isotopic Labeled Standard outside QC range but signal to noise ratio is >10:1
B	Analyte is present in Method Blank
C	Chemical Interference
D	Presence of Diphenyl Ethers
E	Analyte concentration is above calibration range
F	Analyte confirmation on secondary column
J	Analyte concentration is below calibration range
M	Maximum possible concentration
ND	Analyte Not Detected
NP	Not Provided
S	Sample acceptance criteria not met
X	Matrix interferences
*	Result taken from dilution or reinjection

Analyst: _____
Date: 6/15/07

Reviewed By: _____
Date: 6/15/07

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SUBCONTRACTOR ANALYSIS REQUEST
CUSTODY TRANSFER 05/24/07

ANALYTICAL RESOURCES INCORPORATED

ARI Project: LA62

4475
0°

Laboratory: Frontier Analytical Laboratory
Lab Contact: BRAD SILVERBUSH
Lab Address: 5172 Hillsdale Circle
El Dorado Hills, CA 95762
Phone: 916-934-0900
Fax: 916-934-0999

ARI Client: Geomatrix Consultants
Project ID: Port of Everett
ARI PM: Mark Harris
Phone: 206-695-6210
Fax: 206-695-6201

Analytical Protocol: PSDDA
Special Instructions:

Requested Turn Around: 06/08/07
Fax Results (Y/N): Y

Limits of Liability. *Subcontractor is expected to perform all requested services in accordance with appropriate methodology following Standard Operating Procedures that meet standards for the industry. The total liability of ARI, its officers, agents, employees, or sucessors, arising out of or in connection with the requested services, shall not exceed the negotiated amount for said services. The agreement by the Subcontractor to perform services requested by ARI releases ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Subcontractor.*

ARI ID	Client ID/ Add'l ID	Sampled	Matrix	Bottles	Analyses
07-10229-LA62A	13116000007	05/07/07	Sediment	1	Dioxins/Furans (Sub)
Special Instructions: None					1613
07-10230-LA62B	13116000013	05/07/07	Sediment	1	Dioxins/Furans (Sub)
Special Instructions: None					1613
07-10231-LA62C	13116000019	05/08/07	Sediment	1	Dioxins/Furans (Sub)
Special Instructions: None					1613
07-10232-LA62D	13116000037	05/14/07	Sediment	1	Dioxins/Furans (Sub)
Special Instructions: None					1613

Carrier		Airbill		Date	
UPS		1Z 832 695 13 4416 9637		5/29/07	
Relinquished by	Company	Date		Time	
BC	ARI	5/29/07		1500	
Received by	Company	Date		Time	
~~FAL~~ Joseph Ngo	FAL	5/30/07		11:30	

Frontier Analytical Laboratory

Sample Login Form

FAL Project ID: **4475**

Client:	Analytical Resources Inc. Mark Harris
Client Project ID:	LA62
Date Received:	05/30/2007
Time Received:	11:30 am
Received By:	JN
Logged In By:	JN
# of Samples Received:	4
Duplicates:	0
Storage Location:	R2

Method of Delivery:	UPS
Tracking Number:	1Z8326951344169637
Shipping Container Received Intact	Yes
Custody seals(s) present?	No
Custody seals(s) intact?	No
Sample Arrival Temperature (C)	0
Cooling Method	Ice
Chain Of Custody Present?	Yes
Return Shipping Container To Client	Yes
Test for residual Chlorine	No
Thiosulfate Added	No
Earliest Sample Hold Time Expiration	05/06/2008
Adequate Sample Volume	Yes
Anomalies or additional comments:	

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

22 June 2007

Rob Gilmour
Geomatrix, Inc.
6505 216th St. SW Ste 100
Mountlake Terrace, WA 98043

RE: Project: Port of Everett
ARI Job No.: LA62

Dear Rob:

Please find enclosed the final data package for the samples from the project referenced above. Analytical Resources, Inc. received sixty-five sediment samples in good condition on May 17, 2007. There were no discrepancies in the paperwork. All samples were placed on hold as specified.

Fifteen samples were removed from hold and they were analyzed for SVOAs, dioxins/furans and TOC as requested on 5/24/07. The test for dioxins/furans was sub-contracted to Frontier Analytical in El Dorado Hills, California.

Problems associated with these analyses are discussed in the case narrative.

A copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

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

Enclosures

cc: file LA62

MDH/mdh

Case Narrative

prepared
for

GEOMATRIX CONSULTANTS

Project: Port of Everett

ARI JOB NO: LA62

prepared
by

Analytical Resources, Inc.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Case Narrative

Client: Geomatrix, Inc.
Project: Port of Everett
Matrix: Sediment
ARI Job No: LA62
Date: June 22, 2007

Semivolatile Organics Analysis

All samples were initially analyzed on 6/13/07. The areas for the internal standards, d8-naphthalene and d10-phenanthrene, were not within control limits following the initial analyses of samples 13116000006, 13116000010 and 13116000031. These samples were diluted and re-analyzed. The areas for all internal standards were within acceptable QC limits for the re-analyses. The results for both analyses have been submitted for these samples.

The percent recoveries for the surrogates, d14-p-terphenyl and d5-nitrobenzne, were not within control limits following the initial analyses of samples 13116000004, 13116000021 and 13116000029. These samples were diluted and re-analyzed. The percent recoveries for all surrogates were within established QC limits for the re-analyses. The results for both analyses have been submitted for these samples.

The percent difference for PCP was slightly high following the analysis of the continuing calibration standard that bracketed the analyses of these samples on 6/14/07. Since all PCP date were within established control limits for the 6/13/07 analyses, no corrective actions were taken.

Conventionals Analyses

These analyses proceeded without incident of note.

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Data Summary Package

prepared
for

GEOMATRIX CONSULTANTS

Project: Port of Everett

ARI JOB NO: LA62

prepared
by

Analytical Resources, Inc.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Case Narrative

Client: Geomatrix, Inc.
Project: Port of Everett
Matrix: Sediment
ARI Job No: LA62
Date: June 22, 2007

Semivolatile Organics Analysis

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The percent difference for PCP was slightly high following the analysis of the continuing calibration standard that bracketed the analyses of these samples on 6/14/07. Since all PCP date were within established control limits for the 6/13/07 analyses, no corrective actions were taken.

Conventionals Analyses

These analyses proceeded without incident of note.

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SIM SEMIVOLATILE

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
Page 1 of 2

Sample ID: 13116000004
SAMPLE

Lab Sample ID: LA62E
LIMS ID: 07-10233
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 18:09
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 4.11 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 68.4%
pH: 8.0

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**24**	**1,200**
91-57-6	**2-Methylnaphthalene**	**24**	**140**
208-96-8	**Acenaphthylene**	**24**	**140**
83-32-9	**Acenaphthene**	**24**	**97**
86-73-7	**Fluorene**	**24**	**95**
85-01-8	**Phenanthrene**	**24**	**310**
120-12-7	**Anthracene**	**24**	**49**
206-44-0	**Fluoranthene**	**24**	**330**
129-00-0	**Pyrene**	**24**	**68**
56-55-3	Benzo(a)anthracene	24	< 24 U
218-01-9	Chrysene	24	< 24 U
205-99-2	Benzo(b)fluoranthene	24	< 24 U
207-08-9	Benzo(k)fluoranthene	24	< 24 U
50-32-8	Benzo(a)pyrene	24	< 24 U
193-39-5	Indeno(1,2,3-cd)pyrene	24	< 24 U
53-70-3	Dibenz(a,h)anthracene	24	< 24 U
191-24-2	Benzo(g,h,i)perylene	24	< 24 U
132-64-9	**Dibenzofuran**	**24**	**110**
106-46-7	1,4-Dichlorobenzene	24	< 24 U
120-82-1	1,2,4-Trichlorobenzene	24	< 24 U
118-74-1	Hexachlorobenzene	24	< 24 U
87-68-3	Hexachlorobutadiene	24	< 24 U
108-95-2	**Phenol**	**24**	**140 B**
106-44-5	**4-Methylphenol**	**24**	**2,500 E**
65-85-0	**Benzoic Acid**	**240**	**600**
131-11-3	Dimethylphthalate	24	< 24 U
84-66-2	Diethylphthalate	24	< 24 U
84-74-2	**Di-n-Butylphthalate**	**24**	**90 B**
85-68-7	**Butylbenzylphthalate**	**24**	**220**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**24**	**36 B**
117-84-0	Di-n-Octyl phthalate	24	< 24 U
95-48-7	**2-Methylphenol**	**24**	**44**
105-67-9	**2,4-Dimethylphenol**	**24**	**34**
86-30-6	N-Nitrosodiphenylamine	24	< 24 U
100-51-6	Benzyl Alcohol	120	< 120 U
87-86-5	Pentachlorophenol	120	< 120 U
95-50-1	1,2-Dichlorobenzene	24	< 24 U

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000004**
 SAMPLE

Lab Sample ID: LA62E
LIMS ID: 07-10233
Matrix: Sediment
Date Analyzed: 06/13/07 18:09

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	43.2%	d5-Phenol	53.3%
2-Fluorophenol	50.7%	d4-2-Chlorophenol	52.8%
d4-1,2-Dichlorobenzene	47.6%	d5-Nitrobenzene	53.6%
2,4,6-Tribromophenol	63.5%	d14-p-Terphenyl	25.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000004**
Page 1 of 2 **DILUTION**

Lab Sample ID: LA62E
LIMS ID: 07-10233
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 14:42
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 4.11 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 5.00
Percent Moisture: 68.4%
pH: 8.0

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**120**	**1,400**
91-57-6	**2-Methylnaphthalene**	**120**	**150**
208-96-8	**Acenaphthylene**	**120**	**170**
83-32-9	**Acenaphthene**	**120**	**130**
86-73-7	**Fluorene**	**120**	**120**
85-01-8	**Phenanthrene**	**120**	**330**
120-12-7	Anthracene	120	< 120 U
206-44-0	**Fluoranthene**	**120**	**580**
129-00-0	Pyrene	120	< 120 U
56-55-3	Benzo(a)anthracene	120	< 120 U
218-01-9	Chrysene	120	< 120 U
205-99-2	Benzo(b)fluoranthene	120	< 120 U
207-08-9	Benzo(k)fluoranthene	120	< 120 U
50-32-8	Benzo(a)pyrene	120	< 120 U
193-39-5	Indeno(1,2,3-cd)pyrene	120	< 120 U
53-70-3	Dibenz(a,h)anthracene	120	< 120 U
191-24-2	Benzo(g,h,i)perylene	120	< 120 U
132-64-9	**Dibenzofuran**	**120**	**170**
106-46-7	1,4-Dichlorobenzene	120	< 120 U
120-82-1	1,2,4-Trichlorobenzene	120	< 120 U
118-74-1	Hexachlorobenzene	120	< 120 U
87-68-3	Hexachlorobutadiene	120	< 120 U
108-95-2	**Phenol**	**120**	**150 B**
106-44-5	**4-Methylphenol**	**120**	**2,600**
65-85-0	Benzoic Acid	1,200	< 1,200 U
131-11-3	Dimethylphthalate	120	< 120 U
84-66-2	Diethylphthalate	120	< 120 U
84-74-2	Di-n-Butylphthalate	120	< 120 U
85-68-7	**Butylbenzylphthalate**	**120**	**390**
117-81-7	bis(2-Ethylhexyl)phthalate	120	< 120 U
117-84-0	Di-n-Octyl phthalate	120	< 120 U
95-48-7	2-Methylphenol	120	< 120 U
105-67-9	2,4-Dimethylphenol	120	< 120 U
86-30-6	N-Nitrosodiphenylamine	120	< 120 U
100-51-6	Benzyl Alcohol	610	< 610 U
87-86-5	Pentachlorophenol	610	< 610 U
95-50-1	1,2-Dichlorobenzene	120	< 120 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000004**
 DILUTION

Lab Sample ID: LA62E
LIMS ID: 07-10233
Matrix: Sediment
Date Analyzed: 06/14/07 14:42

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	56.0%	d5-Phenol	54.7%
2-Fluorophenol	52.0%	d4-2-Chlorophenol	53.3%
d4-1,2-Dichlorobenzene	52.0%	d5-Nitrobenzene	58.0%
2,4,6-Tribromophenol	76.0%	d14-p-Terphenyl	22.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000006
SAMPLE

Lab Sample ID: LA62F
LIMS ID: 07-10234
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 18:42
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 58.6%
pH: 7.8

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	6.2	480
91-57-6	2-Methylnaphthalene	6.2	570
208-96-8	Acenaphthylene	6.2	79
83-32-9	Acenaphthene	6.2	2,600 E
86-73-7	Fluorene	6.2	3,200 E
85-01-8	Phenanthrene	6.2	9,600 E
120-12-7	Anthracene	6.2	2,500 E
206-44-0	Fluoranthene	6.2	4,500 E
129-00-0	Pyrene	6.2	3,300 E
56-55-3	Benzo(a)anthracene	6.2	720 E
218-01-9	Chrysene	6.2	690 E
205-99-2	Benzo(b)fluoranthene	6.2	270
207-08-9	Benzo(k)fluoranthene	6.2	300
50-32-8	Benzo(a)pyrene	6.2	260
193-39-5	Indeno(1,2,3-cd)pyrene	6.2	120
53-70-3	Dibenz(a,h)anthracene	6.2	43
191-24-2	Benzo(g,h,i)perylene	6.2	140
132-64-9	Dibenzofuran	6.2	1,900 E
106-46-7	1,4-Dichlorobenzene	6.2	< 6.2 U
120-82-1	1,2,4-Trichlorobenzene	6.2	< 6.2 U
118-74-1	Hexachlorobenzene	6.2	< 6.2 U
87-68-3	Hexachlorobutadiene	6.2	< 6.2 U
108-95-2	Phenol	6.2	31 B
106-44-5	4-Methylphenol	6.2	270
65-85-0	Benzoic Acid	62	< 62 U
131-11-3	Dimethylphthalate	6.2	< 6.2 U
84-66-2	Diethylphthalate	6.2	< 6.2 U
84-74-2	Di-n-Butylphthalate	6.2	290 B
85-68-7	Butylbenzylphthalate	6.2	< 6.2 U
117-81-7	bis(2-Ethylhexyl)phthalate	6.2	9.9 B
117-84-0	Di-n-Octyl phthalate	6.2	< 6.2 U
95-48-7	2-Methylphenol	6.2	23
105-67-9	2,4-Dimethylphenol	6.2	42
86-30-6	N-Nitrosodiphenylamine	71	< 71 Y
100-51-6	Benzyl Alcohol	31	510
87-86-5	Pentachlorophenol	31	< 31 U
95-50-1	1,2-Dichlorobenzene	6.2	< 6.2 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000006
SAMPLE

Lab Sample ID: LA62F
LIMS ID: 07-10234
Matrix: Sediment
Date Analyzed: 06/13/07 18:42

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	46.4%	d5-Phenol	44.3%
2-Fluorophenol	38.7%	d4-2-Chlorophenol	44.0%
d4-1,2-Dichlorobenzene	39.6%	d5-Nitrobenzene	12.0%
2,4,6-Tribromophenol	82.9%	d14-p-Terphenyl	60.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000006
DILUTION

Lab Sample ID: LA62F
LIMS ID: 07-10234
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 15:15
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 20.0
Percent Moisture: 58.6%
pH: 7.8

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**120**	**3,100**
91-57-6	**2-Methylnaphthalene**	**120**	**2,400**
208-96-8	Acenaphthylene	120	< 120 U
83-32-9	**Acenaphthene**	**120**	**5,200**
86-73-7	**Fluorene**	**120**	**5,700**
85-01-8	**Phenanthrene**	**120**	**16,000 E**
120-12-7	**Anthracene**	**120**	**2,100**
206-44-0	**Fluoranthene**	**120**	**6,600**
129-00-0	**Pyrene**	**120**	**4,200**
56-55-3	**Benzo(a)anthracene**	**120**	**760**
218-01-9	**Chrysene**	**120**	**760**
205-99-2	**Benzo(b)fluoranthene**	**120**	**320**
207-08-9	**Benzo(k)fluoranthene**	**120**	**280**
50-32-8	**Benzo(a)pyrene**	**120**	**260**
193-39-5	Indeno(1,2,3-cd)pyrene	120	< 120 U
53-70-3	Dibenz(a,h)anthracene	120	< 120 U
191-24-2	Benzo(g,h,i)perylene	120	< 120 U
132-64-9	**Dibenzofuran**	**120**	**4,300**
106-46-7	1,4-Dichlorobenzene	120	< 120 U
120-82-1	1,2,4-Trichlorobenzene	120	< 120 U
118-74-1	Hexachlorobenzene	120	< 120 U
87-68-3	Hexachlorobutadiene	120	< 120 U
108-95-2	Phenol	120	< 120 U
106-44-5	**4-Methylphenol**	**120**	**300**
65-85-0	Benzoic Acid	1,200	< 1,200 U
131-11-3	Dimethylphthalate	120	< 120 U
84-66-2	Diethylphthalate	120	< 120 U
84-74-2	**Di-n-Butylphthalate**	**120**	**410 B**
85-68-7	Butylbenzylphthalate	120	< 120 U
117-81-7	bis(2-Ethylhexyl)phthalate	120	< 120 U
117-84-0	Di-n-Octyl phthalate	120	< 120 U
95-48-7	2-Methylphenol	120	< 120 U
105-67-9	2,4-Dimethylphenol	120	< 120 U
86-30-6	N-Nitrosodiphenylamine	120	< 120 U
100-51-6	Benzyl Alcohol	620	< 620 U
87-86-5	Pentachlorophenol	620	< 620 U
95-50-1	1,2-Dichlorobenzene	120	< 120 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000006**
DILUTION

Lab Sample ID: LA62F
LIMS ID: 07-10234
Matrix: Sediment
Date Analyzed: 06/14/07 15:15

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	56.0%	d5-Phenol	48.0%
2-Fluorophenol	48.0%	d4-2-Chlorophenol	48.0%
d4-1,2-Dichlorobenzene	48.0%	d5-Nitrobenzene	40.0%
2,4,6-Tribromophenol	53.3%	d14-p-Terphenyl	64.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000006
DILUTION

Lab Sample ID: LA62F
LIMS ID: 07-10234
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 22:26
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes

Sample Amount: 16.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 50.0
Percent Moisture: 58.6%
pH: 7.8

Alumina Cleanup: No

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**310**	**4,100**
91-57-6	**2-Methylnaphthalene**	**310**	**3,000**
208-96-8	Acenaphthylene	310	< 310 U
83-32-9	**Acenaphthene**	**310**	**5,400**
86-73-7	**Fluorene**	**310**	**6,000**
85-01-8	**Phenanthrene**	**310**	**17,000**
120-12-7	**Anthracene**	**310**	**2,500**
206-44-0	**Fluoranthene**	**310**	**7,600**
129-00-0	**Pyrene**	**310**	**4,200**
56-55-3	**Benzo(a)anthracene**	**310**	**770**
218-01-9	**Chrysene**	**310**	**800**
205-99-2	**Benzo(b)fluoranthene**	**310**	**340**
207-08-9	**Benzo(k)fluoranthene**	**310**	**310**
50-32-8	Benzo(a)pyrene	310	< 310 U
193-39-5	Indeno(1,2,3-cd)pyrene	310	< 310 U
53-70-3	Dibenz(a,h)anthracene	310	< 310 U
191-24-2	Benzo(g,h,i)perylene	310	< 310 U
132-64-9	**Dibenzofuran**	**310**	**4,800**
106-46-7	1,4-Dichlorobenzene	310	< 310 U
120-82-1	1,2,4-Trichlorobenzene	310	< 310 U
118-74-1	Hexachlorobenzene	310	< 310 U
87-68-3	Hexachlorobutadiene	310	< 310 U
108-95-2	Phenol	310	< 310 U
106-44-5	4-Methylphenol	310	< 310 U
65-85-0	Benzoic Acid	3,100	< 3,100 U
131-11-3	Dimethylphthalate	310	< 310 U
84-66-2	Diethylphthalate	310	< 310 U
84-74-2	**Di-n-Butylphthalate**	**310**	**520 B**
85-68-7	Butylbenzylphthalate	310	< 310 U
117-81-7	bis(2-Ethylhexyl)phthalate	310	< 310 U
117-84-0	Di-n-Octyl phthalate	310	< 310 U
95-48-7	2-Methylphenol	310	< 310 U
105-67-9	2,4-Dimethylphenol	310	< 310 U
86-30-6	N-Nitrosodiphenylamine	310	< 310 U
100-51-6	Benzyl Alcohol	1,500	< 1,500 U
87-86-5	Pentachlorophenol	1,500	< 1,500 U
95-50-1	1,2-Dichlorobenzene	310	< 310 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000006**
DILUTION

Lab Sample ID: LA62F
LIMS ID: 07-10234
Matrix: Sediment
Date Analyzed: 06/14/07 22:26

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	D	d5-Phenol	D
2-Fluorophenol	D	d4-2-Chlorophenol	D
d4-1,2-Dichlorobenzene	D	d5-Nitrobenzene	D
2,4,6-Tribromophenol	D	d14-p-Terphenyl	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000010
SAMPLE

Lab Sample ID: LA62G
LIMS ID: 07-10235
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 19:15
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 68.7%
pH: 7.9

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	6.1	40,000 E
91-57-6	2-Methylnaphthalene	6.1	22,000 E
208-96-8	Acenaphthylene	6.1	270
83-32-9	Acenaphthene	6.1	9,100 E
86-73-7	Fluorene	6.1	7,400 E
85-01-8	Phenanthrene	6.1	21,000 E
120-12-7	Anthracene	6.1	6,800 E
206-44-0	Fluoranthene	6.1	18,000 E
129-00-0	Pyrene	6.1	15,000 E
56-55-3	Benzo(a)anthracene	6.1	7,400 E
218-01-9	Chrysene	6.1	7,700 E
205-99-2	Benzo(b)fluoranthene	6.1	3,200 E
207-08-9	Benzo(k)fluoranthene	6.1	2,800 E
50-32-8	Benzo(a)pyrene	6.1	2,700 E
193-39-5	Indeno(1,2,3-cd)pyrene	6.1	1,100 E
53-70-3	Dibenz(a,h)anthracene	6.1	300
191-24-2	Benzo(g,h,i)perylene	6.1	830 E
132-64-9	Dibenzofuran	6.1	5,000 E
106-46-7	1,4-Dichlorobenzene	6.1	< 6.1 U
120-82-1	1,2,4-Trichlorobenzene	6.1	7.4
118-74-1	Hexachlorobenzene	6.1	14
87-68-3	Hexachlorobutadiene	6.1	8.6
108-95-2	Phenol	6.1	260 B
106-44-5	4-Methylphenol	6.1	390
65-85-0	Benzoic Acid	61	680 E
131-11-3	Dimethylphthalate	6.1	< 6.1 U
84-66-2	Diethylphthalate	6.1	12 B
84-74-2	Di-n-Butylphthalate	6.1	110 B
85-68-7	Butylbenzylphthalate	6.1	6.1
117-81-7	bis(2-Ethylhexyl)phthalate	6.1	37 B
117-84-0	Di-n-Octyl phthalate	6.1	< 6.1 U
95-48-7	2-Methylphenol	6.1	120
105-67-9	2,4-Dimethylphenol	6.1	2,700 E
86-30-6	N-Nitrosodiphenylamine	180	< 180 Y
100-51-6	Benzyl Alcohol	31	170
87-86-5	Pentachlorophenol	31	< 31 U
95-50-1	1,2-Dichlorobenzene	6.1	< 6.1 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000010
SAMPLE

Lab Sample ID: LA62G
LIMS ID: 07-10235
Matrix: Sediment
Date Analyzed: 06/13/07 19:15

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	56.4%	d5-Phenol	46.1%
2-Fluorophenol	48.5%	d4-2-Chlorophenol	51.2%
d4-1,2-Dichlorobenzene	51.2%	d5-Nitrobenzene	259%
2,4,6-Tribromophenol	90.9%	d14-p-Terphenyl	108%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000010
DILUTION

Lab Sample ID: LA62G
LIMS ID: 07-10235
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 16:22
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 30.0
Percent Moisture: 68.7%
pH: 7.9

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**180**	**34,000 E**
91-57-6	**2-Methylnaphthalene**	**180**	**11,000**
208-96-8	**Acenaphthylene**	**180**	**290**
83-32-9	**Acenaphthene**	**180**	**18,000**
86-73-7	**Fluorene**	**180**	**14,000**
85-01-8	**Phenanthrene**	**180**	**33,000 E**
120-12-7	**Anthracene**	**180**	**9,400**
206-44-0	**Fluoranthene**	**180**	**30,000 E**
129-00-0	**Pyrene**	**180**	**18,000**
56-55-3	**Benzo(a)anthracene**	**180**	**7,700**
218-01-9	**Chrysene**	**180**	**7,800**
205-99-2	**Benzo(b)fluoranthene**	**180**	**4,400**
207-08-9	**Benzo(k)fluoranthene**	**180**	**3,200**
50-32-8	**Benzo(a)pyrene**	**180**	**3,500**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**180**	**1,400**
53-70-3	**Dibenz(a,h)anthracene**	**180**	**390**
191-24-2	**Benzo(g,h,i)perylene**	**180**	**1,200**
132-64-9	**Dibenzofuran**	**180**	**11,000**
106-46-7	1,4-Dichlorobenzene	180	< 180 U
120-82-1	1,2,4-Trichlorobenzene	180	< 180 U
118-74-1	Hexachlorobenzene	180	< 180 U
87-68-3	Hexachlorobutadiene	180	< 180 U
108-95-2	**Phenol**	**180**	**220 B**
106-44-5	**4-Methylphenol**	**180**	**480**
65-85-0	Benzoic Acid	1,800	< 1,800 U
131-11-3	Dimethylphthalate	180	< 180 U
84-66-2	Diethylphthalate	180	< 180 U
84-74-2	Di-n-Butylphthalate	180	< 180 U
85-68-7	Butylbenzylphthalate	180	< 180 U
117-81-7	bis(2-Ethylhexyl)phthalate	180	< 180 U
117-84-0	Di-n-Octyl phthalate	180	< 180 U
95-48-7	2-Methylphenol	180	< 180 U
105-67-9	**2,4-Dimethylphenol**	**180**	**720**
86-30-6	N-Nitrosodiphenylamine	220	< 220 Y
100-51-6	Benzyl Alcohol	920	< 920 U
87-86-5	Pentachlorophenol	920	< 920 U
95-50-1	1,2-Dichlorobenzene	180	< 180 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000010**
DILUTION

Lab Sample ID: LA62G
LIMS ID: 07-10235
Matrix: Sediment
Date Analyzed: 06/14/07 16:22

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	D	d5-Phenol	D
2-Fluorophenol	D	d4-2-Chlorophenol	D
d4-1,2-Dichlorobenzene	D	d5-Nitrobenzene	D
2,4,6-Tribromophenol	D	d14-p-Terphenyl	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000010
DILUTION

Lab Sample ID: LA62G
LIMS ID: 07-10235
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 15:49
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes

Sample Amount: 16.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 100
Percent Moisture: 68.7%
pH: 7.9

Alumina Cleanup: No

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**610**	**43,000**
91-57-6	**2-Methylnaphthalene**	**610**	**13,000**
208-96-8	Acenaphthylene	610	< 610 U
83-32-9	**Acenaphthene**	**610**	**22,000**
86-73-7	**Fluorene**	**610**	**17,000**
85-01-8	**Phenanthrene**	**610**	**44,000**
120-12-7	**Anthracene**	**610**	**11,000**
206-44-0	**Fluoranthene**	**610**	**36,000**
129-00-0	**Pyrene**	**610**	**21,000**
56-55-3	**Benzo(a)anthracene**	**610**	**8,600**
218-01-9	**Chrysene**	**610**	**8,600**
205-99-2	**Benzo(b)fluoranthene**	**610**	**4,200**
207-08-9	**Benzo(k)fluoranthene**	**610**	**4,400**
50-32-8	**Benzo(a)pyrene**	**610**	**3,900**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**610**	**1,500**
53-70-3	Dibenz(a,h)anthracene	610	< 610 U
191-24-2	**Benzo(g,h,i)perylene**	**610**	**1,400**
132-64-9	**Dibenzofuran**	**610**	**13,000**
106-46-7	1,4-Dichlorobenzene	610	< 610 U
120-82-1	1,2,4-Trichlorobenzene	610	< 610 U
118-74-1	Hexachlorobenzene	610	< 610 U
87-68-3	Hexachlorobutadiene	610	< 610 U
108-95-2	Phenol	610	< 610 U
106-44-5	4-Methylphenol	610	< 610 U
65-85-0	Benzoic Acid	6,100	< 6,100 U
131-11-3	Dimethylphthalate	610	< 610 U
84-66-2	Diethylphthalate	610	< 610 U
84-74-2	Di-n-Butylphthalate	610	< 610 U
85-68-7	Butylbenzylphthalate	610	< 610 U
117-81-7	bis(2-Ethylhexyl)phthalate	610	< 610 U
117-84-0	Di-n-Octyl phthalate	610	< 610 U
95-48-7	2-Methylphenol	610	< 610 U
105-67-9	**2,4-Dimethylphenol**	**610**	**800**
86-30-6	N-Nitrosodiphenylamine	610	< 610 U
100-51-6	Benzyl Alcohol	3,100	< 3,100 U
87-86-5	Pentachlorophenol	3,100	< 3,100 U
95-50-1	1,2-Dichlorobenzene	610	< 610 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000010**
DILUTION

Lab Sample ID: LA62G
LIMS ID: 07-10235
Matrix: Sediment
Date Analyzed: 06/14/07 15:49

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	D	d5-Phenol	D
2-Fluorophenol	D	d4-2-Chlorophenol	D
d4-1,2-Dichlorobenzene	D	d5-Nitrobenzene	D
2,4,6-Tribromophenol	D	d14-p-Terphenyl	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000014
SAMPLE

Lab Sample ID: LA62H
LIMS ID: 07-10236
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 19:48
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 78.1%
pH: 8.4

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	6.1	650 E
91-57-6	2-Methylnaphthalene	6.1	100
208-96-8	Acenaphthylene	6.1	52
83-32-9	Acenaphthene	6.1	150
86-73-7	Fluorene	6.1	130
85-01-8	Phenanthrene	6.1	300
120-12-7	Anthracene	6.1	83
206-44-0	Fluoranthene	6.1	210
129-00-0	Pyrene	6.1	190
56-55-3	Benzo(a)anthracene	6.1	76
218-01-9	Chrysene	6.1	100
205-99-2	Benzo(b)fluoranthene	6.1	59
207-08-9	Benzo(k)fluoranthene	6.1	66
50-32-8	Benzo(a)pyrene	6.1	64
193-39-5	Indeno(1,2,3-cd)pyrene	6.1	34
53-70-3	Dibenz(a,h)anthracene	6.1	9.8
191-24-2	Benzo(g,h,i)perylene	6.1	32
132-64-9	Dibenzofuran	6.1	300
106-46-7	1,4-Dichlorobenzene	6.1	< 6.1 U
120-82-1	1,2,4-Trichlorobenzene	6.1	< 6.1 U
118-74-1	Hexachlorobenzene	6.1	< 6.1 U
87-68-3	Hexachlorobutadiene	6.1	< 6.1 U
108-95-2	Phenol	6.1	47 B
106-44-5	4-Methylphenol	6.1	870 E
65-85-0	Benzoic Acid	61	< 61 U
131-11-3	Dimethylphthalate	6.1	< 6.1 U
84-66-2	Diethylphthalate	6.1	17 B
84-74-2	Di-n-Butylphthalate	6.1	7.3 B
85-68-7	Butylbenzylphthalate	6.1	120
117-81-7	bis(2-Ethylhexyl)phthalate	6.1	25 B
117-84-0	Di-n-Octyl phthalate	6.1	< 6.1 U
95-48-7	2-Methylphenol	6.1	160
105-67-9	2,4-Dimethylphenol	6.1	77
86-30-6	N-Nitrosodiphenylamine	6.1	< 6.1 U
100-51-6	Benzyl Alcohol	30	170
87-86-5	Pentachlorophenol	30	330
95-50-1	1,2-Dichlorobenzene	6.1	< 6.1 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000014
SAMPLE

Lab Sample ID: LA62H
LIMS ID: 07-10236
Matrix: Sediment
Date Analyzed: 06/13/07 19:48

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	50.0%	d5-Phenol	44.8%
2-Fluorophenol	41.3%	d4-2-Chlorophenol	42.9%
d4-1,2-Dichlorobenzene	44.4%	d5-Nitrobenzene	35.2%
2,4,6-Tribromophenol	41.9%	d14-p-Terphenyl	50.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
Page 1 of 2

Sample ID: 13116000014
DILUTION

Lab Sample ID: LA62H
LIMS ID: 07-10236
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 16:55
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 78.1%
pH: 8.4

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	18	1,100
91-57-6	2-Methylnaphthalene	18	130
208-96-8	Acenaphthylene	18	51
83-32-9	Acenaphthene	18	150
86-73-7	Fluorene	18	130
85-01-8	Phenanthrene	18	310
120-12-7	Anthracene	18	80
206-44-0	Fluoranthene	18	200
129-00-0	Pyrene	18	140
56-55-3	Benzo(a)anthracene	18	77
218-01-9	Chrysene	18	120
205-99-2	Benzo(b)fluoranthene	18	64
207-08-9	Benzo(k)fluoranthene	18	64
50-32-8	Benzo(a)pyrene	18	64
193-39-5	Indeno(1,2,3-cd)pyrene	18	37
53-70-3	Dibenz(a,h)anthracene	18	< 18 U
191-24-2	Benzo(g,h,i)perylene	18	33
132-64-9	Dibenzofuran	18	270
106-46-7	1,4-Dichlorobenzene	18	< 18 U
120-82-1	1,2,4-Trichlorobenzene	18	< 18 U
118-74-1	Hexachlorobenzene	18	< 18 U
87-68-3	Hexachlorobutadiene	18	< 18 U
108-95-2	Phenol	18	90 B
106-44-5	4-Methylphenol	18	1,100
65-85-0	Benzoic Acid	180	< 180 U
131-11-3	Dimethylphthalate	18	< 18 U
84-66-2	Diethylphthalate	18	< 18 U
84-74-2	Di-n-Butylphthalate	18	< 18 U
85-68-7	Butylbenzylphthalate	18	180
117-81-7	bis(2-Ethylhexyl)phthalate	18	26 B
117-84-0	Di-n-Octyl phthalate	18	< 18 U
95-48-7	2-Methylphenol	18	200
105-67-9	2,4-Dimethylphenol	18	95
86-30-6	N-Nitrosodiphenylamine	18	< 18 U
100-51-6	Benzyl Alcohol	92	170
87-86-5	Pentachlorophenol	92	300
95-50-1	1,2-Dichlorobenzene	18	< 18 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000014
DILUTION

Lab Sample ID: LA62H
LIMS ID: 07-10236
Matrix: Sediment
Date Analyzed: 06/14/07 16:55

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	50.4%	d5-Phenol	51.2%
2-Fluorophenol	50.4%	d4-2-Chlorophenol	48.8%
d4-1,2-Dichlorobenzene	46.8%	d5-Nitrobenzene	56.4%
2,4,6-Tribromophenol	56.0%	d14-p-Terphenyl	42.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000015
SAMPLE

Lab Sample ID: LA62I
LIMS ID: 07-10237
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 20:21
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 73.1%
pH: 8.8

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	6.2	860 E
91-57-6	2-Methylnaphthalene	6.2	160
208-96-8	Acenaphthylene	6.2	54
83-32-9	Acenaphthene	6.2	260
86-73-7	Fluorene	6.2	230
85-01-8	Phenanthrene	6.2	440
120-12-7	Anthracene	6.2	100
206-44-0	Fluoranthene	6.2	210
129-00-0	Pyrene	6.2	150
56-55-3	Benzo(a)anthracene	6.2	120
218-01-9	Chrysene	6.2	190
205-99-2	Benzo(b)fluoranthene	6.2	120
207-08-9	Benzo(k)fluoranthene	6.2	100
50-32-8	Benzo(a)pyrene	6.2	120
193-39-5	Indeno(1,2,3-cd)pyrene	6.2	53
53-70-3	Dibenz(a,h)anthracene	6.2	15
191-24-2	Benzo(g,h,i)perylene	6.2	56
132-64-9	Dibenzofuran	6.2	240
106-46-7	1,4-Dichlorobenzene	6.2	< 6.2 U
120-82-1	1,2,4-Trichlorobenzene	6.2	< 6.2 U
118-74-1	Hexachlorobenzene	6.2	< 6.2 U
87-68-3	Hexachlorobutadiene	6.2	< 6.2 U
108-95-2	Phenol	6.2	27 B
106-44-5	4-Methylphenol	6.2	960 E
65-85-0	Benzoic Acid	62	< 62 U
131-11-3	Dimethylphthalate	6.2	< 6.2 U
84-66-2	Diethylphthalate	6.2	7.4 B
84-74-2	Di-n-Butylphthalate	6.2	48 B
85-68-7	Butylbenzylphthalate	6.2	9.9
117-81-7	bis(2-Ethylhexyl)phthalate	6.2	12 B
117-84-0	Di-n-Octyl phthalate	6.2	< 6.2 U
95-48-7	2-Methylphenol	6.2	140
105-67-9	2,4-Dimethylphenol	6.2	72
86-30-6	N-Nitrosodiphenylamine	6.2	< 6.2 U
100-51-6	Benzyl Alcohol	31	88
87-86-5	Pentachlorophenol	31	< 31 U
95-50-1	1,2-Dichlorobenzene	6.2	< 6.2 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000015**
SAMPLE

Lab Sample ID: LA62I
LIMS ID: 07-10237
Matrix: Sediment
Date Analyzed: 06/13/07 20:21

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	44.8%	d5-Phenol	45.3%
2-Fluorophenol	46.4%	d4-2-Chlorophenol	45.3%
d4-1,2-Dichlorobenzene	45.6%	d5-Nitrobenzene	32.0%
2,4,6-Tribromophenol	47.7%	d14-p-Terphenyl	34.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000015
DILUTION

Lab Sample ID: LA62I
LIMS ID: 07-10237
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 17:28
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 73.1%
pH: 8.8

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	18	1,400
91-57-6	2-Methylnaphthalene	18	210
208-96-8	Acenaphthylene	18	56
83-32-9	Acenaphthene	18	260
86-73-7	Fluorene	18	240
85-01-8	Phenanthrene	18	460
120-12-7	Anthracene	18	110
206-44-0	Fluoranthene	18	230
129-00-0	Pyrene	18	130
56-55-3	Benzo(a)anthracene	18	120
218-01-9	Chrysene	18	190
205-99-2	Benzo(b)fluoranthene	18	120
207-08-9	Benzo(k)fluoranthene	18	130
50-32-8	Benzo(a)pyrene	18	120
193-39-5	Indeno(1,2,3-cd)pyrene	18	57
53-70-3	Dibenz(a,h)anthracene	18	< 18 U
191-24-2	Benzo(g,h,i)perylene	18	59
132-64-9	Dibenzofuran	18	250
106-46-7	1,4-Dichlorobenzene	18	< 18 U
120-82-1	1,2,4-Trichlorobenzene	18	< 18 U
118-74-1	Hexachlorobenzene	18	< 18 U
87-68-3	Hexachlorobutadiene	18	< 18 U
108-95-2	Phenol	18	33 B
106-44-5	4-Methylphenol	18	1,200
65-85-0	Benzoic Acid	180	< 180 U
131-11-3	Dimethylphthalate	18	< 18 U
84-66-2	Diethylphthalate	18	< 18 U
84-74-2	Di-n-Butylphthalate	18	46 B
85-68-7	Butylbenzylphthalate	18	< 18 U
117-81-7	bis(2-Ethylhexyl)phthalate	18	< 18 U
117-84-0	Di-n-Octyl phthalate	18	< 18 U
95-48-7	2-Methylphenol	18	170
105-67-9	2,4-Dimethylphenol	18	87
86-30-6	N-Nitrosodiphenylamine	18	< 18 U
100-51-6	Benzyl Alcohol	93	< 93 U
87-86-5	Pentachlorophenol	93	< 93 U
95-50-1	1,2-Dichlorobenzene	18	< 18 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000015**
DILUTION

Lab Sample ID: LA62I
LIMS ID: 07-10237
Matrix: Sediment
Date Analyzed: 06/14/07 17:28

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	46.8%	d5-Phenol	51.2%
2-Fluorophenol	52.0%	d4-2-Chlorophenol	49.6%
d4-1,2-Dichlorobenzene	45.6%	d5-Nitrobenzene	52.8%
2,4,6-Tribromophenol	47.2%	d14-p-Terphenyl	31.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000021
SAMPLE

Lab Sample ID: LA62J
LIMS ID: 07-10238
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/08/07
Date Received: 05/09/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 20:54
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 81.5%
pH: 8.8

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**9.6**	**2,100 E**
91-57-6	**2-Methylnaphthalene**	**9.6**	**180**
208-96-8	**Acenaphthylene**	**9.6**	**48**
83-32-9	**Acenaphthene**	**9.6**	**140**
86-73-7	**Fluorene**	**9.6**	**110**
85-01-8	**Phenanthrene**	**9.6**	**240**
120-12-7	**Anthracene**	**9.6**	**38**
206-44-0	**Fluoranthene**	**9.6**	**220**
129-00-0	**Pyrene**	**9.6**	**140**
56-55-3	**Benzo(a)anthracene**	**9.6**	**14**
218-01-9	**Chrysene**	**9.6**	**34**
205-99-2	**Benzo(b)fluoranthene**	**9.6**	**21**
207-08-9	**Benzo(k)fluoranthene**	**9.6**	**19**
50-32-8	**Benzo(a)pyrene**	**9.6**	**11**
193-39-5	Indeno(1,2,3-cd)pyrene	9.6	< 9.6 U
53-70-3	Dibenz(a,h)anthracene	9.6	< 9.6 U
191-24-2	Benzo(g,h,i)perylene	9.6	< 9.6 U
132-64-9	**Dibenzofuran**	**9.6**	**390**
106-46-7	1,4-Dichlorobenzene	9.6	< 9.6 U
120-82-1	1,2,4-Trichlorobenzene	9.6	< 9.6 U
118-74-1	Hexachlorobenzene	9.6	< 9.6 U
87-68-3	Hexachlorobutadiene	9.6	< 9.6 U
108-95-2	**Phenol**	**9.6**	**56 B**
106-44-5	**4-Methylphenol**	**9.6**	**2,000 E**
65-85-0	**Benzoic Acid**	**96**	**110**
131-11-3	Dimethylphthalate	9.6	< 9.6 U
84-66-2	Diethylphthalate	9.6	< 9.6 U
84-74-2	**Di-n-Butylphthalate**	**9.6**	**45 B**
85-68-7	Butylbenzylphthalate	9.6	< 9.6 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**9.6**	**22 B**
117-84-0	Di-n-Octyl phthalate	9.6	< 9.6 U
95-48-7	**2-Methylphenol**	**9.6**	**210**
105-67-9	**2,4-Dimethylphenol**	**9.6**	**250**
86-30-6	N-Nitrosodiphenylamine	9.6	< 9.6 U
100-51-6	**Benzyl Alcohol**	**48**	**82**
87-86-5	Pentachlorophenol	48	< 48 U
95-50-1	1,2-Dichlorobenzene	9.6	< 9.6 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000021**
SAMPLE

Lab Sample ID: LA62J
LIMS ID: 07-10238
Matrix: Sediment
Date Analyzed: 06/13/07 20:54

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	39.6%	d5-Phenol	49.3%
2-Fluorophenol	46.4%	d4-2-Chlorophenol	45.1%
d4-1,2-Dichlorobenzene	43.6%	d5-Nitrobenzene	51.6%
2,4,6-Tribromophenol	34.9%	d14-p-Terphenyl	20.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
Page 1 of 2

Sample ID: 13116000021
DILUTION

Lab Sample ID: LA62J
LIMS ID: 07-10238
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/08/07
Date Received: 05/09/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 18:01
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 10.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 5.00
Percent Moisture: 81.5%
pH: 8.8

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**48**	**2,700**
91-57-6	**2-Methylnaphthalene**	**48**	**200**
208-96-8	**Acenaphthylene**	**48**	**48**
83-32-9	**Acenaphthene**	**48**	**150**
86-73-7	**Fluorene**	**48**	**110**
85-01-8	**Phenanthrene**	**48**	**250**
120-12-7	Anthracene	48	< 48 U
206-44-0	**Fluoranthene**	**48**	**330**
129-00-0	**Pyrene**	**48**	**170**
56-55-3	Benzo(a)anthracene	48	< 48 U
218-01-9	Chrysene	48	< 48 U
205-99-2	Benzo(b)fluoranthene	48	< 48 U
207-08-9	Benzo(k)fluoranthene	48	< 48 U
50-32-8	Benzo(a)pyrene	48	< 48 U
193-39-5	Indeno(1,2,3-cd)pyrene	48	< 48 U
53-70-3	Dibenz(a,h)anthracene	48	< 48 U
191-24-2	Benzo(g,h,i)perylene	48	< 48 U
132-64-9	**Dibenzofuran**	**48**	**410**
106-46-7	1,4-Dichlorobenzene	48	< 48 U
120-82-1	1,2,4-Trichlorobenzene	48	< 48 U
118-74-1	Hexachlorobenzene	48	< 48 U
87-68-3	Hexachlorobutadiene	48	< 48 U
108-95-2	**Phenol**	**48**	**62 B**
106-44-5	**4-Methylphenol**	**48**	**2,600**
65-85-0	Benzoic Acid	480	< 480 U
131-11-3	Dimethylphthalate	48	< 48 U
84-66-2	Diethylphthalate	48	< 48 U
84-74-2	Di-n-Butylphthalate	48	< 48 U
85-68-7	**Butylbenzylphthalate**	**48**	**58 B**
117-81-7	bis(2-Ethylhexyl)phthalate	48	< 48 U
117-84-0	Di-n-Octyl phthalate	48	< 48 U
95-48-7	**2-Methylphenol**	**48**	**290**
105-67-9	**2,4-Dimethylphenol**	**48**	**250**
86-30-6	N-Nitrosodiphenylamine	48	< 48 U
100-51-6	Benzyl Alcohol	240	< 240 U
87-86-5	Pentachlorophenol	240	< 240 U
95-50-1	1,2-Dichlorobenzene	48	< 48 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000021**
DILUTION

Lab Sample ID: LA62J
LIMS ID: 07-10238
Matrix: Sediment
Date Analyzed: 06/14/07 18:01

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	42.0%	d5-Phenol	52.0%
2-Fluorophenol	52.0%	d4-2-Chlorophenol	49.3%
d4-1,2-Dichlorobenzene	46.0%	d5-Nitrobenzene	60.0%
2,4,6-Tribromophenol	48.0%	d14-p-Terphenyl	22.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000023
SAMPLE

Lab Sample ID: LA62K
LIMS ID: 07-10239
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/08/07
Date Received: 05/09/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 21:26
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 74.7%
pH: 8.0

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	6.2	1,700 E
91-57-6	2-Methylnaphthalene	6.2	330
208-96-8	Acenaphthylene	6.2	43
83-32-9	Acenaphthene	6.2	350
86-73-7	Fluorene	6.2	190
85-01-8	Phenanthrene	6.2	290
120-12-7	Anthracene	6.2	71
206-44-0	Fluoranthene	6.2	200
129-00-0	Pyrene	6.2	150
56-55-3	Benzo(a)anthracene	6.2	51
218-01-9	Chrysene	6.2	74
205-99-2	Benzo(b)fluoranthene	6.2	48
207-08-9	Benzo(k)fluoranthene	6.2	41
50-32-8	Benzo(a)pyrene	6.2	38
193-39-5	Indeno(1,2,3-cd)pyrene	6.2	22
53-70-3	Dibenz(a,h)anthracene	6.2	< 6.2 U
191-24-2	Benzo(g,h,i)perylene	6.2	21
132-64-9	Dibenzofuran	6.2	240
106-46-7	1,4-Dichlorobenzene	6.2	< 6.2 U
120-82-1	1,2,4-Trichlorobenzene	6.2	< 6.2 U
118-74-1	Hexachlorobenzene	6.2	< 6.2 U
87-68-3	Hexachlorobutadiene	6.2	< 6.2 U
108-95-2	Phenol	6.2	37 B
106-44-5	4-Methylphenol	6.2	900 E
65-85-0	Benzoic Acid	62	69
131-11-3	Dimethylphthalate	6.2	< 6.2 U
84-66-2	Diethylphthalate	6.2	8.6 B
84-74-2	Di-n-Butylphthalate	6.2	8.6 B
85-68-7	Butylbenzylphthalate	6.2	< 6.2 U
117-81-7	bis(2-Ethylhexyl)phthalate	6.2	18 B
117-84-0	Di-n-Octyl phthalate	6.2	< 6.2 U
95-48-7	2-Methylphenol	6.2	240
105-67-9	2,4-Dimethylphenol	6.2	240
86-30-6	N-Nitrosodiphenylamine	6.2	< 6.2 U
100-51-6	Benzyl Alcohol	31	< 31 U
87-86-5	Pentachlorophenol	31	< 31 U
95-50-1	1,2-Dichlorobenzene	6.2	< 6.2 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000023
SAMPLE

Lab Sample ID: LA62K
LIMS ID: 07-10239
Matrix: Sediment
Date Analyzed: 06/13/07 21:26

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	46.0%	d5-Phenol	44.8%
2-Fluorophenol	44.3%	d4-2-Chlorophenol	44.5%
d4-1,2-Dichlorobenzene	44.4%	d5-Nitrobenzene	50.4%
2,4,6-Tribromophenol	51.5%	d14-p-Terphenyl	42.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000023
DILUTION

Lab Sample ID: LA62K
LIMS ID: 07-10239
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/08/07
Date Received: 05/09/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 18:34
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 20.0
Percent Moisture: 74.7%
pH: 8.0

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**120**	**2,200**
91-57-6	**2-Methylnaphthalene**	**120**	**270**
208-96-8	Acenaphthylene	120	< 120 U
83-32-9	**Acenaphthene**	**120**	**270**
86-73-7	**Fluorene**	**120**	**150**
85-01-8	**Phenanthrene**	**120**	**310**
120-12-7	Anthracene	120	< 120 U
206-44-0	**Fluoranthene**	**120**	**220**
129-00-0	**Pyrene**	**120**	**120**
56-55-3	Benzo(a)anthracene	120	< 120 U
218-01-9	Chrysene	120	< 120 U
205-99-2	Benzo(b)fluoranthene	120	< 120 U
207-08-9	Benzo(k)fluoranthene	120	< 120 U
50-32-8	Benzo(a)pyrene	120	< 120 U
193-39-5	Indeno(1,2,3-cd)pyrene	120	< 120 U
53-70-3	Dibenz(a,h)anthracene	120	< 120 U
191-24-2	Benzo(g,h,i)perylene	120	< 120 U
132-64-9	**Dibenzofuran**	**120**	**160**
106-46-7	1,4-Dichlorobenzene	120	< 120 U
120-82-1	1,2,4-Trichlorobenzene	120	< 120 U
118-74-1	Hexachlorobenzene	120	< 120 U
87-68-3	Hexachlorobutadiene	120	< 120 U
108-95-2	Phenol	120	< 120 U
106-44-5	**4-Methylphenol**	**120**	**830**
65-85-0	Benzoic Acid	1,200	< 1,200 U
131-11-3	Dimethylphthalate	120	< 120 U
84-66-2	Diethylphthalate	120	< 120 U
84-74-2	Di-n-Butylphthalate	120	< 120 U
85-68-7	Butylbenzylphthalate	120	< 120 U
117-81-7	bis(2-Ethylhexyl)phthalate	120	< 120 U
117-84-0	Di-n-Octyl phthalate	120	< 120 U
95-48-7	**2-Methylphenol**	**120**	**180**
105-67-9	**2,4-Dimethylphenol**	**120**	**180**
86-30-6	N-Nitrosodiphenylamine	120	< 120 U
100-51-6	Benzyl Alcohol	620	< 620 U
87-86-5	Pentachlorophenol	620	< 620 U
95-50-1	1,2-Dichlorobenzene	120	< 120 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000023
DILUTION

Lab Sample ID: LA62K
LIMS ID: 07-10239
Matrix: Sediment
Date Analyzed: 06/14/07 18:34

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	32.0%	d5-Phenol	37.3%
2-Fluorophenol	37.3%	d4-2-Chlorophenol	32.0%
d4-1,2-Dichlorobenzene	32.0%	d5-Nitrobenzene	40.0%
2,4,6-Tribromophenol	48.0%	d14-p-Terphenyl	32.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS Sample ID: 13116000027
  SAMPLE

Lab Sample ID: LA62L
LIMS ID: 07-10240
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/11/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 21:59
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 57.6%
pH: 7.9

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	6.2	710 E
91-57-6	2-Methylnaphthalene	6.2	180
208-96-8	Acenaphthylene	6.2	53
83-32-9	Acenaphthene	6.2	290
86-73-7	Fluorene	6.2	290
85-01-8	Phenanthrene	6.2	760 E
120-12-7	Anthracene	6.2	260
206-44-0	Fluoranthene	6.2	800 E
129-00-0	Pyrene	6.2	990 E
56-55-3	Benzo(a)anthracene	6.2	340
218-01-9	Chrysene	6.2	480
205-99-2	Benzo(b)fluoranthene	6.2	300
207-08-9	Benzo(k)fluoranthene	6.2	290
50-32-8	Benzo(a)pyrene	6.2	350
193-39-5	Indeno(1,2,3-cd)pyrene	6.2	200
53-70-3	Dibenz(a,h)anthracene	6.2	41
191-24-2	Benzo(g,h,i)perylene	6.2	210
132-64-9	Dibenzofuran	6.2	200
106-46-7	1,4-Dichlorobenzene	6.2	< 6.2 U
120-82-1	1,2,4-Trichlorobenzene	6.2	< 6.2 U
118-74-1	Hexachlorobenzene	6.2	< 6.2 U
87-68-3	Hexachlorobutadiene	6.2	< 6.2 U
108-95-2	Phenol	6.2	30 B
106-44-5	4-Methylphenol	6.2	380
65-85-0	Benzoic Acid	62	64
131-11-3	Dimethylphthalate	6.2	< 6.2 U
84-66-2	Diethylphthalate	6.2	< 6.2 U
84-74-2	Di-n-Butylphthalate	6.2	7.4 B
85-68-7	Butylbenzylphthalate	6.2	120
117-81-7	bis(2-Ethylhexyl)phthalate	6.2	20 B
117-84-0	Di-n-Octyl phthalate	6.2	7.4
95-48-7	2-Methylphenol	6.2	11
105-67-9	2,4-Dimethylphenol	6.2	42
86-30-6	N-Nitrosodiphenylamine	6.2	< 6.2 U
100-51-6	Benzyl Alcohol	31	48
87-86-5	Pentachlorophenol	31	< 31 U
95-50-1	1,2-Dichlorobenzene	6.2	< 6.2 U

Lab Sample ID: LA62L
LIMS ID: 07-10240
Matrix: Sediment
Date Analyzed: 06/13/07 21:59

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	45.2%	d5-Phenol	44.0%
2-Fluorophenol	46.9%	d4-2-Chlorophenol	48.0%
d4-1,2-Dichlorobenzene	48.4%	d5-Nitrobenzene	44.8%
2,4,6-Tribromophenol	61.9%	d14-p-Terphenyl	62.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS Sample ID: 13116000027
  DILUTION

Lab Sample ID: LA62L
LIMS ID: 07-10240
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/11/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 19:08
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 57.6%
pH: 7.9

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**19**	**850**
91-57-6	**2-Methylnaphthalene**	**19**	**210**
208-96-8	**Acenaphthylene**	**19**	**67**
83-32-9	**Acenaphthene**	**19**	**340**
86-73-7	**Fluorene**	**19**	**360**
85-01-8	**Phenanthrene**	**19**	**850**
120-12-7	**Anthracene**	**19**	**270**
206-44-0	**Fluoranthene**	**19**	**1,200**
129-00-0	**Pyrene**	**19**	**880**
56-55-3	**Benzo(a)anthracene**	**19**	**350**
218-01-9	**Chrysene**	**19**	**560**
205-99-2	**Benzo(b)fluoranthene**	**19**	**350**
207-08-9	**Benzo(k)fluoranthene**	**19**	**300**
50-32-8	**Benzo(a)pyrene**	**19**	**370**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**19**	**200**
53-70-3	**Dibenz(a,h)anthracene**	**19**	**39**
191-24-2	**Benzo(g,h,i)perylene**	**19**	**230**
132-64-9	**Dibenzofuran**	**19**	**240**
106-46-7	1,4-Dichlorobenzene	19	< 19 U
120-82-1	1,2,4-Trichlorobenzene	19	< 19 U
118-74-1	Hexachlorobenzene	19	< 19 U
87-68-3	Hexachlorobutadiene	19	< 19 U
108-95-2	**Phenol**	**19**	**45 B**
106-44-5	**4-Methylphenol**	**19**	**550**
65-85-0	Benzoic Acid	190	< 190 U
131-11-3	Dimethylphthalate	19	< 19 U
84-66-2	Diethylphthalate	19	< 19 U
84-74-2	**Di-n-Butylphthalate**	**19**	**63 B**
85-68-7	**Butylbenzylphthalate**	**19**	**140**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**19**	**30 B**
117-84-0	Di-n-Octyl phthalate	19	< 19 U
95-48-7	2-Methylphenol	19	< 19 U
105-67-9	**2,4-Dimethylphenol**	**19**	**48**
86-30-6	N-Nitrosodiphenylamine	19	< 19 U
100-51-6	Benzyl Alcohol	93	< 93 U
87-86-5	Pentachlorophenol	93	< 93 U
95-50-1	1,2-Dichlorobenzene	19	< 19 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000027**
 DILUTION

Lab Sample ID: LA62L
LIMS ID: 07-10240
Matrix: Sediment
Date Analyzed: 06/14/07 19:08

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	57.6%	d5-Phenol	52.0%
2-Fluorophenol	56.8%	d4-2-Chlorophenol	54.4%
d4-1,2-Dichlorobenzene	50.4%	d5-Nitrobenzene	54.0%
2,4,6-Tribromophenol	86.4%	d14-p-Terphenyl	56.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000029**
 SAMPLE

Lab Sample ID: LA62M
LIMS ID: 07-10241
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/11/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 22:32
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 3.52 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 73.0%
pH: 8.1

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**28**	**3,400 E**
91-57-6	**2-Methylnaphthalene**	**28**	**320**
208-96-8	**Acenaphthylene**	**28**	**110**
83-32-9	**Acenaphthene**	**28**	**190**
86-73-7	**Fluorene**	**28**	**160**
85-01-8	**Phenanthrene**	**28**	**760**
120-12-7	**Anthracene**	**28**	**160**
206-44-0	**Fluoranthene**	**28**	**890**
129-00-0	**Pyrene**	**28**	**310**
56-55-3	**Benzo(a)anthracene**	**28**	**37**
218-01-9	**Chrysene**	**28**	**48**
205-99-2	Benzo(b)fluoranthene	28	< 28 U
207-08-9	Benzo(k)fluoranthene	28	< 28 U
50-32-8	Benzo(a)pyrene	28	< 28 U
193-39-5	Indeno(1,2,3-cd)pyrene	28	< 28 U
53-70-3	Dibenz(a,h)anthracene	28	< 28 U
191-24-2	Benzo(g,h,i)perylene	28	< 28 U
132-64-9	**Dibenzofuran**	**28**	**120**
106-46-7	1,4-Dichlorobenzene	28	< 28 U
120-82-1	1,2,4-Trichlorobenzene	28	< 28 U
118-74-1	Hexachlorobenzene	28	< 28 U
87-68-3	Hexachlorobutadiene	28	< 28 U
108-95-2	**Phenol**	**28**	**74 B**
106-44-5	**4-Methylphenol**	**28**	**2,600**
65-85-0	**Benzoic Acid**	**280**	**530**
131-11-3	Dimethylphthalate	28	< 28 U
84-66-2	Diethylphthalate	28	< 28 U
84-74-2	**Di-n-Butylphthalate**	**28**	**220 B**
85-68-7	**Butylbenzylphthalate**	**28**	**340**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**28**	**37 B**
117-84-0	Di-n-Octyl phthalate	28	< 28 U
95-48-7	**2-Methylphenol**	**28**	**62**
105-67-9	**2,4-Dimethylphenol**	**28**	**110**
86-30-6	N-Nitrosodiphenylamine	28	< 28 U
100-51-6	Benzyl Alcohol	140	< 140 U
87-86-5	Pentachlorophenol	140	< 140 U
95-50-1	1,2-Dichlorobenzene	28	< 28 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS Sample ID: 13116000029
  SAMPLE

Lab Sample ID: LA62M
LIMS ID: 07-10241
Matrix: Sediment
Date Analyzed: 06/13/07 22:32

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	31.6%	d5-Phenol	45.1%
2-Fluorophenol	46.7%	d4-2-Chlorophenol	47.2%
d4-1,2-Dichlorobenzene	47.2%	d5-Nitrobenzene	54.0%
2,4,6-Tribromophenol	57.1%	d14-p-Terphenyl	29.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
Page 1 of 2

Sample ID: 13116000029
DILUTION

Lab Sample ID: LA62M
LIMS ID: 07-10241
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/11/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 19:41
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 3.52 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 73.0%
pH: 8.1

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**85**	**3,400**
91-57-6	**2-Methylnaphthalene**	**85**	**320**
208-96-8	**Acenaphthylene**	**85**	**190**
83-32-9	**Acenaphthene**	**85**	**280**
86-73-7	**Fluorene**	**85**	**260**
85-01-8	**Phenanthrene**	**85**	**750**
120-12-7	**Anthracene**	**85**	**170**
206-44-0	**Fluoranthene**	**85**	**930**
129-00-0	**Pyrene**	**85**	**430**
56-55-3	Benzo(a)anthracene	85	< 85 U
218-01-9	Chrysene	85	< 85 U
205-99-2	Benzo(b)fluoranthene	85	< 85 U
207-08-9	Benzo(k)fluoranthene	85	< 85 U
50-32-8	Benzo(a)pyrene	85	< 85 U
193-39-5	Indeno(1,2,3-cd)pyrene	85	< 85 U
53-70-3	Dibenz(a,h)anthracene	85	< 85 U
191-24-2	Benzo(g,h,i)perylene	85	< 85 U
132-64-9	**Dibenzofuran**	**85**	**240**
106-46-7	1,4-Dichlorobenzene	85	< 85 U
120-82-1	1,2,4-Trichlorobenzene	85	< 85 U
118-74-1	Hexachlorobenzene	85	< 85 U
87-68-3	Hexachlorobutadiene	85	< 85 U
108-95-2	**Phenol**	**85**	**85 B**
106-44-5	**4-Methylphenol**	**85**	**3,700**
65-85-0	Benzoic Acid	850	< 850 U
131-11-3	Dimethylphthalate	85	< 85 U
84-66-2	Diethylphthalate	85	< 85 U
84-74-2	**Di-n-Butylphthalate**	**85**	**270 B**
85-68-7	**Butylbenzylphthalate**	**85**	**650**
117-81-7	bis(2-Ethylhexyl)phthalate	85	< 85 U
117-84-0	Di-n-Octyl phthalate	85	< 85 U
95-48-7	2-Methylphenol	85	< 85 U
105-67-9	**2,4-Dimethylphenol**	**85**	**100**
86-30-6	N-Nitrosodiphenylamine	85	< 85 U
100-51-6	Benzyl Alcohol	430	< 430 U
87-86-5	Pentachlorophenol	430	< 430 U
95-50-1	1,2-Dichlorobenzene	85	< 85 U

ANALYTICAL RESOURCES INCORPORATED

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Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000029
DILUTION

Lab Sample ID: LA62M
LIMS ID: 07-10241
Matrix: Sediment
Date Analyzed: 06/14/07 19:41

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	49.2%	d5-Phenol	52.8%
2-Fluorophenol	52.0%	d4-2-Chlorophenol	52.8%
d4-1,2-Dichlorobenzene	49.2%	d5-Nitrobenzene	51.6%
2,4,6-Tribromophenol	74.4%	d14-p-Terphenyl	24.0%

ANALYTICAL RESOURCES INCORPORATED

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Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000031
SAMPLE

Lab Sample ID: LA62N
LIMS ID: 07-10242
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/11/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 23:05
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 72.2%
pH: 8.3

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	6.2	3,600 E
91-57-6	2-Methylnaphthalene	6.2	3,400 E
208-96-8	Acenaphthylene	6.2	210
83-32-9	Acenaphthene	6.2	6,900 E
86-73-7	Fluorene	6.2	17,000 E
85-01-8	Phenanthrene	6.2	53,000 ES
120-12-7	Anthracene	6.2	64,000 ES
206-44-0	Fluoranthene	6.2	35,000 ES
129-00-0	Pyrene	6.2	17,000 ES
56-55-3	Benzo(a)anthracene	6.2	8,200 E
218-01-9	Chrysene	6.2	11,000 E
205-99-2	Benzo(b)fluoranthene	6.2	1,600 E
207-08-9	Benzo(k)fluoranthene	6.2	2,400 E
50-32-8	Benzo(a)pyrene	6.2	1,600 E
193-39-5	Indeno(1,2,3-cd)pyrene	6.2	380
53-70-3	Dibenz(a,h)anthracene	6.2	130
191-24-2	Benzo(g,h,i)perylene	6.2	250
132-64-9	Dibenzofuran	6.2	6,700 E
106-46-7	1,4-Dichlorobenzene	6.2	20
120-82-1	1,2,4-Trichlorobenzene	6.2	< 6.2 U
118-74-1	Hexachlorobenzene	6.2	< 6.2 U
87-68-3	Hexachlorobutadiene	6.2	< 6.2 U
108-95-2	Phenol	6.2	37 B
106-44-5	4-Methylphenol	6.2	860 E
65-85-0	Benzoic Acid	62	86
131-11-3	Dimethylphthalate	6.2	< 6.2 U
84-66-2	Diethylphthalate	6.2	9.9 B
84-74-2	Di-n-Butylphthalate	6.2	210 B
85-68-7	Butylbenzylphthalate	6.2	130
117-81-7	bis(2-Ethylhexyl)phthalate	6.2	110 B
117-84-0	Di-n-Octyl phthalate	6.2	< 6.2 U
95-48-7	2-Methylphenol	6.2	120
105-67-9	2,4-Dimethylphenol	6.2	350
86-30-6	N-Nitrosodiphenylamine	2,000	< 2,000 Y
100-51-6	Benzyl Alcohol	31	35
87-86-5	Pentachlorophenol	31	< 31 U
95-50-1	1,2-Dichlorobenzene	6.2	96

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000031
SAMPLE

Lab Sample ID: LA62N
LIMS ID: 07-10242
Matrix: Sediment
Date Analyzed: 06/13/07 23:05

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	59.2%	d5-Phenol	54.9%
2-Fluorophenol	54.1%	d4-2-Chlorophenol	55.5%
d4-1,2-Dichlorobenzene	51.2%	d5-Nitrobenzene	54.0%
2,4,6-Tribromophenol	105%	d14-p-Terphenyl	98.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000031
DILUTION

Lab Sample ID: LA62N
LIMS ID: 07-10242
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/11/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 20:47
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 20.0
Percent Moisture: 72.2%
pH: 8.3

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**120**	**10,000**
91-57-6	**2-Methylnaphthalene**	**120**	**7,200**
208-96-8	**Acenaphthylene**	**120**	**190**
83-32-9	**Acenaphthene**	**120**	**11,000**
86-73-7	**Fluorene**	**120**	**34,000 E**
85-01-8	**Phenanthrene**	**120**	**47,000 E**
120-12-7	**Anthracene**	**120**	**160,000 E**
206-44-0	**Fluoranthene**	**120**	**43,000 E**
129-00-0	**Pyrene**	**120**	**22,000 E**
56-55-3	**Benzo(a)anthracene**	**120**	**8,500**
218-01-9	**Chrysene**	**120**	**12,000 E**
205-99-2	**Benzo(b)fluoranthene**	**120**	**2,400**
207-08-9	**Benzo(k)fluoranthene**	**120**	**2,300**
50-32-8	**Benzo(a)pyrene**	**120**	**1,900**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**120**	**480**
53-70-3	**Dibenz(a,h)anthracene**	**120**	**170**
191-24-2	**Benzo(g,h,i)perylene**	**120**	**360**
132-64-9	**Dibenzofuran**	**120**	**12,000**
106-46-7	1,4-Dichlorobenzene	120	< 120 U
120-82-1	1,2,4-Trichlorobenzene	120	< 120 U
118-74-1	Hexachlorobenzene	120	< 120 U
87-68-3	Hexachlorobutadiene	120	< 120 U
108-95-2	Phenol	120	< 120 U
106-44-5	**4-Methylphenol**	**120**	**920**
65-85-0	Benzoic Acid	1,200	< 1,200 U
131-11-3	Dimethylphthalate	120	< 120 U
84-66-2	Diethylphthalate	120	< 120 U
84-74-2	**Di-n-Butylphthalate**	**120**	**120 B**
85-68-7	**Butylbenzylphthalate**	**120**	**290**
117-81-7	bis(2-Ethylhexyl)phthalate	120	< 120 U
117-84-0	Di-n-Octyl phthalate	120	< 120 U
95-48-7	2-Methylphenol	120	< 120 U
105-67-9	**2,4-Dimethylphenol**	**120**	**410**
86-30-6	N-Nitrosodiphenylamine	1,000	< 1,000 Y
100-51-6	Benzyl Alcohol	620	< 620 U
87-86-5	Pentachlorophenol	620	< 620 U
95-50-1	1,2-Dichlorobenzene	120	< 120 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000031
DILUTION

Lab Sample ID: LA62N
LIMS ID: 07-10242
Matrix: Sediment
Date Analyzed: 06/14/07 20:47

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	64.0%	d5-Phenol	58.7%
2-Fluorophenol	58.7%	d4-2-Chlorophenol	58.7%
d4-1,2-Dichlorobenzene	56.0%	d5-Nitrobenzene	64.0%
2,4,6-Tribromophenol	80.0%	d14-p-Terphenyl	88.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000031
DILUTION

Lab Sample ID: LA62N
LIMS ID: 07-10242
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/11/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/15/07 14:49
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes

Sample Amount: 16.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1000
Percent Moisture: 72.2%
pH: 8.3

Alumina Cleanup: No

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**6,200**	**14,000**
91-57-6	**2-Methylnaphthalene**	**6,200**	**8,700**
208-96-8	Acenaphthylene	6,200	< 6,200 U
83-32-9	**Acenaphthene**	**6,200**	**15,000**
86-73-7	**Fluorene**	**6,200**	**52,000**
85-01-8	**Phenanthrene**	**6,200**	**90,000**
120-12-7	**Anthracene**	**6,200**	**410,000**
206-44-0	**Fluoranthene**	**6,200**	**76,000**
129-00-0	**Pyrene**	**6,200**	**36,000**
56-55-3	**Benzo(a)anthracene**	**6,200**	**11,000**
218-01-9	**Chrysene**	**6,200**	**17,000**
205-99-2	Benzo(b)fluoranthene	6,200	< 6,200 U
207-08-9	Benzo(k)fluoranthene	6,200	< 6,200 U
50-32-8	Benzo(a)pyrene	6,200	< 6,200 U
193-39-5	Indeno(1,2,3-cd)pyrene	6,200	< 6,200 U
53-70-3	Dibenz(a,h)anthracene	6,200	< 6,200 U
191-24-2	Benzo(g,h,i)perylene	6,200	< 6,200 U
132-64-9	**Dibenzofuran**	**6,200**	**17,000**
106-46-7	1,4-Dichlorobenzene	6,200	< 6,200 U
120-82-1	1,2,4-Trichlorobenzene	6,200	< 6,200 U
118-74-1	Hexachlorobenzene	6,200	< 6,200 U
87-68-3	Hexachlorobutadiene	6,200	< 6,200 U
108-95-2	Phenol	6,200	< 6,200 U
106-44-5	4-Methylphenol	6,200	< 6,200 U
65-85-0	Benzoic Acid	62,000	< 62,000 U
131-11-3	Dimethylphthalate	6,200	< 6,200 U
84-66-2	Diethylphthalate	6,200	< 6,200 U
84-74-2	Di-n-Butylphthalate	6,200	< 6,200 U
85-68-7	Butylbenzylphthalate	6,200	< 6,200 U
117-81-7	bis(2-Ethylhexyl)phthalate	6,200	< 6,200 U
117-84-0	Di-n-Octyl phthalate	6,200	< 6,200 U
95-48-7	2-Methylphenol	6,200	< 6,200 U
105-67-9	2,4-Dimethylphenol	6,200	< 6,200 U
86-30-6	N-Nitrosodiphenylamine	6,200	< 6,200 U
100-51-6	Benzyl Alcohol	31,000	< 31,000 U
87-86-5	Pentachlorophenol	31,000	< 31,000 U
95-50-1	1,2-Dichlorobenzene	6,200	< 6,200 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000031**
Page 2 of 2 **DILUTION**

Lab Sample ID: LA62N
LIMS ID: 07-10242
Matrix: Sediment
Date Analyzed: 06/15/07 14:49

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	D	d5-Phenol	D
2-Fluorophenol	D	d4-2-Chlorophenol	D
d4-1,2-Dichlorobenzene	D	d5-Nitrobenzene	D
2,4,6-Tribromophenol	D	d14-p-Terphenyl	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
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Sample ID: 13116000038
SAMPLE

Lab Sample ID: LA620
LIMS ID: 07-10243
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/14/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 23:38
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 62.8%
pH: 7.9

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	6.1	1,900 E
91-57-6	2-Methylnaphthalene	6.1	1,000 E
208-96-8	Acenaphthylene	6.1	88
83-32-9	Acenaphthene	6.1	2,000 E
86-73-7	Fluorene	6.1	1,500 E
85-01-8	Phenanthrene	6.1	2,800 E
120-12-7	Anthracene	6.1	1,200 E
206-44-0	Fluoranthene	6.1	2,700 E
129-00-0	Pyrene	6.1	1,900 E
56-55-3	Benzo(a)anthracene	6.1	970 E
218-01-9	Chrysene	6.1	1,100 E
205-99-2	Benzo(b)fluoranthene	6.1	600
207-08-9	Benzo(k)fluoranthene	6.1	570
50-32-8	Benzo(a)pyrene	6.1	560
193-39-5	Indeno(1,2,3-cd)pyrene	6.1	180
53-70-3	Dibenz(a,h)anthracene	6.1	62
191-24-2	Benzo(g,h,i)perylene	6.1	150
132-64-9	Dibenzofuran	6.1	910 E
106-46-7	1,4-Dichlorobenzene	6.1	< 6.1 U
120-82-1	1,2,4-Trichlorobenzene	6.1	< 6.1 U
118-74-1	Hexachlorobenzene	6.1	< 6.1 U
87-68-3	Hexachlorobutadiene	6.1	< 6.1 U
108-95-2	Phenol	6.1	15 B
106-44-5	4-Methylphenol	6.1	470
65-85-0	Benzoic Acid	61	< 61 U
131-11-3	Dimethylphthalate	6.1	< 6.1 U
84-66-2	Diethylphthalate	6.1	6.7 B
84-74-2	Di-n-Butylphthalate	6.1	< 6.1 U
85-68-7	Butylbenzylphthalate	6.1	< 6.1 U
117-81-7	bis(2-Ethylhexyl)phthalate	6.1	10 B
117-84-0	Di-n-Octyl phthalate	6.1	6.7
95-48-7	2-Methylphenol	6.1	180
105-67-9	2,4-Dimethylphenol	6.1	170
86-30-6	N-Nitrosodiphenylamine	42	< 42 Y
100-51-6	Benzyl Alcohol	30	< 30 U
87-86-5	Pentachlorophenol	30	< 30 U
95-50-1	1,2-Dichlorobenzene	6.1	< 6.1 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000038**
SAMPLE

Lab Sample ID: LA620
LIMS ID: 07-10243
Matrix: Sediment
Date Analyzed: 06/13/07 23:38

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	46.4%	d5-Phenol	41.3%
2-Fluorophenol	40.3%	d4-2-Chlorophenol	41.3%
d4-1,2-Dichlorobenzene	41.2%	d5-Nitrobenzene	43.2%
2,4,6-Tribromophenol	49.6%	d14-p-Terphenyl	54.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000038
DILUTION

Lab Sample ID: LA620
LIMS ID: 07-10243
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/14/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 21:20
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 20.0
Percent Moisture: 62.8%
pH: 7.9

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**120**	**3,500**
91-57-6	**2-Methylnaphthalene**	**120**	**1,100**
208-96-8	Acenaphthylene	120	< 120 U
83-32-9	**Acenaphthene**	**120**	**2,400**
86-73-7	**Fluorene**	**120**	**1,500**
85-01-8	**Phenanthrene**	**120**	**3,300**
120-12-7	**Anthracene**	**120**	**1,000**
206-44-0	**Fluoranthene**	**120**	**3,000**
129-00-0	**Pyrene**	**120**	**1,700**
56-55-3	**Benzo(a)anthracene**	**120**	**870**
218-01-9	**Chrysene**	**120**	**1,100**
205-99-2	**Benzo(b)fluoranthene**	**120**	**420**
207-08-9	**Benzo(k)fluoranthene**	**120**	**450**
50-32-8	**Benzo(a)pyrene**	**120**	**430**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**120**	**150**
53-70-3	Dibenz(a,h)anthracene	120	< 120 U
191-24-2	**Benzo(g,h,i)perylene**	**120**	**130**
132-64-9	**Dibenzofuran**	**120**	**1,100**
106-46-7	1,4-Dichlorobenzene	120	< 120 U
120-82-1	1,2,4-Trichlorobenzene	120	< 120 U
118-74-1	Hexachlorobenzene	120	< 120 U
87-68-3	Hexachlorobutadiene	120	< 120 U
108-95-2	Phenol	120	< 120 U
106-44-5	**4-Methylphenol**	**120**	**430**
65-85-0	Benzoic Acid	1,200	< 1,200 U
131-11-3	Dimethylphthalate	120	< 120 U
84-66-2	Diethylphthalate	120	< 120 U
84-74-2	Di-n-Butylphthalate	120	< 120 U
85-68-7	Butylbenzylphthalate	120	< 120 U
117-81-7	bis(2-Ethylhexyl)phthalate	120	< 120 U
117-84-0	Di-n-Octyl phthalate	120	< 120 U
95-48-7	**2-Methylphenol**	**120**	**130**
105-67-9	**2,4-Dimethylphenol**	**120**	**130**
86-30-6	N-Nitrosodiphenylamine	120	< 120 U
100-51-6	Benzyl Alcohol	610	< 610 U
87-86-5	Pentachlorophenol	610	< 610 U
95-50-1	1,2-Dichlorobenzene	120	< 120 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000038**
DILUTION

Lab Sample ID: LA620
LIMS ID: 07-10243
Matrix: Sediment
Date Analyzed: 06/14/07 21:20

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	40.0%	d5-Phenol	37.3%
2-Fluorophenol	37.3%	d4-2-Chlorophenol	42.7%
d4-1,2-Dichlorobenzene	32.0%	d5-Nitrobenzene	40.0%
2,4,6-Tribromophenol	42.7%	d14-p-Terphenyl	32.0%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett

Client ID	FBP	PHL	FPH	CPL	DCB	NBZ	TBP	TER	TOT OUT
13116000004	43.2%	53.3%	50.7%	52.8%	47.6%	53.6%	63.5%	25.2%*	1
13116000004 DL	56.0%	54.7%	52.0%	53.3%	52.0%	58.0%	76.0%	22.0%*	1
13116000006	46.4%	44.3%	38.7%	44.0%	39.6%	12.0%*	82.9%	60.8%	1
13116000006 DL	56.0%	48.0%	48.0%	48.0%	48.0%	40.0%	53.3%	64.0%	0
13116000006 DL	D	D	D	D	D	D	D	D	0
13116000010	56.4%	46.1%	48.5%	51.2%	51.2%	259%*	90.9%	108%	1
13116000010 DL	D	D	D	D	D	D	D	D	0
13116000010 DL	D	D	D	D	D	D	D	D	0
13116000014	50.0%	44.8%	41.3%	42.9%	44.4%	35.2%	41.9%	50.8%	0
13116000014 DL	50.4%	51.2%	50.4%	48.8%	46.8%	56.4%	56.0%	42.0%	0
13116000015	44.8%	45.3%	46.4%	45.3%	45.6%	32.0%	47.7%	34.4%	0
13116000015 DL	46.8%	51.2%	52.0%	49.6%	45.6%	52.8%	47.2%	31.2%	0
13116000021	39.6%	49.3%	46.4%	45.1%	43.6%	51.6%	34.9%	20.8%*	1
13116000021 DL	42.0%	52.0%	52.0%	49.3%	46.0%	60.0%	48.0%	22.0%*	1
13116000023	46.0%	44.8%	44.3%	44.5%	44.4%	50.4%	51.5%	42.0%	0
13116000023 DL	32.0%	37.3%	37.3%	32.0%	32.0%	40.0%	48.0%	32.0%	0
13116000027	45.2%	44.0%	46.9%	48.0%	48.4%	44.8%	61.9%	62.0%	0
13116000027 DL	57.6%	52.0%	56.8%	54.4%	50.4%	54.0%	86.4%	56.4%	0
13116000029	31.6%	45.1%	46.7%	47.2%	47.2%	54.0%	57.1%	29.2%*	1
13116000029 DL	49.2%	52.8%	52.0%	52.8%	49.2%	51.6%	74.4%	24.0%*	1
13116000031	59.2%	54.9%	54.1%	55.5%	51.2%	54.0%	105%	98.8%	0
13116000031 DL	64.0%	58.7%	58.7%	58.7%	56.0%	64.0%	80.0%	88.0%	0
13116000031 DL	D	D	D	D	D	D	D	D	0
MB-060507	59.6%	57.6%	55.2%	57.6%	54.4%	48.4%	53.3%	68.4%	0
LCS-060507	56.8%	57.6%	54.7%	57.3%	50.8%	47.6%	61.9%	63.6%	0
SRM SQ-1	59.2%	54.7%	52.5%	53.9%	48.4%	49.2%	67.5%	64.8%	0
13116000038	46.4%	41.3%	40.3%	41.3%	41.2%	43.2%	49.6%	54.4%	0
13116000038 DL	40.0%	37.3%	37.3%	42.7%	32.0%	40.0%	42.7%	32.0%	0
13116000038 MS	43.2%	41.3%	38.9%	41.3%	40.0%	41.2%	50.9%	32.8%	0
13116000038 MSD	52.4%	51.5%	50.1%	49.1%	44.4%	46.8%	70.9%	52.8%	0

	LCS/MB LIMITS	QC LIMITS
(FBP) = 2-Fluorobiphenyl	(30-160)	(30-160)
(PHL) = d5-Phenol	(30-160)	(30-160)
(FPH) = 2-Fluorophenol	(30-160)	(30-160)
(CPL) = d4-2-Chlorophenol	(30-160)	(30-160)
(DCB) = d4-1,2-Dichlorobenzene	(30-160)	(30-160)
(NBZ) = d5-Nitrobenzene	(30-160)	(30-160)
(TBP) = 2,4,6-Tribromophenol	(30-160)	(30-160)
(TER) = d14-p-Terphenyl	(30-160)	(30-160)

Prep Method: SW3550B
Log Number Range: 07-10233 to 07-10243

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000038**
MATRIX SPIKE
Page 1 of 1

Lab Sample ID: LA620
LIMS ID: 07-10243
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/14/07
Date Received: 05/17/07

Date Extracted MS/MSD: 06/05/07

Date Analyzed MS: 06/14/07 00:11
MSD: 06/14/07 21:53
Instrument/Analyst MS: NT2/LJR
MSD: NT2/LJR

Sample Amount MS: 16.4 g-dry-wt
MSD: 16.4 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Acenaphthene	1970 E	3510 E	152	NA	2100 E	152	NA	NA
Pyrene	1860 E	2100 E	152	NA	2020 E	152	NA	NA
Benzo(g,h,i)perylene	154	63.4	152	NA	220	152	43.4%	NA
1,4-Dichlorobenzene	< 6.1 U	62.2	152	40.9%	78.7	152	51.8%	23.4%
1,2,4-Trichlorobenzene	< 6.1 U	64.6	152	42.5%	70.7	152	46.5%	9.0%
Phenol	15.2 B	98.2 B	229	36.2%	117 B	229	44.5%	17.5%
Di-n-Octyl phthalate	6.7	92.7	152	56.6%	84.1	152	50.9%	9.7%
Pentachlorophenol	< 30.5 U	121	229	52.8%	150	229	65.5%	21.4%

Reported in µg/kg (ppb)

NA-No recovery due to high concentration of analyte in original sample, calculated negative recovery, or undetected spike.
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
Page 1 of 2

Sample ID: 13116000038
MATRIX SPIKE

Lab Sample ID: LA620
LIMS ID: 07-10243
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/14/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 00:11
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 62.8%
pH: 7.9

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**6.1**	**3,200 E**
91-57-6	**2-Methylnaphthalene**	**6.1**	**1,900 E**
208-96-8	**Acenaphthylene**	**6.1**	**120**
83-32-9	Acenaphthene	6.1	---
86-73-7	**Fluorene**	**6.1**	**2,600 E**
85-01-8	**Phenanthrene**	**6.1**	**5,100 E**
120-12-7	**Anthracene**	**6.1**	**1,300 E**
206-44-0	**Fluoranthene**	**6.1**	**3,400 E**
129-00-0	Pyrene	6.1	---
56-55-3	**Benzo(a)anthracene**	**6.1**	**360**
218-01-9	**Chrysene**	**6.1**	**470**
205-99-2	**Benzo(b)fluoranthene**	**6.1**	**180**
207-08-9	**Benzo(k)fluoranthene**	**6.1**	**160**
50-32-8	**Benzo(a)pyrene**	**6.1**	**110**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**6.1**	**46**
53-70-3	**Dibenz(a,h)anthracene**	**6.1**	**20**
191-24-2	Benzo(g,h,i)perylene	6.1	---
132-64-9	**Dibenzofuran**	**6.1**	**1,600 E**
106-46-7	1,4-Dichlorobenzene	6.1	---
120-82-1	1,2,4-Trichlorobenzene	6.1	---
118-74-1	Hexachlorobenzene	6.1	< 6.1 U
87-68-3	Hexachlorobutadiene	6.1	< 6.1 U
108-95-2	Phenol	6.1	---
106-44-5	**4-Methylphenol**	**6.1**	**540**
65-85-0	Benzoic Acid	61	< 61 U
131-11-3	Dimethylphthalate	6.1	< 6.1 U
84-66-2	**Diethylphthalate**	**6.1**	**12 B**
84-74-2	**Di-n-Butylphthalate**	**6.1**	**9.2 B**
85-68-7	Butylbenzylphthalate	6.1	< 6.1 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**6.1**	**14 B**
117-84-0	Di-n-Octyl phthalate	6.1	---
95-48-7	**2-Methylphenol**	**6.1**	**210**
105-67-9	**2,4-Dimethylphenol**	**6.1**	**200**
86-30-6	N-Nitrosodiphenylamine	93	< 93 Y
100-51-6	Benzyl Alcohol	30	< 30 U
87-86-5	Pentachlorophenol	30	---
95-50-1	1,2-Dichlorobenzene	6.1	< 6.1 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: 13116000038**
MATRIX SPIKE

Lab Sample ID: LA62O
LIMS ID: 07-10243
Matrix: Sediment
Date Analyzed: 06/14/07 00:11

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	43.2%	d5-Phenol	41.3%
2-Fluorophenol	38.9%	d4-2-Chlorophenol	41.3%
d4-1,2-Dichlorobenzene	40.0%	d5-Nitrobenzene	41.2%
2,4,6-Tribromophenol	50.9%	d14-p-Terphenyl	32.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS

Sample ID: 13116000038
MATRIX SPIKE DUPLICATE

Lab Sample ID: LA620
LIMS ID: 07-10243
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: 05/14/07
Date Received: 05/17/07

Date Extracted: 06/05/07
Date Analyzed: 06/14/07 21:53
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.4 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 62.8%
pH: 7.9

CAS Number	Analyte	RL	Result
91-20-3	**Naphthalene**	**6.1**	**1,700 E**
91-57-6	**2-Methylnaphthalene**	**6.1**	**1,000 E**
208-96-8	**Acenaphthylene**	**6.1**	**110**
83-32-9	Acenaphthene	6.1	---
86-73-7	**Fluorene**	**6.1**	**1,800 E**
85-01-8	**Phenanthrene**	**6.1**	**3,800 E**
120-12-7	**Anthracene**	**6.1**	**1,800 E**
206-44-0	**Fluoranthene**	**6.1**	**3,700 E**
129-00-0	Pyrene	6.1	---
56-55-3	**Benzo(a)anthracene**	**6.1**	**1,200**
218-01-9	**Chrysene**	**6.1**	**1,600**
205-99-2	**Benzo(b)fluoranthene**	**6.1**	**610**
207-08-9	**Benzo(k)fluoranthene**	**6.1**	**600**
50-32-8	**Benzo(a)pyrene**	**6.1**	**560**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**6.1**	**220**
53-70-3	**Dibenz(a,h)anthracene**	**6.1**	**71**
191-24-2	Benzo(g,h,i)perylene	6.1	---
132-64-9	**Dibenzofuran**	**6.1**	**1,200 E**
106-46-7	1,4-Dichlorobenzene	6.1	---
120-82-1	1,2,4-Trichlorobenzene	6.1	---
118-74-1	Hexachlorobenzene	6.1	< 6.1 U
87-68-3	Hexachlorobutadiene	6.1	< 6.1 U
108-95-2	Phenol	6.1	---
106-44-5	**4-Methylphenol**	**6.1**	**560**
65-85-0	**Benzoic Acid**	**61**	**70**
131-11-3	Dimethylphthalate	6.1	< 6.1 U
84-66-2	Diethylphthalate	6.1	< 6.1 U
84-74-2	Di-n-Butylphthalate	6.1	< 6.1 U
85-68-7	Butylbenzylphthalate	6.1	< 6.1 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**6.1**	**18 B**
117-84-0	Di-n-Octyl phthalate	6.1	---
95-48-7	**2-Methylphenol**	**6.1**	**200**
105-67-9	**2,4-Dimethylphenol**	**6.1**	**190**
86-30-6	N-Nitrosodiphenylamine	43	< 43 Y
100-51-6	Benzyl Alcohol	30	< 30 U
87-86-5	Pentachlorophenol	30	---
95-50-1	1,2-Dichlorobenzene	6.1	< 6.1 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS Sample ID: 13116000038
  MATRIX SPIKE DUPLICATE

Lab Sample ID: LA62O
LIMS ID: 07-10243
Matrix: Sediment
Date Analyzed: 06/14/07 21:53

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	52.4%	d5-Phenol	51.5%
2-Fluorophenol	50.1%	d4-2-Chlorophenol	49.1%
d4-1,2-Dichlorobenzene	44.4%	d5-Nitrobenzene	46.8%
2,4,6-Tribromophenol	70.9%	d14-p-Terphenyl	52.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS Sample ID: SQ-1 060507
  STANDARD REFERENCE

Lab Sample ID: SRM-060507
LIMS ID: 07-10243
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: NA
Date Received: NA

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 17:36
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 9.60 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 40.2%
pH: NA

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	10	24
91-57-6	2-Methylnaphthalene	10	33
208-96-8	Acenaphthylene	10	12
83-32-9	Acenaphthene	10	42
86-73-7	Fluorene	10	47
85-01-8	Phenanthrene	10	69
120-12-7	Anthracene	10	94
206-44-0	Fluoranthene	10	130
129-00-0	Pyrene	10	100
56-55-3	Benzo(a)anthracene	10	110
218-01-9	Chrysene	10	110
205-99-2	Benzo(b)fluoranthene	10	110
207-08-9	Benzo(k)fluoranthene	10	< 10 U
50-32-8	Benzo(a)pyrene	10	110
193-39-5	Indeno(1,2,3-cd)pyrene	10	21
53-70-3	Dibenz(a,h)anthracene	10	91
191-24-2	Benzo(g,h,i)perylene	10	96
132-64-9	Dibenzofuran	10	< 10 U
106-46-7	1,4-Dichlorobenzene	10	< 10 U
120-82-1	1,2,4-Trichlorobenzene	10	< 10 U
118-74-1	Hexachlorobenzene	10	< 10 U
87-68-3	Hexachlorobutadiene	10	< 10 U
108-95-2	Phenol	10	25 B
106-44-5	4-Methylphenol	10	26
65-85-0	Benzoic Acid	100	< 100 U
131-11-3	Dimethylphthalate	10	< 10 U
84-66-2	Diethylphthalate	10	< 10 U
84-74-2	Di-n-Butylphthalate	10	10 B
85-68-7	Butylbenzylphthalate	10	< 10 U
117-81-7	bis(2-Ethylhexyl)phthalate	10	91 B
117-84-0	Di-n-Octyl phthalate	10	< 10 U
95-48-7	2-Methylphenol	10	< 10 U
105-67-9	2,4-Dimethylphenol	10	< 10 U
86-30-6	N-Nitrosodiphenylamine	10	< 10 U
100-51-6	Benzyl Alcohol	52	< 52 U
87-86-5	Pentachlorophenol	52	490
95-50-1	1,2-Dichlorobenzene	10	10

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
Page 2 of 2

Sample ID: SQ-1 060507
STANDARD REFERENCE

Lab Sample ID: SRM-060507
LIMS ID: 07-10243
Matrix: Sediment
Date Analyzed: 06/13/07 17:36

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	59.2%	d5-Phenol	54.7%
2-Fluorophenol	52.5%	d4-2-Chlorophenol	53.9%
d4-1,2-Dichlorobenzene	48.4%	d5-Nitrobenzene	49.2%
2,4,6-Tribromophenol	67.5%	d14-p-Terphenyl	64.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS Sample ID: LCS-060507
  LAB CONTROL SAMPLE

Lab Sample ID: LCS-060507
LIMS ID: 07-10243
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: NA
Date Received: NA

Date Extracted: 06/05/07
Date Analyzed LCS: 06/13/07 17:02
Instrument/Analyst LCS: NT2/LJR

Sample Amount LCS: 16.0 g-dry-wt
Final Extract Volume LCS: 1.0 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Naphthalene	89.4	156	57.3%
2-Methylnaphthalene	89.4	156	57.3%
Acenaphthylene	94.4	156	60.5%
Acenaphthene	95.0	156	60.9%
Fluorene	99.4	156	63.7%
Phenanthrene	100	156	64.1%
Anthracene	96.9	156	62.1%
Fluoranthene	109	156	69.9%
Pyrene	100	156	64.1%
Benzo(a)anthracene	99.1	156	63.5%
Chrysene	104	156	66.7%
Benzo(b)fluoranthene	95.6	156	61.3%
Benzo(k)fluoranthene	123	156	78.8%
Benzo(a)pyrene	99.0	156	63.5%
Indeno(1,2,3-cd)pyrene	101	156	64.7%
Dibenz(a,h)anthracene	102	156	65.4%
Benzo(g,h,i)perylene	100	156	64.1%
Dibenzofuran	95.6	156	61.3%
1,4-Dichlorobenzene	84.4	156	54.1%
1,2,4-Trichlorobenzene	86.9	156	55.7%
Hexachlorobenzene	101	156	64.7%
Hexachlorobutadiene	82.5	156	52.9%
Phenol	93.1	156	59.7%
4-Methylphenol	174	312	55.8%
Benzoic Acid	353	469	75.3%
Dimethylphthalate	101	156	64.7%
Diethylphthalate	103	156	66.0%
Di-n-Butylphthalate	117	156	75.0%
Butylbenzylphthalate	108	156	69.2%
bis(2-Ethylhexyl)phthalate	104	156	66.7%
Di-n-Octyl phthalate	106	156	67.9%
2-Methylphenol	93.8	156	60.1%
2,4-Dimethylphenol	85.6	156	54.9%
N-Nitrosodiphenylamine	132	156	84.6%
Benzyl Alcohol	141	312	45.2%
Pentachlorophenol	119	156	76.3%
1,2-Dichlorobenzene	93.8	156	60.1%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	56.8%
d5-Phenol	57.6%
2-Fluorophenol	54.7%
d4-2-Chlorophenol	57.3%
d4-1,2-Dichlorobenzene	50.8%
d5-Nitrobenzene	47.6%

Lab Sample ID: LCS-060507
LIMS ID: 07-10243
Matrix: Sediment

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

Analyte	LCS	Spike Added	Recovery
2,4,6-Tribromophenol			61.9%
d14-p-Terphenyl			63.6%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO. LA62MBS1

Lab Name: ANALYTICAL RESOURCES, INC Client: GEOMATRIX, INC.

ARI Job No: LA62 Project: PORT OF EVERETT

Lab File ID: LA62MB Date Extracted: 06/05/07

Instrument ID: NT2 Date Analyzed: 06/13/07

Matrix: SOLID Time Analyzed: 1629

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LA62LCSS1	LA62LCSS1	LA62SB	06/13/07
02	SQ-1	LA62SRM1	LA62SRM	06/13/07
03	13116000004	LA62E	LA62E	06/13/07
04	13116000006	LA62F	LA62F	06/13/07
05	13116000010	LA62G	LA62G	06/13/07
06	13116000014	LA62H	LA62H	06/13/07
07	13116000015	LA62I	LA62I	06/13/07
08	13116000021	LA62J	LA62J	06/13/07
09	13116000023	LA62K	LA62K	06/13/07
10	13116000027	LA62L	LA62L	06/13/07
11	13116000029	LA62M	LA62M	06/13/07
12	13116000031	LA62N	LA62N	06/13/07
13	13116000038	LA62O	LA62O	06/13/07
14	13116000038 MS	LA62OMS	LA62OMS	06/14/07
15	13116000004	LA62E	LA62EDL	06/14/07
16	13116000006	LA62F	LA62FDL	06/14/07
17	13116000010	LA62G	LA62GDL	06/14/07
18	13116000010	LA62G	LA62GDL2	06/14/07
19	13116000014	LA62H	LA62HDL	06/14/07
20	13116000015	LA62I	LA62IDL	06/14/07
21	13116000021	LA62J	LA62JDL	06/14/07
22	13116000023	LA62K	LA62KDL	06/14/07
23	13116000027	LA62L	LA62LDL	06/14/07
24	13116000029	LA62M	LA62MDL	06/14/07
25	13116000031	LA62N	LA62NDL2	06/14/07
26	13116000038	LA62O	LA62ODL	06/14/07
27	13116000038 MSD	LA62OMSD	LA62OMD2	06/14/07
28	13116000006	LA62F	LA62FDL2	06/14/07
29	13116000031	LA62N	LA62NDL3	06/15/07
30				

COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS **Sample ID: MB-060507**
 METHOD BLANK

Lab Sample ID: MB-060507
LIMS ID: 07-10243
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA
Date Sampled: NA
Date Received: NA

Date Extracted: 06/05/07
Date Analyzed: 06/13/07 16:29
Instrument/Analyst: NT2/LJR
GPC Cleanup: Yes
Silica Gel Cleanup: No
Alumina Cleanup: No

Sample Amount: 16.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
pH: NA

CAS Number	Analyte	RL	Result
91-20-3	Naphthalene	6.2	< 6.2 U
91-57-6	2-Methylnaphthalene	6.2	< 6.2 U
208-96-8	Acenaphthylene	6.2	< 6.2 U
83-32-9	Acenaphthene	6.2	< 6.2 U
86-73-7	Fluorene	6.2	< 6.2 U
85-01-8	Phenanthrene	6.2	< 6.2 U
120-12-7	Anthracene	6.2	< 6.2 U
206-44-0	Fluoranthene	6.2	< 6.2 U
129-00-0	Pyrene	6.2	< 6.2 U
56-55-3	Benzo(a)anthracene	6.2	< 6.2 U
218-01-9	Chrysene	6.2	< 6.2 U
205-99-2	Benzo(b)fluoranthene	6.2	< 6.2 U
207-08-9	Benzo(k)fluoranthene	6.2	< 6.2 U
50-32-8	Benzo(a)pyrene	6.2	< 6.2 U
193-39-5	Indeno(1,2,3-cd)pyrene	6.2	< 6.2 U
53-70-3	Dibenz(a,h)anthracene	6.2	< 6.2 U
191-24-2	Benzo(g,h,i)perylene	6.2	< 6.2 U
132-64-9	Dibenzofuran	6.2	< 6.2 U
106-46-7	1,4-Dichlorobenzene	6.2	< 6.2 U
120-82-1	1,2,4-Trichlorobenzene	6.2	< 6.2 U
118-74-1	Hexachlorobenzene	6.2	< 6.2 U
87-68-3	Hexachlorobutadiene	6.2	< 6.2 U
108-95-2	**Phenol**	**6.2**	**6.2**
106-44-5	4-Methylphenol	6.2	< 6.2 U
65-85-0	Benzoic Acid	62	< 62 U
131-11-3	Dimethylphthalate	6.2	< 6.2 U
84-66-2	**Diethylphthalate**	**6.2**	**5.0 J**
84-74-2	**Di-n-Butylphthalate**	**6.2**	**10**
85-68-7	Butylbenzylphthalate	6.2	< 6.2 U
117-81-7	**bis(2-Ethylhexyl)phthalate**	**6.2**	**6.2**
117-84-0	Di-n-Octyl phthalate	6.2	< 6.2 U
95-48-7	2-Methylphenol	6.2	< 6.2 U
105-67-9	2,4-Dimethylphenol	6.2	< 6.2 U
86-30-6	N-Nitrosodiphenylamine	6.2	< 6.2 U
100-51-6	Benzyl Alcohol	31	< 31 U
87-86-5	Pentachlorophenol	31	< 31 U
95-50-1	1,2-Dichlorobenzene	6.2	< 6.2 U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Semivolatiles by Selected Ion Monitoring GC/MS
Sample ID: MB-060507
METHOD BLANK

Lab Sample ID: MB-060507
LIMS ID: 07-10243
Matrix: Sediment
Date Analyzed: 06/13/07 16:29

QC Report No: LA62-Geomatrix, Inc.
Project: Port of Everett
Event: NA

CAS Number	Analyte	RL	Result

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

2-Fluorobiphenyl	59.6%	d5-Phenol	57.6%
2-Fluorophenol	55.2%	d4-2-Chlorophenol	57.6%
d4-1,2-Dichlorobenzene	54.4%	d5-Nitrobenzene	48.4%
2,4,6-Tribromophenol	53.3%	d14-p-Terphenyl	68.4%

GENERAL CHEMISTRY

METHOD BLANK RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank
Total Solids	05/28/07	Percent	< 0.01 U
	05/28/07		< 0.01 U
Total Organic Carbon	06/07/07	Percent	< 0.020 U

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Client ID: 13116000004
ARI ID: 07-10233 LA62E

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#2	EPA 160.3	Percent	0.01	25.30
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.826	46.9

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Client ID: 13116000006
ARI ID: 07-10234 LA62F

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#2	EPA 160.3	Percent	0.01	42.30
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.020	9.21

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Client ID: 13116000010
ARI ID: 07-10235 LA62G

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#2	EPA 160.3	Percent	0.01	28.60
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.284	18.9

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Client ID: 13116000014
ARI ID: 07-10236 LA62H

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#2	EPA 160.3	Percent	0.01	20.00
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.504	30.8

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Client ID: 13116000015
ARI ID: 07-10237 LA62I

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#2	EPA 160.3	Percent	0.01	22.00
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.538	25.1

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/08/07
Date Received: 05/09/07

Client ID: 13116000021
ARI ID: 07-10238 LA62J

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#3	EPA 160.3	Percent	0.01	17.80
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.856	44.0

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/08/07
Date Received: 05/09/07

Client ID: 13116000023
ARI ID: 07-10239 LA62K

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#3	EPA 160.3	Percent	0.01	23.20
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.372	14.4

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/11/07
Date Received: 05/17/07

Client ID: 13116000027
ARI ID: 07-10240 LA62L

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#3	EPA 160.3	Percent	0.01	43.20
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.396	17.1

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/11/07
Date Received: 05/17/07

Client ID: 13116000029
ARI ID: 07-10241 LA62M

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#3	EPA 160.3	Percent	0.01	25.90
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.486	24.1

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/11/07
Date Received: 05/17/07

Client ID: 13116000031
ARI ID: 07-10242 LA62N

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#3	EPA 160.3	Percent	0.01	25.90
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.444	15.9

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/14/07
Date Received: 05/17/07

Client ID: 13116000038
ARI ID: 07-10243 LA620

Analyte	Date	Method	Units	RL	Sample
Total Solids	05/28/07 052807#3	EPA 160.3	Percent	0.01	29.10
Total Organic Carbon	06/07/07 060707#1	Plumb,1981	Percent	0.440	6.11

RL Analytical reporting limit
U Undetected at reported detection limit

REPLICATE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: LA62E Client ID: 13116000004					
Total Solids	05/28/07	Percent	25.30	25.30 26.10	1.8%
Total Organic Carbon	06/07/07	Percent	46.9	37.3 42.0	11.4%

MS/MSD RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: 05/07/07
Date Received: 05/08/07

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: LA62E Client ID: 13116000004						
Total Organic Carbon	06/07/07	Percent	46.9	112	61.7	105.5%

LAB CONTROL RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon	06/07/07	Percent	0.488	0.500	97.6%

STANDARD REFERENCE RESULTS-CONVENTIONALS
LA62-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/08/07

Project: Port of Everett
Event: NA
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST #8704	06/07/07	Percent	3.13	3.35	93.4%

TOTAL SOLIDS

Extractions Total Solids-extts
Data By: Adam L. Rains
Created: 5/25/07

Worklist: 9921
Analyst: ALR
Comments:

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	LA62E 07-10233 13116000004	1.12	11.83	4.50	31.6	8.0
2.	LA62F 07-10234 13116000006	1.14	11.18	5.30	41.4	7.8
3.	LA62G 07-10235 13116000010	1.18	11.66	4.46	31.3	7.9
4.	LA62H 07-10236 13116000014	1.16	10.22	3.14	21.9	8.4
5.	LA62I 07-10237 13116000015	1.18	10.48	3.68	26.9	8.8
6.	LA62J 07-10238 13116000021	1.18	10.46	2.90	18.5	8.8
7.	LA62K 07-10239 13116000023	1.14	10.54	3.52	25.3	8.0
8.	LA62L 07-10240 13116000027	1.16	10.82	5.26	42.4	7.9
9.	LA62M 07-10241 13116000029	1.14	10.90	3.78	27.0	8.1
10.	LA62N 07-10242 13116000031	1.16	11.32	3.98	27.8	8.3
11.	LA62O 07-10243 13116000038	1.14	11.84	5.12	37.2	7.9

Analytical Resources, Incorporated
Analytical Chemists and Consultants

25 June 2007

Rob Gilmour
Geomatrix, Inc.
3500 188th Street SW, Suite 600
Lynnwood, WA 98037-4763

RE: Project: Port of Everett
ARI Job No.: LD21

Dear Rob:

Please find enclosed the final data package for the samples from the project referenced above. Analytical Resources, Inc. received nine sediment samples in good condition on May 17, 2007. There were no discrepancies in the paperwork.

The samples were analyzed for SVOAs, pesticides, PCBs, total metals and TOC as requested.

Problems associated with these analyses are discussed in the case narrative.

A copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

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

Enclosures

cc: file LD21

MDH/mdh

Case Narrative

prepared
for

GEOMATRIX CONSULTANTS

Project: 13116000

ARI JOB NO: LD21

prepared
by

Analytical Resources, Inc.

Case Narrative

Client: Geomatrix, Inc.
Project: Port of Everett
Matrix: Sediment
ARI Job No: LD21
Date: June 26, 2007

Semivolatile Organics Analysis

The surrogate 2-Fluorophenol was high of ARI limits in several samples, due to co-elution with interferences. The 2-Fluorophenol was also high of ARI limits in the Method Blank at 100%. No action was taken.

Undiluted analyses showed internal standards outside limits due to matrix interference. All extracts were analyzed at a 1:3 dilution, bringing internal standards into control. Both sets of results have been reported.

Pesticides Analyses

The sample extracts were analyzed twice, both times with the closing calibrations failing low, due to the matrix. Only the second run has been reported.

PCBs Analysis

These sample extracts were also analyzed twice, both times with the closing calibrations failing low, due to the matrix. Only the second run has been reported.

Total Metals Analyses

These analyses proceeded without incident of note.

Conventionals Analyses

These analyses proceeded without incident of note.

Data Reporting Qualifiers

Effective 12/28/04

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 ≥ 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 is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting 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 ≥40% RPD with no obvious chromatographic interference

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

Data Summary Package

prepared
for

GEOMATRIX CONSULTANTS

Project: 13116000

ARI JOB NO: LD21

prepared
by

Analytical Resources, Inc.

SEMIVOLATILE ORGANICS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS **Sample ID: 13116000100**
Page 1 of 1 **SAMPLE**

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 14:03
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 39.0%
pH: 7.3

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**24**
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**29**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	**Acenaphthene**	**20**	**20**
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	**Phenanthrene**	**20**	**98**
120-12-7	**Anthracene**	**20**	**34**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**330**
129-00-0	**Pyrene**	**20**	**160**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**71**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**44**
218-01-9	**Chrysene**	**20**	**110**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**79**
207-08-9	**Benzo(k)fluoranthene**	**20**	**61**
50-32-8	**Benzo(a)pyrene**	**20**	**59**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**27**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**27**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	67.2%	2-Fluorobiphenyl	68.0%
d14-p-Terphenyl	61.6%	d4-1,2-Dichlorobenzene	54.4%
d5-Phenol	62.9%	2-Fluorophenol	76.8%
2,4,6-Tribromophenol	78.9%	d4-2-Chlorophenol	65.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS **Sample ID: 13116000100**
Page 1 of 1 **DILUTION**

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 10:27
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 39.0%
pH: 7.3

CAS Number	Analyte	RL	Result
108-95-2	Phenol	60	< 60 U
106-46-7	1,4-Dichlorobenzene	60	< 60 U
100-51-6	Benzyl Alcohol	60	< 60 U
95-50-1	1,2-Dichlorobenzene	60	< 60 U
95-48-7	2-Methylphenol	60	< 60 U
106-44-5	4-Methylphenol	60	< 60 U
105-67-9	2,4-Dimethylphenol	60	< 60 U
65-85-0	Benzoic Acid	600	< 600 U
120-82-1	1,2,4-Trichlorobenzene	60	< 60 U
91-20-3	Naphthalene	60	< 60 U
87-68-3	Hexachlorobutadiene	60	< 60 U
91-57-6	2-Methylnaphthalene	60	< 60 U
131-11-3	Dimethylphthalate	60	< 60 U
208-96-8	Acenaphthylene	60	< 60 U
83-32-9	Acenaphthene	60	< 60 U
132-64-9	Dibenzofuran	60	< 60 U
84-66-2	Diethylphthalate	60	< 60 U
86-73-7	Fluorene	60	< 60 U
86-30-6	N-Nitrosodiphenylamine	60	< 60 U
118-74-1	Hexachlorobenzene	60	< 60 U
87-86-5	Pentachlorophenol	300	< 300 U
85-01-8	**Phenanthrene**	**60**	**110**
120-12-7	Anthracene	60	< 60 U
84-74-2	Di-n-Butylphthalate	60	< 60 U
206-44-0	**Fluoranthene**	**60**	**200**
129-00-0	**Pyrene**	**60**	**190**
85-68-7	Butylbenzylphthalate	60	< 60 U
56-55-3	**Benzo(a)anthracene**	**60**	**77**
117-81-7	bis(2-Ethylhexyl)phthalate	60	< 60 U
218-01-9	**Chrysene**	**60**	**120**
117-84-0	Di-n-Octyl phthalate	60	< 60 U
205-99-2	**Benzo(b)fluoranthene**	**60**	**76**
207-08-9	**Benzo(k)fluoranthene**	**60**	**62**
50-32-8	**Benzo(a)pyrene**	**60**	**65**
193-39-5	Indeno(1,2,3-cd)pyrene	60	< 60 U
53-70-3	Dibenz(a,h)anthracene	60	< 60 U
191-24-2	Benzo(g,h,i)perylene	60	< 60 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	65.8%	2-Fluorobiphenyl	66.7%
d14-p-Terphenyl	77.2%	d4-1,2-Dichlorobenzene	56.0%
d5-Phenol	65.7%	2-Fluorophenol	77.6%
2,4,6-Tribromophenol	70.7%	d4-2-Chlorophenol	66.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS **Sample ID: 13116000101**
Page 1 of 1 **SAMPLE**

Lab Sample ID: LD21B
LIMS ID: 07-11961
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 16:16
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 36.5%
pH: 7.5

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	**Dimethylphthalate**	**20**	**61**
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	**Phenanthrene**	**20**	**62**
120-12-7	**Anthracene**	**20**	**28**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**170**
129-00-0	**Pyrene**	**20**	**100**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**47**
117-81-7	bis(2-Ethylhexyl)phthalate	20	< 20 U
218-01-9	**Chrysene**	**20**	**76**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**55**
207-08-9	**Benzo(k)fluoranthene**	**20**	**45**
50-32-8	**Benzo(a)pyrene**	**20**	**43**
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.4%	2-Fluorobiphenyl	59.6%
d14-p-Terphenyl	56.8%	d4-1,2-Dichlorobenzene	50.4%
d5-Phenol	55.7%	2-Fluorophenol	77.1%
2,4,6-Tribromophenol	69.3%	d4-2-Chlorophenol	58.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS **Sample ID: 13116000101**
Page 1 of 1 **DILUTION**

Lab Sample ID: LD21B
LIMS ID: 07-11961
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 11:01
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 36.5%
pH: 7.5

CAS Number	Analyte	RL	Result
108-95-2	Phenol	60	< 60 U
106-46-7	1,4-Dichlorobenzene	60	< 60 U
100-51-6	Benzyl Alcohol	60	< 60 U
95-50-1	1,2-Dichlorobenzene	60	< 60 U
95-48-7	2-Methylphenol	60	< 60 U
106-44-5	4-Methylphenol	60	< 60 U
105-67-9	2,4-Dimethylphenol	60	< 60 U
65-85-0	Benzoic Acid	600	< 600 U
120-82-1	1,2,4-Trichlorobenzene	60	< 60 U
91-20-3	Naphthalene	60	< 60 U
87-68-3	Hexachlorobutadiene	60	< 60 U
91-57-6	2-Methylnaphthalene	60	< 60 U
131-11-3	**Dimethylphthalate**	**60**	**65**
208-96-8	Acenaphthylene	60	< 60 U
83-32-9	Acenaphthene	60	< 60 U
132-64-9	Dibenzofuran	60	< 60 U
84-66-2	Diethylphthalate	60	< 60 U
86-73-7	Fluorene	60	< 60 U
86-30-6	N-Nitrosodiphenylamine	60	< 60 U
118-74-1	Hexachlorobenzene	60	< 60 U
87-86-5	Pentachlorophenol	300	< 300 U
85-01-8	**Phenanthrene**	**60**	**76**
120-12-7	Anthracene	60	< 60 U
84-74-2	Di-n-Butylphthalate	60	< 60 U
206-44-0	**Fluoranthene**	**60**	**130**
129-00-0	**Pyrene**	**60**	**130**
85-68-7	Butylbenzylphthalate	60	< 60 U
56-55-3	Benzo(a)anthracene	60	< 60 U
117-81-7	bis(2-Ethylhexyl)phthalate	60	< 60 U
218-01-9	**Chrysene**	**60**	**88**
117-84-0	Di-n-Octyl phthalate	60	< 60 U
205-99-2	Benzo(b)fluoranthene	60	< 60 U
207-08-9	Benzo(k)fluoranthene	60	< 60 U
50-32-8	Benzo(a)pyrene	60	< 60 U
193-39-5	Indeno(1,2,3-cd)pyrene	60	< 60 U
53-70-3	Dibenz(a,h)anthracene	60	< 60 U
191-24-2	Benzo(g,h,i)perylene	60	< 60 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.4%	2-Fluorobiphenyl	61.2%
d14-p-Terphenyl	69.2%	d4-1,2-Dichlorobenzene	50.3%
d5-Phenol	57.3%	2-Fluorophenol	72.2%
2,4,6-Tribromophenol	61.8%	d4-2-Chlorophenol	58.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS
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Sample ID: 13116000102
SAMPLE

Lab Sample ID: LD21C
LIMS ID: 07-11962
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 16:49
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 62.4%
pH: 7.5

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**37**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	**Acenaphthene**	**20**	**26**
132-64-9	**Dibenzofuran**	**20**	**25**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**24**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	**Phenanthrene**	**20**	**100**
120-12-7	**Anthracene**	**20**	**43**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**320**
129-00-0	**Pyrene**	**20**	**250**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**92**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**30**
218-01-9	**Chrysene**	**20**	**160**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**100**
207-08-9	**Benzo(k)fluoranthene**	**20**	**98**
50-32-8	**Benzo(a)pyrene**	**20**	**77**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**31**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**23**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.8%	2-Fluorobiphenyl	60.4%
d14-p-Terphenyl	62.4%	d4-1,2-Dichlorobenzene	50.0%
d5-Phenol	59.7%	2-Fluorophenol	104%
2,4,6-Tribromophenol	82.7%	d4-2-Chlorophenol	61.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS
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Sample ID: 13116000102
DILUTION

Lab Sample ID: LD21C
LIMS ID: 07-11962
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 11:34
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 62.4%
pH: 7.5

CAS Number	Analyte	RL	Result
108-95-2	Phenol	60	< 60 U
106-46-7	1,4-Dichlorobenzene	60	< 60 U
100-51-6	Benzyl Alcohol	60	< 60 U
95-50-1	1,2-Dichlorobenzene	60	< 60 U
95-48-7	2-Methylphenol	60	< 60 U
106-44-5	4-Methylphenol	60	< 60 U
105-67-9	2,4-Dimethylphenol	60	< 60 U
65-85-0	Benzoic Acid	600	< 600 U
120-82-1	1,2,4-Trichlorobenzene	60	< 60 U
91-20-3	Naphthalene	60	< 60 U
87-68-3	Hexachlorobutadiene	60	< 60 U
91-57-6	2-Methylnaphthalene	60	< 60 U
131-11-3	Dimethylphthalate	60	< 60 U
208-96-8	Acenaphthylene	60	< 60 U
83-32-9	Acenaphthene	60	< 60 U
132-64-9	Dibenzofuran	60	< 60 U
84-66-2	Diethylphthalate	60	< 60 U
86-73-7	Fluorene	60	< 60 U
86-30-6	N-Nitrosodiphenylamine	60	< 60 U
118-74-1	Hexachlorobenzene	60	< 60 U
87-86-5	Pentachlorophenol	300	< 300 U
85-01-8	**Phenanthrene**	**60**	**110**
120-12-7	Anthracene	60	< 60 U
84-74-2	Di-n-Butylphthalate	60	< 60 U
206-44-0	**Fluoranthene**	**60**	**210**
129-00-0	**Pyrene**	**60**	**230**
85-68-7	Butylbenzylphthalate	60	< 60 U
56-55-3	**Benzo(a)anthracene**	**60**	**95**
117-81-7	bis(2-Ethylhexyl)phthalate	60	< 60 U
218-01-9	**Chrysene**	**60**	**150**
117-84-0	Di-n-Octyl phthalate	60	< 60 U
205-99-2	**Benzo(b)fluoranthene**	**60**	**100**
207-08-9	**Benzo(k)fluoranthene**	**60**	**74**
50-32-8	**Benzo(a)pyrene**	**60**	**70**
193-39-5	Indeno(1,2,3-cd)pyrene	60	< 60 U
53-70-3	Dibenz(a,h)anthracene	60	< 60 U
191-24-2	Benzo(g,h,i)perylene	60	< 60 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.4%	2-Fluorobiphenyl	61.1%
d14-p-Terphenyl	63.6%	d4-1,2-Dichlorobenzene	48.1%
d5-Phenol	59.0%	2-Fluorophenol	79.0%
2,4,6-Tribromophenol	64.7%	d4-2-Chlorophenol	59.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS
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Sample ID: 13116000103
SAMPLE

Lab Sample ID: LD21D
LIMS ID: 07-11963
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 17:22
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 49.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 51.1%
pH: 7.8

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**20**	**22**
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**41**
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**78**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**35**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**28**
83-32-9	**Acenaphthene**	**20**	**69**
132-64-9	**Dibenzofuran**	**20**	**62**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**73**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	**Phenanthrene**	**20**	**300**
120-12-7	**Anthracene**	**20**	**120**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**840**
129-00-0	**Pyrene**	**20**	**560**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**220**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**48**
218-01-9	**Chrysene**	**20**	**360**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**230**
207-08-9	**Benzo(k)fluoranthene**	**20**	**180**
50-32-8	**Benzo(a)pyrene**	**20**	**170**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**47**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**40**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.0%	2-Fluorobiphenyl	62.4%
d14-p-Terphenyl	58.4%	d4-1,2-Dichlorobenzene	54.0%
d5-Phenol	62.4%	2-Fluorophenol	93.3%
2,4,6-Tribromophenol	80.3%	d4-2-Chlorophenol	65.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS
Page 1 of 1

Sample ID: 13116000103
DILUTION

Lab Sample ID: LD21D
LIMS ID: 07-11963
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 12:07
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 49.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 51.1%
pH: 7.8

CAS Number	Analyte	RL	Result
108-95-2	Phenol	60	< 60 U
106-46-7	1,4-Dichlorobenzene	60	< 60 U
100-51-6	Benzyl Alcohol	60	< 60 U
95-50-1	1,2-Dichlorobenzene	60	< 60 U
95-48-7	2-Methylphenol	60	< 60 U
106-44-5	4-Methylphenol	60	< 60 U
105-67-9	2,4-Dimethylphenol	60	< 60 U
65-85-0	Benzoic Acid	600	< 600 U
120-82-1	1,2,4-Trichlorobenzene	60	< 60 U
91-20-3	**Naphthalene**	**60**	**76**
87-68-3	Hexachlorobutadiene	60	< 60 U
91-57-6	2-Methylnaphthalene	60	< 60 U
131-11-3	Dimethylphthalate	60	< 60 U
208-96-8	Acenaphthylene	60	< 60 U
83-32-9	**Acenaphthene**	**60**	**73**
132-64-9	**Dibenzofuran**	**60**	**61**
84-66-2	Diethylphthalate	60	< 60 U
86-73-7	**Fluorene**	**60**	**67**
86-30-6	N-Nitrosodiphenylamine	60	< 60 U
118-74-1	Hexachlorobenzene	60	< 60 U
87-86-5	Pentachlorophenol	300	< 300 U
85-01-8	**Phenanthrene**	**60**	**310**
120-12-7	**Anthracene**	**60**	**96**
84-74-2	Di-n-Butylphthalate	60	< 60 U
206-44-0	**Fluoranthene**	**60**	**560**
129-00-0	**Pyrene**	**60**	**570**
85-68-7	Butylbenzylphthalate	60	< 60 U
56-55-3	**Benzo(a)anthracene**	**60**	**210**
117-81-7	bis(2-Ethylhexyl)phthalate	60	< 60 U
218-01-9	**Chrysene**	**60**	**340**
117-84-0	Di-n-Octyl phthalate	60	< 60 U
205-99-2	**Benzo(b)fluoranthene**	**60**	**190**
207-08-9	**Benzo(k)fluoranthene**	**60**	**170**
50-32-8	**Benzo(a)pyrene**	**60**	**150**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**60**	**78**
53-70-3	Dibenz(a,h)anthracene	60	< 60 U
191-24-2	**Benzo(g,h,i)perylene**	**60**	**91**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	60.6%	2-Fluorobiphenyl	60.1%
d14-p-Terphenyl	63.1%	d4-1,2-Dichlorobenzene	51.0%
d5-Phenol	58.8%	2-Fluorophenol	74.6%
2,4,6-Tribromophenol	64.3%	d4-2-Chlorophenol	61.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS **Sample ID: 13116000104**
Page 1 of 1 **SAMPLE**

Lab Sample ID: LD21E
LIMS ID: 07-11964
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 17:56
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 58.9%
pH: 7.6

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**26**
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**58**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**22**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**20**
83-32-9	**Acenaphthene**	**20**	**57**
132-64-9	**Dibenzofuran**	**20**	**47**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**48**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	**Phenanthrene**	**20**	**200**
120-12-7	**Anthracene**	**20**	**78**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**510**
129-00-0	**Pyrene**	**20**	**280**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**170**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**36**
218-01-9	**Chrysene**	**20**	**280**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**200**
207-08-9	**Benzo(k)fluoranthene**	**20**	**150**
50-32-8	**Benzo(a)pyrene**	**20**	**140**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**47**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**37**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.2%	2-Fluorobiphenyl	61.2%
d14-p-Terphenyl	54.8%	d4-1,2-Dichlorobenzene	50.0%
d5-Phenol	58.9%	2-Fluorophenol	91.2%
2,4,6-Tribromophenol	76.0%	d4-2-Chlorophenol	60.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS **Sample ID: 13116000104**
Page 1 of 1 **DILUTION**

Lab Sample ID: LD21E
LIMS ID: 07-11964
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 12:41
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.2 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 58.9%
pH: 7.6

CAS Number	Analyte	RL	Result
108-95-2	Phenol	60	< 60 U
106-46-7	1,4-Dichlorobenzene	60	< 60 U
100-51-6	Benzyl Alcohol	60	< 60 U
95-50-1	1,2-Dichlorobenzene	60	< 60 U
95-48-7	2-Methylphenol	60	< 60 U
106-44-5	4-Methylphenol	60	< 60 U
105-67-9	2,4-Dimethylphenol	60	< 60 U
65-85-0	Benzoic Acid	600	< 600 U
120-82-1	1,2,4-Trichlorobenzene	60	< 60 U
91-20-3	Naphthalene	60	< 60 U
87-68-3	Hexachlorobutadiene	60	< 60 U
91-57-6	2-Methylnaphthalene	60	< 60 U
131-11-3	Dimethylphthalate	60	< 60 U
208-96-8	Acenaphthylene	60	< 60 U
83-32-9	Acenaphthene	60	< 60 U
132-64-9	Dibenzofuran	60	< 60 U
84-66-2	Diethylphthalate	60	< 60 U
86-73-7	Fluorene	60	< 60 U
86-30-6	N-Nitrosodiphenylamine	60	< 60 U
118-74-1	Hexachlorobenzene	60	< 60 U
87-86-5	Pentachlorophenol	300	< 300 U
85-01-8	**Phenanthrene**	**60**	**210**
120-12-7	**Anthracene**	**60**	**63**
84-74-2	Di-n-Butylphthalate	60	< 60 U
206-44-0	**Fluoranthene**	**60**	**320**
129-00-0	**Pyrene**	**60**	**280**
85-68-7	Butylbenzylphthalate	60	< 60 U
56-55-3	**Benzo(a)anthracene**	**60**	**160**
117-81-7	bis(2-Ethylhexyl)phthalate	60	< 60 U
218-01-9	**Chrysene**	**60**	**270**
117-84-0	Di-n-Octyl phthalate	60	< 60 U
205-99-2	**Benzo(b)fluoranthene**	**60**	**160**
207-08-9	**Benzo(k)fluoranthene**	**60**	**130**
50-32-8	**Benzo(a)pyrene**	**60**	**120**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**60**	**79**
53-70-3	Dibenz(a,h)anthracene	60	< 60 U
191-24-2	**Benzo(g,h,i)perylene**	**60**	**84**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	57.1%	2-Fluorobiphenyl	57.8%
d14-p-Terphenyl	60.1%	d4-1,2-Dichlorobenzene	46.9%
d5-Phenol	56.0%	2-Fluorophenol	73.4%
2,4,6-Tribromophenol	61.6%	d4-2-Chlorophenol	55.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS **Sample ID: 13116000105**
Page 1 of 1 **SAMPLE**

Lab Sample ID: LD21F
LIMS ID: 07-11965
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 18:29
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 56.8%
pH: 7.7

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**20**	**23**
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**42**
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**100**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**43**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**20**
83-32-9	**Acenaphthene**	**20**	**98**
132-64-9	**Dibenzofuran**	**20**	**81**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**81**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	**Phenanthrene**	**20**	**300**
120-12-7	**Anthracene**	**20**	**84**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**810**
129-00-0	**Pyrene**	**20**	**380**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**190**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**38**
218-01-9	**Chrysene**	**20**	**330**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**230**
207-08-9	**Benzo(k)fluoranthene**	**20**	**160**
50-32-8	**Benzo(a)pyrene**	**20**	**160**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**48**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**42**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	59.2%	2-Fluorobiphenyl	59.2%
d14-p-Terphenyl	56.0%	d4-1,2-Dichlorobenzene	47.2%
d5-Phenol	58.1%	2-Fluorophenol	88.3%
2,4,6-Tribromophenol	78.4%	d4-2-Chlorophenol	55.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS **Sample ID: 13116000105**
Page 1 of 1 **DILUTION**

Lab Sample ID: LD21F
LIMS ID: 07-11965
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 13:14
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 56.8%
pH: 7.7

CAS Number	Analyte	RL	Result
108-95-2	Phenol	60	< 60 U
106-46-7	1,4-Dichlorobenzene	60	< 60 U
100-51-6	Benzyl Alcohol	60	< 60 U
95-50-1	1,2-Dichlorobenzene	60	< 60 U
95-48-7	2-Methylphenol	60	< 60 U
106-44-5	4-Methylphenol	60	< 60 U
105-67-9	2,4-Dimethylphenol	60	< 60 U
65-85-0	Benzoic Acid	600	< 600 U
120-82-1	1,2,4-Trichlorobenzene	60	< 60 U
91-20-3	**Naphthalene**	**60**	**98**
87-68-3	Hexachlorobutadiene	60	< 60 U
91-57-6	2-Methylnaphthalene	60	< 60 U
131-11-3	Dimethylphthalate	60	< 60 U
208-96-8	Acenaphthylene	60	< 60 U
83-32-9	**Acenaphthene**	**60**	**100**
132-64-9	**Dibenzofuran**	**60**	**70**
84-66-2	Diethylphthalate	60	< 60 U
86-73-7	**Fluorene**	**60**	**69**
86-30-6	N-Nitrosodiphenylamine	60	< 60 U
118-74-1	Hexachlorobenzene	60	< 60 U
87-86-5	Pentachlorophenol	300	< 300 U
85-01-8	**Phenanthrene**	**60**	**270**
120-12-7	**Anthracene**	**60**	**65**
84-74-2	Di-n-Butylphthalate	60	< 60 U
206-44-0	**Fluoranthene**	**60**	**460**
129-00-0	**Pyrene**	**60**	**360**
85-68-7	Butylbenzylphthalate	60	< 60 U
56-55-3	**Benzo(a)anthracene**	**60**	**180**
117-81-7	bis(2-Ethylhexyl)phthalate	60	< 60 U
218-01-9	**Chrysene**	**60**	**320**
117-84-0	Di-n-Octyl phthalate	60	< 60 U
205-99-2	**Benzo(b)fluoranthene**	**60**	**190**
207-08-9	**Benzo(k)fluoranthene**	**60**	**130**
50-32-8	**Benzo(a)pyrene**	**60**	**130**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**60**	**74**
53-70-3	Dibenz(a,h)anthracene	60	< 60 U
191-24-2	**Benzo(g,h,i)perylene**	**60**	**91**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	56.6%	2-Fluorobiphenyl	56.3%
d14-p-Terphenyl	59.5%	d4-1,2-Dichlorobenzene	44.6%
d5-Phenol	55.8%	2-Fluorophenol	72.3%
2,4,6-Tribromophenol	62.1%	d4-2-Chlorophenol	55.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS
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Sample ID: 13116000106
SAMPLE

Lab Sample ID: LD21G
LIMS ID: 07-11966
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 19:02
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 53.0%
pH: 7.9

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**20**	**25**
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**91**
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**99**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**36**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**26**
83-32-9	**Acenaphthene**	**20**	**74**
132-64-9	**Dibenzofuran**	**20**	**62**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**61**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	99	< 99 U
85-01-8	**Phenanthrene**	**20**	**260**
120-12-7	**Anthracene**	**20**	**100**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**690**
129-00-0	**Pyrene**	**20**	**320**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**180**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**33**
218-01-9	**Chrysene**	**20**	**340**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**230**
207-08-9	**Benzo(k)fluoranthene**	**20**	**170**
50-32-8	**Benzo(a)pyrene**	**20**	**160**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**43**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**39**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	66.0%	2-Fluorobiphenyl	65.6%
d14-p-Terphenyl	63.6%	d4-1,2-Dichlorobenzene	54.8%
d5-Phenol	65.1%	2-Fluorophenol	105%
2,4,6-Tribromophenol	86.4%	d4-2-Chlorophenol	66.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS **Sample ID: 13116000106**
Page 1 of 1 **DILUTION**

Lab Sample ID: LD21G
LIMS ID: 07-11966
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 13:47
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 53.0%
pH: 7.9

CAS Number	Analyte	RL	Result
108-95-2	Phenol	60	< 60 U
106-46-7	1,4-Dichlorobenzene	60	< 60 U
100-51-6	Benzyl Alcohol	60	< 60 U
95-50-1	1,2-Dichlorobenzene	60	< 60 U
95-48-7	2-Methylphenol	60	< 60 U
106-44-5	**4-Methylphenol**	**60**	**91**
105-67-9	2,4-Dimethylphenol	60	< 60 U
65-85-0	Benzoic Acid	600	< 600 U
120-82-1	1,2,4-Trichlorobenzene	60	< 60 U
91-20-3	**Naphthalene**	**60**	**100**
87-68-3	Hexachlorobutadiene	60	< 60 U
91-57-6	2-Methylnaphthalene	60	< 60 U
131-11-3	Dimethylphthalate	60	< 60 U
208-96-8	Acenaphthylene	60	< 60 U
83-32-9	**Acenaphthene**	**60**	**70**
132-64-9	Dibenzofuran	60	< 60 U
84-66-2	Diethylphthalate	60	< 60 U
86-73-7	Fluorene	60	< 60 U
86-30-6	N-Nitrosodiphenylamine	60	< 60 U
118-74-1	Hexachlorobenzene	60	< 60 U
87-86-5	Pentachlorophenol	300	< 300 U
85-01-8	**Phenanthrene**	**60**	**260**
120-12-7	**Anthracene**	**60**	**86**
84-74-2	Di-n-Butylphthalate	60	< 60 U
206-44-0	**Fluoranthene**	**60**	**440**
129-00-0	**Pyrene**	**60**	**320**
85-68-7	Butylbenzylphthalate	60	< 60 U
56-55-3	**Benzo(a)anthracene**	**60**	**180**
117-81-7	bis(2-Ethylhexyl)phthalate	60	< 60 U
218-01-9	**Chrysene**	**60**	**330**
117-84-0	Di-n-Octyl phthalate	60	< 60 U
205-99-2	**Benzo(b)fluoranthene**	**60**	**160**
207-08-9	**Benzo(k)fluoranthene**	**60**	**180**
50-32-8	**Benzo(a)pyrene**	**60**	**140**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**60**	**81**
53-70-3	Dibenz(a,h)anthracene	60	< 60 U
191-24-2	**Benzo(g,h,i)perylene**	**60**	**91**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.6%	2-Fluorobiphenyl	65.5%
d14-p-Terphenyl	65.3%	d4-1,2-Dichlorobenzene	53.3%
d5-Phenol	64.0%	2-Fluorophenol	85.6%
2,4,6-Tribromophenol	70.8%	d4-2-Chlorophenol	65.4%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS
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Sample ID: 13116000107
SAMPLE

Lab Sample ID: LD21H
LIMS ID: 07-11967
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 19:35
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 52.3%
pH: 7.7

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**46**
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**84**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**23**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	**Acenaphthene**	**20**	**44**
132-64-9	**Dibenzofuran**	**20**	**37**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**44**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	**Phenanthrene**	**20**	**150**
120-12-7	**Anthracene**	**20**	**75**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**440**
129-00-0	**Pyrene**	**20**	**210**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**140**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**34**
218-01-9	**Chrysene**	**20**	**240**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**160**
207-08-9	**Benzo(k)fluoranthene**	**20**	**120**
50-32-8	**Benzo(a)pyrene**	**20**	**120**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**30**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**32**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	65.2%	2-Fluorobiphenyl	64.0%
d14-p-Terphenyl	60.4%	d4-1,2-Dichlorobenzene	52.8%
d5-Phenol	64.8%	2-Fluorophenol	102%
2,4,6-Tribromophenol	81.6%	d4-2-Chlorophenol	64.3%

ANALYTICAL RESOURCES INCORPORATED

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PSDDA Semivolatiles by SW8270 GC/MS
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Sample ID: 13116000107
DILUTION

Lab Sample ID: LD21H
LIMS ID: 07-11967
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 14:20
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 52.3%
pH: 7.7

CAS Number	Analyte	RL	Result
108-95-2	Phenol	60	< 60 U
106-46-7	1,4-Dichlorobenzene	60	< 60 U
100-51-6	Benzyl Alcohol	60	< 60 U
95-50-1	1,2-Dichlorobenzene	60	< 60 U
95-48-7	2-Methylphenol	60	< 60 U
106-44-5	4-Methylphenol	60	< 60 U
105-67-9	2,4-Dimethylphenol	60	< 60 U
65-85-0	Benzoic Acid	600	< 600 U
120-82-1	1,2,4-Trichlorobenzene	60	< 60 U
91-20-3	**Naphthalene**	**60**	**80**
87-68-3	Hexachlorobutadiene	60	< 60 U
91-57-6	2-Methylnaphthalene	60	< 60 U
131-11-3	Dimethylphthalate	60	< 60 U
208-96-8	Acenaphthylene	60	< 60 U
83-32-9	Acenaphthene	60	< 60 U
132-64-9	Dibenzofuran	60	< 60 U
84-66-2	Diethylphthalate	60	< 60 U
86-73-7	Fluorene	60	< 60 U
86-30-6	N-Nitrosodiphenylamine	60	< 60 U
118-74-1	Hexachlorobenzene	60	< 60 U
87-86-5	Pentachlorophenol	300	< 300 U
85-01-8	**Phenanthrene**	**60**	**140**
120-12-7	**Anthracene**	**60**	**62**
84-74-2	Di-n-Butylphthalate	60	< 60 U
206-44-0	**Fluoranthene**	**60**	**280**
129-00-0	**Pyrene**	**60**	**230**
85-68-7	Butylbenzylphthalate	60	< 60 U
56-55-3	**Benzo(a)anthracene**	**60**	**140**
117-81-7	bis(2-Ethylhexyl)phthalate	60	< 60 U
218-01-9	**Chrysene**	**60**	**220**
117-84-0	Di-n-Octyl phthalate	60	< 60 U
205-99-2	**Benzo(b)fluoranthene**	**60**	**130**
207-08-9	**Benzo(k)fluoranthene**	**60**	**110**
50-32-8	**Benzo(a)pyrene**	**60**	**100**
193-39-5	Indeno(1,2,3-cd)pyrene	60	< 60 U
53-70-3	Dibenz(a,h)anthracene	60	< 60 U
191-24-2	**Benzo(g,h,i)perylene**	**60**	**71**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.0%	2-Fluorobiphenyl	61.3%
d14-p-Terphenyl	63.8%	d4-1,2-Dichlorobenzene	53.2%
d5-Phenol	61.3%	2-Fluorophenol	82.4%
2,4,6-Tribromophenol	67.0%	d4-2-Chlorophenol	61.7%

ANALYTICAL RESOURCES INCORPORATED

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Sample ID: 13116000108
SAMPLE

Lab Sample ID: LD21I
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 20:08
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 30.6%
pH: 7.6

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**27**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	99	< 99 U
85-01-8	**Phenanthrene**	**20**	**40**
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**110**
129-00-0	**Pyrene**	**20**	**63**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**30**
117-81-7	bis(2-Ethylhexyl)phthalate	20	< 20 U
218-01-9	**Chrysene**	**20**	**43**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**31**
207-08-9	Benzo(k)fluoranthene	20	< 20 U
50-32-8	**Benzo(a)pyrene**	**20**	**22**
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	63.6%	2-Fluorobiphenyl	66.0%
d14-p-Terphenyl	64.0%	d4-1,2-Dichlorobenzene	53.6%
d5-Phenol	61.1%	2-Fluorophenol	78.7%
2,4,6-Tribromophenol	83.7%	d4-2-Chlorophenol	63.7%

ANALYTICAL RESOURCES INCORPORATED

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PSDDA Semivolatiles by SW8270 GC/MS
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Sample ID: 13116000108
DILUTION

Lab Sample ID: LD21I
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 14:53
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.7 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 30.6%
pH: 7.6

CAS Number	Analyte	RL	Result
108-95-2	Phenol	59	< 59 U
106-46-7	1,4-Dichlorobenzene	59	< 59 U
100-51-6	Benzyl Alcohol	59	< 59 U
95-50-1	1,2-Dichlorobenzene	59	< 59 U
95-48-7	2-Methylphenol	59	< 59 U
106-44-5	4-Methylphenol	59	< 59 U
105-67-9	2,4-Dimethylphenol	59	< 59 U
65-85-0	Benzoic Acid	590	< 590 U
120-82-1	1,2,4-Trichlorobenzene	59	< 59 U
91-20-3	Naphthalene	59	< 59 U
87-68-3	Hexachlorobutadiene	59	< 59 U
91-57-6	2-Methylnaphthalene	59	< 59 U
131-11-3	Dimethylphthalate	59	< 59 U
208-96-8	Acenaphthylene	59	< 59 U
83-32-9	Acenaphthene	59	< 59 U
132-64-9	Dibenzofuran	59	< 59 U
84-66-2	Diethylphthalate	59	< 59 U
86-73-7	Fluorene	59	< 59 U
86-30-6	N-Nitrosodiphenylamine	59	< 59 U
118-74-1	Hexachlorobenzene	59	< 59 U
87-86-5	Pentachlorophenol	300	< 300 U
85-01-8	Phenanthrene	59	< 59 U
120-12-7	Anthracene	59	< 59 U
84-74-2	Di-n-Butylphthalate	59	< 59 U
206-44-0	**Fluoranthene**	**59**	**71**
129-00-0	**Pyrene**	**59**	**70**
85-68-7	Butylbenzylphthalate	59	< 59 U
56-55-3	Benzo(a)anthracene	59	< 59 U
117-81-7	bis(2-Ethylhexyl)phthalate	59	< 59 U
218-01-9	Chrysene	59	< 59 U
117-84-0	Di-n-Octyl phthalate	59	< 59 U
205-99-2	Benzo(b)fluoranthene	59	< 59 U
207-08-9	Benzo(k)fluoranthene	59	< 59 U
50-32-8	Benzo(a)pyrene	59	< 59 U
193-39-5	Indeno(1,2,3-cd)pyrene	59	< 59 U
53-70-3	Dibenz(a,h)anthracene	59	< 59 U
191-24-2	Benzo(g,h,i)perylene	59	< 59 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.1%	2-Fluorobiphenyl	58.8%
d14-p-Terphenyl	67.2%	d4-1,2-Dichlorobenzene	49.0%
d5-Phenol	58.1%	2-Fluorophenol	69.8%
2,4,6-Tribromophenol	60.6%	d4-2-Chlorophenol	60.4%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: LD21-Geomatrix, Inc.
Project:

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-061507	73.2%	74.8%	81.2%	62.8%	69.6%	100%*	77.9%	73.6%	1
LCS-061507	70.8%	69.6%	61.2%	65.2%	76.8%	84.8%*	77.3%	71.7%	1
SRM-SQ-1	64.8%	64.0%	55.6%	53.2%	56.0%	83.7%	71.2%	60.0%	0
13116000100	67.2%	68.0%	61.6%	54.4%	62.9%	76.8%	78.9%	65.6%	0
13116000100 DL	65.8%	66.7%	77.2%	56.0%	65.7%	77.6%	70.7%	66.6%	0
13116000100 MS	67.2%	67.2%	61.6%	56.4%	64.8%	86.4%*	76.5%	67.2%	1
13116000100 MSD	71.2%	72.0%	64.8%	57.6%	69.3%	92.5%*	84.0%	70.7%	1
13116000101	60.4%	59.6%	56.8%	50.4%	55.7%	77.1%	69.3%	58.1%	0
13116000101 DL	60.4%	61.2%	69.2%	50.3%	57.3%	72.2%	61.8%	58.5%	0
13116000102	60.8%	60.4%	62.4%	50.0%	59.7%	104%*	82.7%	61.9%	1
13116000102 DL	61.4%	61.1%	63.6%	48.1%	59.0%	79.0%	64.7%	59.8%	0
13116000103	64.0%	62.4%	58.4%	54.0%	62.4%	93.3%*	80.3%	65.1%	1
13116000103 DL	60.6%	60.1%	63.1%	51.0%	58.8%	74.6%	64.3%	61.6%	0
13116000104	61.2%	61.2%	54.8%	50.0%	58.9%	91.2%*	76.0%	60.5%	1
13116000104 DL	57.1%	57.8%	60.1%	46.9%	56.0%	73.4%	61.6%	55.9%	0
13116000105	59.2%	59.2%	56.0%	47.2%	58.1%	88.3%*	78.4%	55.7%	1
13116000105 DL	56.6%	56.3%	59.5%	44.6%	55.8%	72.3%	62.1%	55.1%	0
13116000106	66.0%	65.6%	63.6%	54.8%	65.1%	105%*	86.4%	66.7%	1
13116000106 DL	64.6%	65.5%	65.3%	53.3%	64.0%	85.6%*	70.8%	65.4%	1
13116000107	65.2%	64.0%	60.4%	52.8%	64.8%	102%*	81.6%	64.3%	1
13116000107 DL	61.0%	61.3%	63.8%	53.2%	61.3%	82.4%	67.0%	61.7%	0
13116000108	63.6%	66.0%	64.0%	53.6%	61.1%	78.7%	83.7%	63.7%	0
13116000108 DL	61.1%	58.8%	67.2%	49.0%	58.1%	69.8%	60.6%	60.4%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(42-79)	(26-88)
(FBP) = 2-Fluorobiphenyl	(43-80)	(34-91)
(TPH) = d14-p-Terphenyl	(39-105)	(22-100)
(DCB) = d4-1,2-Dichlorobenzene	(38-79)	(24-90)
(PHL) = d5-Phenol	(42-82)	(25-86)
(2FP) = 2-Fluorophenol	(26-83)	(11-84)
(TBP) = 2,4,6-Tribromophenol	(41-94)	(25-107)
(2CP) = d4-2-Chlorophenol	(43-80)	(23-91)

Prep Method: SW3550B
Log Number Range: 07-11960 to 07-11968

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PSDDA Semivolatiles by SW8270 GC/MS
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Sample ID: 13116000100
MS/MSD

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted MS/MSD: 06/15/07

Date Analyzed MS: 06/19/07 15:09
MSD: 06/19/07 15:43
Instrument/Analyst MS: NT4/LJR
MSD: NT4/LJR
GPC Cleanup: YES

Sample Amount MS: 50.1 g-dry-wt
MSD: 50.0 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Percent Moisture: 39.0 %
pH: 7.3

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Phenol	< 20.0	404	749	53.9%	428	750	57.1%	5.8%
1,4-Dichlorobenzene	< 20.0	281	499	56.3%	295	500	59.0%	4.9%
1,2,4-Trichlorobenzene	< 20.0	301	499	60.3%	324	500	64.8%	7.4%
Acenaphthene	20.0	368	499	69.7%	385	500	73.0%	4.5%
Pentachlorophenol	< 99.9	534	749	71.3%	570	750	76.0%	6.5%
Pyrene	155	482	499	65.5%	545	500	78.0%	12.3%
Di-n-Octyl phthalate	< 20.0	291	499	58.3%	311	500	62.2%	6.6%
Benzo(g,h,i)perylene	26.6	257	499	46.2%	270	500	48.7%	4.9%

Results reported in µg/kg
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS
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Sample ID: 13116000100
MATRIX SPIKE

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 15:09
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.1 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 39.0%
pH: 7.3

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	---
106-46-7	1,4-Dichlorobenzene	20	---
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	---
91-20-3	**Naphthalene**	**20**	**22**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	---
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	---
85-01-8	**Phenanthrene**	**20**	**98**
120-12-7	**Anthracene**	**20**	**63**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**240**
129-00-0	Pyrene	20	---
85-68-7	**Butylbenzylphthalate**	**20**	**75**
56-55-3	**Benzo(a)anthracene**	**20**	**90**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**57**
218-01-9	**Chrysene**	**20**	**210**
117-84-0	Di-n-Octyl phthalate	20	---
205-99-2	**Benzo(b)fluoranthene**	**20**	**84**
207-08-9	**Benzo(k)fluoranthene**	**20**	**77**
50-32-8	**Benzo(a)pyrene**	**20**	**68**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**28**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	---

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	67.2%	2-Fluorobiphenyl	67.2%
d14-p-Terphenyl	61.6%	d4-1,2-Dichlorobenzene	56.4%
d5-Phenol	64.8%	2-Fluorophenol	86.4%
2,4,6-Tribromophenol	76.5%	d4-2-Chlorophenol	67.2%

ANALYTICAL RESOURCES INCORPORATED

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PSDDA Semivolatiles by SW8270 GC/MS
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Sample ID: 13116000100
MATRIX SPIKE DUPLICATE

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 15:43
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.0 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 39.0%
pH: 7.3

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	---
106-46-7	1,4-Dichlorobenzene	20	---
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	---
91-20-3	**Naphthalene**	**20**	**26**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	---
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	---
85-01-8	**Phenanthrene**	**20**	**110**
120-12-7	**Anthracene**	**20**	**36**
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	**Fluoranthene**	**20**	**310**
129-00-0	Pyrene	20	---
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**92**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**29**
218-01-9	**Chrysene**	**20**	**140**
117-84-0	Di-n-Octyl phthalate	20	---
205-99-2	**Benzo(b)fluoranthene**	**20**	**93**
207-08-9	**Benzo(k)fluoranthene**	**20**	**93**
50-32-8	**Benzo(a)pyrene**	**20**	**87**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**35**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	---

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	71.2%	2-Fluorobiphenyl	72.0%
d14-p-Terphenyl	64.8%	d4-1,2-Dichlorobenzene	57.6%
d5-Phenol	69.3%	2-Fluorophenol	92.5%
2,4,6-Tribromophenol	84.0%	d4-2-Chlorophenol	70.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS
Page 1 of 1

Sample ID: SQ-1 061507
STANDARD REFERENCE

Lab Sample ID: SRM-061507
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 12:56
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 35.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 40.2%
pH: NA

CAS Number	Analyte	RL	Result
108-95-2	Phenol	28	< 28 U
106-46-7	1,4-Dichlorobenzene	28	< 28 U
100-51-6	Benzyl Alcohol	28	< 28 U
95-50-1	1,2-Dichlorobenzene	28	< 28 U
95-48-7	2-Methylphenol	28	< 28 U
106-44-5	**4-Methylphenol**	**28**	**29**
105-67-9	2,4-Dimethylphenol	28	< 28 U
65-85-0	**Benzoic Acid**	**280**	**190 J**
120-82-1	1,2,4-Trichlorobenzene	28	< 28 U
91-20-3	**Naphthalene**	**28**	**26 J**
87-68-3	Hexachlorobutadiene	28	< 28 U
91-57-6	**2-Methylnaphthalene**	**28**	**44**
131-11-3	Dimethylphthalate	28	< 28 U
208-96-8	Acenaphthylene	28	< 28 U
83-32-9	**Acenaphthene**	**28**	**52**
132-64-9	Dibenzofuran	28	< 28 U
84-66-2	Diethylphthalate	28	< 28 U
86-73-7	**Fluorene**	**28**	**54**
86-30-6	N-Nitrosodiphenylamine	28	< 28 U
118-74-1	Hexachlorobenzene	28	< 28 U
87-86-5	**Pentachlorophenol**	**140**	**240**
85-01-8	**Phenanthrene**	**28**	**77**
120-12-7	**Anthracene**	**28**	**50**
84-74-2	Di-n-Butylphthalate	28	< 28 U
206-44-0	**Fluoranthene**	**28**	**130**
129-00-0	**Pyrene**	**28**	**64**
85-68-7	Butylbenzylphthalate	28	< 28 U
56-55-3	**Benzo(a)anthracene**	**28**	**67**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**28**	**38**
218-01-9	**Chrysene**	**28**	**76**
117-84-0	Di-n-Octyl phthalate	28	< 28 U
205-99-2	**Benzo(b)fluoranthene**	**28**	**72**
207-08-9	Benzo(k)fluoranthene	28	< 28 U
50-32-8	**Benzo(a)pyrene**	**28**	**68**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**28**	**16 J**
53-70-3	**Dibenz(a,h)anthracene**	**28**	**70**
191-24-2	**Benzo(g,h,i)perylene**	**28**	**78**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	64.8%	2-Fluorobiphenyl	64.0%
d14-p-Terphenyl	55.6%	d4-1,2-Dichlorobenzene	53.2%
d5-Phenol	56.0%	2-Fluorophenol	83.7%
2,4,6-Tribromophenol	71.2%	d4-2-Chlorophenol	60.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS

Sample ID: LCS-061507
LAB CONTROL

Lab Sample ID: LCS-061507
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 12:23
Instrument/Analyst: NT4/LJR
GPC Cleanup: YES

Sample Amount: 50.0 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
pH: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	337	500	67.4%
1,4-Dichlorobenzene	324	500	64.8%
Benzyl Alcohol	673	1000	67.3%
1,2-Dichlorobenzene	332	500	66.4%
2-Methylphenol	346	500	69.2%
4-Methylphenol	795	1000	79.5%
2,4-Dimethylphenol	355	500	71.0%
Benzoic Acid	1200	1500	80.0%
1,2,4-Trichlorobenzene	336	500	67.2%
Naphthalene	320	500	64.0%
Hexachlorobutadiene	346	500	69.2%
2-Methylnaphthalene	350	500	70.0%
Dimethylphthalate	401	500	80.2%
Acenaphthylene	341	500	68.2%
Acenaphthene	361	500	72.2%
Dibenzofuran	372	500	74.4%
Diethylphthalate	383	500	76.6%
Fluorene	344	500	68.8%
N-Nitrosodiphenylamine	387	500	77.4%
Hexachlorobenzene	394	500	78.8%
Pentachlorophenol	338	500	67.6%
Phenanthrene	389	500	77.8%
Anthracene	363	500	72.6%
Di-n-Butylphthalate	406	500	81.2%
Fluoranthene	387	500	77.4%
Pyrene	311	500	62.2%
Butylbenzylphthalate	352	500	70.4%
Benzo(a)anthracene	390	500	78.0%
bis(2-Ethylhexyl)phthalate	284	500	56.8%
Chrysene	359	500	71.8%
Di-n-Octyl phthalate	327	500	65.4%
Benzo(b)fluoranthene	408	500	81.6%
Benzo(k)fluoranthene	403	500	80.6%
Benzo(a)pyrene	380	500	76.0%
Indeno(1,2,3-cd)pyrene	432	500	86.4%
Dibenz(a,h)anthracene	433	500	86.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS

Sample ID: LCS-061507
LAB CONTROL

Lab Sample ID: LCS-061507
LIMS ID: 07-11960
Matrix: Sediment
Date Analyzed: 06/19/07 12:23

QC Report No: LD21-Geomatrix, Inc.
Project:

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	422	500	84.4%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	70.8%
2-Fluorobiphenyl	69.6%
d14-p-Terphenyl	61.2%
d4-1,2-Dichlorobenzene	65.2%
d5-Phenol	76.8%
2-Fluorophenol	84.8%
2,4,6-Tribromophenol	77.3%
d4-2-Chlorophenol	71.7%

Results reported in µg/kg

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

LD21MBS1

Lab Name: ANALYTICAL RESOURCES, INC Client: GEOMATRIX, INC.

ARI Job No: LD21 Project: UNSPECIFIED

Lab File ID: LD21MB Date Extracted: 06/15/07

Instrument ID: NT4 Date Analyzed: 06/19/07

Matrix: SOLID Time Analyzed: 1150

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LD21LCSS1	LD21LCSS1	LD21SB	06/19/07
02	SQ-1	LD21SRM1	LD21SRM	06/19/07
03	13116000100	LD21A	LD21A	06/19/07
04	13116000100 MS	LD21AMS	LD21AMS	06/19/07
05	13116000100 MSD	LD21AMSD	LD21AMD	06/19/07
06	13116000101	LD21B	LD21B	06/19/07
07	13116000102	LD21C	LD21C	06/19/07
08	13116000103	LD21D	LD21D	06/19/07
09	13116000104	LD21E	LD21E	06/19/07
10	13116000105	LD21F	LD21F	06/19/07
11	13116000106	LD21G	LD21G	06/19/07
12	13116000107	LD21H	LD21H	06/19/07
13	13116000108	LD21I	LD21I	06/19/07
14	13116000100	LD21A	LD21ADL	06/20/07
15	13116000101	LD21B	LD21BDL	06/20/07
16	13116000102	LD21C	LD21CDL	06/20/07
17	13116000103	LD21D	LD21DDL	06/20/07
18	13116000104	LD21E	LD21EDL	06/20/07
19	13116000105	LD21F	LD21FDL	06/20/07
20	13116000106	LD21G	LD21GDL	06/20/07
21	13116000107	LD21H	LD21HDL	06/20/07
22	13116000108	LD21I	LD21IDL	06/20/07
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270 GC/MS
Page 1 of 1

Sample ID: MB-061507
METHOD BLANK

Lab Sample ID: MB-061507
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/20/07

QC Report No: LD21-Geomatrix, Inc.
Project: NA
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 11:50
Instrument/Analyst: NT4/LJR
GPC Cleanup: Yes

Sample Amount: 50.0 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
pH: NA

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	20	< 20 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	Benzo(b)fluoranthene	20	< 20 U
207-08-9	Benzo(k)fluoranthene	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	73.2%	2-Fluorobiphenyl	74.8%
d14-p-Terphenyl	81.2%	d4-1,2-Dichlorobenzene	62.8%
d5-Phenol	69.6%	2-Fluorophenol	100%
2,4,6-Tribromophenol	77.9%	d4-2-Chlorophenol	73.6%

PESTICIDES

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000100
SAMPLE

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 23:21
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 2.00
Silica Gel: Yes
pH: 7.3
Percent Moisture: 39.0%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	2.0	< 2.0 U
76-44-8	Heptachlor	2.0	< 2.0 U
309-00-2	Aldrin	2.0	< 2.0 U
60-57-1	Dieldrin	4.0	< 4.0 U
72-55-9	4,4'-DDE	4.0	< 4.0 U
72-54-8	4,4'-DDD	4.0	< 4.0 U
50-29-3	4,4'-DDT	4.0	< 4.0 U
5103-71-9	alpha Chlordane	2.0	< 2.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	101%
Tetrachlorometaxylene	97.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000101
SAMPLE

Lab Sample ID: LD21B
LIMS ID: 07-11961
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/21/07 00:34
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.8 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 2.00
Silica Gel: Yes
pH: 7.5
Percent Moisture: 36.5%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	1.9	< 1.9 U
76-44-8	Heptachlor	1.9	< 1.9 U
309-00-2	Aldrin	1.9	< 1.9 U
60-57-1	Dieldrin	3.9	< 3.9 U
72-55-9	4,4'-DDE	3.9	< 3.9 U
72-54-8	4,4'-DDD	3.9	< 3.9 U
50-29-3	4,4'-DDT	3.9	< 3.9 U
5103-71-9	alpha Chlordane	1.9	< 1.9 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	114%
Tetrachlorometaxylene	94.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000102
SAMPLE

Lab Sample ID: LD21C
LIMS ID: 07-11962
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/21/07 00:58
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.5 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 2.00
Silica Gel: Yes
pH: 7.5
Percent Moisture: 62.4%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	2.0	< 2.0 U
76-44-8	Heptachlor	2.0	< 2.0 U
309-00-2	Aldrin	2.0	< 2.0 U
60-57-1	Dieldrin	3.9	< 3.9 U
72-55-9	4,4'-DDE	3.9	< 3.9 U
72-54-8	4,4'-DDD	3.9	< 3.9 U
50-29-3	4,4'-DDT	3.9	< 3.9 U
5103-71-9	alpha Chlordane	2.0	< 2.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	91.0%
Tetrachlorometaxylene	75.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000103
SAMPLE

Lab Sample ID: LD21D
LIMS ID: 07-11963
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/21/07 01:23
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.5 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 2.00
Silica Gel: Yes
pH: 7.8
Percent Moisture: 51.1%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	2.0	< 2.0 U
76-44-8	Heptachlor	2.0	< 2.0 U
309-00-2	Aldrin	2.0	< 2.0 U
60-57-1	Dieldrin	3.9	< 3.9 U
72-55-9	4,4'-DDE	3.9	< 3.9 U
72-54-8	4,4'-DDD	3.9	< 3.9 U
50-29-3	4,4'-DDT	3.9	< 3.9 U
5103-71-9	alpha Chlordane	2.0	< 2.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	103%
Tetrachlorometaxylene	69.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000104
SAMPLE

Lab Sample ID: LD21E
LIMS ID: 07-11964
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/21/07 01:47
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 2.00
Silica Gel: Yes
pH: 7.6
Percent Moisture: 58.9%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	2.0	< 2.0 U
76-44-8	Heptachlor	2.0	< 2.0 U
309-00-2	Aldrin	2.0	< 2.0 U
60-57-1	Dieldrin	3.9	< 3.9 U
72-55-9	4,4'-DDE	3.9	< 3.9 U
72-54-8	4,4'-DDD	3.9	< 3.9 U
50-29-3	4,4'-DDT	3.9	< 3.9 U
5103-71-9	alpha Chlordane	2.0	< 2.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	105%
Tetrachlorometaxylene	78.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000105
SAMPLE

Lab Sample ID: LD21F
LIMS ID: 07-11965
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/21/07 02:12
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.3 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 2.00
Silica Gel: Yes
pH: 7.7
Percent Moisture: 56.8%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	2.0	< 2.0 U
76-44-8	Heptachlor	2.0	< 2.0 U
309-00-2	Aldrin	2.0	< 2.0 U
60-57-1	Dieldrin	4.0	< 4.0 U
72-55-9	4,4'-DDE	4.0	< 4.0 U
72-54-8	4,4'-DDD	4.0	< 4.0 U
50-29-3	4,4'-DDT	4.0	< 4.0 U
5103-71-9	alpha Chlordane	2.0	< 2.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	98.5%
Tetrachlorometaxylene	81.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000106
SAMPLE

Lab Sample ID: LD21G
LIMS ID: 07-11966
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/21/07 02:36
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.5 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: 7.9
Percent Moisture: 53.0%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	0.98	< 0.98 U
76-44-8	Heptachlor	0.98	< 0.98 U
309-00-2	Aldrin	0.98	< 0.98 U
60-57-1	Dieldrin	2.0	< 2.0 U
72-55-9	4,4'-DDE	2.0	< 2.0 U
72-54-8	4,4'-DDD	2.0	< 2.0 U
50-29-3	4,4'-DDT	2.0	< 2.0 U
5103-71-9	alpha Chlordane	0.98	< 0.98 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	95.2%
Tetrachlorometaxylene	69.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000107
SAMPLE

Lab Sample ID: LD21H
LIMS ID: 07-11967
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/21/07 03:00
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.5 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 2.00
Silica Gel: Yes
pH: 7.7
Percent Moisture: 52.3%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	2.0	< 2.0 U
76-44-8	Heptachlor	2.0	< 2.0 U
309-00-2	Aldrin	2.0	< 2.0 U
60-57-1	Dieldrin	3.9	< 3.9 U
72-55-9	4,4'-DDE	3.9	< 3.9 U
72-54-8	4,4'-DDD	3.9	< 3.9 U
50-29-3	4,4'-DDT	3.9	< 3.9 U
5103-71-9	alpha Chlordane	2.0	< 2.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	100%
Tetrachlorometaxylene	87.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000108
SAMPLE

Lab Sample ID: LD21I
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/21/07 03:25
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.8 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: 7.6
Percent Moisture: 30.6%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	0.97	< 0.97 U
76-44-8	Heptachlor	0.97	< 0.97 U
309-00-2	Aldrin	0.97	< 0.97 U
60-57-1	Dieldrin	1.9	< 1.9 U
72-55-9	4,4'-DDE	1.9	< 1.9 U
72-54-8	4,4'-DDD	1.9	< 1.9 U
50-29-3	4,4'-DDT	1.9	< 1.9 U
5103-71-9	alpha Chlordane	0.97	< 0.97 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	63.8%
Tetrachlorometaxylene	56.2%

ANALYTICAL RESOURCES INCORPORATED

SW8081 PESTICIDE SOLID SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: LD21-Geomatrix, Inc.
Project:

Client ID	DCBP	TCMX	TOT OUT
MB-061507	92.5%	86.2%	0
LCS-061507	81.5%	81.2%	0
LCSD-061507	82.2%	75.0%	0
13116000100	101%	97.0%	0
13116000100 MS	91.5%	80.0%	0
13116000100 MSD	96.0%	74.5%	0
SRM SQ-1	70.2%	64.2%	0
13116000101	114%	94.5%	0
13116000102	91.0%	75.5%	0
13116000103	103%	69.0%	0
13116000104	105%	78.5%	0
13116000105	98.5%	81.5%	0
13116000106	95.2%	69.5%	0
13116000107	100%	87.0%	0
13116000108	63.8%	56.2%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(69-121)	(52-137)
(TCMX) = Tetrachlorometaxylene	(60-101)	(48-121)

Prep Method: SW3550B
Log Number Range: 07-11960 to 07-11968

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000100
MS/MSD

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted MS/MSD: 06/15/07

Date Analyzed MS: 06/20/07 23:45
MSD: 06/21/07 00:10
Instrument/Analyst MS: ECD4/YZ
MSD: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount MS: 25.0 g-dry-wt
MSD: 25.0 g-dry-wt
Final Extract Volume MS: 5.0 mL
MSD: 5.0 mL
Dilution Factor MS: 2.00
MSD: 2.00
Silica Gel: Yes
pH: 7.3
Percent Moisture: 39.0%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
gamma-BHC (Lindane)	< 2.00	8.34	9.98	83.6%	6.88	10.0	68.8%	19.2%
Heptachlor	< 2.00	9.66	9.98	96.8%	7.64	10.0	76.4%	23.4%
Aldrin	< 2.00	8.90	9.98	89.2%	7.52	10.0	75.2%	16.8%
Dieldrin	< 3.99	17.3	20.0	86.5%	13.5	20.0	67.5%	24.7%
4,4'-DDT	< 3.99	18.4	20.0	92.0%	16.3	20.0	81.5%	12.1%

Reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

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PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000100
MATRIX SPIKE

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 23:45
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 2.00
Silica Gel: Yes
pH: 7.3
Percent Moisture: 39.0%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	2.0	---
76-44-8	Heptachlor	2.0	---
309-00-2	Aldrin	2.0	---
60-57-1	Dieldrin	4.0	---
72-55-9	4,4'-DDE	4.0	< 4.0 U
72-54-8	4,4'-DDD	4.0	< 4.0 U
50-29-3	4,4'-DDT	4.0	---
5103-71-9	alpha Chlordane	2.0	< 2.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	91.5%
Tetrachlorometaxylene	80.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: 13116000100
MATRIX SPIKE DUP

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/21/07 00:10
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 2.00
Silica Gel: Yes
pH: 7.3
Percent Moisture: 39.0%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	2.0	---
76-44-8	Heptachlor	2.0	---
309-00-2	Aldrin	2.0	---
60-57-1	Dieldrin	4.0	---
72-55-9	4,4'-DDE	4.0	< 4.0 U
72-54-8	4,4'-DDD	4.0	< 4.0 U
50-29-3	4,4'-DDT	4.0	---
5103-71-9	alpha Chlordane	2.0	< 2.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	96.0%
Tetrachlorometaxylene	74.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: SRM SQ-1
STANDARD REFERENCE

Lab Sample ID: SRM SQ-1
LIMS ID: 07-11961
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: NA
Date Received: NA

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 22:56
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 23.9 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: NA
Percent Moisture: 40.2%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	42	< 42 Y
76-44-8	Heptachlor	1.0	< 1.0 U
309-00-2	Aldrin	1.7	< 1.7 Y
60-57-1	Dieldrin	4.1	< 4.1 Y
72-55-9	4,4'-DDE	5.1	< 5.1 Y
72-54-8	4,4'-DDD	2.1	< 2.1 U
50-29-3	4,4'-DDT	7.2	< 7.2 Y
5103-71-9	**alpha Chlordane**	**1.0**	**6.5**

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	70.2%
Tetrachlorometaxylene	64.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
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Sample ID: LCS-061507
LCS/LCSD

Lab Sample ID: LCS-061507
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted LCS/LCSD: 06/15/07

Date Analyzed LCS: 06/20/07 16:02
LCSD: 06/20/07 16:26
Instrument/Analyst LCS: ECD4/YZ
LCSD: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount LCS: 25.0 g-dry-wt
LCSD: 25.0 g-dry-wt
Final Extract Volume LCS: 5.0 mL
LCSD: 5.0 mL
Dilution Factor LCS: 1.00
LCSD: 1.00
Silica Gel: Yes
pH: NA
Percent Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
gamma-BHC (Lindane)	3.46	4.00	86.5%	3.34	4.00	83.5%	3.5%
Heptachlor	3.98	4.00	99.5%	3.78	4.00	94.5%	5.2%
Aldrin	3.66	4.00	91.5%	3.58	4.00	89.5%	2.2%
Dieldrin	6.72	8.00	84.0%	6.70	8.00	83.8%	0.3%
4,4'-DDE	6.98	8.00	87.2%	6.92	8.00	86.5%	0.9%
4,4'-DDD	6.44	8.00	80.5%	6.88	8.00	86.0%	6.6%
4,4'-DDT	6.48	8.00	81.0%	7.12	8.00	89.0%	9.4%
alpha Chlordane	3.20	4.00	80.0%	3.16	4.00	79.0%	1.3%

Pest/PCB Surrogate Recovery

	LCS	LCSD
Decachlorobiphenyl	81.5%	82.2%
Tetrachlorometaxylene	81.2%	75.0%

Reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

FORM 4
PESTICIDE METHOD BLANK SUMMARY

SAMPLE NO.

LD39MBS1

Lab Name: ANALYTICAL RESOURCES, INC Client: GEOMATRIX

ARI Job No.: LD21 Project:

Lab Sample ID: LD39MBS1 Lab File ID: 0620-04R

Matrix (soil/water) SOLID Extraction:(SepF/Cont/Sonc) SW3550B

Sulfur Cleanup (Y/N) Y Date Extracted: 06/15/07

Date Analyzed (1): 06/20/07 Date Analyzed (2): 06/20/07

Time Analyzed (1): 1537 Time Analyzed (2): 1537

Instrument ID (1): ECD4 Instrument ID (2): ECD4

GC Column (1): RTX-440 ID: 0.53(mm) GC Column (2): STX-CLP2 ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	LD39LCSS1	LD39LCSS1	06/20/07	06/20/07
02	LD39LCSDS1	LD39LCSDS1	06/20/07	06/20/07
03	SQ-1	LD21SRM1	06/20/07	06/20/07
04	13116000100	LD21A	06/20/07	06/20/07
05	13116000100	LD21AMS	06/20/07	06/20/07
06	13116000100	LD21AMSD	06/21/07	06/21/07
07	13116000101	LD21B	06/21/07	06/21/07
08	13116000102	LD21C	06/21/07	06/21/07
09	13116000103	LD21D	06/21/07	06/21/07
10	13116000104	LD21E	06/21/07	06/21/07
11	13116000105	LD21F	06/21/07	06/21/07
12	13116000106	LD21G	06/21/07	06/21/07
13	13116000107	LD21H	06/21/07	06/21/07
14	13116000108	LD21I	06/21/07	06/21/07

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD

Sample ID: MB-061507
METHOD BLANK

Lab Sample ID: MB-061507
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/21/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: NA
Date Received: NA

Date Extracted: 06/15/07
Date Analyzed: 06/20/07 15:37
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: NA
Percent Moisture: NA

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	1.0	< 1.0 U
76-44-8	Heptachlor	1.0	< 1.0 U
309-00-2	Aldrin	1.0	< 1.0 U
60-57-1	Dieldrin	2.0	< 2.0 U
72-55-9	4,4'-DDE	2.0	< 2.0 U
72-54-8	4,4'-DDD	2.0	< 2.0 U
50-29-3	4,4'-DDT	2.0	< 2.0 U
5103-71-9	alpha Chlordane	1.0	< 1.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	92.5%
Tetrachlorometaxylene	86.2%

PCBS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000100
SAMPLE

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 00:03
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 31.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.3
Percent Moisture: 39.0%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	< 16 U
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	Aroclor 1248	16	< 16 U
11097-69-1	Aroclor 1254	16	< 16 U
11096-82-5	Aroclor 1260	16	< 16 U
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	16	< 16 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	75.2%
Tetrachlorometaxylene	75.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
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Sample ID: 13116000101
SAMPLE

Lab Sample ID: LD21B
LIMS ID: 07-11961
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 00:20
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 50.5 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.5
Percent Moisture: 36.5%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	9.9	< 9.9 U
53469-21-9	Aroclor 1242	9.9	< 9.9 U
12672-29-6	Aroclor 1248	9.9	< 9.9 U
11097-69-1	**Aroclor 1254**	**9.9**	**12**
11096-82-5	Aroclor 1260	9.9	< 9.9 U
11104-28-2	Aroclor 1221	9.9	< 9.9 U
11141-16-5	Aroclor 1232	9.9	< 9.9 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	81.2%
Tetrachlorometaxylene	79.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
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Sample ID: 13116000102
SAMPLE

Lab Sample ID: LD21C
LIMS ID: 07-11962
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 00:37
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.1 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.5
Percent Moisture: 62.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	17	< 17 U
53469-21-9	Aroclor 1242	17	< 17 U
12672-29-6	Aroclor 1248	17	< 17 U
11097-69-1	Aroclor 1254	17	< 17 U
11096-82-5	Aroclor 1260	17	< 17 U
11104-28-2	Aroclor 1221	17	< 17 U
11141-16-5	Aroclor 1232	33	< 33 Y

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	79.8%
Tetrachlorometaxylene	76.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
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Sample ID: 13116000103
SAMPLE

Lab Sample ID: LD21D
LIMS ID: 07-11963
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 00:54
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.8
Percent Moisture: 51.1%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	< 16 U
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	Aroclor 1248	16	< 16 U
11097-69-1	**Aroclor 1254**	**16**	**31**
11096-82-5	**Aroclor 1260**	**16**	**26**
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	33	< 33 Y

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	92.5%
Tetrachlorometaxylene	79.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
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Sample ID: 13116000104
SAMPLE

Lab Sample ID: LD21E
LIMS ID: 07-11964
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 01:12
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.6
Percent Moisture: 58.9%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	17	< 17 U
53469-21-9	Aroclor 1242	17	< 17 U
12672-29-6	Aroclor 1248	17	< 17 U
11097-69-1	Aroclor 1254	17	< 17 U
11096-82-5	Aroclor 1260	17	< 17 U
11104-28-2	Aroclor 1221	17	< 17 U
11141-16-5	Aroclor 1232	17	< 17 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	83.8%
Tetrachlorometaxylene	78.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
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Sample ID: 13116000105
SAMPLE

Lab Sample ID: LD21F
LIMS ID: 07-11965
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 01:29
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.3 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.7
Percent Moisture: 56.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	< 16 U
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	**Aroclor 1248**	**16**	**25**
11097-69-1	**Aroclor 1254**	**16**	**18**
11096-82-5	**Aroclor 1260**	**16**	**24**
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	16	< 16 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.0%
Tetrachlorometaxylene	81.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082 **Sample ID: 13116000106**
Page 1 of 1 **SAMPLE**

Lab Sample ID: LD21G
LIMS ID: 07-11966
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:
Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 01:46
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.2 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.9
Percent Moisture: 53.0%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	< 16 U
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	Aroclor 1248	16	< 16 U
11097-69-1	**Aroclor 1254**	**16**	**36**
11096-82-5	**Aroclor 1260**	**16**	**26**
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	16	< 16 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	89.0%
Tetrachlorometaxylene	78.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000107
SAMPLE

Lab Sample ID: LD21H
LIMS ID: 07-11967
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 02:03
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.2 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.7
Percent Moisture: 52.3%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	< 16 U
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	Aroclor 1248	16	< 16 U
11097-69-1	Aroclor 1254	16	< 16 U
11096-82-5	Aroclor 1260	16	< 16 U
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	16	< 16 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	85.2%
Tetrachlorometaxylene	81.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000108
SAMPLE

Lab Sample ID: LD21I
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 02:20
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.6 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.6
Percent Moisture: 30.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	< 16 U
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	Aroclor 1248	16	< 16 U
11097-69-1	Aroclor 1254	16	< 16 U
11096-82-5	Aroclor 1260	16	< 16 U
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	16	< 16 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	82.8%
Tetrachlorometaxylene	77.0%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOLIDS SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: LD21-Geomatrix, Inc.
Project:

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
13116000100	75.2%	42-149	75.2%	47-127	0
13116000101	81.2%	42-149	79.0%	47-127	0
13116000102	79.8%	42-149	76.5%	47-127	0
13116000103	92.5%	42-149	79.8%	47-127	0
13116000104	83.8%	42-149	78.5%	47-127	0
13116000105	87.0%	42-149	81.2%	47-127	0
13116000106	89.0%	42-149	78.5%	47-127	0
13116000107	85.2%	42-149	81.2%	47-127	0
MB-061507	87.2%	60-125	86.5%	60-120	0
LCS-061507	91.8%	60-125	92.5%	60-120	0
SRM SQ-1	88.0%	42-149	95.2%	47-127	0
13116000108	82.8%	42-149	77.0%	47-127	0
13116000108 MS	88.0%	42-149	82.8%	47-127	0
13116000108 MSD	96.8%	42-149	83.8%	47-127	0

Prep Method: SW3550B
Log Number Range: 07-11960 to 07-11968

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000108
MS/MSD

Lab Sample ID: LD21I
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted MS/MSD: 06/15/07

Date Analyzed MS: 06/19/07 02:37
MSD: 06/19/07 02:54
Instrument/Analyst MS: ECD5/PK
MSD: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount MS: 30.9 g-dry-wt
MSD: 31.1 g-dry-wt
Final Extract Volume MS: 5.0 mL
MSD: 5.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Silica Gel: No
pH: 7.6
Percent Moisture: 30.6%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 16.4 U	51.0	81.0	63.0%	64.3	80.4	80.0%	23.1%
Aroclor 1260	< 16.4 U	72.5	81.0	89.5%	79.9	80.4	99.4%	9.7%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000108
MATRIX SPIKE

Lab Sample ID: LD21I
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 02:37
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.9 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.6
Percent Moisture: 30.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	---
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	Aroclor 1248	16	< 16 U
11097-69-1	Aroclor 1254	16	< 16 U
11096-82-5	Aroclor 1260	16	---
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	16	< 16 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	88.0%
Tetrachlorometaxylene	82.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000108
MATRIX SPIKE DUP

Lab Sample ID: LD21I
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Date Extracted: 06/15/07
Date Analyzed: 06/19/07 02:54
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 31.1 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.6
Percent Moisture: 30.6%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	---
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	Aroclor 1248	16	< 16 U
11097-69-1	Aroclor 1254	16	< 16 U
11096-82-5	Aroclor 1260	16	---
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	16	< 16 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	96.8%
Tetrachlorometaxylene	83.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: SRM SQ-1
STANDARD REFERENCE

Lab Sample ID: SRM SQ-1
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: NA
Date Received: NA

Date Extracted: 06/15/07
Date Analyzed: 06/18/07 23:46
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 26.9 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: NA
Percent Moisture: 40.2%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	19	< 19 U
53469-21-9	Aroclor 1242	19	< 19 U
12672-29-6	Aroclor 1248	19	< 19 U
11097-69-1	**Aroclor 1254**	**19**	**130**
11096-82-5	Aroclor 1260	19	< 19 U
11104-28-2	Aroclor 1221	19	< 19 U
11141-16-5	Aroclor 1232	19	< 19 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	88.0%
Tetrachlorometaxylene	95.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: LCS-061507
LAB CONTROL

Lab Sample ID: LCS-061507
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: NA
Date Received: NA

Date Extracted: 06/15/07
Date Analyzed: 06/18/07 23:29
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 25.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: NA
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	78.7	100	78.7%
Aroclor 1260	95.7	100	95.7%

PCB Surrogate Recovery

Decachlorobiphenyl	91.8%
Tetrachlorometaxylene	92.5%

Results reported in µg/kg (ppb)

PCB METHOD BLANK SUMMARY

BLANK NO.

LD21MBS1

Lab Name: ANALYTICAL RESOURCES, INC
Client: GEOMATRIX, INC.

ARI Job No.: LD21
Project: UNSPECIFIED

Lab Sample ID: LD21MBS1
Lab File ID: 0618B038

Date Extracted: 06/15/07
Matrix: SOLID

Date Analyzed: 06/18/07
Instrument ID: ECD5

Time Analyzed: 2312
GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LD21LCSS1	LD21LCSS1	06/18/07
02	SQ-1	LD21SRM1	06/18/07
03	13116000100	LD21A	06/19/07
04	13116000101	LD21B	06/19/07
05	13116000102	LD21C	06/19/07
06	13116000103	LD21D	06/19/07
07	13116000104	LD21E	06/19/07
08	13116000105	LD21F	06/19/07
09	13116000106	LD21G	06/19/07
10	13116000107	LD21H	06/19/07
11	13116000108	LD21I	06/19/07
12	13116000108 MS	LD21IMS	06/19/07
13	13116000108 MSD	LD21IMSD	06/19/07

ALL RUNS ARE DUAL COLUMN

FORM IV PCB

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: MB-061507
METHOD BLANK

Lab Sample ID: MB-061507
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: NA
Date Received: NA

Date Extracted: 06/15/07
Date Analyzed: 06/18/07 23:12
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 25.0 g
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: NA
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	20	< 20 U
53469-21-9	Aroclor 1242	20	< 20 U
12672-29-6	Aroclor 1248	20	< 20 U
11097-69-1	Aroclor 1254	20	< 20 U
11096-82-5	Aroclor 1260	20	< 20 U
11104-28-2	Aroclor 1221	20	< 20 U
11141-16-5	Aroclor 1232	20	< 20 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.2%
Tetrachlorometaxylene	86.5%

METALS

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000100
SAMPLE

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Percent Total Solids: 63.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	06/15/07	6010B	06/18/07	7440-36-0	Antimony	7	7	U
3050B	06/15/07	6010B	06/18/07	7440-38-2	Arsenic	7	7	U
3050B	06/15/07	6010B	06/18/07	7440-43-9	Cadmium	0.3	0.3	U
3050B	06/15/07	6010B	06/18/07	**7440-47-3**	**Chromium**	0.7	**32.7**	
3050B	06/15/07	6010B	06/18/07	**7440-50-8**	**Copper**	0.3	**23.1**	
3050B	06/15/07	6010B	06/18/07	**7439-92-1**	**Lead**	3	**9**	
CLP	06/15/07	7471A	06/15/07	**7439-97-6**	**Mercury**	0.06	**0.06**	
3050B	06/15/07	6010B	06/18/07	**7440-02-0**	**Nickel**	1	**30**	
3050B	06/15/07	7740	06/18/07	7782-49-2	Selenium	0.3	0.3	U
3050B	06/15/07	6010B	06/18/07	7440-22-4	Silver	0.4	0.4	U
3050B	06/15/07	6010B	06/18/07	**7440-66-6**	**Zinc**	1	**56**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000100
DUPLICATE

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Antimony	6010B	7 U	7 U	0.0%	+/- 7	L
Arsenic	6010B	7 U	7 U	0.0%	+/- 7	L
Cadmium	6010B	0.3 U	0.3 U	0.0%	+/- 0.3	L
Chromium	6010B	32.7	33.2	1.5%	+/- 20%	
Copper	6010B	23.1	23.8	3.0%	+/- 20%	
Lead	6010B	9	10	10.5%	+/- 3	L
Mercury	7471A	0.06	0.06	0.0%	+/- 0.06	L
Nickel	6010B	30	31	3.3%	+/- 20%	
Selenium	7740	0.3 U	0.3 U	0.0%	+/- 0.3	L
Silver	6010B	0.4 U	0.4 U	0.0%	+/- 0.4	L
Zinc	6010B	56	58	3.5%	+/- 20%	

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000100
MATRIX SPIKE

Lab Sample ID: LD21A
LIMS ID: 07-11960
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Antimony	6010B	7 U	61	291	21.0%	N
Arsenic	6010B	7 U	293	291	101%	
Cadmium	6010B	0.3 U	69.0	72.7	94.9%	
Chromium	6010B	32.7	103	72.7	96.7%	
Copper	6010B	23.1	95.6	72.7	99.7%	
Lead	6010B	9	277	291	92.1%	
Mercury	7471A	0.06	0.70	0.617	104%	
Nickel	6010B	30	98	72.7	93.5%	
Selenium	7740	0.3 U	14.7	15.7	93.6%	
Silver	6010B	0.4 U	68.6	72.7	94.4%	
Zinc	6010B	56	129	72.7	100%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000101
SAMPLE

Lab Sample ID: LD21B
LIMS ID: 07-11961
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Percent Total Solids: 64.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	06/15/07	6010B	06/18/07	7440-36-0	Antimony	7	7	U
3050B	06/15/07	6010B	06/18/07	7440-38-2	Arsenic	7	7	U
3050B	06/15/07	6010B	06/18/07	7440-43-9	Cadmium	0.3	0.3	U
3050B	06/15/07	6010B	06/18/07	**7440-47-3**	**Chromium**	0.7	**33.3**	
3050B	06/15/07	6010B	06/18/07	**7440-50-8**	**Copper**	0.3	**22.1**	
3050B	06/15/07	6010B	06/18/07	**7439-92-1**	**Lead**	3	**9**	
CLP	06/15/07	7471A	06/15/07	7439-97-6	Mercury	0.05	0.05	U
3050B	06/15/07	6010B	06/18/07	**7440-02-0**	**Nickel**	1	**31**	
3050B	06/15/07	7740	06/18/07	7782-49-2	Selenium	0.3	0.3	U
3050B	06/15/07	6010B	06/18/07	7440-22-4	Silver	0.4	0.4	U
3050B	06/15/07	6010B	06/18/07	**7440-66-6**	**Zinc**	1	**50**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000102
SAMPLE

Lab Sample ID: LD21C
LIMS ID: 07-11962
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Percent Total Solids: 45.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	06/15/07	6010B	06/18/07	7440-36-0	Antimony	10	10	U
3050B	06/15/07	6010B	06/18/07	7440-38-2	Arsenic	10	10	
3050B	06/15/07	6010B	06/18/07	7440-43-9	Cadmium	0.4	0.7	
3050B	06/15/07	6010B	06/18/07	7440-47-3	Chromium	1	51	
3050B	06/15/07	6010B	06/18/07	7440-50-8	Copper	0.4	47.3	
3050B	06/15/07	6010B	06/18/07	7439-92-1	Lead	4	16	
CLP	06/15/07	7471A	06/15/07	7439-97-6	Mercury	0.1	0.1	
3050B	06/15/07	6010B	06/18/07	7440-02-0	Nickel	2	44	
3050B	06/15/07	7740	06/18/07	7782-49-2	Selenium	0.4	0.4	U
3050B	06/15/07	6010B	06/18/07	7440-22-4	Silver	0.6	0.6	U
3050B	06/15/07	6010B	06/18/07	7440-66-6	Zinc	2	94	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000103
SAMPLE

Lab Sample ID: LD21D
LIMS ID: 07-11963
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Percent Total Solids: 52.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	06/15/07	6010B	06/18/07	7440-36-0	Antimony	9	9	U
3050B	06/15/07	6010B	06/18/07	7440-38-2	Arsenic	9	9	U
3050B	06/15/07	6010B	06/18/07	**7440-43-9**	**Cadmium**	0.4	**0.7**	
3050B	06/15/07	6010B	06/18/07	**7440-47-3**	**Chromium**	0.9	**42.2**	
3050B	06/15/07	6010B	06/18/07	**7440-50-8**	**Copper**	0.4	**44.3**	
3050B	06/15/07	6010B	06/18/07	**7439-92-1**	**Lead**	4	**21**	
CLP	06/15/07	7471A	06/15/07	**7439-97-6**	**Mercury**	0.07	**0.09**	
3050B	06/15/07	6010B	06/18/07	**7440-02-0**	**Nickel**	2	**38**	
3050B	06/15/07	7740	06/18/07	7782-49-2	Selenium	0.4	0.4	U
3050B	06/15/07	6010B	06/18/07	7440-22-4	Silver	0.6	0.6	U
3050B	06/15/07	6010B	06/18/07	**7440-66-6**	**Zinc**	2	**163**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000104
SAMPLE

Lab Sample ID: LD21E
LIMS ID: 07-11964
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Percent Total Solids: 45.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	06/15/07	6010B	06/18/07	7440-36-0	Antimony	10	10	U
3050B	06/15/07	6010B	06/18/07	7440-38-2	Arsenic	10	10	
3050B	06/15/07	6010B	06/18/07	7440-43-9	Cadmium	0.4	0.8	
3050B	06/15/07	6010B	06/18/07	7440-47-3	Chromium	1	44	
3050B	06/15/07	6010B	06/18/07	7440-50-8	Copper	0.4	46.8	
3050B	06/15/07	6010B	06/18/07	7439-92-1	Lead	4	17	
CLP	06/15/07	7471A	06/15/07	7439-97-6	Mercury	0.09	0.15	
3050B	06/15/07	6010B	06/18/07	7440-02-0	Nickel	2	39	
3050B	06/15/07	7740	06/18/07	7782-49-2	Selenium	0.4	0.5	
3050B	06/15/07	6010B	06/18/07	7440-22-4	Silver	0.6	0.6	U
3050B	06/15/07	6010B	06/18/07	7440-66-6	Zinc	2	98	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000105
SAMPLE

Lab Sample ID: LD21F
LIMS ID: 07-11965
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Percent Total Solids: 45.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	06/15/07	6010B	06/18/07	7440-36-0	Antimony	10	10	U
3050B	06/15/07	6010B	06/18/07	7440-38-2	Arsenic	10	10	
3050B	06/15/07	6010B	06/18/07	7440-43-9	Cadmium	0.4	0.8	
3050B	06/15/07	6010B	06/18/07	7440-47-3	Chromium	1	39	
3050B	06/15/07	6010B	06/18/07	7440-50-8	Copper	0.4	41.3	
3050B	06/15/07	6010B	06/18/07	7439-92-1	Lead	4	19	
CLP	06/15/07	7471A	06/15/07	7439-97-6	Mercury	0.08	0.14	
3050B	06/15/07	6010B	06/18/07	7440-02-0	Nickel	2	35	
3050B	06/15/07	7740	06/18/07	7782-49-2	Selenium	0.4	0.5	
3050B	06/15/07	6010B	06/18/07	7440-22-4	Silver	0.6	0.6	U
3050B	06/15/07	6010B	06/18/07	7440-66-6	Zinc	2	106	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000106
SAMPLE

Lab Sample ID: LD21G
LIMS ID: 07-11966
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Percent Total Solids: 50.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	06/15/07	6010B	06/18/07	7440-36-0	Antimony	10	10	U
3050B	06/15/07	6010B	06/18/07	7440-38-2	Arsenic	10	10	U
3050B	06/15/07	6010B	06/18/07	**7440-43-9**	**Cadmium**	0.4	**0.6**	
3050B	06/15/07	6010B	06/18/07	**7440-47-3**	**Chromium**	1	**29**	
3050B	06/15/07	6010B	06/18/07	**7440-50-8**	**Copper**	0.4	**30.3**	
3050B	06/15/07	6010B	06/18/07	**7439-92-1**	**Lead**	4	**13**	
CLP	06/15/07	7471A	06/15/07	**7439-97-6**	**Mercury**	0.07	**0.08**	
3050B	06/15/07	6010B	06/18/07	**7440-02-0**	**Nickel**	2	**27**	
3050B	06/15/07	7740	06/18/07	7782-49-2	Selenium	0.4	0.4	U
3050B	06/15/07	6010B	06/18/07	7440-22-4	Silver	0.6	0.6	U
3050B	06/15/07	6010B	06/18/07	**7440-66-6**	**Zinc**	2	**76**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000107
SAMPLE

Lab Sample ID: LD21H
LIMS ID: 07-11967
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Percent Total Solids: 53.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	06/15/07	6010B	06/18/07	7440-36-0	Antimony	9	9	U
3050B	06/15/07	6010B	06/18/07	7440-38-2	Arsenic	9	9	U
3050B	06/15/07	6010B	06/18/07	**7440-43-9**	**Cadmium**	0.4	**0.6**	
3050B	06/15/07	6010B	06/18/07	**7440-47-3**	**Chromium**	0.9	**34.2**	
3050B	06/15/07	6010B	06/18/07	**7440-50-8**	**Copper**	0.4	**28.2**	
3050B	06/15/07	6010B	06/18/07	**7439-92-1**	**Lead**	4	**13**	
CLP	06/15/07	7471A	06/15/07	**7439-97-6**	**Mercury**	0.08	**0.11**	
3050B	06/15/07	6010B	06/18/07	**7440-02-0**	**Nickel**	2	**33**	
3050B	06/15/07	7740	06/18/07	**7782-49-2**	**Selenium**	0.4	**0.5**	
3050B	06/15/07	6010B	06/18/07	7440-22-4	Silver	0.6	0.6	U
3050B	06/15/07	6010B	06/18/07	**7440-66-6**	**Zinc**	2	**67**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000108
SAMPLE

Lab Sample ID: LD21I
LIMS ID: 07-11968
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: 05/15/07
Date Received: 05/31/07

Percent Total Solids: 74.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	06/15/07	6010B	06/18/07	7440-36-0	Antimony	6	6	U
3050B	06/15/07	6010B	06/18/07	7440-38-2	Arsenic	6	6	U
3050B	06/15/07	6010B	06/18/07	7440-43-9	Cadmium	0.2	0.2	U
3050B	06/15/07	6010B	06/18/07	**7440-47-3**	**Chromium**	0.6	**22.8**	
3050B	06/15/07	6010B	06/18/07	**7440-50-8**	**Copper**	0.2	**12.4**	
3050B	06/15/07	6010B	06/18/07	**7439-92-1**	**Lead**	2	**3**	
CLP	06/15/07	7471A	06/15/07	7439-97-6	Mercury	0.05	0.05	U
3050B	06/15/07	6010B	06/18/07	**7440-02-0**	**Nickel**	1	**23**	
3050B	06/15/07	7740	06/18/07	7782-49-2	Selenium	0.2	0.2	U
3050B	06/15/07	6010B	06/18/07	7440-22-4	Silver	0.4	0.4	U
3050B	06/15/07	6010B	06/18/07	**7440-66-6**	**Zinc**	1	**34**	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: METHOD BLANK

Lab Sample ID: LD21MB
LIMS ID: 07-11961
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	06/15/07	6010B	06/18/07	7440-36-0	Antimony	5	5	U
3050B	06/15/07	6010B	06/18/07	7440-38-2	Arsenic	5	5	U
3050B	06/15/07	6010B	06/18/07	7440-43-9	Cadmium	0.2	0.2	U
3050B	06/15/07	6010B	06/18/07	7440-47-3	Chromium	0.5	0.5	U
3050B	06/15/07	6010B	06/18/07	7440-50-8	Copper	0.2	0.2	U
3050B	06/15/07	6010B	06/18/07	7439-92-1	Lead	2	2	U
CLP	06/15/07	7471A	06/15/07	7439-97-6	Mercury	0.05	0.05	U
3050B	06/15/07	6010B	06/18/07	7440-02-0	Nickel	1	1	U
3050B	06/15/07	7740	06/18/07	7782-49-2	Selenium	0.2	0.2	U
3050B	06/15/07	6010B	06/18/07	7440-22-4	Silver	0.3	0.3	U
3050B	06/15/07	6010B	06/18/07	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: LD21LCS
LIMS ID: 07-11961
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Antimony	6010B	210	200	105%	
Arsenic	6010B	213	200	106%	
Cadmium	6010B	52.4	50.0	105%	
Chromium	6010B	51.2	50.0	102%	
Copper	6010B	51.2	50.0	102%	
Lead	6010B	211	200	106%	
Mercury	7471A	1.02	1.00	102%	
Nickel	6010B	50	50	100%	
Selenium	7740	10	10	100%	
Silver	6010B	50.2	50.0	100%	
Zinc	6010B	50	50	100%	

Reported in mg/kg-dry

N-Control limit not met
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: STD REFERENCE
ERA D044540

Lab Sample ID: LD21SRM
LIMS ID: 07-11961
Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

QC Report No: LD21-Geomatrix, Inc.
Project:

Date Sampled: NA
Date Received: NA

Analyte	Analysis Method	Analysis Date	mg/kg-dry	Certified Value	Advisory Range
Antimony	6010B	06/18/07	49	79	5-162
Arsenic	6010B	06/18/07	105	96	76-115
Cadmium	6010B	06/18/07	58.1	54.6	44.5-64.7
Chromium	6010B	06/18/07	73.4	68.8	54.0-83.6
Copper	6010B	06/18/07	89.6	83.8	69.0-98.6
Lead	6010B	06/18/07	128	121	98-145
Mercury	7471A	06/15/07	5.13	5.82	3.96-7.68
Nickel	6010B	06/18/07	56.0	54.5	44.4-64.6
Selenium	7740	06/18/07	102	104	49-129
Silver	6010B	06/18/07	110	106	64.9-147
Zinc	6010B	06/18/07	257	243	193-293

*Lower advisory range for antimony is the calculated detection limit.

GENERAL CHEMISTRY

METHOD BLANK RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank
Total Solids	06/14/07	Percent	< 0.01 U
Total Organic Carbon	06/15/07	Percent	< 0.020 U
	06/18/07		< 0.020 U

SAMPLE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Client ID: 13116000100
ARI ID: 07-11960 LD21A

Analyte	Date	Method	Units	RL	Sample
Total Solids	06/14/07 061407#1	EPA 160.3	Percent	0.01	62.60
Total Organic Carbon	06/15/07 061507#1	Plumb,1981	Percent	0.020	1.45

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Client ID: 13116000101
ARI ID: 07-11961 LD21B

Analyte	Date	Method	Units	RL	Sample
Total Solids	06/14/07 061407#1	EPA 160.3	Percent	0.01	64.00
Total Organic Carbon	06/15/07 061507#1	Plumb,1981	Percent	0.020	1.14

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Client ID: 13116000102
ARI ID: 07-11962 LD21C

Analyte	Date	Method	Units	RL	Sample
Total Solids	06/14/07 061407#1	EPA 160.3	Percent	0.01	44.60
Total Organic Carbon	06/15/07 061507#1	Plumb,1981	Percent	0.020	2.14

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Client ID: 13116000103
ARI ID: 07-11963 LD21D

Analyte	Date	Method	Units	RL	Sample
Total Solids	06/14/07 061407#1	EPA 160.3	Percent	0.01	53.50
Total Organic Carbon	06/15/07 061507#1	Plumb,1981	Percent	0.020	1.26

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Client ID: 13116000104
ARI ID: 07-11964 LD21E

Analyte	Date	Method	Units	RL	Sample
Total Solids	06/14/07 061407#1	EPA 160.3	Percent	0.01	45.60
Total Organic Carbon	06/15/07 061507#1	Plumb,1981	Percent	0.020	1.74

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Client ID: 13116000105
ARI ID: 07-11965 LD21F

Analyte	Date	Method	Units	RL	Sample
Total Solids	06/14/07 061407#1	EPA 160.3	Percent	0.01	47.10
Total Organic Carbon	06/18/07 061807#1	Plumb,1981	Percent	0.020	2.05

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Client ID: 13116000106
ARI ID: 07-11966 LD21G

Analyte	Date	Method	Units	RL	Sample
Total Solids	06/14/07 061407#1	EPA 160.3	Percent	0.01	49.80
Total Organic Carbon	06/18/07 061807#1	Plumb,1981	Percent	0.020	3.27

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Client ID: 13116000107
ARI ID: 07-11967 LD21H

Analyte	Date	Method	Units	RL	Sample
Total Solids	06/14/07 061407#1	EPA 160.3	Percent	0.01	53.10
Total Organic Carbon	06/18/07 061807#1	Plumb,1981	Percent	0.020	1.69

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Client ID: 13116000108
ARI ID: 07-11968 LD21I

Analyte	Date	Method	Units	RL	Sample
Total Solids	06/14/07 061407#1	EPA 160.3	Percent	0.01	71.60
Total Organic Carbon	06/18/07 061807#1	Plumb,1981	Percent	0.020	0.800

RL Analytical reporting limit
U Undetected at reported detection limit

REPLICATE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: LD21A Client ID: 13116000100					
Total Solids	06/14/07	Percent	62.60	62.90 61.90	0.8%
Total Organic Carbon	06/15/07	Percent	1.45	1.34 1.70	12.3%

MS/MSD RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: 05/15/07
Date Received: 05/31/07

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: LD21A Client ID: 13116000100						
Total Organic Carbon	06/15/07	Percent	1.45	3.25	1.76	102.0%

LAB CONTROL RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon	06/15/07	Percent	0.491	0.500	98.2%
	06/18/07		0.453	0.500	90.6%

STANDARD REFERENCE RESULTS-CONVENTIONALS
LD21-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 06/19/07

Project: NA
Event: NA
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon	06/15/07	Percent	3.22	3.35	96.1%
NIST #8704	06/18/07		3.30	3.35	98.5%

TOTAL SOLIDS

Extractions Total Solids-extts
Data By: Tia Hawk
Created: 6/14/07

Worklist: 5599
Analyst: DAP
Comments:

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	LD21A 07-11960 13116000100	1.18	11.54	7.50	61.0	7.3
2.	LD21B 07-11961 13116000101	1.20	10.14	6.88	63.5	7.5
3.	LD21C 07-11962 13116000102	1.14	10.66	4.72	37.6	7.5
4.	LD21D 07-11963 13116000103	1.14	10.92	5.92	48.9	7.8
5.	LD21E 07-11964 13116000104	1.12	12.60	5.84	41.1	7.6
6.	LD21F 07-11965 13116000105	1.18	10.30	5.12	43.2	7.7
7.	LD21G 07-11966 13116000106	1.18	11.02	5.80	47.0	7.9
8.	LD21H 07-11967 13116000107	1.16	11.94	6.30	47.7	7.7
9.	LD21I 07-11968 13116000108	1.18	13.20	9.52	69.4	7.6

Solids Data Entry Report Checked by: EJR Date: 6/18/07
Date: 06/16/07 Data Analyst: DM

Solids Determination performed on 06/15/07 by DM

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
LD21	A	13116000100	1.006	10.474	6.998	63.29
LD21	B	13116000101	1.039	10.346	7.006	64.11
LD21	C	13116000102	1.023	10.271	5.240	45.60
LD21	D	13116000103	1.007	10.520	5.988	52.36
LD21	E	13116000104	1.010	10.402	5.241	45.05
LD21	F	13116000105	1.035	10.347	5.274	45.52
LD21	G	13116000106	1.035	10.115	5.598	50.25
LD21	H	13116000107	1.044	10.618	6.147	53.30
LD21	I	13116000108	1.043	10.658	8.169	74.11

Analytical Resources, Incorporated
Analytical Chemists and Consultants

31 August 2007

Cliff Whitmus
Geomatrix, Inc.
3500 188th Street SW, Suite 600
Lynnwood, WA 98037-4763

RE: Project: Port of Everett
ARI Job No.: LK71

Dear Cliff:

Please find enclosed the final data package for the samples from the project referenced above. Analytical Resources, Inc. received these samples in good condition on May 17, 2007. There were no discrepancies in the paperwork.

The samples were removed from hold and they were analyzed for SVOAs, pesticides, PCBs, metals and TOC as requested on August 10, 2007.

Problems associated with these analyses are discussed in the case narrative.

A copy of this package will be kept on file at ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris

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

Enclosures

cc: file LK71

MDH/mdh

Case Narrative

prepared
for

GEOMATRIX CONSULTANTS

Project: Port of Everett

ARI JOB NO: LK71

prepared
by

Analytical Resources, Inc.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Case Narrative

Client: Geomatrix, Inc.
Project: Port of Everett
Matrix: Sediment
ARI Job No: LK71
Date: August 31, 2007

SVOAs Analyses

These analyses proceeded without incident of note.

Pesticides Analyses

A matrix spike (MS) and a matrix spike duplicate (MSD) was extracted and analyzed in conjunction with sample 13116000025. The percent recoveries and RPDs were high following the initial analyses of the MS/MSD. This was due to the presence of PCB patterns in the native sample. Since the percent recoveries for all compounds were within acceptable QC limits for the corresponding LCS, no corrective actions were taken.

PCBs Analyses

These analyses proceeded without incident of note.

Conventionals Analyses

These analyses proceeded without incident of note.

Metals Analyses

An MS and a matrix duplicate (MD) were prepared and analyzed in conjunction with sample 13116000025. The percent recoveries were low and the RPDs were high for several elements following the initial analyses of the MS and the MD. The affected samples were re-prepared and re-analyzed. The percent recoveries for all elements were within acceptable QC limits for the re-analysis except for Sb which is commonly recovered at low percentages. The RPD for zinc was slightly high following the re-analysis of the MD. Since the percent recoveries for all elements were within acceptable QC limits for the corresponding LCS, it was concluded that a lack of sample homogeneity was the cause of the high RPD. No further corrective actions were taken. The results for the re-analyses only have been submitted.

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Data Summary Package

prepared
for

GEOMATRIX CONSULTANTS

Project: Port of Everett

ARI JOB NO: LK71

prepared
by

Analytical Resources, Inc.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Case Narrative

Client: Geomatrix, Inc.
Project: Port of Everett
Matrix: Sediment
ARI Job No: LK71
Date: August 31, 2007

SVOAs Analyses

These analyses proceeded without incident of note.

Pesticides Analyses

A matrix spike (MS) and a matrix spike duplicate (MSD) was extracted and analyzed in conjunction with sample 13116000025. The percent recoveries and RPDs were high following the initial analyses of the MS/MSD. This was due to the presence of PCB patterns in the native sample. Since the percent recoveries for all compounds were within acceptable QC limits for the corresponding LCS, no corrective actions were taken.

PCBs Analyses

These analyses proceeded without incident of note.

Conventionals Analyses

These analyses proceeded without incident of note.

Metals Analyses

An MS and a matrix duplicate (MD) were prepared and analyzed in conjunction with sample 13116000025. The percent recoveries were low and the RPDs were high for several elements following the initial analyses of the MS and the MD. The affected samples were re-prepared and re-analyzed. The percent recoveries for all elements were within acceptable QC limits for the re-analysis except for Sb which is commonly recovered at low percentages. The RPD for zinc was slightly high following the re-analysis of the MD. Since the percent recoveries for all elements were within acceptable QC limits for the corresponding LCS, it was concluded that a lack of sample homogeneity was the cause of the high RPD. No further corrective actions were taken. The results for the re-analyses only have been submitted.

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SEMIVOLATILE

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: 13116000025
SAMPLE

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/23/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett
NA
Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/15/07
Date Analyzed: 08/22/07 14:26
Instrument/Analyst: NT6/LJR
GPC Cleanup: Yes

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 54.7%
pH: 7.7

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**540**
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**630**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**290**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**34**
83-32-9	**Acenaphthene**	**20**	**570**
132-64-9	**Dibenzofuran**	**20**	**460**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**500**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	99	< 99 U
85-01-8	**Phenanthrene**	**20**	**1,500**
120-12-7	**Anthracene**	**20**	**290**
84-74-2	**Di-n-Butylphthalate**	**20**	**49 M**
206-44-0	**Fluoranthene**	**20**	**2,000 E**
129-00-0	**Pyrene**	**20**	**990**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**480**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**130**
218-01-9	**Chrysene**	**20**	**710**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**550**
207-08-9	**Benzo(k)fluoranthene**	**20**	**420**
50-32-8	**Benzo(a)pyrene**	**20**	**440**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**110**
53-70-3	**Dibenz(a,h)anthracene**	**20**	**27**
191-24-2	**Benzo(g,h,i)perylene**	**20**	**110**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	67.6%	2-Fluorobiphenyl	67.6%
d14-p-Terphenyl	69.2%	d4-1,2-Dichlorobenzene	61.2%
d5-Phenol	68.5%	2-Fluorophenol	67.5%
2,4,6-Tribromophenol	86.9%	d4-2-Chlorophenol	73.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: 13116000025
DILUTION

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/23/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett
NA
Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/15/07
Date Analyzed: 08/22/07 17:16
Instrument/Analyst: NT6/LJR
GPC Cleanup: Yes

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 3.00
Percent Moisture: 54.7%
pH: 7.7

CAS Number	Analyte	RL	Result
108-95-2	Phenol	60	< 60 U
106-46-7	1,4-Dichlorobenzene	60	< 60 U
100-51-6	Benzyl Alcohol	60	< 60 U
95-50-1	1,2-Dichlorobenzene	60	< 60 U
95-48-7	2-Methylphenol	60	< 60 U
106-44-5	**4-Methylphenol**	**60**	**510**
105-67-9	2,4-Dimethylphenol	60	< 60 U
65-85-0	Benzoic Acid	600	< 600 U
120-82-1	1,2,4-Trichlorobenzene	60	< 60 U
91-20-3	**Naphthalene**	**60**	**630**
87-68-3	Hexachlorobutadiene	60	< 60 U
91-57-6	**2-Methylnaphthalene**	**60**	**290**
131-11-3	Dimethylphthalate	60	< 60 U
208-96-8	Acenaphthylene	60	< 60 U
83-32-9	**Acenaphthene**	**60**	**570**
132-64-9	**Dibenzofuran**	**60**	**460**
84-66-2	Diethylphthalate	60	< 60 U
86-73-7	**Fluorene**	**60**	**480**
86-30-6	N-Nitrosodiphenylamine	60	< 60 U
118-74-1	Hexachlorobenzene	60	< 60 U
87-86-5	Pentachlorophenol	300	< 300 U
85-01-8	**Phenanthrene**	**60**	**1,700**
120-12-7	**Anthracene**	**60**	**290**
84-74-2	**Di-n-Butylphthalate**	**60**	**68 M**
206-44-0	**Fluoranthene**	**60**	**2,400**
129-00-0	**Pyrene**	**60**	**1,100**
85-68-7	Butylbenzylphthalate	60	< 60 U
56-55-3	**Benzo(a)anthracene**	**60**	**490**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**60**	**110**
218-01-9	**Chrysene**	**60**	**740**
117-84-0	Di-n-Octyl phthalate	60	< 60 U
205-99-2	**Benzo(b)fluoranthene**	**60**	**530**
207-08-9	**Benzo(k)fluoranthene**	**60**	**380**
50-32-8	**Benzo(a)pyrene**	**60**	**440**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**60**	**130**
53-70-3	Dibenz(a,h)anthracene	60	< 60 U
191-24-2	**Benzo(g,h,i)perylene**	**60**	**130**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	66.7%	2-Fluorobiphenyl	71.2%
d14-p-Terphenyl	61.8%	d4-1,2-Dichlorobenzene	61.8%
d5-Phenol	67.2%	2-Fluorophenol	65.5%
2,4,6-Tribromophenol	79.1%	d4-2-Chlorophenol	72.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: 13116000033
SAMPLE

Lab Sample ID: LK71B
LIMS ID: 07-16422
Matrix: Sediment
Data Release Authorized:
Reported: 08/23/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett
NA
Date Sampled: 05/14/07
Date Received: 05/17/07

Date Extracted: 08/15/07
Date Analyzed: 08/22/07 16:08
Instrument/Analyst: NT6/LJR
GPC Cleanup: Yes

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 58.8%
pH: 7.6

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**20**	**25**
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**530**
105-67-9	**2,4-Dimethylphenol**	**20**	**20**
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	**Naphthalene**	**20**	**570**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**160**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**44**
83-32-9	**Acenaphthene**	**20**	**180**
132-64-9	**Dibenzofuran**	**20**	**180**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**240**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	**Phenanthrene**	**20**	**510**
120-12-7	**Anthracene**	**20**	**210**
84-74-2	**Di-n-Butylphthalate**	**20**	**47 M**
206-44-0	**Fluoranthene**	**20**	**840**
129-00-0	**Pyrene**	**20**	**450**
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**180**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**88**
218-01-9	**Chrysene**	**20**	**320**
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	**Benzo(b)fluoranthene**	**20**	**230**
207-08-9	**Benzo(k)fluoranthene**	**20**	**200**
50-32-8	**Benzo(a)pyrene**	**20**	**150**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**31**
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	**Benzo(g,h,i)perylene**	**20**	**31**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	61.6%	2-Fluorobiphenyl	62.8%
d14-p-Terphenyl	63.2%	d4-1,2-Dichlorobenzene	58.0%
d5-Phenol	61.6%	2-Fluorophenol	64.5%
2,4,6-Tribromophenol	82.7%	d4-2-Chlorophenol	67.7%

ANALYTICAL RESOURCES INCORPORATED

SW8270 SEMIVOLATILES SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Client ID	NBZ	FBP	TPH	DCB	PHL	2FP	TBP	2CP	TOT OUT
MB-081507	54.4%	52.0%	67.6%	47.6%	56.8%	58.9%	64.5%	58.1%	0
LCS-081507	57.2%	55.6%	65.2%	52.4%	65.3%	62.1%	71.5%	64.0%	0
SRM-SQ-1	62.4%	66.0%	62.0%	60.0%	63.5%	62.4%	72.3%	67.7%	0
13116000025	67.6%	67.6%	69.2%	61.2%	68.5%	67.5%	86.9%	73.3%	0
13116000025 DL	66.7%	71.2%	61.8%	61.8%	67.2%	65.5%	79.1%	72.2%	0
13116000025 MS	59.2%	60.0%	59.6%	55.6%	62.1%	60.0%	77.6%	66.1%	0
13116000025 MSD	67.2%	68.0%	66.8%	62.0%	68.0%	66.4%	84.5%	73.1%	0
13116000033	61.6%	62.8%	63.2%	58.0%	61.6%	64.5%	82.7%	67.7%	0

	LCS/MB LIMITS	QC LIMITS
(NBZ) = d5-Nitrobenzene	(42-79)	(26-88)
(FBP) = 2-Fluorobiphenyl	(43-80)	(34-91)
(TPH) = d14-p-Terphenyl	(39-105)	(22-100)
(DCB) = d4-1,2-Dichlorobenzene	(38-79)	(24-90)
(PHL) = d5-Phenol	(42-82)	(25-86)
(2FP) = 2-Fluorophenol	(26-83)	(11-84)
(TBP) = 2,4,6-Tribromophenol	(41-94)	(25-107)
(2CP) = d4-2-Chlorophenol	(43-80)	(23-91)

Prep Method: SW3550B
Log Number Range: 07-16421 to 07-16422

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: 13116000025
MS/MSD

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/23/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted MS/MSD: 08/15/07

Sample Amount MS: 50.3 g-dry-wt
MSD: 50.3 g-dry-wt

Date Analyzed MS: 08/22/07 15:00
MSD: 08/22/07 15:34

Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL

Instrument/Analyst MS: NT6/LJR
MSD: NT6/LJR

Dilution Factor MS: 1.00
MSD: 1.00

GPC Cleanup: YES

Percent Moisture: 54.7 %
pH: 7.7

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Phenol	< 19.9	423	746	56.7%	452	746	60.6%	6.6%
1,4-Dichlorobenzene	< 19.9	290	497	58.4%	312	497	62.8%	7.3%
1,2,4-Trichlorobenzene	< 19.9	309	497	62.2%	340	497	68.4%	9.6%
Acenaphthene	572	786	497	43.1%	1050	497	96.2%	28.8%
Pentachlorophenol	< 99.4	427	746	57.2%	445	746	59.7%	4.1%
Pyrene	990	928	497	NA	1040	497	10.1%	11.4%
Di-n-Octyl phthalate	< 19.9	399	497	80.3%	441	497	88.7%	10.0%
Benzo(g,h,i)perylene	107	182	497	15.1%	198	497	18.3%	8.4%

Results reported in µg/kg
RPD calculated using sample concentrations per SW846.
NA-No recovery due to high concentration of analyte in original sample and/or calculated negative recovery.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: 13116000025
MATRIX SPIKE

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/23/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett
NA
Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/15/07
Date Analyzed: 08/22/07 15:00
Instrument/Analyst: NT6/LJR
GPC Cleanup: Yes

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 54.7%
pH: 7.7

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	---
106-46-7	1,4-Dichlorobenzene	20	---
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**470**
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	---
91-20-3	**Naphthalene**	**20**	**500**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**240**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**30**
83-32-9	Acenaphthene	20	---
132-64-9	**Dibenzofuran**	**20**	**340**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**380**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	99	---
85-01-8	**Phenanthrene**	**20**	**1,200**
120-12-7	**Anthracene**	**20**	**230**
84-74-2	**Di-n-Butylphthalate**	**20**	**60 M**
206-44-0	**Fluoranthene**	**20**	**1,400**
129-00-0	Pyrene	20	---
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**310**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**310**
218-01-9	**Chrysene**	**20**	**500**
117-84-0	Di-n-Octyl phthalate	20	---
205-99-2	**Benzo(b)fluoranthene**	**20**	**360**
207-08-9	**Benzo(k)fluoranthene**	**20**	**280**
50-32-8	**Benzo(a)pyrene**	**20**	**290**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**74**
53-70-3	**Dibenz(a,h)anthracene**	**20**	**26**
191-24-2	Benzo(g,h,i)perylene	20	---

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	59.2%	2-Fluorobiphenyl	60.0%
d14-p-Terphenyl	59.6%	d4-1,2-Dichlorobenzene	55.6%
d5-Phenol	62.1%	2-Fluorophenol	60.0%
2,4,6-Tribromophenol	77.6%	d4-2-Chlorophenol	66.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: 13116000025
MATRIX SPIKE DUPLICATE

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/23/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett
NA
Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/15/07
Date Analyzed: 08/22/07 15:34
Instrument/Analyst: NT6/LJR
GPC Cleanup: Yes

Sample Amount: 50.3 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 54.7%
pH: 7.7

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	---
106-46-7	1,4-Dichlorobenzene	20	---
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	**4-Methylphenol**	**20**	**570**
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	---
91-20-3	**Naphthalene**	**20**	**610**
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	**2-Methylnaphthalene**	**20**	**320**
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	**Acenaphthylene**	**20**	**39**
83-32-9	Acenaphthene	20	---
132-64-9	**Dibenzofuran**	**20**	**490**
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	**Fluorene**	**20**	**560**
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	99	---
85-01-8	**Phenanthrene**	**20**	**1,500**
120-12-7	**Anthracene**	**20**	**320**
84-74-2	**Di-n-Butylphthalate**	**20**	**89 M**
206-44-0	**Fluoranthene**	**20**	**1,800 E**
129-00-0	Pyrene	20	---
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	**Benzo(a)anthracene**	**20**	**390**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**20**	**140**
218-01-9	**Chrysene**	**20**	**580**
117-84-0	Di-n-Octyl phthalate	20	---
205-99-2	**Benzo(b)fluoranthene**	**20**	**420**
207-08-9	**Benzo(k)fluoranthene**	**20**	**390**
50-32-8	**Benzo(a)pyrene**	**20**	**360**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**20**	**85**
53-70-3	**Dibenz(a,h)anthracene**	**20**	**33**
191-24-2	Benzo(g,h,i)perylene	20	---

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	67.2%	2-Fluorobiphenyl	68.0%
d14-p-Terphenyl	66.8%	d4-1,2-Dichlorobenzene	62.0%
d5-Phenol	68.0%	2-Fluorophenol	66.4%
2,4,6-Tribromophenol	84.5%	d4-2-Chlorophenol	73.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: LCS-081507
LAB CONTROL

Lab Sample ID: LCS-081507
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/23/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/15/07
Date Analyzed: 08/22/07 12:44
Instrument/Analyst: NT6/LJR
GPC Cleanup: YES

Sample Amount: 50.0 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
pH: NA

Analyte	Lab Control	Spike Added	Recovery
Phenol	313	500	62.6%
1,4-Dichlorobenzene	279	500	55.8%
Benzyl Alcohol	693	1000	69.3%
1,2-Dichlorobenzene	294	500	58.8%
2-Methylphenol	357	500	71.4%
4-Methylphenol	756	1000	75.6%
2,4-Dimethylphenol	268	500	53.6%
Benzoic Acid	987	1500	65.8%
1,2,4-Trichlorobenzene	294	500	58.8%
Naphthalene	306	500	61.2%
Hexachlorobutadiene	273	500	54.6%
2-Methylnaphthalene	329	500	65.8%
Dimethylphthalate	372	500	74.4%
Acenaphthylene	334	500	66.8%
Acenaphthene	331	500	66.2%
Dibenzofuran	337	500	67.4%
Diethylphthalate	376	500	75.2%
Fluorene	342	500	68.4%
N-Nitrosodiphenylamine	469	500	93.8%
Hexachlorobenzene	339	500	67.8%
Pentachlorophenol	365	500	73.0%
Phenanthrene	373	500	74.6%
Anthracene	360	500	72.0%
Di-n-Butylphthalate	415	500	83.0%
Fluoranthene	411	500	82.2%
Pyrene	330	500	66.0%
Butylbenzylphthalate	368	500	73.6%
Benzo(a)anthracene	345	500	69.0%
bis(2-Ethylhexyl)phthalate	451	500	90.2%
Chrysene	361	500	72.2%
Di-n-Octyl phthalate	460	500	92.0%
Benzo(b)fluoranthene	400	500	80.0%
Benzo(k)fluoranthene	401	500	80.2%
Benzo(a)pyrene	388	500	77.6%
Indeno(1,2,3-cd)pyrene	360	500	72.0%
Dibenz(a,h)anthracene	371	500	74.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: LCS-081507
LAB CONTROL

Lab Sample ID: LCS-081507
LIMS ID: 07-16421
Matrix: Sediment
Date Analyzed: 08/22/07 12:44

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Analyte	Lab Control	Spike Added	Recovery
Benzo(g,h,i)perylene	365	500	73.0%

Semivolatile Surrogate Recovery	
d5-Nitrobenzene	57.2%
2-Fluorobiphenyl	55.6%
d14-p-Terphenyl	65.2%
d4-1,2-Dichlorobenzene	52.4%
d5-Phenol	65.3%
2-Fluorophenol	62.1%
2,4,6-Tribromophenol	71.5%
d4-2-Chlorophenol	64.0%

Results reported in µg/kg

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS

Sample ID: SQ-1 081507
STANDARD REFERENCE

Lab Sample ID: SRM-081507
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/23/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 08/15/07
Date Analyzed: 08/22/07 13:18
Instrument/Analyst: NT6/LJR
GPC Cleanup: Yes

Sample Amount: 35.9 g-dry-wt
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: 40.2%
pH: NA

CAS Number	Analyte	RL	Result
108-95-2	**Phenol**	**28**	**32**
106-46-7	1,4-Dichlorobenzene	28	< 28 U
100-51-6	Benzyl Alcohol	28	< 28 U
95-50-1	1,2-Dichlorobenzene	28	< 28 U
95-48-7	2-Methylphenol	28	< 28 U
106-44-5	**4-Methylphenol**	**28**	**31**
105-67-9	2,4-Dimethylphenol	28	< 28 U
65-85-0	**Benzoic Acid**	**280**	**490**
120-82-1	1,2,4-Trichlorobenzene	28	< 28 U
91-20-3	**Naphthalene**	**28**	**41**
87-68-3	Hexachlorobutadiene	28	< 28 U
91-57-6	**2-Methylnaphthalene**	**28**	**66**
131-11-3	Dimethylphthalate	28	< 28 U
208-96-8	Acenaphthylene	28	< 28 U
83-32-9	**Acenaphthene**	**28**	**60**
132-64-9	Dibenzofuran	28	< 28 U
84-66-2	Diethylphthalate	28	< 28 U
86-73-7	**Fluorene**	**28**	**58**
86-30-6	N-Nitrosodiphenylamine	28	< 28 U
118-74-1	Hexachlorobenzene	28	< 28 U
87-86-5	**Pentachlorophenol**	**140**	**310**
85-01-8	**Phenanthrene**	**28**	**100**
120-12-7	**Anthracene**	**28**	**51**
84-74-2	Di-n-Butylphthalate	28	< 28 U
206-44-0	**Fluoranthene**	**28**	**130**
129-00-0	**Pyrene**	**28**	**79**
85-68-7	Butylbenzylphthalate	28	< 28 U
56-55-3	**Benzo(a)anthracene**	**28**	**67**
117-81-7	**bis(2-Ethylhexyl)phthalate**	**28**	**73**
218-01-9	**Chrysene**	**28**	**80**
117-84-0	Di-n-Octyl phthalate	28	< 28 U
205-99-2	**Benzo(b)fluoranthene**	**28**	**78**
207-08-9	Benzo(k)fluoranthene	28	< 28 U
50-32-8	**Benzo(a)pyrene**	**28**	**72**
193-39-5	Indeno(1,2,3-cd)pyrene	28	< 28 U
53-70-3	**Dibenz(a,h)anthracene**	**28**	**57**
191-24-2	**Benzo(g,h,i)perylene**	**28**	**62**

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	62.4%	2-Fluorobiphenyl	66.0%
d14-p-Terphenyl	62.0%	d4-1,2-Dichlorobenzene	60.0%
d5-Phenol	63.5%	2-Fluorophenol	62.4%
2,4,6-Tribromophenol	72.3%	d4-2-Chlorophenol	67.7%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO. LK71MBS1

Lab Name: ANALYTICAL RESOURCES, INC Client: GEOMATRIX

ARI Job No: LK71 Project: PORT OF EVERETT

Lab File ID: LK71MB Date Extracted: 08/15/07

Instrument ID: NT6 Date Analyzed: 08/22/07

Matrix: SOLID Time Analyzed: 1209

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	LK71LCSS1	LK71LCSS1	LK71SB	08/22/07
02	SQ-1	LK71SRM1	LK71SRM	08/22/07
03	13116000025	LK71A	LK71A	08/22/07
04	13116000025 MS	LK71AMS	LK71AMS	08/22/07
05	13116000025 MSD	LK71AMSD	LK71AMD	08/22/07
06	13116000033	LK71B	LK71B	08/22/07
07	13116000025	LK71A	LK71ADL	08/22/07
08				
09				
10				
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30				

COMMENTS:

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Semivolatiles by SW8270D GC/MS
Page 1 of 1

Sample ID: MB-081507
METHOD BLANK

Lab Sample ID: MB-081507
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/23/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett
NA
Date Sampled: NA
Date Received: NA

Date Extracted: 08/15/07
Date Analyzed: 08/22/07 12:09
Instrument/Analyst: NT6/LJR
GPC Cleanup: Yes

Sample Amount: 50.0 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.00
Percent Moisture: NA
pH: NA

CAS Number	Analyte	RL	Result
108-95-2	Phenol	20	< 20 U
106-46-7	1,4-Dichlorobenzene	20	< 20 U
100-51-6	Benzyl Alcohol	20	< 20 U
95-50-1	1,2-Dichlorobenzene	20	< 20 U
95-48-7	2-Methylphenol	20	< 20 U
106-44-5	4-Methylphenol	20	< 20 U
105-67-9	2,4-Dimethylphenol	20	< 20 U
65-85-0	Benzoic Acid	200	< 200 U
120-82-1	1,2,4-Trichlorobenzene	20	< 20 U
91-20-3	Naphthalene	20	< 20 U
87-68-3	Hexachlorobutadiene	20	< 20 U
91-57-6	2-Methylnaphthalene	20	< 20 U
131-11-3	Dimethylphthalate	20	< 20 U
208-96-8	Acenaphthylene	20	< 20 U
83-32-9	Acenaphthene	20	< 20 U
132-64-9	Dibenzofuran	20	< 20 U
84-66-2	Diethylphthalate	20	< 20 U
86-73-7	Fluorene	20	< 20 U
86-30-6	N-Nitrosodiphenylamine	20	< 20 U
118-74-1	Hexachlorobenzene	20	< 20 U
87-86-5	Pentachlorophenol	100	< 100 U
85-01-8	Phenanthrene	20	< 20 U
120-12-7	Anthracene	20	< 20 U
84-74-2	Di-n-Butylphthalate	20	< 20 U
206-44-0	Fluoranthene	20	< 20 U
129-00-0	Pyrene	20	< 20 U
85-68-7	Butylbenzylphthalate	20	< 20 U
56-55-3	Benzo(a)anthracene	20	< 20 U
117-81-7	bis(2-Ethylhexyl)phthalate	20	< 20 U
218-01-9	Chrysene	20	< 20 U
117-84-0	Di-n-Octyl phthalate	20	< 20 U
205-99-2	Benzo(b)fluoranthene	20	< 20 U
207-08-9	Benzo(k)fluoranthene	20	< 20 U
50-32-8	Benzo(a)pyrene	20	< 20 U
193-39-5	Indeno(1,2,3-cd)pyrene	20	< 20 U
53-70-3	Dibenz(a,h)anthracene	20	< 20 U
191-24-2	Benzo(g,h,i)perylene	20	< 20 U

Reported in µg/kg (ppb)

Semivolatile Surrogate Recovery

d5-Nitrobenzene	54.4%	2-Fluorobiphenyl	52.0%
d14-p-Terphenyl	67.6%	d4-1,2-Dichlorobenzene	47.6%
d5-Phenol	56.8%	2-Fluorophenol	58.9%
2,4,6-Tribromophenol	64.5%	d4-2-Chlorophenol	58.1%

PESTICIDES

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD

Sample ID: 13116000025
SAMPLE

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/27/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/16/07
Date Analyzed: 08/22/07 19:08
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: 7.7
Percent Moisture: 54.7%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	2.5	< 2.5 Y
76-44-8	Heptachlor	0.98	< 0.98 U
309-00-2	Aldrin	0.98	< 0.98 U
60-57-1	Dieldrin	2.0	< 2.0 U
72-55-9	4,4'-DDE	2.0	< 2.0 U
72-54-8	4,4'-DDD	2.0	< 2.0 U
50-29-3	4,4'-DDT	2.0	< 2.0 U
5103-71-9	alpha Chlordane	0.98	< 0.98 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	101%
Tetrachlorometaxylene	63.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD

Sample ID: 13116000033
SAMPLE

Lab Sample ID: LK71B
LIMS ID: 07-16422
Matrix: Sediment
Data Release Authorized:
Reported: 08/27/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/14/07
Date Received: 05/17/07

Date Extracted: 08/16/07
Date Analyzed: 08/22/07 20:22
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.1 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: 7.6
Percent Moisture: 58.8%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	0.99	< 0.99 U
76-44-8	Heptachlor	0.99	< 0.99 U
309-00-2	Aldrin	0.99	< 0.99 U
60-57-1	Dieldrin	2.0	< 2.0 U
72-55-9	4,4'-DDE	2.0	< 2.0 U
72-54-8	4,4'-DDD	2.0	< 2.0 U
50-29-3	4,4'-DDT	2.0	< 2.0 U
5103-71-9	alpha Chlordane	0.99	< 0.99 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	88.2%
Tetrachlorometaxylene	77.0%

ANALYTICAL RESOURCES INCORPORATED

SW8081 PESTICIDE SOLID SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Client ID	DCBP	TCMX	TOT OUT
MB-081607	91.8%	76.0%	0
LCS-081607	86.8%	74.2%	0
SRM SQ-1	90.5%	73.5%	0
13116000025	101%	63.2%	0
13116000025 MS	108%	68.5%	0
13116000025 MSD	108%	77.8%	0
13116000033	88.2%	77.0%	0

	LCS/MB LIMITS	QC LIMITS
(DCBP) = Decachlorobiphenyl	(69-121)	(52-137)
(TCMX) = Tetrachlorometaxylene	(60-101)	(48-121)

Prep Method: SW3550B
Log Number Range: 07-16421 to 07-16422

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
Page 1 of 1

Sample ID: 13116000025
MS/MSD

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/27/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted MS/MSD: 08/16/07

Date Analyzed MS: 08/22/07 19:33
MSD: 08/22/07 19:57
Instrument/Analyst MS: ECD4/YZ
MSD: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount MS: 25.4 g-dry-wt
MSD: 25.4 g-dry-wt
Final Extract Volume MS: 5.0 mL
MSD: 5.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Silica Gel: Yes
pH: 7.7
Percent Moisture: 54.7%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
gamma-BHC (Lindane)	< 2.50	4.84	3.94	123%	4.47	3.94	113%	7.9%
Heptachlor	< 0.985	2.62	3.94	66.5%	2.42	3.94	61.4%	7.9%
Aldrin	< 0.985	2.99	3.94	75.9%	2.56	3.94	65.0%	15.5%
Dieldrin	< 1.97	45.7	7.87	581%	8.36	7.88	106%	138%
4,4'-DDE	< 1.97	4.17	7.87	53.0%	8.22	7.88	104%	65.4%
4,4'-DDD	< 1.97	< 1.97	7.87	NA	7.63	7.88	96.8%	NA
4,4'-DDT	< 1.97	124	7.87	1580%	7.59	7.88	96.3%	177%
alpha Chlordane	< 0.985	3.37	3.94	85.5%	3.13	3.94	79.4%	7.4%

Reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
Page 1 of 1

Sample ID: 13116000025
MATRIX SPIKE

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/27/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/16/07
Date Analyzed: 08/22/07 19:33
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: 7.7
Percent Moisture: 54.7%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	0.98	---
76-44-8	Heptachlor	0.98	---
309-00-2	Aldrin	0.98	---
60-57-1	Dieldrin	2.0	---
72-55-9	4,4'-DDE	2.0	---
72-54-8	4,4'-DDD	2.0	---
50-29-3	4,4'-DDT	2.0	---
5103-71-9	alpha Chlordane	0.98	---

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	108%
Tetrachlorometaxylene	68.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
Page 1 of 1

Sample ID: 13116000025
MATRIX SPIKE DUP

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/27/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/16/07
Date Analyzed: 08/22/07 19:57
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: 7.7
Percent Moisture: 54.7%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	0.98	---
76-44-8	Heptachlor	0.98	---
309-00-2	Aldrin	0.98	---
60-57-1	Dieldrin	2.0	---
72-55-9	4,4'-DDE	2.0	---
72-54-8	4,4'-DDD	2.0	---
50-29-3	4,4'-DDT	2.0	---
5103-71-9	alpha Chlordane	0.98	---

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	108%
Tetrachlorometaxylene	77.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
Page 1 of 1

Sample ID: LCS-081607
LAB CONTROL

Lab Sample ID: LCS-081607
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/27/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/16/07
Date Analyzed: 08/22/07 17:06
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 25.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: NA
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
gamma-BHC (Lindane)	3.58	4.00	89.5%
Heptachlor	3.46	4.00	86.5%
Aldrin	3.50	4.00	87.5%
Dieldrin	7.04	8.00	88.0%
4,4'-DDE	7.04	8.00	88.0%
4,4'-DDD	6.96	8.00	87.0%
4,4'-DDT	6.92	8.00	86.5%
alpha Chlordane	3.44	4.00	86.0%

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	86.8%
Tetrachlorometaxylene	74.2%

Reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
Page 1 of 1

Sample ID: SRM SQ-1
STANDARD REFERENCE

Lab Sample ID: SRM SQ-1
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/27/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: NA
Date Received: NA

Date Extracted: 08/16/07
Date Analyzed: 08/22/07 18:44
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 24.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: NA
Percent Moisture: 40.2%

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	1.0	< 1.0 U
76-44-8	Heptachlor	1.0	< 1.0 U
309-00-2	Aldrin	1.0	< 1.0 U
60-57-1	Dieldrin	2.1	< 2.1 U
72-55-9	4,4'-DDE	2.1	< 2.1 U
72-54-8	4,4'-DDD	5.4	< 5.4 Y
50-29-3	4,4'-DDT	9.7	< 9.7 Y
5103-71-9	**alpha Chlordane**	**1.0**	**6.8**

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	90.5%
Tetrachlorometaxylene	73.5%

FORM 4
PESTICIDE METHOD BLANK SUMMARY

SAMPLE NO.

LK71MBS1

Lab Name: ANALYTICAL RESOURCES, INC Client: GEOMATRIX

ARI Job No.: LK71 Project: PORT OF EVERETT

Lab Sample ID: LK71MBS1 Lab File ID: 0822-14R

Matrix (soil/water) SOLID Extraction:(SepF/Cont/Sonc) SW3510C

Sulfur Cleanup (Y/N) Y Date Extracted: 08/16/07

Date Analyzed (1): 08/22/07 Date Analyzed (2): 08/22/07

Time Analyzed (1): 1641 Time Analyzed (2): 1641

Instrument ID (1): ECD4 Instrument ID (2): ECD4

GC Column (1): RTX-440 ID: 0.53(mm) GC Column (2): STX-CLP2 ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	LK71LCSS1	LK71LCSS1	08/22/07	08/22/07
02	SQ-1	LK71SRM1	08/22/07	08/22/07
03	13116000025	LK71A	08/22/07	08/22/07
04	13116000025	LK71AMS	08/22/07	08/22/07
05	13116000025	LK71AMSD	08/22/07	08/22/07
06	13116000033	LK71B	08/22/07	08/22/07

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA Pesticides/PCB by GC/ECD
Page 1 of 1

Sample ID: MB-081607
METHOD BLANK

Lab Sample ID: MB-081607
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/27/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett
Date Sampled: NA
Date Received: NA

Date Extracted: 08/16/07
Date Analyzed: 08/22/07 16:41
Instrument/Analyst: ECD4/YZ
GPC Cleanup: No
Sulfur Cleanup: Yes
Florisil Cleanup: No
Acid Cleanup: No

Sample Amount: 25.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: Yes
pH: NA
Percent Moisture: NA

CAS Number	Analyte	RL	Result
58-89-9	gamma-BHC (Lindane)	1.0	< 1.0 U
76-44-8	Heptachlor	1.0	< 1.0 U
309-00-2	Aldrin	1.0	< 1.0 U
60-57-1	Dieldrin	2.0	< 2.0 U
72-55-9	4,4'-DDE	2.0	< 2.0 U
72-54-8	4,4'-DDD	2.0	< 2.0 U
50-29-3	4,4'-DDT	2.0	< 2.0 U
5103-71-9	alpha Chlordane	1.0	< 1.0 U

Reported in µg/kg (ppb)

Pest/PCB Surrogate Recovery

Decachlorobiphenyl	91.8%
Tetrachlorometaxylene	76.0%

PCBS

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082

Sample ID: 13116000025
SAMPLE

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/28/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/17/07
Date Analyzed: 08/24/07 20:12
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.7
Percent Moisture: 54.7%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	< 16 U
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	Aroclor 1248	16	< 16 U
11097-69-1	**Aroclor 1254**	**16**	**2,500 E**
11096-82-5	**Aroclor 1260**	**16**	**2,400 E**
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	16	< 16 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	88.0%
Tetrachlorometaxylene	83.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000025
DILUTION

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/28/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/17/07
Date Analyzed: 08/27/07 11:48
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 50.0
Silica Gel: No
pH: 7.7
Percent Moisture: 54.7%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	820	< 820 U
53469-21-9	Aroclor 1242	820	< 820 U
12672-29-6	Aroclor 1248	820	< 820 U
11097-69-1	**Aroclor 1254**	**820**	**2,500**
11096-82-5	**Aroclor 1260**	**820**	**2,700**
11104-28-2	Aroclor 1221	820	< 820 U
11141-16-5	Aroclor 1232	820	< 820 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	D
Tetrachlorometaxylene	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000033
SAMPLE

Lab Sample ID: LK71B
LIMS ID: 07-16422
Matrix: Sediment
Data Release Authorized:
Reported: 08/28/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/14/07
Date Received: 05/17/07

Date Extracted: 08/17/07
Date Analyzed: 08/24/07 21:03
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.1 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.6
Percent Moisture: 58.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	17	< 17 U
53469-21-9	Aroclor 1242	17	< 17 U
12672-29-6	Aroclor 1248	21	< 21 Y
11097-69-1	**Aroclor 1254**	**17**	**57**
11096-82-5	**Aroclor 1260**	**17**	**74**
11104-28-2	Aroclor 1221	17	< 17 U
11141-16-5	Aroclor 1232	17	< 17 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	85.5%
Tetrachlorometaxylene	78.2%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOLIDS SURROGATE RECOVERY SUMMARY

Matrix: Sediment

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
MB-081707	107%	60-125	112%	60-120	0
LCS-081707	110%	60-125	101%	60-120	0
SRM SQ-1	102%	42-149	120%	47-127	0
13116000025	88.0%	42-149	83.0%	47-127	0
13116000025 DL	D	42-149	D	47-127	0
13116000025 MS	95.8%	42-149	84.0%	47-127	0
13116000025 MSD	94.0%	42-149	81.0%	47-127	0
13116000033	85.5%	42-149	78.2%	47-127	0

Prep Method: SW3550B
Log Number Range: 07-16421 to 07-16422

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000025
MS/MSD

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/28/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted MS/MSD: 08/17/07

Date Analyzed MS: 08/24/07 20:29
MSD: 08/24/07 20:46
Instrument/Analyst MS: ECD5/PK
MSD: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount MS: 30.4 g-dry-wt
MSD: 30.4 g-dry-wt
Final Extract Volume MS: 5.0 mL
MSD: 5.0 mL
Dilution Factor MS: 1.00
MSD: 1.00
Silica Gel: No
pH: 7.7
Percent Moisture: 54.7%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 16.5 U	77.0	82.3	93.6%	71.1	82.3	86.4%	8.0%
Aroclor 1260	2360 E	147	82.3	NA	136	82.3	NA	7.8%

Results reported in µg/kg (ppb)
NA-No recovery due to high concentration of analyte in original sample and/or calculated negative recovery.
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000025
MATRIX SPIKE

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/28/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/17/07
Date Analyzed: 08/24/07 20:29
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.7
Percent Moisture: 54.7%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	---
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	Aroclor 1248	16	< 16 U
11097-69-1	**Aroclor 1254**	**16**	**74**
11096-82-5	Aroclor 1260	16	---
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	16	< 16 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	95.8%
Tetrachlorometaxylene	84.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: 13116000025
MATRIX SPIKE DUP

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/28/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Date Extracted: 08/17/07
Date Analyzed: 08/24/07 20:46
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.4 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: 7.7
Percent Moisture: 54.7%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	16	---
53469-21-9	Aroclor 1242	16	< 16 U
12672-29-6	Aroclor 1248	16	< 16 U
11097-69-1	**Aroclor 1254**	**16**	**82**
11096-82-5	Aroclor 1260	16	---
11104-28-2	Aroclor 1221	16	< 16 U
11141-16-5	Aroclor 1232	16	< 16 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	94.0%
Tetrachlorometaxylene	81.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: LCS-081707
LAB CONTROL

Lab Sample ID: LCS-081707
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/28/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: NA
Date Received: NA

Date Extracted: 08/17/07
Date Analyzed: 08/24/07 19:37
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.0 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: NA
Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	65.1	83.3	78.2%
Aroclor 1260	90.9	83.3	109%

PCB Surrogate Recovery

Decachlorobiphenyl	110%
Tetrachlorometaxylene	101%

Results reported in µg/kg (ppb)

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: SRM SQ-1
STANDARD REFERENCE

Lab Sample ID: SRM SQ-1
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/28/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: NA
Date Received: NA

Date Extracted: 08/17/07
Date Analyzed: 08/24/07 19:55
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 17.9 g-dry-wt
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: NA
Percent Moisture: 40.2%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	28	< 28 U
53469-21-9	Aroclor 1242	28	< 28 U
12672-29-6	Aroclor 1248	28	< 28 U
11097-69-1	**Aroclor 1254**	**28**	**140**
11096-82-5	Aroclor 1260	28	< 28 U
11104-28-2	Aroclor 1221	28	< 28 U
11141-16-5	Aroclor 1232	28	< 28 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery	
Decachlorobiphenyl	102%
Tetrachlorometaxylene	120%

4

PCB METHOD BLANK SUMMARY

BLANK NO.

LK71MBS1

Lab Name: ANALYTICAL RESOURCES, INC

Client: GEOMATRIX, INC.

ARI Job No.: LK71

Project: PORT OF EVERETT

Lab Sample ID: LK71MBS1

Lab File ID: 0824B033

Date Extracted: 08/17/07

Matrix: SOLID

Date Analyzed: 08/24/07

Instrument ID: ECD5

Time Analyzed: 1920

GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	LK71LCSS1	LK71LCSS1	08/24/07
02	SQ-1	LK71SRM1	08/24/07
03	13116000025	LK71A	08/24/07
04	13116000025 MS	LK71AMS	08/24/07
05	13116000025 MSD	LK71AMSD	08/24/07
06	13116000033	LK71B	08/24/07
07	13116000025	LK71A	08/27/07

ALL RUNS ARE DUAL COLUMN

FORM IV PCB

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PCB by GC/ECD Method SW8082
Page 1 of 1

Sample ID: MB-081707
METHOD BLANK

Lab Sample ID: MB-081707
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/28/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: NA
Date Received: NA

Date Extracted: 08/17/07
Date Analyzed: 08/24/07 19:20
Instrument/Analyst: ECD5/PK
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 30.0 g
Final Extract Volume: 5.0 mL
Dilution Factor: 1.00
Silica Gel: No
pH: NA
Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	17	< 17 U
53469-21-9	Aroclor 1242	17	< 17 U
12672-29-6	Aroclor 1248	17	< 17 U
11097-69-1	Aroclor 1254	17	< 17 U
11096-82-5	Aroclor 1260	17	< 17 U
11104-28-2	Aroclor 1221	17	< 17 U
11141-16-5	Aroclor 1232	17	< 17 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	107%
Tetrachlorometaxylene	112%

METALS

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000025
SAMPLE

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/31/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

Percent Total Solids: 44.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	08/28/07	6010B	08/30/07	7440-36-0	Antimony	10	10	U
3050B	08/28/07	6010B	08/30/07	7440-38-2	Arsenic	10	40	
3050B	08/28/07	6010B	08/30/07	7440-43-9	Cadmium	0.4	1.5	
3050B	08/28/07	6010B	08/30/07	7440-47-3	Chromium	1	49	
3050B	08/28/07	6010B	08/30/07	7440-50-8	Copper	0.4	104	
3050B	08/28/07	6010B	08/30/07	7439-92-1	Lead	4	55	
CLP	08/21/07	7471A	08/27/07	7439-97-6	Mercury	0.08	0.37	
3050B	08/28/07	6010B	08/30/07	7440-02-0	Nickel	2	45	
3050B	08/21/07	7740	08/23/07	7782-49-2	Selenium	0.4	0.8	
3050B	08/28/07	6010B	08/30/07	7440-22-4	Silver	0.6	0.6	U
3050B	08/28/07	6010B	08/30/07	7440-66-6	Zinc	2	341	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000025
DUPLICATE

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/31/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Antimony	6010B	10 U	10 U	0.0%	+/- 10	L
Arsenic	6010B	40	30	28.6%	+/- 10	L
Cadmium	6010B	1.5	1.5	0.0%	+/- 0.4	L
Chromium	6010B	49	49	0.0%	+/- 20%	
Copper	6010B	104	96.3	7.7%	+/- 20%	
Lead	6010B	55	48	13.6%	+/- 20%	
Mercury	7471A	0.37	0.38	2.7%	+/- 0.08	L
Nickel	6010B	45	47	4.3%	+/- 20%	
Selenium	7740	0.8	0.6	28.6%	+/- 0.4	L
Silver	6010B	0.6 U	0.6 U	0.0%	+/- 0.6	L
Zinc	6010B	341	264	25.5%	+/- 20%	*

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000025
MATRIX SPIKE

Lab Sample ID: LK71A
LIMS ID: 07-16421
Matrix: Sediment
Data Release Authorized:
Reported: 08/31/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/09/07
Date Received: 05/17/07

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Antimony	6010B	10 U	80	430	18.6%	N
Arsenic	6010B	40	460	430	97.7%	
Cadmium	6010B	1.5	99.9	107	92.0%	
Chromium	6010B	49	153	107	97.2%	
Copper	6010B	104	222	107	110%	
Lead	6010B	55	457	430	93.5%	
Mercury	7471A	0.37	1.05	0.769	88.4%	
Nickel	6010B	45	144	107	92.5%	
Selenium	7740	0.8	17.2	20.7	79.2%	
Silver	6010B	0.6 U	106	107	99.1%	
Zinc	6010B	341	447	107	99.1%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: 13116000033
SAMPLE

Lab Sample ID: LK71B
LIMS ID: 07-16422
Matrix: Sediment
Data Release Authorized:
Reported: 08/31/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: 05/14/07
Date Received: 05/17/07

Percent Total Solids: 39.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	08/28/07	6010B	08/30/07	7440-36-0	Antimony	10	10	U
3050B	08/28/07	6010B	08/30/07	7440-38-2	Arsenic	10	10	
3050B	08/28/07	6010B	08/30/07	7440-43-9	Cadmium	0.5	2.1	
3050B	08/28/07	6010B	08/30/07	7440-47-3	Chromium	1	60	
3050B	08/28/07	6010B	08/30/07	7440-50-8	Copper	0.5	84.3	
3050B	08/28/07	6010B	08/30/07	7439-92-1	Lead	5	55	
CLP	08/21/07	7471A	08/27/07	7439-97-6	Mercury	0.1	0.3	
3050B	08/28/07	6010B	08/30/07	7440-02-0	Nickel	3	67	
3050B	08/21/07	7740	08/23/07	7782-49-2	Selenium	0.5	0.6	
3050B	08/28/07	6010B	08/30/07	7440-22-4	Silver	0.8	0.8	U
3050B	08/28/07	6010B	08/30/07	7440-66-6	Zinc	3	127	

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: METHOD BLANK

Lab Sample ID: LK71MB
LIMS ID: 07-16422
Matrix: Sediment
Data Release Authorized:
Reported: 08/31/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	RL	mg/kg-dry	Q
3050B	08/28/07	6010B	08/30/07	7440-36-0	Antimony	5	5	U
3050B	08/28/07	6010B	08/30/07	7440-38-2	Arsenic	5	5	U
3050B	08/28/07	6010B	08/30/07	7440-43-9	Cadmium	0.2	0.2	U
3050B	08/28/07	6010B	08/30/07	7440-47-3	Chromium	0.5	0.5	U
3050B	08/28/07	6010B	08/30/07	7440-50-8	Copper	0.2	0.2	U
3050B	08/28/07	6010B	08/30/07	7439-92-1	Lead	2	2	U
CLP	08/21/07	7471A	08/27/07	7439-97-6	Mercury	0.05	0.05	U
3050B	08/28/07	6010B	08/30/07	7440-02-0	Nickel	1	1	U
3050B	08/21/07	7740	08/23/07	7782-49-2	Selenium	0.2	0.2	U
3050B	08/28/07	6010B	08/30/07	7440-22-4	Silver	0.3	0.3	U
3050B	08/28/07	6010B	08/30/07	7440-66-6	Zinc	1	1	U

U-Analyte undetected at given RL
RL-Reporting Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: LAB CONTROL

Lab Sample ID: LK71LCS
LIMS ID: 07-16422
Matrix: Sediment
Data Release Authorized:
Reported: 08/31/07

QC Report No: LK71-Geomatrix, Inc.
Project: Port of Everett

Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Antimony	6010B	203	200	102%	
Arsenic	6010B	205	200	102%	
Cadmium	6010B	49.8	50.0	99.6%	
Chromium	6010B	49.9	50.0	99.8%	
Copper	6010B	51.9	50.0	104%	
Lead	6010B	201	200	100%	
Mercury	7471A	1.07	1.00	107%	
Nickel	6010B	50	50	100%	
Selenium	7740	10	10	100%	
Silver	6010B	50.6	50.0	101%	
Zinc	6010B	50	50	100%	

Reported in mg/kg-dry

N-Control limit not met
Control Limits: 80-120%

GENERAL CHEMISTRY

SAMPLE RESULTS-CONVENTIONALS
LK71-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 08/22/07

Project: Port of Everett
Event: NA
Date Sampled: 05/09/07
Date Received: 05/17/07

Client ID: 13116000025
ARI ID: 07-16421 LK71A

Analyte	Date	Method	Units	RL	Sample
Total Solids	08/13/07 081307#1	EPA 160.3	Percent	0.01	43.50
Total Organic Carbon	08/21/07 082107#1	Plumb,1981	Percent	0.020	3.93

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
LK71-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 08/22/07

Project: Port of Everett
Event: NA
Date Sampled: 05/14/07
Date Received: 05/17/07

Client ID: 13116000033
ARI ID: 07-16422 LK71B

Analyte	Date	Method	Units	RL	Sample
Total Solids	08/13/07 081307#1	EPA 160.3	Percent	0.01	41.50
Total Organic Carbon	08/21/07 082107#1	Plumb,1981	Percent	0.020	5.47

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
LK71-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 08/22/07

Project: Port of Everett
Event: NA
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	Blank
Total Solids	08/13/07	Percent	< 0.01 U
Total Organic Carbon	08/21/07	Percent	< 0.020 U

LAB CONTROL RESULTS-CONVENTIONALS
LK71-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 08/22/07

Project: Port of Everett
Event: NA
Date Sampled: NA
Date Received: NA

Analyte	Date	Units	LCS	Spike Added	Recovery
Total Organic Carbon	08/21/07	Percent	0.468	0.500	93.6%

STANDARD REFERENCE RESULTS-CONVENTIONALS
LK71-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 08/22/07

Project: Port of Everett
Event: NA
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Date	Units	SRM	True Value	Recovery
Total Organic Carbon NIST #8704	08/21/07	Percent	2.71	3.35	80.9%

REPLICATE RESULTS-CONVENTIONALS
LK71-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 08/22/07

Project: Port of Everett
Event: NA
Date Sampled: 05/09/07
Date Received: 05/17/07

Analyte	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: LK71A Client ID: 13116000025					
Total Solids	08/13/07	Percent	43.50	49.10 44.50	6.5%
Total Organic Carbon	08/21/07	Percent	3.93	3.73 4.16	5.5%

MS/MSD RESULTS-CONVENTIONALS
LK71-Geomatrix, Inc.

ANALYTICAL RESOURCES INCORPORATED

Matrix: Sediment
Data Release Authorized:
Reported: 08/22/07

Project: Port of Everett
Event: NA
Date Sampled: 05/09/07
Date Received: 05/17/07

Analyte	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: LK71A Client ID: 13116000025						
Total Organic Carbon	08/21/07	Percent	3.93	8.44	3.99	113.1%

TOTAL SOLIDS

Extractions Total Solids-extts
Data By: Warren P. Woodard
Created: 8/13/07

Worklist: 2705
Analyst: ALR
Comments:

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	LK71A 07-16421 13116000025	1.16	13.78	6.88	45.3	7.7
2.	LK71B 07-16422 13116000033	1.14	11.72	5.50	41.2	7.6

Solids Data Entry Report Checked by: ESR Date: 08/22/07
Date: 08/22/07 Data Analyst: DM

Solids Determination performed on 08/21/07 by DM

JOB	SAMPLE	CLIENTID	TAREWEIGHT	SAMPDISH	DRYWEIGHT	SOLIDS
LK71	A	13116000025	1.008	10.649	5.256	44.06
LK71	B	13116000033	1.036	10.370	4.692	39.17

Geomatrix

Appendix I

Data Validation Report

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Bothell, Washington 98011
(425) 820-7504
cari@saylerdata.com

Sayler Data Solutions, Inc.

DATA VALIDATION REPORT

Port of Everett, Former Mill A MTCA Support Sample Collection Data

Prepared for:
Geomatrix Consultants, Inc.
3500 188th Street SW, Ste 600
Lynnwood, WA 98037-4763

October 10, 2007

1.0 Introduction

Data validation was performed on laboratory data packages LA62/4475, LD21, and LK71. These packages included the following data:

Sample ID	Matrix	Sample Date	Lab ID	SVOC	Pest, PCB, & Metals	Dioxin/ Furan	TOC/ TS
13116000004	Sediment	05/07/07	LA62E	x			x
13116000006	Sediment	05/07/07	LA62F	x			x
13116000007	Sediment	05/07/07	4475-001-SA			x	
13116000010	Sediment	05/07/07	LA62G	x			x
13116000013	Sediment	05/07/07	4475-002-SA			x	
13116000014	Sediment	05/07/07	LA62H	x			x
13116000015	Sediment	05/07/07	LA62I	x			x
13116000019	Sediment	05/08/07	4475-003-SA			x	
13116000021	Sediment	05/08/07	LA62J	x			x
13116000023	Sediment	05/08/07	LA62K	x			x
13116000025	Sediment	05/09/07	LK71A	x	x		x
13116000027	Sediment	05/11/07	LA62L	x			x
13116000029	Sediment	05/11/07	LA62M	x			x
13116000031	Sediment	05/11/07	LA62N	x			x
13116000033	Sediment	05/14/07	LK71B	x	x		x
13116000037	Sediment	05/14/07	4475-004-SA			x	
13116000038	Sediment	05/14/07	LA62O	x			x
13116000100	Sediment	05/15/07	LD21A	x	x		x
13116000101	Sediment	05/15/07	LD21B	x	x		x
13116000102	Sediment	05/15/07	LD21C	x	x		x
13116000103	Sediment	05/15/07	LD21D	x	x		x
13116000104	Sediment	05/15/07	LD21E	x	x		x
13116000105	Sediment	05/15/07	LD21F	x	x		x
13116000106	Sediment	05/15/07	LD21G	x	x		x
13116000107	Sediment	05/15/07	LD21H	x	x		x
13116000108	Sediment	05/15/07	LD21I	x	x		x

Validation: A summary validation was performed for these analyses. Validation was performed by Cari Sayler. Data qualifiers are summarized in section 8.0 of this report.

Requested analyses: The QAPP specifies the following methods:

Analysis	Method
Semivolatile Organic Compounds (SVOCs)	8270D
Pesticide	8081/PSEP
Polychlorinated Biphenyls (PCBs)	8082
Dioxin/Furan	1613B
Metals	6010/7471A/7740
Total Organic Carbon (TOC)	Lab SOP 602S
Total Solids (TS)	Lab SOP 639S

QAPP specified methods were utilized with the following exception: Initial semivolatile analyses was performed by GCMS SIM to achieve lower reporting limits. Remaining semivolatile analyses were performed by EPA method 8270D with PSDDA guidelines.

Dioxin/Furan analyses were performed by Frontier Analytical in El Dorado California. All other analyses were performed by Analytical Resources, Inc. in Tukwila, Washington.

Sample chain of custodies and additional analysis request emails were reviewed. All requested analyses were performed.

Sample number transcription: Sample IDs in the electronic data deliverable (EDD) were compared to the chain of custody for each sample and field duplicate. All sample IDs matched the chain of custody.

2.0 Semivolatile Organic Analyses

Laboratory quality control analysis frequencies: The method specifies that the following quality control samples be analyzed one per analytical batch or one per twenty samples, whichever is more frequent: Method blank, laboratory control sample (LCS), matrix spike (MS), and either matrix spike duplicate (MSD) or laboratory duplicate. In addition, surrogate compounds must be measured in each field and quality control sample.

Each batch included a method blank, LCS, MS, MSD, and appropriate surrogates. Additionally, RRM SQ-1 was analyzed with each batch.

Holding times: Refrigerated sediment samples must be extracted within 14 days of collection. Frozen sediment samples must be extracted within one year of collection. Extracts must be analyzed within 40 days of extraction. All samples were extracted and analyzed within holding time.

Instrument calibration: Functional guidelines criteria for calibrations include minimum response factors of 0.05, initial calibration maximum relative standard deviations (RSDs) of 30%, and continuing calibration maximum % differences of ±25%. These criteria were met with the following exceptions:

Standard	Analyte	Result
6/13/07 Initial Calibration	Benzoic Acid	38.5% RSD
6/14/07 Continuing Calibration	Pentachlorophenol	-39.8 % Difference

Standard	Analyte	Result
6/15/07 Continuing Calibration	Benzoic Acid	43.4 % Difference
6/19/07 Continuing Calibration	Benzoic Acid	43.0 % Difference

Associated positive and negative results for benzoic acid are qualified as estimated. Associated results for pentachlorophenol are not detected and are considered unaffected.

Laboratory blank results: Laboratory performance criteria for method blanks are that analyte concentrations must be below the RL, or below 5% of the lowest associated sample concentration. The following analytes were detected in the method blanks:

Blank ID	Analyte	Blank Concentration (ug/Kg)	RL
07-10243-LA62MB	Phenol	6.2	6.2
07-10243-LA62MB	Diethylphthalate	5 J	6.2
07-10243-LA62MB	Di-n-Butylphthalate	10	6.2
07-10243-LA62MB	Bis(2-ethylhexyl)phthalate	6.2	6.2

Positive sample results with concentrations below five times the associated blank concentration are qualified "U" and should be considered not detected at the reported level. Positive sample results with concentrations between five and ten times the associated blank concentration are qualified as estimated. Positive sample results with concentrations above ten times the associated blank concentration are considered unaffected.

Surrogate recoveries: Surrogates were not recovered or were outside of limits in samples 13116000006RE, 13116000010DL, 13116000010RE, 13116000023DL 13116000031RE , and 13116000038DL due to dilution. No qualifiers are necessary.

Remaining surrogate recoveries were within the QAPP specified limits of 40-140% with the following exceptions:

Sample ID	Surrogate	Recovery (%)	Laboratory Control Limit
13116000004	d14-p-Terphenyl	25.2	30.0 – 160
13116000004DL	d14-p-Terphenyl	22.0	30.0 – 160
13116000006	d5-Nitrobenzene	12.0	30.0 – 160
13116000010	d5-Nitrobenzene	259	30.0 – 160
13116000015	d5-Nitrobenzene	32.0	30.0 – 160
13116000015	d14-p-Terphenyl	34.4	30.0 – 160
13116000015DL	d14-p-Terphenyl	31.2	30.0 – 160
13116000021	2,4,6-Tribromophenol	34.9	30.0 – 160
13116000021	d14-p-Terphenyl	20.8	30.0 – 160
13116000021DL	d14-p-Terphenyl	22.0	30.0 - 160
13116000029	2-Fluorobiphenyl	31.6	30.0 - 160
13116000029	d14-p-Terphenyl	29.2	30.0 - 160
13116000029DL	d14-p-Terphenyl	24.0	30.0 - 160

In instances where three of the four acid and three of the four base-neutral surrogates are within limits, functional guidelines criteria are met and no qualifiers are assigned. Base neutral compounds in samples 13116000015 and 13116000029 are qualified as estimated.

LCS recoveries: LCS and LCSD recoveries were within the QAPP specified limits of 50-130% with the following exceptions:

QC ID	Analyte	Recovery (%)	Laboratory Control Limit
07-10243-LA62LCS	Benzyl Alcohol	45.1	30.0 - 160

Benzyl alcohol is qualified as estimated in the associated samples.

RRM recoveries: RRM results were within 2 standard deviations of the average detected concentration with the following exceptions:

QC ID	Analyte	Result (ug/kg)	Average	Standard Deviation
07-10243-LA62SRM	Fluorene	47	98	23.65
07-10243-LA62SRM	Acenaphthene	42	95	23.09

These results are only slightly low, and these analytes are within limits in the LCS. No qualifiers are assigned.

MS recoveries: Native concentrations of Acenaphthene and Pyrene in 13116000038 exceeded 4 times the spike amount, and control limits do not apply.

Remaining MS and MSD recoveries were within the QAPP specified limits of 45-135% with the following exceptions:

QC ID	Analyte	Recovery (%)	Laboratory Control Limit
13116000025MS	Acenaphthene	43.1	25.0 - 96.0
13116000025MS	Benzo(g,h,i)perylene	15.1	30.0 - 160
13116000025MSD	Benzo(g,h,i)perylene	18.3	30.0 - 160
13116000025MS	Pyrene	-12.5	21.0 - 96.0
13116000025MSD	Pyrene	10.1	21.0 - 96.0
13116000038MS	1,2,4-Trichlorobenzene	42.5	30.0 - 160
13116000038MS	1,4-Dichlorobenzene	40.9	30.0 - 160
13116000038MS	Benzo(g,h,i)perylene	-59.6	30.0 - 160
13116000038MSD	Benzo(g,h,i)perylene	43.4	30.0 - 160
13116000038MS	Phenol	36.2	30.0 - 160
13116000038MSD	Phenol	44.5	30.0 - 160

Results for these analytes in the native sample are qualified as estimated.

MS/MSD RPDs: MS/MSD RPDs were below the QAPP limit of 50% with the following exceptions:

QC ID	Analyte	RPD	Laboratory Control Limit
13116000038MS/MSD	Benzo(g,h,i)perylene	111	30
13116000038MS/MSD	Acenaphthene	50.3	30

Results for these analytes in the native sample are qualified as estimated.

Field Duplicates: Criteria for field duplicate include maximum RPDs of 60% for analyte with concentrations above 5 times the RL and maximum absolute differences of +/- 2 x the reporting limit (RL) for analytes with concentrations below 5 times the RL. Field duplicate results were within these criteria with the following exceptions:

FD ID	Analyte	FD Result (ug/kg)	Sample Result (ug/kg)	Exceedance
13116000101 / 13116000100	Dimethylphthalate	65	20 U	Diff = 3.2 x RL

FD ID	Analyte	FD Result (ug/kg)	Sample Result (ug/kg)	Exceedance
13116000101 / 13116000100	Fluoranthene	170	330	RPD = 64.0

Results for dimethylphthalate and fluoranthene in the sample and field duplicate are qualified as estimated.

Multiple reported results: Samples were reanalyzed due to compounds exceeding the calibration range, low surrogate recoveries, internal standards outside of limits, and calibrations outside of criteria.

Unless quality control results warrant the rejection of one result, multiple reported results are evaluated according to the following guidelines

(1) If both results are non-detects, the lower reporting limit was selected.
(2) If one result was not detected and the other detected, the detection was selected.
(3) If both results were detections, the following additional criteria were applied:
    (a) If one result was off-scale and one was on-scale, the on-scale result was selected.
    (b) If associated QC results indicated high bias, the lower concentration result was selected.
    (c) If associated QC results indicated no, low, or mixed biases, the higher concentration result was selected.

This approach is conservative, and is considered most protective of the environment. The results not selected as the best result to report are qualified R1, rejected due to the availability of better results.

Laboratory narrative and qualifiers: The laboratory narratives states that internal standard areas were outside control limits in the initial analysis of samples 13116000006, 13116000010, 13116000031, 13116000100, 13116000101, 13116000102, 13116000103, 13116000104, 13116000105, 13116000106, 13116000107, and 13116000108. Analytes associated with the failing internal standards are qualified as estimated.

Various results are flagged M to indicate poor spectral match. The corresponding validation qualifier, “N” is assigned.

Various results are flagged Y to indicate elevated reporting limits. These results are qualified “UY” to clarify that the analyte was not detected.

Reporting limits: Reporting limits in the following analyses exceeded the project goals:

Client ID	Analyte	Reason	Exceedance factor
13116000025DL	All Non-detects	Dilution	3
13116000004	All Non-detects	Smaller sample size	1.2
13116000006	N-Nitrosodiphenylamine	Interference	3.55
13116000010	N-Nitrosodiphenylamine	Interference	9
13116000029	All Non-detects	Smaller sample size	1.4

Client ID	Analyte	Reason	Exceedance factor
13116000031DL	N-Nitrosodiphenylamine	Interference	50
13116000038	N-Nitrosodiphenylamine	Interference	2.1

Although some of these elevated detection limits exceed SMS criteria, each sample has other exceedances and impact is considered minimal. Qualifiers are not added on the basis of elevated reporting limits.

Overall assessment: Documentation was found to be clear and complete. Multiple reported results were reduced to the most appropriate to report. Low level blank contamination resulted in some elevated detection limits and estimated concentrations. Instrument calibration, internal standard areas, surrogate recoveries, LCS recoveries and MS recoveries, as well as MS/MSD and Field duplicate variability resulted in estimated concentrations.

Semivolatile organic data, as qualified, are acceptable for use.

3.0 Pesticide Analyses

Quality control analysis frequencies: The method specifies that the following quality control samples be analyzed one per analytical batch or one per twenty samples, whichever is more frequent: method blank, laboratory control sample (LCS), matrix spike (MS), and either MS duplicate (MSD) or laboratory duplicate. In addition, surrogate compounds must be measured in each field and quality control sample.

Each batch included a method blank, LCS, MS, MSD, and appropriate surrogates. Additionally, RRM SQ-1 was analyzed with each batch and an LCSD was analyzed with batch LD21.

Holding times: Refrigerated sediment samples must be extracted within 14 days of collection. Frozen sediment samples must be extracted within 1 year of collection. Extracts must be analyzed within 40 days of extraction. These holding times were met.

Instrument calibration: Data usability criteria for calibrations include minimum correlation coefficients of 0.990 or maximum RSDs of ±20% for each initial calibration, and maximum % differences of ±25% for each continuing calibration. All initial calibration compound RSDs were within 20%. Continuing calibration % differences were within ±25%.

Laboratory blank results: Criteria for blanks are that analyte concentrations must be below the RL, or below 5% of the lowest associated sample concentration. These criteria were met.

Surrogate recoveries: Surrogate recoveries were within the QAPP specified limits of 40-140%.

LCS recoveries: LCS recoveries were within the QAPP specified limits of 50-130%.

RRM recoveries: RRM results were within 2 standard deviations of the average detected concentration with the following exceptions:

QC ID	Analyte	Result (ug/kg)	Average	Standard Deviation
07-11961-LD21SRM	Alpha Chlordane	6.5	4	1.10
07-16421-LK71SRM	Alpha Chlordane	6.8	4	1.10

These results represent 77% and 80% recoveries. No qualifiers are assigned.

MS recoveries: Spike recoveries were within limits QAPP specified limits of 40-140% with the following exceptions:

QC ID	Analyte	Recovery (%)	Laboratory Control Limit
13116000025MS	gamma-BHC (Lindane)	123	39.0 - 91.0
13116000025MS	Dieldrin	581	39.0 - 129
13116000025MS	4,4'-DDD	NA	30.0 - 160
13116000025MS	4,4'-DDT	1580	23.0 - 163
13116000025MSD	gamma-BHC (Lindane)	113	39.0 - 91.0

According to the laboratory narrative, these recoveries were affected by interferences from PCBs. These compounds were not detected in the associated samples, and no qualifiers are required.

MS/MSD RPDs: RPDs were within laboratory and QAPP specified limits of 50%.with the following exceptions:

QC ID	Analyte	RPD	Laboratory Control Limit
13116000025MSD	Dieldrin	138	30
13116000025MSD	4,4'-DDE	65.4	30
13116000025MSD	4,4'-DDT	177	30

According to the laboratory narrative, these results were affected by interferences from PCBs. These compounds were not detected in the associated samples, and no qualifiers are required.

Field duplicate RPDs: No pesticides were detected in the field duplicate or its associated sample, and could not be evaluated.

Multiple reported results: No multiple results were reported with this analysis.

Laboratory qualifiers and narrative: Various results are flagged Y to indicate elevated reporting limits. These results are qualified “UY” to clarify that the aroclor was not detected.

Reporting limits: Reporting limits in the following analysis exceeded the project goals:

Client ID	Analyte	Reason	Exceedance factor
13116000025	gamma-BHC (Lindane)	Interference	2.5
13116000100	All Non-detects	Dilution	2
13116000102	All Non-detects	Dilution	2
13116000103	All Non-detects	Dilution	2
13116000104	All Non-detects	Dilution	2
13116000105	All Non-detects	Dilution	2

13116000107	All Non-detects	Dilution	2

Qualifiers are not added on the basis of elevated reporting limits.

Overall assessment: Documentation was found to be clear and complete. Calibration data demonstrate acceptable instrument performance. Quality control results indicate acceptable accuracy and precision.

PCB data, as qualified, are acceptable for use.

4.0 PCB Analyses

Quality control analysis frequencies: The method specifies that the following quality control samples be analyzed one per analytical batch or one per twenty samples, whichever is more frequent: method blank, laboratory control sample (LCS), matrix spike (MS), and either MS duplicate (MSD) or laboratory duplicate. In addition, surrogate compounds must be measured in each field and quality control sample.

Each batch included a method blank, LCS, MS, MSD, and appropriate surrogates. Additionally, RRM SQ-1 was analyzed with each batch.

Holding times: Refrigerated sediment samples must be extracted within 14 days of collection. Frozen sediment samples must be extracted within 1 year of collection. Extracts must be analyzed within 40 days of extraction. These holding times were met.

Instrument calibration: Data usability criteria for calibrations include minimum correlation coefficients of 0.990 or maximum RSDs of ±20% for each initial calibration, and maximum % differences of ±25% for each continuing calibration. All initial calibration compound RSDs were within 20%. Continuing calibration % differences were within ±25%.

Laboratory blank results: Criteria for blanks are that analyte concentrations must be below the RL, or below 5% of the lowest associated sample concentration. These criteria were met.

Surrogate recoveries: Surrogates were not recovered or were outside of limits in sample 13116000025 due to dilution. No qualifiers are necessary.

Remaining surrogate recoveries were within the QAPP specified limits of 40-140%.

LCS recoveries: LCS recoveries were within the QAPP specified limits of 50-130%.

RRM recoveries: RRM recoveries were from 76.5% and 82.4% and were well within the advisory limits of 19-112%.

MS recoveries: The native concentration of aroclor 1260 exceeded 4 times the spike amount in 13116000025 MS and MSD, and control limits do not apply. Matrix effects on accuracy could not be evaluated for aroclor 1260 in these samples.

All of the remaining spike recoveries were within the QAPP specified limits of 40-140%.

MS/MSD RPDs: All RPDs were within laboratory and QAPP specified limit of 50%.

Field duplicate RPDs: The RPD for one detected aroclor was within the QAPP specified limit of 60%.

Multiple reported results: One sample was reanalyzed due to compounds exceeding the calibration range. Multiple reported results are evaluated according to the guidelines listed in section 2.0.

Laboratory qualifiers: Various results are flagged Y to indicate elevated reporting limits. These results are qualified "UY" to clarify that the aroclor was not detected.

Reporting limits: The RLs were at or below the QAPP specified 40 ug/Kg for all non-detect results selected as the best to report.

Overall assessment: Documentation was found to be clear and complete. Calibration data demonstrate acceptable instrument performance. Multiple analysis results were reduced to the most reliable value. Quality control results indicate acceptable accuracy and precision.

PCB data, as qualified, are acceptable for use.

5.0 Dioxin/Furan Analyses

Quality control analysis frequencies: The method specifies that method blank and ongoing precision and recovery (OPR) samples must be analyzed with each batch. In addition, carbon-13 labeled isotope dilution standards and a chlorine-37 labeled cleanup standard must be measured in each field and quality control sample.

A method blank and OPR sample was analyzed. Appropriate isotope dilution and cleanup standards were included.

Analysis holding times: Method 1613B specifies a 40 day holding time between extraction and analysis, but does not specify a holding time from sampling to extraction for sediments. The PSEP holding time for organic extraction is 14 days for refrigerated sediment samples and one year for frozen sediment samples. All samples were extracted and analyzed within these holding times.

Instrument calibration: Initial calibration criteria include maximum percent relative standard deviations (%RSD) of less than or equal to 20% for unlabeled compounds with an isotopically labeled analog and less than or equal to 35% for 1,2,3,7,8,9-HxCDD, OCDF, and labeled compounds. Continuing calibration criteria include maximum percent differences (%D) between the initial calibration and the continuing calibration of less than or equal to 20% for unlabeled compounds with an isotopically labeled analog and less than or equal to 35% for 1,2,3,7,8,9-HxCDD, OCDF, and labeled compounds. These criteria were met.

Laboratory blank results: Criteria for method blanks are that analyte concentrations must be below the PQL, or below 5% of the lowest associated sample concentration. No target analytes were detected in the method blank.

C_{13} labeled isotope dilution standard recoveries: Isotope dilution standard recoveries were within laboratory and QAPP control limits.

Cl_{37} labeled cleanup standard recoveries: Cleanup standard recoveries were within laboratory and QAPP control limits.

OPR recoveries: OPR recoveries were within laboratory and QAPP control limits.

Field Duplicates: Field duplicates were not submitted for dioxin analysis.

Multiple reported results: No multiple results were reported with this analysis.

Laboratory qualifiers: Several results are flagged J by the laboratory indicating a concentration below the calibration range. These results are qualified as estimated.

Several results are flagged DM by the laboratory indicating the presence of diphenyl ethers and a maximum possible concentration. These results are qualified as estimated.

Overall assessment: Instrument calibration information was not included in the original report. Information was requested and submitted. Remaining documentation was found to be clear and complete. Calibration data demonstrate acceptable instrument performance. Quality control results indicate acceptable accuracy. Concentrations below the calibration range and interferences resulted in some estimated concentrations.

Dioxin and furan data, as qualified, are acceptable for use.

6.0 Metals Analyses

Quality control analysis frequencies: The methods specify that the following quality control samples be analyzed one per analytical batch or one per twenty samples, whichever is more frequent: method blank, LCS, MS and either MSD or laboratory duplicate.

A method blank, MS, LCS, and laboratory duplicate were analyzed with each batch. Additionally, SRM ERA D044540 was analyzed with batch LD21.

Holding times: Refrigerated ICP and GFAA metals samples must be analyzed within 6 months of collection. Frozen ICP and GFAA metals samples must be analyzed within 2 years of collection. Refrigerated and frozen Mercury samples must be analyzed within 28 days of collection. Samples were prepared and analyzed within the holding time with the following exceptions:

Sample ID	Analyte	Days, Sample to Analysis
13116000108	Mercury	31
13116000106	Mercury	31
13116000107	Mercury	31

13116000104	Mercury	31
13116000025	Mercury	110
13116000033	Mercury	105
13116000100	Mercury	31
13116000101	Mercury	31
13116000103	Mercury	31
13116000105	Mercury	31
13116000102	Mercury	31

Mercury results in samples 13116000025 and 13116000033 are rejected as unusable. The remaining mercury results with exceeded holding times are qualified as estimated.

Instrument calibration: Functional guidelines criterion for calibration verifications is a maximum % difference of ±10% for ICP metals and ±20% for mercury. Functional guidelines criterion for detection limit standard recovery is 70-130%. All instrument calibration criteria were met.

Laboratory blank results: Criteria for calibration and method blanks are that analyte concentrations must be below the PQL, or below 5% of the lowest associated sample concentration. These criteria were met.

LCS results: LCS recoveries were within laboratory and project limits.

SRM results: SRM results with within the certified range.

MS recoveries: MS recoveries were within the laboratory and project limits with the following exceptions:

QC ID	Analyte	Recovery (%)	Laboratory Control Limit
13116000100MS	Antimony	21.0	75 - 125
13116000025MS	Antimony	18.6	75 - 125

These recoveries are also below the function guidelines action level or 40%. Antimony results in all samples are rejected as unusable.

Laboratory duplicate RPDs: Laboratory duplicate RPDs were within the QAPP limit of 20% with the following exceptions.

QC ID	Analyte	RPD	Laboratory Control Limit
13116000025LR	Arsenic	28.6	20
13116000025LR	Zinc	25.5	20
13116000025LR	Selenium	28.6	20

These results are qualified as estimated in the associated sample.

Field duplicate RPDs: The RPDs for detected metals were within the QAPP specified limit of 20%.

Multiple reported results: No multiple results were reported with this analysis.

Reporting limits: Reporting limits in the following analysis exceeded the project goals:

Client ID	Analyte	RL	Exceedance factor
13116000025	Silver	0.6	2
13116000033	Silver	0.8	2.67
13116000100	Arsenic	7	1.4
13116000100	Cadmium	0.3	1.5
13116000100	Silver	0.4	1.33
13116000100	Selenium	0.3	1.5
13116000102	Silver	0.6	2
13116000102	Selenium	0.4	2
13116000103	Arsenic	9	1.8
13116000103	Silver	0.6	2
13116000103	Selenium	0.4	2
13116000104	Silver	0.6	2
13116000105	Silver	0.6	2
13116000106	Arsenic	10	2
13116000106	Silver	0.6	2
13116000106	Selenium	0.4	2
13116000107	Arsenic	9	1.8
13116000107	Silver	0.6	2
13116000108	Arsenic	6	1.2
13116000108	Silver	0.4	1.33

However, each of these results is below the SMS level. Qualifiers are not added on the basis of elevated reporting limits.

Overall assessment: Documentation was found to be clear and complete. Missed mercury holding times resulted in estimated concentrations and two rejected results. Very low spike recoveries resulted in rejected antimony detection limits. Laboratory duplicate variability resulted in some estimated arsenic, selenium, and zinc concentrations. Quality control results demonstrate acceptable levels of accuracy and precision for remaining results.

With the exception of rejected mercury and antimony data, metals data, as qualified, are acceptable for use.

7.0 General Chemistry Analyses

Quality control analysis frequencies: For TOC, PSDDA guidelines specifies that the following quality control samples be analyzed one per analytical batch or one per twenty samples, whichever is more frequent: method blank and laboratory triplicate. In addition, one SRM per major survey is recommended.

For total solids, PSDDA guidelines specifies that a laboratory triplicate be analyzed one per analytical batch or one per twenty samples, whichever is more frequent.

For TOC, each batch included a method blank, LCS, and SRM NIST #8704. Three of the four batches also included a MS and laboratory triplicate. No qualifiers are assigned based on the missing laboratory triplicate.

For TS, each batch included a method blank and laboratory triplicate.

Holding times: Samples were stored frozen and were analyzed within the 180 day holding time.

Instrument calibration: Calibration verification standard recovery values were within the 90-110% criterion for TOC and standard weights were accurate to .001 grams for total solids.

Laboratory blank results: Criteria for method blanks are that analyte concentrations must be below the PQL, or below 10% of the lowest associated sample concentration. This criterion was met.

LCS recoveries: LCS recoveries for TOC were within the QAPP limit of 80-120%.

SRM recoveries: SRM recoveries for TOC were within the QAPP limit of 80-120%.

MS recoveries: The MS recovery for TOC was within the 75-125% limit.

Laboratory triplicate results: The RSDs were within the QAPP limits of 20%.

Field Duplicates: The field duplicate RPD for total solids was within the 20% QAPP limit. The field duplicate RPD for TOC exceeded the 20% QAPP limit as follows:

FD ID	Analyte	FD Result (%)	Sample Result (%)	RPD
13116000101 / 13116000100	Total Organic Carbon	1.14	1.45	23.9

The TOC result for the sample and field duplicate are qualified as estimated.

Reporting limits: TOC and TS were detected in each sample and reporting limit evaluation was not necessary.

Overall assessment: Documentation was found to be clear and complete. Quality control results demonstrate acceptable levels of accuracy and precision.

General chemistry data, as qualified, are acceptable for use.

8.0 Qualifier Summary Table

Sample ID	Analyte	Qualifier	Reason
Semivolatile Organic Analyses			
13116000004	Benzoic Acid	J	High initial calibration RSD
13116000004	2-Methylnaphthalene, 4-Methylphenol, Acenaphthene, Acenaphthylene, Butylbenzylphthalate, Dibenzofuran, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, Phenol	R1	Another result available
13116000004	Benzyl Alcohol	UJ	Low LCS recovery
13116000004	Bis(2-ethylhexyl)phthalate, Di-n-Butylphthalate	J	Blank contamination
13116000004 DL	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, 2-Methylphenol, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Benzoic Acid, Benzyl Alcohol, Bis(2-eth	R1	Another result available

Sample ID	Analyte	Qualifier	Reason
13116000006	1,2,4-Trichlorobenzene, Hexachlorobutadiene	UJ	IS out
13116000006	N-Nitrosodiphenylamine	UY	Clarification of Y flag
13116000006	Bis(2-ethylhexyl)phthalate, Phenol	U	Blank contamination
13116000006	All except 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, 2-Methylnaphthalene, 2-Methylphenol, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene,	R1	Another result available
13116000006	Benzyl Alcohol	J	Low LCS recovery
13116000006	2,4-Dimethylphenol	J	IS out
13116000006	Benzoic Acid	J	High initial calibration RSD
13116000006 DL	All except 4-Methylphenol, Pyrene	R1	Another result available
13116000010	Bis(2-ethylhexyl)phthalate	J	Blank contamination
13116000010	Benzoic Acid	J	Exceeded calibration range, high initial calibration RSD
13116000010	1,2,4-Trichlorobenzene, Di-n-Butylphthalate, Hexachlorobenzene, Hexachlorobutadiene	J	IS out
13116000010	Benzyl Alcohol	J	Low LCS recovery
13116000010	All except 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, 2-Methylnaphthalene, 2-Methylphenol, Acenaphthene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Benzoic Acid, B	R1	Another result available
13116000010	Diethylphthalate	U	Blank contamination
13116000010	N-Nitrosodiphenylamine	UJY	Clarification of Y flag, IS out
13116000010 DL	All except 4-Methylphenol, Acenaphthylene, Benzo(b)fluoranthene, Dibenz(a,h)Anthracene	R1	Another result available
13116000014	Benzoic Acid	UJ	High initial calibration RSD
13116000014	Diethylphthalate, Di-n-Butylphthalate	U	Blank contamination
13116000014	2,4-Dimethylphenol, 2-Methylnaphthalene, 2-Methylphenol, 4-Methylphenol, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Bis(2-ethylhexyl)phthalate, Butylbenzylphthalate, Chrysene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Phenol	R1	Another result available
13116000014	Benzyl Alcohol	J	Low LCS recovery
13116000014 DL	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)pyrene, Benzo(k)fluoranthene, Benzoic Acid, Benzyl Alcohol, Dibenz(a,h)Anthracene, Dibenzofuran, Diethylphthalate, Dimethylphthalate, Di-n-	R1	Another result available
13116000014 DL	Bis(2-ethylhexyl)phthalate	U	Blank contamination
13116000015	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, Dimethylphthalate, Di-n-Octyl phthalate, Hexachlorobenzene, Hexachlorobutadiene, N-Nitrosodiphenylamine	UJ	Low surrogate recovery
13116000015	Benzyl Alcohol	J	Low LCS recovery
13116000015	Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Butylbenzylphthalate, Chrysene, Dibenz(a,h)Anthracene, Pyrene	J	Low surrogate recovery
13116000015	2,4-Dimethylphenol, 2-Methylnaphthalene, 2-Methylphenol, 4-Methylphenol, Acenaphthylene, Anthracene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Dibenzofuran, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Phenol	R1	Another result available
13116000015	Bis(2-ethylhexyl)phthalate, Diethylphthalate, Di-n-Butylphthalate	UJ	Blank contamination, Low surrogate recovery

Sample ID	Analyte	Qualifier	Reason
13116000015	Benzoic Acid	UJ	High initial calibration RSD
13116000015 DL	Phenol	J	Blank contamination
13116000015 DL	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzoic Acid, Benzyl Alcohol, Bis(2-ethylhexyl)phthalate, Butylbenzylphthalate, Chrysene, Dibenz(a,h)Anthracene, Diet	R1	Another result available
13116000021	Benzoic Acid	J	High initial calibration RSD
13116000021	Benzyl Alcohol	J	Low LCS recovery
13116000021	2-Methylnaphthalene, 2-Methylphenol, 4-Methylphenol, Acenaphthene, Butylbenzylphthalate, Dibenzofuran, Fluoranthene, Naphthalene, Phenanthrene, Phenol, Pyrene	R1	Another result available
13116000021	Bis(2-ethylhexyl)phthalate, Di-n-Butylphthalate	U	Blank contamination
13116000021 DL	Phenol	J	Blank contamination
13116000021 DL	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Benzoic Acid, Benzyl Alcohol, Bis(2-eth	R1	Another result available
13116000023	Benzoic Acid	J	High initial calibration RSD
13116000023	Benzyl Alcohol	UJ	Low LCS recovery
13116000023	Bis(2-ethylhexyl)phthalate, Diethylphthalate, Di-n-Butylphthalate	U	Blank contamination
13116000023	Phenol	J	Blank contamination
13116000023	4-Methylphenol, Fluoranthene, Naphthalene, Phenanthrene	R1	Another result available
13116000023 DL	All except 4-Methylphenol, Fluoranthene, Naphthalene, Phenanthrene	R1	Another result available
13116000025	Acenaphthene	J	Low MS recovery
13116000025	Benzo(a)anthracene, Benzo(g,h,i)perylene, Chrysene, Di-n-Butylphthalate, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene	R1	Another result available
13116000025 DL	Benzo(g,h,i)perylene, Pyrene	J	Low MS and MSD recoveries
13116000025 DL	Di-n-Butylphthalate	N	Poor spectral match
13116000025 DL	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, 2-Methylnaphthalene, 2-Methylphenol, 4-Methylphenol, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzoic Acid,	R1	Another result available
13116000027	Benzoic Acid	J	High initial calibration RSD
13116000027	Benzyl Alcohol	J	Low LCS recovery
13116000027	2,4-Dimethylphenol, 2-Methylnaphthalene, 4-Methylphenol, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Butylbenzylphthalate, Chry	R1	Another result available
13116000027 DL	Di-n-Butylphthalate, Phenol	J	Blank contamination
13116000027 DL	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2-Methylphenol, Benzoic Acid, Benzyl Alcohol, Dibenz(a,h)Anthracene, Diethylphthalate, Dimethylphthalate, Di-n-Octyl phthalate, Hexachlorobenzene, Hexachlorobutadiene, Indeno(1,2,3-cd)pyren	R1	Another result available
13116000027 DL	Bis(2-ethylhexyl)phthalate	U	Blank contamination

Sample ID	Analyte	Qualifier	Reason
13116000029	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Dibenz(a,h)Anthracene, Diethylphthalate, Dimethylphthalate, Di-n-Octyl phthalate, Hexachlorobenzene, Hexach	UJ	Low surrogate recovery
13116000029	Bis(2-ethylhexyl)phthalate	J	Blank contamination, Low surrogate recovery
13116000029	Benzoic Acid	J	High initial calibration RSD
13116000029	2-Methylnaphthalene, Benzo(a)anthracene, Chrysene, Phenanthrene	J	Low surrogate recovery
13116000029	4-Methylphenol, Acenaphthene, Acenaphthylene, Anthracene, Butylbenzylphthalate, Dibenzofuran, Di-n-Butylphthalate, Fluoranthene, Fluorene, Naphthalene, Phenol, Pyrene	R1	Another result available
13116000029	Benzyl Alcohol	UJ	Low LCS recovery
13116000029 DL	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, 2-Methylnaphthalene, 2-Methylphenol, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Benzoic Acid, Benzyl Alcohol,	R1	Another result available
13116000031	Hexachlorobenzene	UJ	IS out
13116000031	Phenol	J	Blank contamination
13116000031	Benzoic Acid	J	High initial calibration RSD
13116000031	Di-n-Butylphthalate	J	IS out
13116000031	Benzyl Alcohol	J	Low LCS recovery
13116000031	All except 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2-Methylnaphthalene, 2-Methylphenol, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzoic Acid, Benzyl Alcohol, Bis(2-ethylhexyl)phthalate, Chrysene, Dibenzofura	R1	Another result available
13116000031	Diethylphthalate	U	Blank contamination
13116000031 DL	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2-Methylnaphthalene, 2-Methylphenol, Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzoic Acid, Benzyl Alcohol, Bis(2-ethylhexyl)phthalate, Chrysene, Dibenzofuran, Diethylp	R1	Another result available
13116000031 DL	N-Nitrosodiphenylamine	UY	Clarification of Y flag
13116000033	Di-n-Butylphthalate	N	Poor spectral match
13116000038	Benzoic Acid	UJ	High initial calibration RSD
13116000038	1,4-Dichlorobenzene	UJ	Low MS recovery
13116000038	1,2,4-Trichlorobenzene	UJ	Low MS recovery, IS out
13116000038	Benzyl Alcohol	UJ	Low LCS recovery
13116000038	Di-n-Butylphthalate, Hexachlorobenzene, Hexachlorobutadiene	UJ	IS out
13116000038	Phenol	UJ	Blank contamination, low MS and MSD Recovery
13116000038	Bis(2-ethylhexyl)phthalate, Diethylphthalate	U	Blank contamination
13116000038	2-Methylnaphthalene, Acenaphthene, Anthracene, Benzo(a)anthracene, Chrysene, Dibenzofuran, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, Pyrene	R1	Another result available
13116000038	2,4-Dimethylphenol	J	IS out
13116000038	N-Nitrosodiphenylamine	UJY	Clarification of Y flag, IS out
13116000038	Benzo(g,h,i)perylene	J	Low MS and MSD Recovery, high MS/MSD RPD
13116000038 DL	Acenaphthene	J	High MS/MSD RPD

Sample ID	Analyte	Qualifier	Reason
13116000038 DL	1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, 2-Methylphenol, 4-Methylphenol, Acenaphthylene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Benzoic Acid, Benzyl Alcohol, Bis(2-eth	R1	Another result available
13116000100	Fluoranthene	J	Field duplicate variability
13116000100	Bis(2-ethylhexyl)phthalate	J	IS out
13116000100	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(k)fluoranthene, Chrysene, Phenanthrene, Pyrene	R1	Another result available
13116000100	Dimethylphthalate	UJ	Field duplicate variability
13116000100	Butylbenzylphthalate, Di-n-Octyl phthalate	UJ	IS out
13116000100	Benzoic Acid	UJ	Low continuing calibration
13116000100 DL	All except Benzo(a)anthracene, Benzo(a)pyrene, Benzo(k)fluoranthene, Chrysene, Phenanthrene, Pyrene	R1	Another result available
13116000101	Benzo(a)anthracene	J	IS out
13116000101	Benzoic Acid	UJ	Low continuing calibration
13116000101	Chrysene, Dimethylphthalate, Phenanthrene, Pyrene	R1	Another result available
13116000101	Fluoranthene	J	Field duplicate variability
13116000101	Bis(2-ethylhexyl)phthalate, Butylbenzylphthalate, Di-n-Octyl phthalate	UJ	IS out
13116000101 DL	Dimethylphthalate	J	Field duplicate variability
13116000101 DL	All except Chrysene, Dimethylphthalate, Phenanthrene, Pyrene	R1	Another result available
13116000102	Bis(2-ethylhexyl)phthalate, Chrysene, Pyrene	J	IS out
13116000102	Benzo(a)anthracene, Phenanthrene	R1	Another result available
13116000102	Butylbenzylphthalate, Di-n-Octyl phthalate	UJ	IS out
13116000102	Benzoic Acid	UJ	Low continuing calibration
13116000102 DL	All except Benzo(a)anthracene, Phenanthrene	R1	Another result available
13116000103	Benzoic Acid	UJ	Low continuing calibration
13116000103	Butylbenzylphthalate, Dibenz(a,h)Anthracene, Di-n-Octyl phthalate	UJ	IS out
13116000103	Acenaphthene, Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene	R1	Another result available
13116000103	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Chrysene	J	IS out
13116000103 DL	All except Acenaphthene, Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene	R1	Another result available
13116000104	Benzo(a)anthracene, Bis(2-ethylhexyl)phthalate, Chrysene, Pyrene	J	IS out
13116000104	Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene, Phenanthrene	R1	Another result available
13116000104	Butylbenzylphthalate, Di-n-Octyl phthalate	UJ	IS out
13116000104	Benzoic Acid	UJ	Low continuing calibration
13116000104 DL	All except Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene, Phenanthrene	R1	Another result available
13116000105	Acenaphthene, Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene	R1	Another result available
13116000105	Butylbenzylphthalate, Di-n-Octyl phthalate	UJ	IS out
13116000105	Benzo(a)anthracene, Bis(2-ethylhexyl)phthalate, Chrysene, Pyrene	J	IS out
13116000105	Benzoic Acid	UJ	Low continuing calibration
13116000105 DL	All except Acenaphthene, Benzo(g,h,i)perylene, Indeno(1,2,3-cd)pyrene	R1	Another result available
13116000106	Benzo(a)anthracene, Bis(2-ethylhexyl)phthalate, Chrysene, Pyrene	J	IS out
13116000106	Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Naphthalene	R1	Another result available
13116000106	Butylbenzylphthalate, Di-n-Octyl phthalate	UJ	IS out
13116000106	Benzoic Acid	UJ	Low continuing calibration

Sample ID	Analyte	Qualifier	Reason
13116000106 DL	All except Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Indeno(1,2,3-cd)pyrene, Naphthalene	R1	Another result available
13116000107	Benzo(g,h,i)perylene, Pyrene	R1	Another result available
13116000107	Butylbenzylphthalate, Di-n-Octyl phthalate	UJ	IS out
13116000107	Benzoic Acid	UJ	Low continuing calibration
13116000107	Benzo(a)anthracene, Bis(2-ethylhexyl)phthalate, Chrysene	J	IS out
13116000107 DL	All except Benzo(g,h,i)perylene, Pyrene	R1	Another result available
13116000108	Benzo(a)anthracene, Chrysene	J	IS out
13116000108	Pyrene	R1	Another result available
13116000108	Bis(2-ethylhexyl)phthalate, Butylbenzylphthalate, Di-n-Octyl phthalate	UJ	IS out
13116000108	Benzoic Acid	UJ	Low continuing calibration
13116000108 DL	All except Pyrene	R1	Another result available
Pesticide Analyses			
13116000025	gamma-BHC (Lindane)	UY	Clarification of Y flag
PCB Analyses			
13116000025	Aroclor 1254, Aroclor 1260	R1	Another result available
13116000025 DL	Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248	R1	Another result available
13116000033	Aroclor 1248	UY	Clarification of Y flag
13116000102	Aroclor 1232	UY	Clarification of Y flag
13116000103	Aroclor 1232	UY	Clarification of Y flag
Metals Analyses			
13116000025	Arsenic, Zinc	J	High Lab Dup RPD
13116000025	Antimony	R	Very low MS recovery
13116000033	Antimony	R	Very low MS recovery
13116000100	Antimony	R	Very low MS recovery
13116000101	Antimony	R	Very low MS recovery
13116000102	Antimony	R	Very low MS recovery
13116000103	Antimony	R	Very low MS recovery
13116000104	Antimony	R	Very low MS recovery
13116000105	Antimony	R	Very low MS recovery
13116000106	Antimony	R	Very low MS recovery
13116000107	Antimony	R	Very low MS recovery
13116000108	Antimony	R	Very low MS recovery
13116000025	Selenium	J	High Lab Dup RPD
13116000025	Mercury	R	Holding time grossly exceeded
13116000033	Mercury	R	Holding time grossly exceeded
13116000100	Mercury	J	Holding time exceeded
13116000101	Mercury	UJ	Holding time exceeded
13116000102	Mercury	J	Holding time exceeded
13116000103	Mercury	J	Holding time exceeded
13116000104	Mercury	J	Holding time exceeded
13116000105	Mercury	J	Holding time exceeded
13116000106	Mercury	J	Holding time exceeded
13116000107	Mercury	J	Holding time exceeded
13116000108	Mercury	UJ	Holding time exceeded
Dioxin/Furan Analyses			
13116000007	1,2,3,4,7,8,9-HpCDF, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD	J	Below calibration range
13116000007	Total PeCDF, Total TCDF	J	Interference
13116000013	Total PeCDF, Total TCDF	J	Interference
13116000019	1,2,3,4,7,8,9-HpCDF	J	Below calibration range
13116000019	Total HxCDF, Total PeCDF, Total TCDF	J	Interference
13116000037	Total HxCDF, Total PeCDF, Total TCDF	J	Interference

9.0 Abbreviations and Definitions

DV Qualifier	Definition

DV Qualifier	Definition
U	The material was analyzed for, but was not detected above the level of the associated value.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
UJ	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
R	The sample result is rejected. The presence or absence of the analyte cannot be verified and data are not usable.
R1	This sample result has been rejected in favor of a more accurate and/or precise result. The other result should be used.

Abbreviation	Definition
DV	Data validation
LCS	Laboratory control sample
EDD	Electronic data deliverable
MS	Matrix spike
MSD	Matrix spike duplicate
RPD	Relative percent difference
RRM	Regional reference material
RSD	Relative standard deviations
SIM	Selective ion monitoring
SRM	Standard reference material
MDL	Method detection limit
RL	Reporting limit

10.0 References

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