APPENDIX A

ANCHOR ENVIRONMENTAL LLC. 2005. SAMPLING AND ANALYSIS PLAN ADDENDUM. DENNY WAY COMBINED SEWER OVERFLOW OUTFALL SEDIMENT CHARACTERIZATION. PREPARED FOR KING COUNTY DEPARTMENT OF NATURAL RESOURCES AND PARKS. JULY 2005.

SAMPLING AND ANALYSIS PLAN ADDENDUM

DENNY WAY COMBINED SEWER OVERFLOW OUTFALL SEDIMENT CHARACTERIZATION

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1 INTRODUCTION

In 2002, King County constructed two outfalls to Elliott Bay in Seattle, Washington, as part of ongoing improvements to the Denny Way combined sewer overflow (CSO) system (Figure 1). In 1997, a pre-construction sediment characterization study (both surface and subsurface samples) was conducted to address the requirements of a Department of Natural Resources (DNR) lease land use authorization and to evaluate the nature and extent of sediment contamination. In addition, this characterization was conducted to begin to address cleanup issues associated with the listing of the site on the Washington Department of Ecology (Ecology) Sediment Management Standards (SMS) Sediment Site List. Based on the results of the 1997 study (Black & Veatch 1998), preliminary sediment management areas were identified.

Because of the potential for the new outfall construction to affect Puget Sound chinook salmon, consultation with the National Marine Fisheries Service (NMFS) was required under Section 7 of the Endangered Species Act (ESA). King County completed a biological assessment for the project (CH2M Hill 1999), and a Biological Opinion (BO) was issued by NMFS (2000) that required pre- and post- construction monitoring. The pre-construction monitoring study was conducted in 2001 by King County (2001).

Based on these evaluations, as-built plans, post-construction bathymetric survey data, and additional relevant information on Elliott Bay sediments and oceanography, Anchor Environmental, L.L.C. (Anchor) developed an integrated work plan and sampling and analysis plan (SAP; Anchor 2004) to address the ongoing monitoring requirements of the BO and to generate sediment characterization data relevant to a remedial investigation/feasibility study (RI/FS). Because the BO monitoring provides a nearly complete evaluation of the Denny Way CSO site surface sediments, these data comprise the majority of the surface sediment characterization needs for the RI/FS. The work plan suggested additional surface and subsurface sampling to be able to efficiently complete the RI/FS characterization. In May 2004, the additional surface samples were collected; however, the subsurface coring was delayed.

This SAP Addendum addresses additional subsurface sampling activities at the Denny Way CSO site. The King County Department of Natural Resources and Parks (KCDNRP) has decided to proceed with a voluntary removal action for contaminated sediments located inshore of the existing sediment cap. This SAP Addendum covers the additional sampling and testing

required for the design of the voluntary removal action. The additional sampling and testing will include collecting sediment that is representative of the dredge prism. This sediment will be tested for Toxicity Characteristic Leaching Procedure (TCLP) metals to determine the sediment's acceptability for disposal at an upland landfill, dredge elutriate test (DRET) to estimate potential water column chemical concentrations possible during dredging, and grain size. In addition, Z-layer (the new surface created by the dredging) samples will be tested for the SMS analytes.

2 PROJECT TEAM AND RESPONSIBILITIES

This section discusses the proposed project team and their responsibilities for conducting the Denny Way CSO sediment characterization.

2.1 King County Project Manager

Mr. Jeffery Stern of KCDNRP is the King County Project Manager for the Denny Way CSO project. He has overall responsibility for the project.

2.2 Project Planning and Coordination

Mr. Bruce McDonald, P.E., Anchor, will be responsible for developing and completing the SAP. Following SAP approval by King County, Mr. McDonald was responsible for administrative coordination to assure the timely and successful completion of the sediment characterization. Mr. McDonald will also be responsible for the design of the remedial action.

2.3 Field Sample Collection

Mr. Bryan Patterson of Anchor will serve as the Field Coordinator to provide overall direction to the field sampling in logistics, personnel assignments, and field operations. Mr. Paterson will supervise field collection of the sediment core samples; will be responsible for ensuring accurate positioning; will record sample locations, depths, and identification; will ensure conformity to sampling and handling requirements, including field decontamination procedures; will be responsible for physical evaluation of the samples; and will be responsible for chain-of-custody of the core samples.

Mr. Patterson, or his designee, will be responsible for documenting sample preparation, observations, and chain-of-custody up until the time the samples are delivered to the analytical laboratory for chemical analysis or the bioassay laboratory for toxicity testing. Anchor will ensure that archived sediments are stored under proper conditions until delivery. Mr. Patterson, or his designee, will be responsible for writing a report detailing field sampling activities. This report will include details of the sampling effort, sample preparation, sample storage and transport procedures, and field quality assurance.

Mr. Bill Jaworski of Marine Sampling Systems (MSS) will direct the vessel and the coring operations.

2.4 Laboratory Preparation and Analyses

Mr. Fritz Grothkopp, King County Environmental Laboratory (KCEL), will be responsible for physical and chemical analyses. Mr. Grothkopp will ensure that the submitted samples are handled and analyzed in accordance with Puget Sound Esturaine Program (PSEP) analytical testing protocols, quality assurance/quality control (QA/QC) requirements, and requirements as specified in this SAP. The KCEL will prepare a written report of analytical results and QA/QC procedures.

Mr. Harold Benny, Analytical Resources, Inc. (ARI), will be responsible for performing the DRET test. The resulting elutriate water samples will be sent to the KCEL for analysis.

2.5 QA/QC Management

Ms. Michelle McClelland of Anchor, or her designee, will serve as Quality Assurance Representative for this project. She will perform quality assurance oversight for both the field sampling and laboratory programs. She will be kept fully informed of field program procedures and progress during sample collection and laboratory activities during sample preparation. She will record and correct any activities that vary from the approved SAP. Upon completion of the sampling and analytical program, she will review laboratory QA/QC results and incorporate findings into the final sampling and analysis report. Any QA/QC problems will be brought to the attention of the KCEL as soon as possible to discuss issues related to the problem and to evaluate potential solutions.

2.6 Final Sampling and Analysis Results Report

Bruce McDonald, or his designee, will be responsible for preparation of the final sampling and analysis results report. This report will summarize the sampling effort, analytical methods, QA/QC narrative, and analytical testing results.

3 CONCEPTUAL DREDGING PLAN

The sampling and analysis program was developed with consideration of site-specific project and environmental factors. It only addresses Remediation Areas A and B identified in the 1998 sediment characterization Report (Black & Veatch 1998). The conceptual dredge plan requires removal of a minimum of 3 feet and an average of 4 feet from the areas inshore of the existing sediment cap where there is no armor protection for the new Denny Way outfalls within Remediation Areas A and B (Figure 1). Previous characterizations identified two locations inshore of the existing cap that require remediation (Remediation Areas A and B), which are located northwest of the outfalls.

Previous sampling included 3 cores in the remediation areas. In DW30 (northwest end of Remediation Area A) and DW32 (southern portion of Remediation Area B) the depth of SQS exceedances was 2 feet. In DW31 (center portion of Remediation Area A) chemical concentrations exceeded the SQS in the 6- to 7-foot interval. There were no samples deeper than 7 feet. This SAP will collect a core at DW31 to try to determine the depth of contamination in this area. If the depth of contamination can be determined, then the conceptual dredge plan may be modified remove all contamination at the site.

4 SAMPLE COLLECTION, PROCESSING, AND HANDLING PROCEDURES

This section addresses the sample collection, processing, and handling procedures that will be used to ensure data quality.

4.1 Sampling Schedule and Platform

Sampling will occur after approval of this SAP by King County, and is anticipated to begin July 21, 2005. Collection of sediment cores will be conducted from the *R/V Nancy Anne,* operated by Mr. Bill Jaworski of MSS.

4.2 Station Positioning

Horizontal positioning will be determined by the onboard differential global positioning system (DGPS) based on target coordinates shown in Table 1. Measured station positions will be converted to Washington State Plane Coordinates, North Zone (North American Datum [NAD] 83/91), to the nearest foot. The accuracy of measured and recorded horizontal coordinates will be within one meter.

Water depth at each boring station will be measured using a fathometer or lead line and converted to MLLW datum by adding the tidal elevation. Tidal elevations will be based on tide predictions made by on-board computer software.

4.3 Station and Sample Identification

The core and composite sample IDs for the sediment characterization in each of the areas are listed in Table 2 and the core IDs are shown on Figure 2. Four cores are anticipated for the site, three in Remediation Area A and one in Remediation Area B. The top 4 feet of each of the cores will be combined into a single sample (total of one sample) and the remainder of the cores will be collected in 1 foot increments for potential analysis. The composite sample will be tested for TCLP metals to determine their suitability for disposal at an upland Subtitle D landfill and for will also be tested for DRET to measure potential water quality impacts at the point of dredging. The discrete 1-foot samples will be tested for SMS analytes to establish the bottom of contamination and/or characterize the underlying sediments that will be left in place. Not all of the discrete samples will be tested, some will be archived for potential future analysis.

4.4 Core Collection

Sediment cores will be collected at each location identified in Figure 2 and Table 1 using a vibracorer. The vibracorer will be deployed from the bow of the vessel using an A frame and winch assembly. A 3.75-inch inside diameter, pre-cut, decontaminated aluminum pipe will be clamped to the vibracorer. The vibracorer will be deployed over the bow and sent to the bottom, where the unit will then be energized and lowered to the appropriate depth. The target depth will be a minimum of 6 feet below the existing mudline. Acceptance criteria for a sediment core sample are as follows:

- The core penetrated to, and retained material to, project depth or refusal
- Recovery was 75 percent of the length of core penetration
- Cored material did not extend out the top of the core tube or contact any part of the sampling apparatus at the top of the core tube
- There are no obstructions in the cored material that might have blocked the subsequent entry of sediment into the core tube and resulted in incomplete core collection

If core rejections require the core station to be relocated, the station will be relocated nearby within the dredge prism. Recovered core tubes will be cut into sections, if necessary, capped, and stored upright in an insulated compartment aboard the vessel. They will either be processed on board or sent to the laboratory for compositing.

The following procedure will be used to decontaminate sample tubes prior to use:

- Rinse and pre-clean with potable water
- Wash and scrub the tubes in a solution of laboratory grade non-phosphate based soap and potable water
- Rinse with potable water
- Rinse three times with distilled water
- Seal both ends of each core tube with aluminum foil

The core tube caps will be removed immediately prior to placement into the coring device. Care will be taken during sampling to avoid contact of the sample tube with potentially contaminated surfaces. Extra sample tubes will be available during sampling operations for uninterrupted sampling in the event of a potential core tube breakage or contamination.

Core tubes suspected to have been accidentally contaminated will not be used. Logs and field notes of all core samples will be maintained as samples are collected and correlated to the sampling location map. The following information will be included in this log:

- Elevation of each station sampled, as measured from MLLW
- Location of each station as determined by DGPS
- Date and time of collection of each sediment core sample
- Names of field supervisor and person(s) collecting and handling the sample
- Observations made during sample collection, including weather conditions, complications, ship traffic, and other details associated with the sampling effort
- The sample station identification
- Length and depth intervals of each core section and estimated recovery for each sediment sample, as measured from MLLW
- Qualitative notation of apparent resistance of sediment column to coring
- Any deviation from the approved SAP

Core tubes longer than 4 feet will be cut in half to facilitate upright storage in iced containers. The cut tubes will be individually labeled. Core orientation will also be marked on each tube. Labels identifying the core section will be securely attached to the outside of the casing and wrapped with transparent tape to prevent loss or damage of the label.

4.5 Core Processing and Handling Procedures

This section describes the equipment decontamination procedures, sample containers, core processing, and sample compositing procedures.

4.5.1 Equipment Decontamination Procedures

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. All equipment and instruments used that are in direct contact with the sediment collected for analysis will be made of glass, stainless steel, high-density polyethylene (HDPE), or polytetrafluoroethylene (PTFE), and will be cleaned prior to each day's use and between sampling or compositing events. Decontamination of all items will follow PSEP protocols. The decontamination procedure is as follows:

- Pre-wash rinse with tap water

- Wash with solution of warm tap water and Alconox soap (brush)
- Rinse with warm tap water
- First rinse with distilled water
- Rinse three times with distilled water
- Cover (no contact) all decontaminated items with aluminum foil
- Store in clean, closed container for next use

4.5.2 Sample Containers for Analysis

The KCEL will provide certified, pre-cleaned, U.S. Environmental Protection Agency (EPA)-approved containers for all samples. Prior to shipping, the analytical laboratory will add preservative, where required, according to PSEP protocols.

4.5.3 Core Processing Procedures

Sediment processing will be conducted on board the sampling vessel or at an onshore processing station located at the KCEL. If processing in onshore, sediment in core tube sections will be offloaded from the sampling vessel, transported to the processing facility, and transferred to on-site refrigerated storage (4°± 2°C). At the processing facility, cores will be extruded and subsampled. Sediment samples will be homogenized, composited, labeled, and shipped from this facility to the appropriate laboratories.

All working surfaces and instruments will be thoroughly cleaned, decontaminated, and covered with aluminum foil to minimize outside contamination between sampling events. Disposable gloves will be discarded after processing each station and replaced prior to handling decontaminated instruments or work surfaces.

Sample containers will be kept in packaging as received from the analytical lab until use; a sample container will be withdrawn only when a sample is to be collected and returned to a cooler containing completed samples.

The steps for processing the samples are provided below.

1. Extrude sample material from sample core tube onto a stainless steel tray or bowl. Alternatively, the core may be cut longitudinally using a circular saw, taking care not to penetrate the sediment while cutting.
2. Using a clean spoon, place sample material from the core into a cleaned stainless steel bowl, homogenize using a stainless steel paddle and variable speed drill, cover with foil, and set aside for composite sample preparation (discussed in step 5 below).
3. Repeat steps 1 and 2 for the remaining core tubes associated with the composite that is being prepared.
4. To prepare the sample composite, place a representative volume of homogenized sediment from each of the individual core sections into a compositing container (stainless steel bowl), and mix thoroughly using a variable speed drill fitted with a stainless steel paddle or stainless steel spoon.
5. Using a clean, stainless steel spoon, completely fill pre-labeled sample containers, as indicated in Table 3.
6. Immediately after filling the sample container with sediment, place the screw cap on the sample container and tighten.
7. Repeat steps 5 and 6 for the remaining sample jars.
8. Collect the sediment from the 1-foot intervals of each core in a stainless steel bowl and mix thoroughly. Using a clean, stainless steel spoon, completely fill pre-labeled sample containers, as indicated in Table 3.
9. Fill out labels as described below and thoroughly check all sample containers for proper identification, analysis type, and lid tightness.
10. Pack each container carefully to prevent breakage and place inside of a cooler with ice for storage at the proper temperature (4°C for all samples).

4.5.4 Sample Compositing Procedures

The sediment collected from each individual core will be homogenized. A proportionate volume of each individual core will be placed into a decontaminated stainless steel bowl or HDPE bucket for compositing as described in Section 4.5.3, step 4. For example, if a composite is made up of two samples, the composite container will receive a 50 percent contribution from each individual sediment sample. The material added to the composite container will be representative of the entire depth interval

targeted for each individual sample. As an individual contribution becomes available, its proportionate sediment volume will be added to the composite sample container. When all of the desired material is placed into the compositing container, the material will be homogenized with a stainless steel paddle attached to a variable speed drill or stainless steel spoon until uniform in color and texture, then placed into the appropriate sample jars, as identified in Table 3 and stored or preserved. In order to satisfy the volume requirements for analyses, the composite must consist of approximately 2 liters of sediment. The homogenate will be mixed throughout the process of filling sample jars to ensure that each sample jar is representative of the homogenate mixture.

Filled sample jars will be labeled with the name of the project, sample number, type of analysis, date, time, and initials of the person preparing the sample. This information will be recorded on the chain-of-custody forms. Following proper sealing and labeling, all sample containers will be placed on ice in a cooler or container and maintained at 4°C.

4.5.4.1 Bulk Sediment Testing

The top 4 feet of each core will be composited into a single sample. A subset of this sediment will be submitted to the KCEL for TCLP extraction (Section 4.5.4.2) and for bulk chemistry testing of the SMS analytes. Another subset of this sediment will be submitted to ARI for DRET extraction (Section 4.5.4.3). In addition, the sediment from each 1-foot interval of below 4 feet below the mudline will be collected and submitted to the KCEL for bulk chemistry testing of the SMS analytes. Table 4 presents the analysis methods and target detection limits for the bulk sediment testing.

4.5.4.2 Toxicity Characteristic Leaching Procedure

As discussed above, the top 4 feet of each core will be composited into a single sample and will be extracted by TCLP for analysis. The TCLP procedure is described by EPA (1993; Method 1311). The results of this test will be used to determine the suitability for disposal at an upland Subtitle D landfill. Table 5 presents the analytical methods and target detection limits for these analytes.

4.5.4.3 Dredging Elutriate Testing

Sediment from the top 4 feet of each of the cores will be composited into a single sample and submitted to ARI for extraction using the DRET procedures described in DiGiano et al. (1995). The resulting elutriate will then be transferred to the KCEL for analysis of the contaminants of concern (mercury and phthalates) that have water quality criteria. Table 5 presents the analytical methods and target detection limits for these analytes.

4.6 Sample Transport and Chain-of-Custody Procedures

All containerized sediment samples and core tubes (for archives) will be transported to the analytical laboratory after preparation is completed. Specific sample shipping procedures will be as follows:

1. Each cooler or container containing the sediment samples to be analyzed will be delivered to the laboratory within 24 hours of being sealed.
2. The shipping containers will be clearly labeled with sufficient information (name of project, time and date container was sealed, person sealing the container, and consultant's office name and address) to enable positive identification.
3. Glass jars will be separated in the shipping container by shock absorbent material (e.g., bubble wrap) to prevent breakage.
4. A sufficient amount of ice will be double-bagged in sealable plastic bags and placed within the cooler.
5. A sealed envelope containing chain-of-custody forms will be enclosed in a plastic bag and taped to the inside lid of the cooler.
6. Signed and dated chain-of-custody seals will be placed on all coolers prior to shipping.

The persons transferring custody of the sample containers and core tubes (for archives) will sign the chain-of-custody form upon transfer of sample possession to the analytical laboratory. The shipping container seal will be broken upon receipt of samples at the laboratory and the receiver will record the condition of the samples. Chain-of-custody forms will be used internally by the lab to track sample handling and final disposition.

4.7 Waste Management

All sediment remaining after sampling will be washed overboard at the collection site prior to moving to the next sampling station. Any sediment spilled on the deck of the sampling vessel will be washed overboard at the collection site. Excess capping sediment will be washed overboard only when the sampling vessel is in either Area A or B and no excess coring sediment will be washed overboard when the sampling vessel is over top of the existing Denny Way cap.

All disposable sampling materials and personnel protective equipment used in sample processing, such as disposable coveralls, gloves, and paper towels, will be placed in heavy duty garbage bags or other appropriate containers and disposed of at a permitted solid waste disposal facility.

5 CHEMICAL/CONVENTIONAL ANALYSES

5.1 Quality Assurance/Quality Control

The frequency of analysis for laboratory QA/QC samples is summarized in Table 6, and project data quality objectives for precision, accuracy, and completeness are provided in Table 7. When analyzing semi-volatile organic compounds (SVOCs), pesticides/PCBs, metals, and conventional parameters, initial calibrations must be completed before any samples are analyzed, after each major disruption of equipment, and when on-going calibration fails to meet acceptance criteria. On-going calibration is required before and after every 10 to 12 samples or every 12 hours (whichever is more frequent).

Surrogates are required (organics only) for every sample, including matrix spike samples, blanks, laboratory control samples (LCS), and standard reference materials. Matrix spike and matrix spike duplicates are required for SVOCs and pesticides/PCBs for every 20 samples received. Matrix spikes and laboratory duplicates are analyzed for samples requiring metals analyses. Matrix triplicates are analyzed for conventional parameters.

All samples are diluted and re-analyzed if target compounds are detected at levels that exceed their respective established calibration ranges. Any cleanups will be conducted prior to the dilutions. Re-analyses are performed if surrogate, internal standard, or spike recoveries are outside of the data quality objective parameters. QC samples may be re-analyzed if results are not within control limits and it cannot be determined that the sample matrix is the cause.

5.2 Laboratory Report

The KCEL will prepare a detailed laboratory report documenting all activities associated with the sample analyses. Included in this report will be:

- Project Narrative: A detailed report that describes the samples received, analyses performed, and corrective actions undertaken.
- Chain-of-Custody Documentation: Laboratory policy requires that chain-of-custody documentation be available for all samples received. The chain-of-custody will document basic sample demographics such as client and project names, sample identification, analyses requested, and special instructions.

- Data Summary Form: A tabular listing of concentrations and/or detection limits for all target analytes. The data report will also list other pertinent information such as amount of sample analyzed, dilution factors, sample processing dates, extract cleanups, and surrogate recoveries.
- QA Summary: Includes results of all quality control analyses, specifically recovery information. Laboratory control samples are reported with each batch. Additional QC analysis may include laboratory replicates, matrix spikes, and standard reference materials.
- Instrument Calibration Forms and Raw Data: Includes initial and continuing calibration summaries and instrument tuning data, laboratory bench sheets, and log book pages.

The KCEL will also provide these deliverables in electronic format.

6 SAMPLING AND ANALYSIS RESULTS REPORT

A final Sampling and Analysis Results Report will be prepared by Anchor documenting all activities associated with collecting, compositing, transporting, and chemically and biologically analyzing sediment samples. The laboratory reports will be included as appendices and the chemistry report will be submitted in both hard copy and electronic formats. At a minimum, the following will be included in the final report:

- Summary of all field activities, including a description of any deviations from the approved SAP.
- Locations of sediment sampling stations in state plane coordinates (NAD 83, Washington North Zone) to the nearest foot. All vertical elevations of mudline and water surface will be reported to the nearest 0.1 foot relative to MLLW.
- A project map with actual sampling locations.
- A QA/QC narrative for chemical analyses.
- Summary data results tables with SMS criteria.
- Hard copies of field data, laboratory analysis results, and associated QA/QC data will be available.
- Results of the laboratory analyses will be submitted to Ecology in their sediment quality database (SEDQUAL) data format.

7 REFERENCES

Anchor Environmental, L.L.C. (Anchor). 2004. Draft Integrated Work Plan, Denny Way Combined Sewer Overflow Control Project. Prepared for King County Department of Natural Resources and Parks. October 2003.

Black & Veatch. 1997. Denny Way/Lake Union CSO Control Project. Proposed Marine Outfall Sediment Characterization. Prepared for King County Department of Natural Resources. June 1998. Prepared by Striplin Environmental Associates, Inc.

CH2M Hill. 1999. Denny Way/Lake Union Combined Sewer Overflow Biological Assessment. Prepared for King County Department of Natural Resources, Wastewater Treatment Division. June 8, 1999.

Digiano, F.A., C.T. Miller, J. Yoon. 1995. Dredging Elutriate Test (DRET) Development. Prepared for US Army Corps of Engineers. Contract Report D-95-1.

U.S. Environmental Protection Agency (EPA). 1993. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods – 3rd Edition, Update 4A. EPA SW-846, August 1993.

Kendall, D.R. 2001. DMMP Clarification Paper: Clarifications to the DMMP Z-Sample Analysis Guidance and/or Post Dredge Monitoring Policy. Prepared by the U.S. Army Corps of Engineers for the DMMP agencies, October 2001.

King County. 1995. Chelan, Connecticut and Hanford CSO sediment sampling results. King County Department of Natural Resources, Seattle, WA.

King County. 2001. Pre-Construction Sediment Characterization Study, Denny Way/Lake Union CSO Control Project. Final Report: Marine Sediment Chemistry, Benthic Infauna Community Assemblage, and Sediment Profile Imaging and Video Survey. King County Department of Natural Resources, Wastewater Treatment Division. October 2001.

National Marine Fisheries Service (NMFS). 2000. Biological Opinion for Denny Way/Lake Union CSO Control Project. WSB-00-039. June 20, 2000.

TABLES

Table 1
Coordinates and Estimated Mudline Elevations for Proposed Core Sampling Locations

Remediation Area	Core Station ID	Northing[a] (feet)	Easting[a] (feet)	Estimated Mudline Elevation (feet MLLW)	Target Depth (feet)[b]
A	DW101	229367.78	1263518.78	-22	6
A	DW102	229284.71	1263688.25	-5	6
B	DW103	229351.74	1263684.67	0	6
A	DW105	229326.80	1263612.08	-15	11

Notes: a – Washington North Zone, NAD 83 state plane coordinates.
b – Target depth for sediment cores is the minimum depth of penetration. The goal is to obtain a minimum of 5 feet of recovery.

Table 2
Sediment Core and Composite Sample IDs and Compositing Scheme

Remediation Area	Individual Core ID	Interval	Sample ID (Analyzed)	Analysis
A	DW101	4 to 5 feet	DW101-CDC-050721	SMS
A	DW102	4 to 5 feet	DW102-CDC-050721	SMS
B	DW103	4 to 5 feet	DW103-CDC-050721	SMS
A and B	DW101, 102, 103, 105	0 to 4 feet	DW104-CCB-050721	SMS, DRET, TCLP Metals
A	DW105	4 to 5 feet	DW-105-CDC 050721	SMS
A	DW105	5 to 6 feet	DW-105-CDD 050721	SMS
A	DW105	6 to 7 feet	DW-105-CDE 050721	SMS
A	DW105	7 to 8 feet	DW-105-CDF 050721	SMS
A	DW105	8 to 9 feet	DW-105-CDG 050721	SMS
A	DW105	9 to 10 feet	DW-105-CDH 050721	SMS
A	DW105	10 to 11 feet	DW-105-CDI 050721	SMS
A	DW105	11 to 12 feet	DW-105-CDJ 050721	SMS
A	DW101	5 to 6 feet	DW101-CDD-050721	SMS
A	DW102	5 to 6 feet	DW102-CDD-050721	SMS
B	DW103	5 to 6 feet	DW103-CDD-050721	SMS
A	DW101	6 to 7 feet	DW101-CDE-050721	SMS
A	DW102	6 to 7 feet	DW102-CDE-050721	SMS
B	DW103	6 to 7 feet	DW103-CDE-050721	SMS

Note: Water samples will be drawn from the elutriate of the DRET and TCLP. Those sample numbers are not included in this table.

Table 3
Guidelines for Sample Handling and Storage

Sample Type	Container Size and Type	Holding Time	Preservation Technique
Sediments			
Grain size	16-oz Glass	6 months	Cool/4°C
Total solids	4-oz Glass (combined) (two bottles)	7 days	Cool/4°C
Total organic carbon		28 days	Cool/4°C
Metals	4-oz HDPE	6 months; 28 days for Hg	Cool/4°C
SVOCs	16-oz Glass (combined)	14 days	Cool/4°C
PCBs		14 days	Cool/4°C
Water			
Total suspended solids (DRET only)	32-oz HDPE	7 days	Cool/4°C
Metals	500 ml HDPE	6 months; 28 days for Hg	Cool/4°C
Phthalates	16-oz Glass	14 days	Cool/4°C

Table 4
Chemical/Physical Analysis Methods and Target Detection Limits for Bulk Sediment

Parameter	Target Detection Limits	Sample Preparation Method	Sample Cleanup Method	Analytical Method
Conventionals				
Moisture content %	NA	---	---	ASTM D2435
Grain size in %	0.10%	---	---	ASTM D422
Atterberg limits	NA	---	---	ASTM D4318
Specific gravity	NA	---	---	ASTM D854
Total organic carbon in %	0.050%	---	---	EPA 9060
Metals				
Antimony	15 mg/kg dry	EPA 3050	---	EPA 6010
Arsenic	10 mg/kg dry	EPA 3050	---	EPA 6010
Cadmium	0.40 mg/kg dry	EPA 3050	---	EPA 6010
Chromium	0.40 mg/kg dry	EPA 3050	---	EPA 6010
Copper	0.40 mg/kg dry	EPA 3050	---	EPA 6010
Lead	5.0 mg/kg dry	EPA 3050	---	EPA 6010
Mercury	0.10 mg/kg dry	---[a]	---	EPA 7471
Nickel	14 mg/kg dry	EPA 3050	---	EPA 6010
Silver	0.60 mg/kg dry	EPA 3050	---	EPA 6010
Zinc	0.80 mg/kg dry	EPA 3050	---	EPA 6010
Low Molecular Weight Polynuclear Aromatic Hydrocarbons (LPAHs)				
Naphthalene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Acenaphthylene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Acenaphthene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Fluorene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Phenanthrene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Anthracene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
2-Methylnaphthalene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
High Molecular Weight Polynuclear Aromatic Hydrocarbons (HPAHs)				
Fluoranthene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Pyrene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Benzo(a)anthracene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Chrysene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Benzo(b)fluoranthene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Benzo(k)fluoranthene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Benzo(a)pyrene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Indeno(1,2,3-cd)pyrene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Dibenzo(a,h)anthracene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Benzo(g,h,i)perylene	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Phthalates				
Dimethyl phthalate	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Diethyl phthalate	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Di-n-butyl phthalate	20 µg/kg	EPA 3550	EPA 3640	EPA 8270

Butyl benzyl phthalate	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Bis(2-ethylhexyl)phthalate	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Di-n-octyl phthalate	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Pesticides and Miscellaneous Extractables				
4,4'-DDE	8 µg/kg	EPA 3550	EPA 3640	EPA 8081
4,4'-DDD	8 µg/kg	EPA 3550	EPA 3640	EPA 8081
4,4'-DDT	8 µg/kg	EPA 3550	EPA 3640	EPA 8081
Hexachlorobenzene	8 µg/kg	EPA 3550	EPA 3640	EPA 8081
Hexachlorobutadiene	8 µg/kg	EPA 3550	EPA 3640	EPA 8081
Polychlorinated Biphenyls (PCBs)				
Arochlor 1016	20 µg/kg	EPA 3550	EPA 3640 and EPA 3665	8082
Arochlor 1221	20 µg/kg	EPA 3550	EPA 3640 and EPA 3665	8082
Arochlor 1232	20 µg/kg	EPA 3550	EPA 3640 and EPA 3665	8082
Arochlor 1242	20 µg/kg	EPA 3550	EPA 3640 and EPA 3665	8082
Arochlor 1248	20 µg/kg	EPA 3550	EPA 3640 and EPA 3665	8082
Arochlor 1254	20 µg/kg	EPA 3550	EPA 3640 and EPA 3665	8082
Arochlor 1260	20 µg/kg	EPA 3550	EPA 3640 and EPA 3665	8082
Total PCBs	20 µg/kg	EPA 3550	EPA 3640 and EPA 3665	8082
Chlorinated Organic Compounds				
1,2-Dichlorobenzene	20 µg/kg	EPA 3550	---	EPA 8270
1,3-Dichlorobenzene	20 µg/kg	EPA 3550	---	EPA 8270
1,4-Dichlorobenzene	20 µg/kg	EPA 3550	---	EPA 8270
1,2,4-Trichlorobenzene	20 µg/kg	EPA 3550	---	EPA 8270
Miscellaneous Extractables				
Phenol	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
2-Methylphenol	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
4-Methylphenol	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
2,4-Dimethylphenol	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Pentachlorophenol	50 µg/kg	EPA 3550	EPA 3640	EPA 8270
Dibenzofuran	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
N-Nitroso-diphenylamine	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Benzyl alcohol	20 µg/kg	EPA 3550	EPA 3640	EPA 8270
Benzoic acid	200 µg/kg	EPA 3550	EPA 3640	EPA 8270

Note: NA – Not Applicable
a – The sample digestion method for mercury is described in the analytical method.

Table 5
Analyte List and Target Detection Limits for DRET and TCLP Water Samples (in µg/L)

Parameter	Water Quality Criteria	Target Detection Limits	Analytical Method
Metals (Hg only on the DRET)			
Arsenic	36	2.0	EPA 6010
Cadmium	9.3	2.0	EPA 6010
Chromium (total)	50	5.0	EPA 6010
Copper	3.1	2.0	EPA 6010
Lead	8.5	3.0	EPA 6010
Mercury[a]	0.025	0.010	EPA 6010
Nickel	8.2	5.0	EPA 6010
Silver	1.9	0.10	EPA 6010
Zinc	81	10	EPA 6010
Phthalates (DRET only)			
Dimethyl phthalate	NA	1.0	EPA 8270
Diethyl phthalate	NA	1.0	EPA 8270
Di-n-butyl phthalate	NA	1.0	EPA 8270
Butyl benzyl phthalate	NA	1.0	EPA 8270
Bis(2-ethylhexyl)phthalate	NA	4.0	EPA 8270
Di-n-octyl phthalate	NA	2	EPA 8270

Notes: For some analytes/compounds, sample volume limitations preclude the laboratory's ability to meet the water quality criteria.
Preparation method for the TCLP is EPA Method 1311
Preparation method for the DRET is described in DiGiano et al. (1995)
[a] Mercury is the only metal analyzed in the DRET
NA – Not Applicable

Table 6
Laboratory Quality Control Sample Analysis Summary

Analysis Type	Initial Calibration	Ongoing Calibration	Standard Reference Material	Replicates	Matrix Spikes	Matrix Dupli	Method Blanks	Surrogate Spikes
Sediments								
Grain size	Each batch[a]	NA	NA	1 per 20 samples	NA	N	NA	NA
Total solids	Each batch[b]	NA	NA	1 per 20 samples	NA	N	NA	NA
Total organic carbon	Daily or each batch	1 per 10 samples	1 per 20 samples	1 per 20 samples	1 per 20 samples	N	Each batch	NA
Metals	Daily	1 per 10 samples	1 per 20 samples	1 per 20 samples	1 per 20 samples	N	Each batch	NA
SVOCs	As needed[c]	1 per 10 samples	1 per 20 samples	NA	1 per 20 samples	1 pe sam	Each batch	Every sample
Pesticides/PCBs	As needed[c]	1 per 10 samples	1 per 20 samples	NA	1 per 20 samples	1 pe sam	Each batch	Every sample
Water								
Total metals	Daily	1 per 10 samples	NA	1 per 20 samples	1 per 20 samples	N	Every batch	NA
SVOCs	As needed[c]	Every 12 hours	NA	NA	1 per 20 samples	1 pe sam	Every batch	Every sample

Notes: NA - not applicable

a - Calibration and certification of drying ovens and weighing scales are conducted bi-annually.

b - Initial calibration verification and calibration blank must be analyzed at the beginning of each batch.

c - Initial calibrations are considered valid until the ongoing continuing calibration no longer meets method specifications. nt, a new initial calibration is performed.

Table 7
Data Quality Objectives

Parameter	Units	Precision	Accuracy	Completeness
Sediments				
Grain size	%	±20 RSD	NA	100%
Total solids	%	±20 RPD	NA	100%
Total organic carbon	%	±20 RPD	75 – 125 %R	100%
Metals	mg/kg	±20 RPD	75 – 125 %R	100%
SVOCs	µg/kg	±40 RPD	50 – 150 %R	100%
Pesticides/PCBs	µg/kg	±40 RPD	50 – 150 %R	100%
Water				
Total metals	µg/L	±20 RPD	75 – 125 %R	100%
Semivolatile organics	µg/L	±35 RPD	60 – 140 %R	100%

Notes:
RSD - Relative standard deviation
RPD - Relative percent difference
%R - Percent recovery
NA – Not applicable

FIGURES

Notes:
1. Figure prepared from drawing provided by Black & Veatch Corporation entitled "Habitat Restoration Plan", dated November 1999.
2. Horizontal datum: SP NAD 83 WA N

Jul 13, 2005 10:50am cdavidson K:\Jobs\020067-KING_CO_SED_MANAG\02006701\02006701-23.dwg FIG 1

ANCHOR ENVIRONMENTAL, L.L.C.

Figure 1
Site Map
Denny Way CSO

Station	Northing	Easting
DW101	229367.78	1263518.78
DW102	229284.71	1263688.25
DW103	229351.74	1263684.67
DW105	229326.80	1263612.08

Washington State Plane Coordinates North Zone
NAD 83/91

- DW101 Sample Location and Number
- Riprap
- Sand Veneer
- Boulders and Cobbles
- Sediment Cap
- Approximate Dredge Boundary

Notes:
1. Figure prepared from drawing provided by Black & Veatch Corporation entitled "Habitat Restoration Plan", dated November 1999.
2. Horizontal datum: SP NAD 83 WA N

0 150
Scale in Feet

Jul 19, 2005 2:59pm cdavidson K:\Jobs\020067-KING_CO_SED_MANAG\02006701\02006701-23.dwg FIG 2

ANCHOR ENVIRONMENTAL, L.L.C.

Figure 2
Sample Locations
Denny Way CSO

APPENDIX B

ANCHOR ENVIRONMENTAL L.L.C. SEDIMENT CORING FIELD LOGS AND NOTES

ANCHOR ENVIRONMENTAL, L.L.C.

Sediment Core Collection Form

Station ID: DW101 **Date:** 21 July 05

Project Name: Denny Way **Project Number:** 020067-01

Coordinates:
Lat/Northing 47° 37 06.81 N Long/Easting: 122° 21' 41.99" W

Vertical Datum MLLW MLW Other:

Depth Measurement Sounder Leadline 18.6/16.2 = 17.4

Project Depth **Overdredge**

	Attempt 1	Attempt 2	Attempt 3
Time:	1120		
(A) Measured Water Depth	16'		
(B) Tide Height	-3.6		
(C) Mudline Elevation	-19.6		
(-A+B = C include sign of tide height as reported)			
Estimated Penetration	11'6"		
Description of Core Drive	First 10' was rapid slow for last 1.5'		
Refusal Encountered?	Yes		
Total Core Length	8'		

Core Characteristics

Sediment Type	cobble, gravel, sand C M F, silt clay, organic matter	cobble, gravel, sand C M F, silt clay, organic matter	cobble, gravel, sand C M F, silt clay, organic matter
Sediment Color	gray, black, brown brown surface, olivine	gray, black, brown brown surface, olivine	gray, black, brown brown surface, olivine
Sediment Odor	None, slight, mod, strong H_2S, petroleum, septic	None, slight, mod, strong H_2S, petroleum, septic	None, slight, mod, strong H_2S, petroleum, septic
Any Layering Homogeneous			

Comments: med sand & wood debris in catcher

Recorded by: B McDonald

Visual Classification of Undisturbed Sample

ANCHOR ENVIRONMENTAL, L.L.C.

Job: Denny way CSO
Job No.:
Exploration No.: 1
Sample No.: DW101-CD--050721
Depth of Sample: see core ~~log~~ collection log sheet
Sampled Length (feet; from log):
Sample Recovery (feet):

Date: 7-21-05
Sample Pushed By: Jaworski
Sample Logged By: Wick
Type of Sample: ☐ Piston ☒ Vibracore ☐
Diameter of Sample (inches): 4"
Sample Quality: ☒ Good ☐ Fair ☐ Poor ☐ Disturbed
Average % Compaction = —

	% Composition	Sample Interval in Feet		Represent at Depth Interval (add Compact.)		CONSISTENCY	MOISTURE	COLOR	Size % G Max.	Size % S Range	Size % F (PI)	Theoretical Depth Feet Core Sections	Actual	Sample Sketch	Classification and Remarks
C	N/A	4	5'	N/A	N/A	med stiff	moist	dark gray	—	—	—	N/A	4ft	N/A	-clayey sand -slight petroleum odor -no sheen -trace organic debris
		cut core tube here											5'		-pockets of brown clay -slight H_2S
D	N/A	5	6'	N/A	N/A	med stiff	moist	dark gray	—	—	—	N/A			-clayey sand -slight petroleum odor -no sheen -slight organic fragments
		cut tube here											6'		
E	N/A	—	—	—	—	—	same as 5'-6'		—	—	—	—			-clayey sand -slight H_2S -no sheen -slight petroleum odor -slight organic fragments
		cut tube here											7'		
F		—	—	—	—	—			—	—	—	—			same as 6'-7' NOT SAMPLED
		END OF CORE											8'		
	—	—	—	—	—	—	—	—	—	—	—	—		—	—
		TOP OF CORE													
	0	4'				med stiff	moist	dark gray to black							petroleum mild odor -organics, lots of trash. -silty sand -some light gray pockets
													4'		

ANCHOR ENVIRONMENTAL, L.L.C.

Sediment Core Collection Form

Station ID: DW102 **Date:** 7/21/05

Project Name: Denny Way **Project Number:** 020067-01

Coordinates: Lat/Northing 47 37 05.964 N Long/Easting: 122° 21 39.49 W

Vertical Datum MLLW MLW Other:

Depth Measurement Sounder Leadline 5.5'

Project Depth _____ **Overdredge** _____

	Attempt 1	Attempt 2	Attempt 3
Time:	0920		
(A) Measured Water Depth	5.5		
(B) Tide Height	-0.7		
(C) Mudline Elevation	-6.2		
(-A+B = C include sign of tide height as reported)			
Estimated Penetration	12		
Description of Core Drive	Fairly constant Penetration		
Refusal Encountered?	Yes		
Total Core Length	8' recovery		

Core Characteristics

Sediment Type	cobble, gravel, sand C M F, silt clay, organic matter	cobble, gravel, sand C M F, silt clay, organic matter	cobble, gravel, sand C M F, silt clay, organic matter
Sediment Color	gray, black, brown brown surface, olivine	gray, black, brown brown surface, olivine	gray, black, brown brown surface, olivine
Sediment Odor	None, slight, mod, strong H_2S, petroleum, septic	None, slight, mod, strong H_2S, petroleum, septic	None, slight, mod, strong H_2S, petroleum, septic
Any Layering Homogeneous			

Comments: Kelp near station.

Recorded by: Bruce McDonald

Visual Classification of Undisturbed Sample

ANCHOR ENVIRONMENTAL, L.L.C.

Job: Denny Way CSO
Job No.:
Exploration No.: 1
Sample No.: DW 10 2 - CD - - 050721
Depth of Sample: see core collection log
Sampled Length (feet; from log):
Sample Recovery (feet):

Date: 7-21-05
Sample Pushed By: Jaworski
Sample Logged By: Wick
Type of Sample: ☐ Piston ☒ Vibracore ☐
Diameter of Sample (inches): ~~3.5"~~ 4"
Sample Quality: ☒ Good ☐ Fair ☐ Poor ☐ Disturbed
Average % Compaction = —

% Composition	Sample Interval in Feet	Represent at Depth Interval (add Compact.)	CONSISTENCY	MOISTURE	COLOR	Size % G Max.	Size % S Range	Size % F (PI)	Theoretical Depth Feet Core Sections	Actual	Sample Sketch	Classification and Remarks
N/A	0-4'		loose	moist to wet	dark gray to black					1, 2, 3		- sand w/ cobble & gravel - mild H_2S odor - slight petro odor - organic debris - some trash.
		core cut here								4		
C N/A	4-5'		loose	damp to moist	dark gray							- organic debris @ 4' mark - sand w/ clayey sand pockets @ 4' that is moist to wet - slight petroleum odor
		core cut here								5		
D N/A	5-6'		loose	~~moist~~ damp	dark gray							- gravel & some organics - sand - slight H_2S & petroleum odor
		core cut here								6		
E	6-7'		loose	moist	dark gray/black							- H_2S & petro odor - some gravel - no sheen - sand
		core cut here								7		
F	~~6~~ 7-8'		loose	wet	dark gray/black							- sand - H_2S & petro odor NOT SAMPLED
		core cut here								8		

end of core

ANCHOR ENVIRONMENTAL, L.L.C.

Sediment Core Collection Form

Station ID: DW 103 **Date:** 21 July 05

Project Name: Denny WAY **Project Number:** 020067-01

Coordinates: Lat/Northing 47° 37' ~~05.99~~" N Long/Easting: 122° 21' ~~38.63~~" W

Vertical Datum MLLW 06.36" N MLW Other: 39.46" W

Depth Measurement Sounder Leadline 9' 6"

Project Depth _____ **Overdredge** _____

	Attempt 1	Attempt 2	Attempt 3
Time:	1535		
(A) Measured Water Depth	9.5' ~~9'6"~~		
(B) Tide Height	5.9		
(C) Mudline Elevation	3.6		
(-A+B = C include sign of tide height as reported)			
Estimated Penetration	±2' 13		
Description of Core Drive	smooth for first 10'		
Refusal Encountered?	No		
Total Core Length	8.7		

Core Characteristics

Sediment Type	cobble, gravel, sand C M F , silt clay, organic matter	cobble, gravel, sand C M F , silt clay, organic matter	cobble, gravel, sand C M F , silt clay, organic matter
Sediment Color	gray, black, brown brown surface, olivine	gray, black, brown brown surface, olivine	gray, black, brown brown surface, olivine
Sediment Odor	None, slight, mod, strong H_2S, petroleum, septic	None, slight, mod, strong H_2S, petroleum, septic	None, slight, mod, strong H_2S, petroleum, septic
Any Layering Homogeneous			

Comments:

Recorded by: _____

Visual Classification of Undisturbed Sample

ANCHOR ENVIRONMENTAL, L.L.C.

Job: Denny Way CSO
Job No.:
Exploration No.: 1
Sample No.: DW103-CD--050721
Depth of Sample: see core collection log
Sampled Length (feet; from log):
Sample Recovery (feet):

Date: 7-21-05
Sample Pushed By: Jaworski
Sample Logged By: Wick
Type of Sample: ☐ Piston ☐ Vibracore ☒
Diameter of Sample (inches): 4'
Sample Quality: ☒ Good ☐ Fair ☐ Poor ☐ Disturbed
Average % Compaction = N/A

	% Composition	Sample Interval in Feet	Represent at Depth Interval (add Compact.)	CONSISTENCY	MOISTURE	COLOR	Size % G Max.	Size % S Range	Size % F (PI)	Theoretical Depth Feet Actual Core Sections	Sample Sketch	Classification and Remarks
		0-4'		loose	damp to moist	olive gray				1, 2, 3		• sand w/ gravel. • mild H_2S, mild petro odor • pockets of light gray clay
				core cut here						4		
C		4'-5'		loose	damp	gray olive				5'		organics present • sand • no sheen pocket of moist-wet black sand - H_2S mild odor, slight petro odor - some gravel - wood chunks
				core cut here								
D		5-6'		med stiff	moist to wet	olive gray to dark gray				6'		• mild petro odor • silty sand • wood chunks prevalent • no sheen
				core cut here								
E		6'-7'		med ~~stiff~~ loose	moist	dark gray				7'		• silty sand • slight petroleum odor • wood chunks, organics • no sheen
				core cut here								
		7-8'		med stiff	damp	olive gray - ~~sandy silt~~ clay (below) dark gray - sandy silt (above)				7.9 - horizon between dark gray & olive gray.		• below 7'9. • no sheen • some organics, gravel, wood chunks. • no odor NOT SAMPLED

END OF CORE

ANCHOR ENVIRONMENTAL, L.L.C.

Sediment Core Collection Form

Station ID: DW 105 **Date:** 7/21/05

Project Name: Denny Way **Project Number:** 020067-01

Coordinates:
Lat/Northing 47° 37 06.34 N Long/Easting: 122° 21' 40.49 W
47 37 06.36 N 122 21 40.58 N

Vertical Datum MLLW MLW Other:

Depth Measurement Sounder Leadline 11.2 / 8.5 = 9.8 (10.2)

Project Depth **Overdredge**

	Attempt 1	Attempt 2	Attempt 3
Time:	1000	1036	
(A) Measured Water Depth	10.2	10.0	
(B) Tide Height	-2.1	-3	
(C) Mudline Elevation	-12.3	-13.0	
(-A+B = C include sign of tide height as reported)			
Estimated Penetration	10'	12'	
Description of Core Drive	V. slow < 1"/min	rapid penetration	
Refusal Encountered?	Yes	No	
Total Core Length	5.5' recovery	10' recovery	

Core Characteristics

Sediment Type	cobble, gravel, sand C M F, silt clay, organic matter	cobble, gravel, sand C M F, silt clay, organic matter	cobble, gravel, sand C M F, silt clay, organic matter
Sediment Color	gray, black, brown brown surface, olivine	gray, black, brown brown surface, olivine	gray, black, brown brown surface, olivine
Sediment Odor	None, slight, mod, strong H_2S, petroleum, septic	None, slight, mod, strong H_2S, petroleum, septic	None, slight, mod, strong H_2S, petroleum, septic
Any Layering Homogeneous			

Comments: Black silty clay in catcher, set 105A aside. will try for more recovery. Medium sand in catcher of second core

Recorded by: Bruce McDonald

Visual Classification of Undisturbed Sample

ANCHOR ENVIRONMENTAL, L.L.C.

Job	Denny Way CSO	Date	7-21-05
Job No.		Sample Pushed By	Jaworski
Exploration No.	1	Sample Logged By	Wick
Sample No.	DW-105-CD--050721	Type of Sample	☐ Piston ☒ Vibracore ☐
Depth of Sample	See core collection forms	Diameter of Sample (inches)	4"
Sampled Length (feet; from log)		Sample Quality	☒ Good ☐ Fair ☐ Poor ☐ Disturbed
Sample Recovery (feet)		Average % Compaction =	N/A

	% Composition	Sample Interval in Feet	Represent at Depth Interval (add Compact.)	CONSISTENCY	MOISTURE	COLOR	Size % G Max.	Size % S Range	Size % F (PI)	Theoretical Depth Feet Actual Core Sections	Sample Sketch	Classification and Remarks
	N/A	0-4'	—	med loose	damp to moist	dark gray	—	—	—	1' 2' 3'		- sand. - strong H2S, slight petro odor - organics, trash
				core cut here						4'		
C		4'-5'	—	medium loose	moist	olive gray/dark gray	—					- clayey sand - slight petroleum odor - some organics & gravel - no sheen
				core cut here						5'		
D		5'-6'	—	med stiff	moist	dark gray/black	—					- plastic garbage present - organic debris - clayey sand - petroleum odor - no sheen - cigarette butt and HAIR
				core cut here						6'		
E		6'-7'	—			Same as 5'-6'						- clayey sand - trash/debris/organic material - hair, cigarette butts - moderate petroleum odor - moderate H2S
				core cut here						7'		
F		7'-8'		med stiff	moist	dark gray/black	—					- slight H2S - clayey sand - some trash & organic debris but not as much as - no sheen
				core cut here						8'		
G		8-9'	→	loose	moist	olive gray/dark gray	—					- no sheen - slight petroleum odor - organic debris - sandy clay.
				core cut here						9'		
H		9-10'		med loose	moist	olive gray	—					- slight petroleum odor - trash, cigarette butts - organic debris - pocket of black sand with noticeable odor

end of core

APPENDIX C

KING COUNTY WATER AND LAND RESOURCES DIVISION ENVIRONMENTAL LABORATORY DENNY WAY SEDIMENT REMEDIATION CORE SAMPLES QA1 DATA REPORT

King County

Water and Land Resources Division
Environmental Laboratory
Department of Natural Resources and Parks
322 West Ewing Street
Seattle, WA 98119-1507
206-684-2300 Fax 206-684-2395
TTY Relay: 711

Fritz Grothkopp

July 16, 2007

Michelle McClelland
Anchor Environmental LLC
1432 Third Ave, Suite 300
Seattle, WA 98101-2177

Dear Ms. McClelland:

Enclosed you will find the QA1 report for the Denny Way Sediment Remediation Core Samples collected on July 21, 2005.

If you have any questions, please call me at 206-684-2327.

Sincerely,

Fritz Grothkopp
Laboratory Project Manager

Enclosures

Anchor_covlet_2005 DW Seds QA1.DOC

1202M

KING COUNTY ENVIRONMENTAL LABORATORY
QUALITY ASSURANCE REVIEW

For

DENNY WAY COMBINED SEWER OVERFLOW OUTFALL
SEDIMENT CHARACTERIZATION
CLEANUP AREA CORE SAMPLING
JULY 2005

COPY

KING COUNTY ENVIRONMENTAL LABORATORY
QUALITY ASSURANCE REVIEW

For

DENNY WAY COMBINED SEWER OVERFLOW OUTFALL
SEDIMENT CHARACTERIZATION
CLEANUP AREA CORE SAMPLING
JULY 2005

Prepared by:

Fritz Grothkopp

Fritz Grothkopp
Laboratory Project Manager
Environmental Laboratory Section

Date: May 8, 2006

Reviewed by:

Colin Elliott

Colin Elliot
Quality Assurance Officer
Environmental Laboratory Section

Date: May 8, 2006

King County Environmental Laboratory
322 West Ewing Street
Seattle, Washington 98119-1507
(206) 684-2300

INTRODUCTION

This quality assurance (QA) narrative is intended to document the QA review conducted on the chemistry analyses performed for the Denny Way Combined Sewer Overflow Outfall Sediment Characterization. The QA narrative is organized into the five sections listed below.

- General Comments
- Sample Collection
- Conventional Analyses
- Metal Chemistry
- Organic Chemistry

An overview of the approach used for the QA review is detailed in the *General Comments* section. Additional information specific to each analysis is included in the appropriate analytical section.

This QA review and narrative (specifically defined as QA1) have been conducted in accordance with guidelines established through the Puget Sound Dredged Disposal Analysis (PSDDA) program, Sediment Management Standards (WAC 173-204-610) and the Sediment Sampling and Analysis Appendix (SAPA), WDOE 2003. Other approaches incorporated in the QA review have been established through collaboration between the King County Environmental Laboratory (KC Laboratory) and the Washington State Department of Ecology (Ecology) Sediment Management Unit.

GENERAL COMMENTS

Scope of Samples Submitted

This QA review is associated with marine sediment samples collected on July 21, 2005 as part of the Denny Way Combined Sewer Overflow Outfall Sediment Characterization. The DRET and TCLP samples described in the SAP are reported separately.

This narrative has been generated by comparing the sample collection records and analysis results to the SAPA guidelines (DOE 2003) and current lab practices and policies. In some cases, these criteria are inconsistent with what were included in the SAP created for this project by Anchor Environmental. In particular, the QC acceptance limits for the SVOC (BNA), Pesticide and PCB parameters are significantly different between what is listed in the SAP and what are routinely used by the lab for sediment testing. Comparisons of the reported vs. SAP-defined MDLs are however discussed in this narrative.

Except where noted in the subcontracting sections of this QA review, all analyses have been conducted by the King County Environmental Laboratory (KCEL). Sediment analytical data are reported with associated data qualifiers and have undergone QA1 review, as summarized in this narrative report.

Completeness

Completeness has been evaluated for this data submission and QA review by considering the following criteria:

- Comparing reported data to the planned project analyses summarized in *Table* 1.
- Compliance with storage conditions and holding times.
- Frequency of analysis of the complete set of quality control (QC) samples outlined in *Table* 2.

Subcontracted Analyses

Analyses that have been subcontracted and the issues associated with these subcontracted analyses are noted in this narrative.

Methods

Analytical methods are noted in the applicable analytical sections of this QA review.

Target Lists

The reported target lists have been compared to the target analytes listed in *Table 1 - Marine Sediment Quality Standards Chemical Criteria* and *Table 3 - Puget Sound Marine Sediment Cleanup Screening Levels Chemical Criteria* contained in Chapter 173-204 WAC.

Detection Limits

As part of the QA1 review, the detection limits reported for each parameter have been reviewed against the detection limit requirements defined in the SAP (Anchor Env., July 2005). When sample results have been reported as less than the Method Detection Limit (<MDL) and the associated detection limits are higher than those defined in the SAP, the particular samples and parameters have been identified and the circumstances explained. These summaries are included with each analytical section of this QA review.

The KC Laboratory reports include both the reporting detection limit (RDL) and the method detection limit (MDL) for each sample and parameter, where applicable. The RDL is defined as *the minimum concentration of a chemical constituent that can be reliably quantified while* the MDL is defined as *the minimum concentration of a chemical constituent that can be detected*. Some subcontracted laboratory data are available with an MDL only, in accordance with the subcontracting laboratory policies. For some methods the detection limits reported may vary from sample to sample depending on the amount of sample analyzed and any additional dilutions required.

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Storage Conditions and Holding Times

Storage conditions and holding times have been evaluated using guidelines defined in the 2003 SAPA. Preparation and analysis holding times for each method are summarized in each analytical section.

Method Blanks

Method blank results have been used to evaluate the possible laboratory contamination of samples. Method blank results have been reviewed for the presence of analytes detected at or greater than the MDL. For analytes where the method blank response was at or above the MDL all associated sample results have been qualified with a B flag.

Standard Reference Materials

Standard reference material (SRM) recoveries have been used to evaluate possible low or high analytical bias on a batch-specific basis. SRM analysis is included with metals and selected organic and conventional parameters (see *Table* 2). SRMs are purchased from outside agencies (NIST or NRCC) and must have a certified analyte value in order for a particular parameter to be evaluated. All associated sample results for the certified analytes are flagged if the SRM recoveries are unacceptable. Associated sample results are flagged with an L whenever recoveries are measured above the acceptance limits and are flagged with a G when recoveries are measured below the acceptance limits.

Matrix Spikes

Matrix spike recoveries have been used to evaluate possible low or high analytical bias on a matrix and batch-specific basis. Matrix spikes are analyzed with metals, organics and selected conventionals parameters (see *Table* 2). Associated sample results are flagged with an L whenever recoveries are measured above the acceptance limits and are flagged with a G when recoveries are measured below the acceptance limits (but at or above 10%). Associated results are flagged with an X whenever recoveries are less than 10%.

For Metals only, matrix spike recovery results are used to qualify sample data only when the sample levels in the spiked sample are less than 4 times the spiked concentration. High sample levels relative to the spiked concentration can compromise the measurement of accurate spike recoveries.

Laboratory Replicate Samples

Replicate analysis (laboratory duplicates or triplicates) is used as an indicator of method precision and is used to qualify data on an analyte and batch-specific basis. Not all replicate data are used, however, as an indicator for data qualification. Only sets of replicate results which include at least one result greater than the RDL are considered for data qualification. These guidelines have been used to account for the fact that precision obtained near the detection limit is not representative of precision obtained throughout the entire analytical range. Associated results are flagged with an E whenever the measured precision is unacceptable (greater than the acceptance limit).

Surrogates

Surrogate recoveries have been used to evaluate possible low or high analytical bias on a sample-specific basis. Surrogates are only analyzed for organic parameters. Individual sample results are flagged with an L whenever recoveries are measured above the acceptance limits and are flagged with a G when recoveries are measured below the acceptance limits (but at or above 10%). Associated results are flagged with an X whenever recoveries are less than 10%.

Data Qualifiers

The data qualification guidelines described above has been summarized in *Table* 3. This table conforms to the guidelines in the current SAPA and also shows the data qualifiers used for the Sedqual electronic data format.

Units and Significant Figures

Units and the reporting basis vary, depending on the parameter and are explained in the analytical sections below. Data generally have been reported to three significant figures if above the RDL and two significant figures if equal to or below the RDL.

SAMPLE COLLECTION

This section describes sampling activities associated with the collection of seventeen sediment core samples on July 21, 2005. All sampling activities were conducted following guidance suggested in the Puget Sound Protocols (PSEP, 1996 and 1998).

Sampling Locations and Station Positioning

Sampling locations (stations) were selected and the prescribed coordinates determined prior to field activities. Stations were selected to provide data for the development of the dredge prism for the clean up area. The prescribed station coordinates are presented in the following table. All station coordinates are recorded in state plane coordinate system North American Datum 1983 (NAD83).

Prescribed coordinate data was not provided by Anchor prior to nor after the DW105 sampling location was chosen. The decision to add this core was made in the field. The actual coordinate location information was provided on the core field sheets.

Lab ID #	Station Name	Prescribed Northing	Field Northing	Prescribed Easting	Field Easting
L36276-1	DW101-CDC	229368	229374	1263519	1263513
L36276-2	DW101-CDD	229368	229374	1263519	1263513
L36276-3	DW101-CDE	229368	229374	1263519	1263513
L36276-4	DW102-CDC	229285	229282	1263688	1263682
L36276-5	DW102-CDD	229285	229282	1263688	1263682
L36276-6	DW102-CDE	229285	229282	1263688	1263682
L36276-7	DW103-CDC	229352	229325	1263685	1263685
L36276-8	DW103-CDD	229352	229325	1263685	1263685
L36276-9	DW103-CDE	229352	229325	1263685	1263685
L36276-10	DW104-CCB (1)	NA	NA	NA	NA
L36276-11	DW105-CDC	229327	229326	1263612	1263608
L36276-12	DW105-CDD	229327	229326	1263612	1263608
L36276-13	DW105-CDE	229327	229326	1263612	1263608
L36276-14	DW105-CDF	229327	229326	1263612	1263608
L36276-15	DW105-CDG	229327	229326	1263612	1263608
L36276-16	DW105-CDH	229327	229326	1263612	1263608
L36276-17	DW104-CSB (field replicate) (1)	NA	NA	NA	NA

(1) This sample is a composite of DW101, 102 & 103

Sediment core samples were collected from the *R/V Nancy Anne*, which is equipped with a differential global positioning system (DGPS). Field coordinates were recorded using DGPS for each deployment of the vibracorer device as it contacted the sediment. All field coordinates for cores listed in the above table are within the +/- 1 meter accuracy limits, as defined in the SAP.

Sample Description Table

Lab Sample #	Locator	Sample Collection	Sediment Core Depth (from surface)	Sample Usage
L36276-1	DW101-CDC	Core Sample	4 to 5 ft	Chemistry only
L36276-2	DW101-CDD	Core Sample	5 to 6 ft	Chemistry only
L36276-3	DW101-CDE	Core Sample	6 to 7 ft	Chemistry only
L36276-4	DW102-CDC	Core Sample	4 to 5 ft	Chemistry only
L36276-5	DW102-CDD	Core Sample	5 to 6 ft	Chemistry only
L36276-6	DW102-CDE	Core Sample	6 to 7 ft	Chemistry only
L36276-7	DW103-CDC	Core Sample	4 to 5 ft	Chemistry only
L36276-8	DW103-CDD	Core Sample	5 to 6 ft	Chemistry only
L36276-9	DW103-CDE	Core Sample	6 to 7 ft	Chemistry only
L36276-10	DW104-CCB	Core Sample	Composite of 101, 102 & 103	Chemistry only
L36276-11	DW105-CDC	Core Sample	4 to 5 ft	Chemistry only
L36276-12	DW105-CDD	Core Sample	5 to 6 ft	Chemistry only
L36276-13	DW105-CDE	Core Sample	6 to 7 ft	Chemistry only
L36276-14	DW105-CDF	Core Sample	7 to 8 ft	Chemistry only
L36276-15	DW105-CDG	Core Sample	8 to 9 ft	Chemistry only
L36276-16	DW105-CDH	Core Sample	9 to 10 ft	Chemistry only
L36276-17	DW104-CSB	Core Sample (field replicate)	Composite of 101, 102 & 103	Chemistry only

Sample Collection

Sediment cores were collected at each location identified above using a vibracorer. The vibracorer was deployed from the bow of the vessel using an A frame and winch assembly. A 3.75-inch inside diameter, pre-cut, decontaminated aluminum pipe will be clamped to the vibracorer. The vibracorer was deployed over the bow and sent to the bottom, where the unit was then energized and lowered to the appropriate depth. The target depth will be a minimum of 6 feet below the existing mudline. Acceptance criteria for a sediment core sample are as follows:

- The core penetrated to, and retained material to, project depth or refusal
- Recovery was 75 percent of the length of core penetration
- Cored material did not extend out the top of the core tube or contact any part of the sampling apparatus at the top of the core tube
- There are no obstructions in the cored material that might have blocked the subsequent entry of sediment into the core tube and resulted in incomplete core collection

If core rejections require the core station to be relocated, the station will be relocated nearby within the dredge prism. Recovered core tubes were be cut into sections, if necessary, capped, and stored in an insulated compartment aboard the vessel.

All core samples met the above criteria based on the core field logs.

Sample Handling

Sediment processing was conducted on board the sampling vessel. All working surfaces and instruments were thoroughly cleaned, decontaminated, and covered with aluminum foil to minimize outside contamination between sampling events. Disposable gloves will be discarded after processing each station and replaced prior to handling decontaminated instruments or work surfaces.

Sample containers were kept in packaging as received from the analytical lab until use; a sample container was withdrawn only when a sample was collected and returned to a cooler containing completed samples.

Sample Processing, Storage and Preservation

The sediment collected from each individual core was homogenized. A proportionate volume of each individual sample was placed into a decontaminated stainless steel bowl for compositing. The material added to the composite container was representative of the entire depth interval targeted for each individual sample. As an individual contribution becomes available, its proportionate sediment volume was added to the composite sample container. When all of the desired material had been placed into the compositing container, the material was homogenized with a stainless steel spoon until uniform in color and texture, then placed into the appropriate sample jars, as identified in *Table* 3 of the SAP (Anchor, July 2005) and stored. In order to satisfy the volume requirements for analyses, the composite consisted of approximately 4 liters of sediment. The homogenate was mixed throughout the process of filling sample jars to ensure that each sample jar was representative of the homogenate mixture.

Filled sample jars were labeled with the name of the project, sample number, type of analysis, date, time, and initials of the person preparing the sample. This information was recorded on the chain-of-custody forms and on the field core logs. Following proper sealing and labeling, all sample containers were placed on ice in a cooler or container and maintained at 4□C.

CONVENTIONAL ANALYSES

Completeness
Conventional data are reported for all samples and parameters summarized in *Table* 1. These samples were analyzed in association with the complete set of QC samples outlined in *Table* 2.

Subcontracted Analyses
All requested analyses were done at the King County Env Lab.

Methods
PSD analysis was performed in accordance with ASTM and Puget Sound Protocols methodologies (*Recommended Protocols for Measuring Conventional Sediment Variables in Puget Sound* - page 9 - PSEP, 1986). TOC analysis was performed in accordance with SM5310-B and EPA 9060. Total solids was performed in accordance with SM2540-G.

Detection Limits
The detection limits (MDLs) reported for Conventionals parameters are all within the requirements defined in the SAP, except for the following:

Parameter	Sample ID#	SAP MDL (dry)	Reported MDL (dry)	Reason for higher MDL Value
Total Organic Carbon	L36276-1	1000	2600	sample dilution
Total Organic Carbon	L36276-2	1000	3300	sample dilution
Total Organic Carbon	L36276-3	1000	5200	sample dilution
Total Organic Carbon	L36276-4	1000	1800	sample dilution
Total Organic Carbon	L36276-5	1000	1100	sample dilution
Total Organic Carbon	L36276-7	1000	1100	sample dilution
Total Organic Carbon	L36276-8	1000	3400	sample dilution
Total Organic Carbon	L36276-9	1000	1700	sample dilution
Total Organic Carbon	L36276-10	1000	1900	sample dilution
Total Organic Carbon	L36276-11	1000	1900	sample dilution
Total Organic Carbon	L36276-12	1000	2100	sample dilution
Total Organic Carbon	L36276-13	1000	2600	sample dilution
Total Organic Carbon	L36276-14	1000	2000	sample dilution
Total Organic Carbon	L36276-15	1000	2600	sample dilution
Total Organic Carbon	L36276-16	1000	5400	sample dilution
Total Organic Carbon	L36276-17	1000	2000	sample dilution

Although the SAP MDL was not achieved for these samples, all the samples had reportable amounts above the MDL. In addition, the silt and clay portion of the PSD measurement have an MDL of 0.5% compared to the SAP MDL of 0.1%. All samples for these two categories had reportable values above 0.5%.

Reporting Requirements (significant figures, units, basis and qualifiers)
For analyses performed at the KC Laboratory, data are reported in accordance with laboratory policy at the time the data were generated. Data are reported to three significant figures for results greater than the RDL and two significant figures for results equal to or less than the RDL. For results reported with less than two or three significant figures, significant zeroes are implied. This may not apply to subcontracted data.

In the Comprehensive Report attached, Conventionals parameters are reported in mg/Kg, dry weight basis, for TOC. Particle Size Distribution (PSD) and Total Solids are reported in percent, wet weight basis. For all parameters, the MDL and RDL values for each individual sample are

reported in the same units and basis as the sample result. Any result measured at less than the MDL or less than the RDL, a <MDL or <RDL qualifier is added, respectively. Other qualifiers added are based on QA/QC failures and are individually explained in this narrative.

Storage Conditions and Holding Times

Sample storage conditions and holding times have been evaluated using guidelines established in the SAPA (WDOE, 2003). The dates and holding time criteria for the actual storage conditions used for conventional analyses are listed in the table below.

Parameter	Lab ID#	Date Collected	Prep Date	Date Analyzed	Sample Holding Time
Particle Size Distribution	L36276-1 to -10	21-Jul-2005	08-Aug-2005	09-Aug-2005	6 Months at 4°C
	L36276-11 to -17	21-Jul-2005	15-Aug-2005	16-Aug-2005	
Total Organic Carbon	L36276-1 to -8	21-Jul-2005	27-Jul-2005	01-Sep-2005	6 months at -18°C
	L36276-9 to -17	21-Jul-2005	01-Aug-2005	02-Sep-2005	
Total Solids	L36276-1 to -17	21-Jul-2005	27-Jul-2005	27-Jul-2005	6 months at -18°C

Sample storage conditions and holding times were met for all samples in this data submission.

Method Blanks

Method blanks were analyzed in connection with total solids and total organic carbon analyses. All method blanks results were less than the MDL.

Standard Reference Materials

An SRM (Buffalo River Sediment) was analyzed in connection with TOC analysis. The percent recovery for the SRM analysis was within the 80 to 120% QC limits.

Matrix Spikes

The matrix spike recovery for TOC was within the 75 to 125% acceptance limits. The acceptance limits are not applicable when the un-spiked sample level is 4 times or greater than the spiked concentration.

Laboratory Replicate Samples

A set of laboratory triplicates was analyzed for each of the conventional parameters. The percent relative standard deviation (%RSD) for each triplicate set was less than or equal to the 20% acceptance limit, except for the following:

For PSD analysis, the %RSD measured for the triplicate analysis of Sample L36276-4 was 29% for the Gravel category and 33% for the Clay category, which is greater than the 20% acceptance limit. These categories represent 10% or less of the total particle distribution of the QC sample. Higher variability is expected for the any category whenever it represents 10% or less of the total, therefore no corrective actions were taken except that clay and gravel results for all samples are qualified with an "E" flag.

METALS CHEMISTRY

Completeness
Metal chemistry data are reported for all samples summarized in *Table* 1. These samples were analyzed for mercury and other metals in association with the complete set of QC samples outlined in *Table* 2.

Subcontracted Analyses
All requested analyses were done at the King County Env Lab.

Methods
Mercury analysis was performed in accordance with EPA Method 245.5. Note that the SAP specifies method 7471 which is equivalent to Method 245.5. Analysis for other metals was performed in accordance with EPA method 3050/6010.

Target List
The reported target list includes all metals specified in *Table 1*. Additional metals have been reported as available.

Detection Limits
The detection limits (MDLs) reported for Metals parameters are all within the requirements defined in the SAP, except for the following:

Parameter	Sample ID#	SAP MDL	Reported MDL	Reason for higher MDL Value
Chromium	L36276-1	0.4	0.5	Solids less than 50%
Chromium	L36276-2	0.4	0.58	Solids less than 50%
Chromium	L36276-3	0.4	0.65	Solids less than 50%
Chromium	L36276-15	0.4	0.54	Solids less than 50%
Chromium	L36276-16	0.4	0.64	Solids less than 50%
Mercury	L36276-13	0.1	0.32	Dilution
Copper	L36276-2	0.4	0.47	Solids less than 50%
Copper	L36276-3	0.4	0.52	Solids less than 50%
Copper	L36276-15	0.4	0.44	Solids less than 50%
Copper	L36276-16	0.4	0.51	Solids less than 50%

Reporting Requirements (significant figures, units, basis and qualifiers)
For analyses performed at the KC Laboratory, data are reported in accordance with laboratory policy at the time the data were generated. Data are reported to three significant figures for results greater than the RDL and two significant figures for results equal to or less than the RDL. For results reported with less than two or three significant figures, significant zeroes are implied.

In the Comprehensive Report attached, Metals parameters are reported in mg/Kg, dry weight basis, for all elements. The MDL and RDL values for each individual sample are reported in the same units and basis as the sample result. Any result measured at less than the MDL or less than the RDL, a <MDL or <RDL qualifier is added, respectively. Other qualifiers added are based on QA/QC failures and are individually explained in this narrative.

Storage Conditions and Holding Times
Sample storage conditions and holding times have been evaluated using guidelines established in the SAPA (WDOE 2003). The dates and holding time criteria for the actual storage conditions used for metals analyses are listed in the table below.

Parameter	Lab ID#	Date Collected	Date Digested/ Extracted	Date Analyzed	Sample Holding Time	Digestate/Extract Holding Time
Total Metals	L36276-1 through -17	7/21/05	8/04/05	8/05/05	2 Years at -18°C	6 months
Total Mercury	L36276-1 to -7, -9 to -17	7/21/05	8/4/05	8/5/05	28 days at -18°C	NA
	L36276-8	7/21/05	8/10/05	8/10/05		

Sample storage conditions and holding times were met for all samples in this data submission.

Method Blanks
Method blanks were analyzed for all metals parameters and all method blank results were less than the MDL.

Standard Reference Materials
The SRM analyzed in association with samples included in this data submission is PACS-2.

The reported SRM recovery of 94% for silver is less than the lab limits of 144-192%. The reported SRM recovery of 29% for beryllium is less than the lab limits of 31-51%. The reported SRM recovery of 0% for antimony is less than the lab limits of 80-120%. Silver, antimony and beryllium results for all samples in this data submission have been qualified with the *G* flag.

The reported SRM recovery of 85% for arsenic is greater than the lab limits of 60-84%. Arsenic results for all samples in this data submission have been qualified with the *L* flag.

The reported SRM recovery of 131% for one of the analytical batches for mercury is greater than the 120% QC limit. A Mercury result for L36276-8 (the only sample in the analytical batch) has been qualified with the *L* flag.

Matrix Spikes
All matrix spike recoveries were within the 75 to 125% QC limits with the following exceptions:

The reported matrix spike recovery of 37% for antimony is less than the 75% QC limit. Antimony results for all samples in this data submission have been qualified with the *G* flag.

Laboratory Replicate Samples
The relative percent differences (RPDs) for laboratory duplicate results for all metals were less than or equal to the QC limit of 20% with the following exception:

The reported lab replicate RPD of 32% for copper, 35% and 40% for mercury is greater that the 20% QC limit. Copper and mercury results for all samples in this data submission have been qualified with the *E* flag.

ORGANIC CHEMISTRY

Completeness

Organics data are reported for all samples and parameters summarized in *Table* 1. These samples were analyzed in association with the complete set of QC samples outlined in *Table* 2.

Methods

BNA analysis was performed in accordance with EPA method 8270. PCB and chlorinated pesticides analysis was performed in accordance with EPA methods 8082 and 8081A.

Target List

The reported BNA target list includes all compounds specified in *Table 1 - Marine Sediment Quality Standards Chemical Criteria* and *Table 3 - Puget Sound Marine Sediment Cleanup Screening Levels Chemical Criteria* contained in Chapter 173-204 WAC with the exception of benzo(j)fluoranthene. The KC Laboratory has verified that analytical conditions are sufficient to calculate a total benzofluoranthene result using the reported *b* and *k* isomers.

The reported chlorobenzene target list includes, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2,4-trichlorobenzene, and hexachlorobenzene.

Reported PCB data include Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260.

Detection Limits, Units and Significant Figures

The detection limits (MDLs) reported for Organics parameters are all within the requirements defined in the SAP, except for those highlighted on the enclosed spreadsheet, SAP MDL Comparison. Most of the dry weight MDLs fell outside the SAP specified amounts due to necessary dilution of the sample. BNA analyses were diluted 10x for all samples except L36276-3. PCB analyses were diluted 10x for all samples. Pesticide analyses were not diluted at all.

For Non-ionizable Organic parameters, comparison tables were prepared to determine if the sample met the necessary Sediment Quality Standard limit values for the specified SMS compounds. Those compounds that did not meet those values are noted (in parenthesis) on the attached SMS OC Normalization Detection Limit Check tables attached to this report.

Reporting Requirements (significant figures, units, basis and qualifiers)

For analyses performed at the KC Laboratory, data are reported in accordance with laboratory policy at the time the data were generated. Data are reported to three significant figures for results greater than the RDL and two significant figures for results equal to or less than the RDL. For results reported with less than two or three significant figures, significant zeroes are implied. This may not apply to subcontracted data.

In the Comprehensive Report attached, Organics parameters are reported in ug/Kg, dry weight basis. In this report format, non-ionizable organic parameters have not been converted to mg/Kg TOC. For all parameters, the MDL and RDL values for each individual sample are reported in the same units and basis as the sample result. Any result measured at less than the MDL or less than the RDL, a <MDL or <RDL qualifier is added, respectively. Other qualifiers added are based on QA/QC failures and are individually explained in this narrative.

Storage Conditions and Holding Times

Sample storage conditions and holding times have been evaluated using guidelines established in the SAPA (WDOE, 2003). The dates and holding time criteria for the actual storage conditions used for organics analyses are listed in the table below.

Parameter	Lab ID#	Date Collected	Date Extracted	Date Analyzed	Sample Holding Time	Extract Holding Time
BNA	L36276-1 to 17	21-Jul-05	29-Jul-05	22, 23, 30-Aug-05	1 year at -18°C	40 days at 4°C
Chlorinated Pesticides	L36276-1 to 16	21-Jul-05	3-Aug-05	8, 9, 11, 12-Aug-05	1 year at -18°C	40 days at 4°C
	L36276-17	21-Jul-05	12-Aug-05	24-Aug-05		
PCB	L36276-1 to 16	21-Jul-05	3-Aug-05	6, 7, 8-Sep-05	1 year at -18°C	40 days at 4°C
	L36276-17	21-Jul-05	12-Aug-05	6, 7-Sep-05		

Sample storage conditions and holding times were met for all samples in this data submission.

Method Blanks

Method blanks were analyzed for all Organics parameters and all method blank results were less than the MDL, except as noted below:

1. BNA

The method blank analyzed with BNAs for L36276 had a result above the MDL for Benzoic Acid. Sample results for Benzoic Acid for that batch (L36276) have been qualified with the B flag. All Benzoic Acid results for these samples must be treated as estimated values.

Surrogate Recoveries

Surrogate recovery acceptance limits for sediment samples have been developed based on historical lab performance using the current analytical methods. Recoveries measured above the acceptance limits are flagged with an L. Recoveries measured below the acceptance limits (but at or above 10%) are flagged with a G. Recoveries below 10% are flagged with an X. Surrogate recovery summaries for each method are shown below.

1. BNA

For BNA sample data, surrogate recoveries are evaluated separately for the acid and base/neutral fractions. Within each fraction, 2 or more surrogates must be outside the acceptance limits in order to qualify the associated sample data. No more than one surrogate was outside the acceptance limits thus sample data was not qualified.

2. PCB

Sample data are qualified when individual surrogate recoveries are outside lab-specific acceptance limits. For each set of analyses, all surrogate recoveries were within the lab-specific acceptance limits for all samples in this data submission.

3. Chlorinated Pesticides

Sample data are qualified when individual surrogate recoveries are outside lab-specific acceptance limits. For each set of analyses, all surrogate recoveries were within the lab-specific acceptance limits for all samples in this data submission.

Standard Reference Materials (SRMs)

The SRM results associated with these samples are summarized below, according to the analysis method. Acceptance limits for the certified parameters reported in this data set have been developed using historical lab data. SRM recoveries outside these lab-defined limits indicate the method has not performed as expected and the associated sample data have been flagged.

1. BNA

The sediment SRM analyzed in association with the reported BNA results is 1944, certified by the National Institute of Standards and Technology (NIST). The certified organics parameters in

SRM 1944 are only a partial list of all the BNA compounds reported in this analysis. All measured recoveries for this SRM were within acceptance limits.

2. PCB and Chlorinated Pesticides
The sediment SRM analyzed in association with the reported Chlorinated Pesticides results is 1944, certified by the NIST. SRM 1944 contains certified levels of DDT and Alpha-Chlordane. The sediment SRM analyzed in association with the reported PCB results is HS-2, certified by the National Research Council of Canada. SRM HS-2 contains Aroclor 1254. All measured recoveries for these two SRMs were within acceptance limits except as shown in the table below:

	Add L36276-1 to 17	
Compound	**% Recovery**	**Flag**
DDT	212	L

Matrix Spikes
Matrix Spikes have been analyzed for each method. Recovery acceptance limits for each parameter in sediment have been developed based on historical lab performance using the current analytical methods. Matrix spike recoveries outside these lab-defined limits indicate the method has not performed as expected and the associated sample data have been flagged.

1. BNA
Each of the reported BNA compounds were included in the matrix spike and measured recoveries for each were within their acceptance limits, except for the parameters listed in the table below:

	Add L36276-1 to 17	
Compound	**% Recovery**	**Flag**
Bis(2-Ethylhexyl)Phthalate	4	X

2. PCB and Chlorinated Pesticides
Each of the reported Pesticide compounds was included in the Chlorinated Pesticide matrix spike. Aroclor 1260 and 1016 only are used as the spiking parameters for PCB matrix spike. The measured recovery for each spiked parameter was within their acceptance limits.

Laboratory Replicate Samples
A laboratory duplicate sample(s) was analyzed for each Organics parameter. The relative percent differences (RPDs) for laboratory duplicate for all parameters at or above the RDL were less than or equal to the acceptance limit of 35%, except for the following:

1. BNA
The RPD for Benzo(a)anthracene, Bis(2-ethylhexyl)phthalate, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene and Benzo(g,h,i)perylene for the duplicate analysis of Sample L36276-2 were 46, 141, 63, 68, 66, 57 and 60% respectively. All results for these parameters have been flagged with an "E" for Samples L36276-1 through –17.

2. Chlorinated Pesticides
The RPD for Alpha-BHC for the duplicate analysis of Sample L36276-3 was 48%. All results for this parameter have been flagged with an "E" for Samples L36276-1 through –17.

3. PCB
The RPD for Aroclor 1248 for the duplicate analysis of Sample L36276-3 was 40%. All results for this parameter have been flagged with an "E" for Samples L36276-1 through –17.

Additional QC Issues:

BNA Analysis

None

PCB Analysis:
PCB data reported for this set of samples include numeric values for only those Aroclors that could be positively identified in each sample and were measured above the detection limit. Identification of Aroclors 1016, 1232 and 1242 was not possible for samples listed below due to the overlap of the components from other more prominent Aroclors. For those Aroclors where this overlap has occurred, the result is reported as <MDL with elevated MDL and RDL values. The elevated MDL represents the maximum amount that would have been reported for that aroclor had it been positively identified. The RDL value has also been elevated by the same proportion.

Lab Sample Number	PCB 1016	PCB 1232	PCB 1242
L36276-1	X	X	X
L36276-2	X	X	X
L36276-3	X	X	X
L36276-4	X	X	X
L36276-5	X	X	X
L36276-6	X	X	X
L36276-7	X	X	X
L36276-8	X	X	X
L36276-9	X	X	X
L36276-10	X	X	X
L36276-11	X	X	X
L36276-12	X	X	X
L36276-13	X	X	X
L36276-14	X	X	X
L36276-15	X	X	X
L36276-16	X	X	X
L36276-17	X	X	X

Chlorinated Pesticide Analysis:

Matrix interferences caused problems with the GC system such that the continuing calibration checks failed for the following compounds: DDT, Endrin Aldehyde and Methoxychlor. The following table summarizes those samples which were affected.

Sample	4,4'-DDT	Endrin Aldehyde	Methoxychlor
L36276-1	x	x	x
L36276-2	x	x	x
L36276-3	x	x	x
L36276-4	x	x	x
L36276-5	x	x	
L36276-6	x	x	
L36276-7	x	x	
L36276-8	x	x	
L36276-9	x	x	
L36276-10	x	x	
L36276-11	x	x	
L36276-12	x	x	
L36276-13	x	x	
L36276-14	x	x	
L36276-15	x	x	
L36276-16	x	x	
L36276-17		x	

This problem could not be eliminated without excessively diluting the samples, therefore it was decided to report the measure values with an "E" qualifier to indicate the observed calibration failures.

TABLE 1
SEDIMENT SAMPLE INVENTORY

Sample	Locator / Description (see SAP)	PSD	Solids	TOC	Metals[3]	BNAs[4]	Pest/ PCBs	Comments
L36276-1	DW101-CDC	X	X	X	X	X	X	
L36276-2	DW101-CDD	X	X	X	X	X	X	
L36276-3	DW101-CDE	X	X	X	X	X	X	
L36276-4	DW102-CDC	X	X	X	X	X	X	
L36276-5	DW102-CDD	X	X	X	X	X	X	
L36276-6	DW102-CDE	X	X	X	X	X	X	
L36276-7	DW103-CDC	X	X	X	X	X	X	
L36276-8	DW103-CDD	X	X	X	X	X	X	
L36276-9	DW103-CDE	X	X	X	X	X	X	
L36276-10	DW104-CCB	X	X	X	X	X	X	
L36276-11	DW105-CDC	X	X	X	X	X	X	
L36276-12	DW105-CDD	X	X	X	X	X	X	
L36276-13	DW105-CDE	X	X	X	X	X	X	
L36276-14	DW105-CDF	X	X	X	X	X	X	
L36276-15	DW105-CDG	X	X	X	X	X	X	
L36276-16	DW105-CDH	X	X	X	X	X	X	
L36276-17	DW104-CSB	X	X	X	X	X	X	field replicate

1 Metals = Hg, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Tl, Zn
2 BNAs = includes Chlorobenzenes

TABLE 2
QC SAMPLE FREQUENCY FOR SEDIMENT CHEMICAL AND PHYSICAL PARAMETERS

Parameter	Method Blank	Duplicate	Triplicate	Matrix Spike	SRM	Surrogates
PSD	No	See Triplicate	5% minimum, 1 per QC batch	No	No	No
Total Solids	1 per QC batch	See Triplicate	5% minimum, 1 per QC batch	No	No	No
TOC	1 per QC batch	See Triplicate	5% minimum, 1 per QC batch	5% minimum, 1 per QC batch	1 per QC batch	No
Metals	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	1 per QC batch	No
BNAs	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	1 per QC batch	Yes
PCBs/Chlorinated Pesticides	1 per QC batch	5% minimum, 1 per QC batch	No	5% minimum, 1 per QC batch	1 per QC batch	Yes

TABLE 3 - SUMMARY OF SEDIMENT DATA QUALIFIERS

Condition to Qualify	King County Data Qualifier	Sedqual Data Qualifier	Organic QC Limits	Metal QC Limits	Conventional QC Limits	Comment
very low matrix spike recovery	X	X	< 10 %	< 10 %	< 10 %	
low matrix spike recovery	G	G	Compound specific	< 75%	< 75% *	
high matrix spike recovery	L	L	Compound specific	>125%	>125% *	
low standard reference material recovery	G	G	Compound and SRM specific	Element and SRM specific	< 80%	
high standard reference material recovery	L	L	Compound and SRM specific	Element and SRM specific	>120%	
high duplicate relative percent difference	E	E	>35 %	>20%	NA	for organics and metals
high triplicate relative standard deviation	E	E	NA	NA	> 20%	for conventionals
less than the reporting detection limit	<RDL**	T	NA	NA	NA	
less than the method detection limit	<MDL	U	NA	NA	NA	
contamination detected in method blank	B	B	>/=MDL	>/=MDL	>/=MDL	
biased data based on very low surrogate recoveries	X	X	any surrogate <10%	NA	NA	
biased data based on low surrogate recoveries	G	G	Surrogate specific	NA	NA	At least 2 surrogates < limit for BNAs
biased data based on high surrogate recoveries	L	L	Surrogate specific	NA	NA	At least 2 surrogates < limit for BNAs
rejected - unusable for all purposes	R	J or Q	NA	NA	NA	
a sample handling criteria has not been met	H	H	NA	NA	NA	container, hold time, preservation
		-				

- 65% to 135% for Total Sulfides.
- ** For Sedqual files, <MDL uses a "U" flag, <RDL is not flagged since the RDL value is not included in the Sedqual templates generated by King County.

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PROJECT: 423368-80

Locator:	TEMP	TEMP	TEMP	TEMP
Descrip:	Temporary Locator	Temporary Locator	Temporary Locator	Temporary Locator
Client Loc:	DW101-CDC	DW101-CDD	DW101-CDE	DW102-CDC
Sampled:	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005
Lab ID:	L36276-1	L36276-2	L36276-3	L36276-4
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	49.9	42.9	38.2	82.4

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
M=CV ASTM D422(03-02-005-001)																				
Gravel *	0.4	<RDL,E	0.1	1	%	1.7	E	0.1	1	%	2.4	E	0.1	1	%	5	E	0.1	1	%
Sand *	51.3		0.1	1	%	46.6		0.1	1	%	37.1		0.1	1	%	88.1		0.1	1	%
Silt *	29.9		0.5	1	%	39.5		0.5	1	%	42.5		0.5	1	%	4.9		0.5	1	%
Clay *	15.9	E	0.5	1	%	14	E	0.5	1	%	14.6	E	0.5	1	%	3.1	E	0.5	1	%
p+0.00 *	0.8	<RDL	0.1	1	%	2		0.1	1	%	1.4		0.1	1	%	3.6		0.1	1	%
p+1.00 *	2		0.1	1	%	4.5		0.1	1	%	3.5		0.1	1	%	9.1		0.1	1	%
p+10.0(equal/more than) *	10		0.5	1	%	10.5		0.5	1	%	10.6		0.5	1	%	1.9		0.5	1	%
p+2.00 *	17.9		0.1	1	%	11.2		0.1	1	%	11.5		0.1	1	%	35		0.1	1	%
p+3.00 *	24.6		0.1	1	%	16.9		0.1	1	%	11.8		0.1	1	%	32.1		0.1	1	%
p+4.00 *	6.1		0.1	1	%	12		0.1	1	%	8.9		0.1	1	%	8.3		0.1	1	%
p+5.00 *	8		0.5	1	%	25.6		0.5	1	%	27.9		0.5	1	%	0.6	<RDL	0.5	1	%
p+6.00 *	5		0.5	1	%	3.5		0.5	1	%	2.7		0.5	1	%	2.5		0.5	1	%
p+7.00 *	9		0.5	1	%	5.8		0.5	1	%	5.3		0.5	1	%	0.6	<RDL	0.5	1	%
p+8.00 *	8		0.5	1	%	4.7		0.5	1	%	6.6		0.5	1	%	1.2		0.5	1	%
p+9.00 *	6		0.5	1	%	3.5		0.5	1	%	4		0.5	1	%	1.2		0.5	1	%
p-1.00 *	0.3	<RDL	0.1	1	%	1.1		0.1	1	%	0.8	<RDL	0.1	1	%	2		0.1	1	%
p-2.00 *		<MDL	0.1	1	%	0.3	<RDL	0.1	1	%	0.3	<RDL	0.1	1	%	0.4	<RDL	0.1	1	%
p-2.00(less than) *	0.1	<RDL	0.1	1	%	0.3	<RDL	0.1	1	%	1.2		0.1	1	%	2.7		0.1	1	%
Fines *	45.9		0.5	1	%	53.5		0.5	1	%	57.1		0.5	1	%	8		0.5	1	%
M=CV EPA9060-PSEP96 (03-04-002-003)																				
Total Organic Carbon	33500		2600	5290	mg/Kg	53100		3300	6480	mg/Kg	56500		5200	10300	mg/Kg	13100		1800	3700	mg/Kg
M=CV SM2540-G (03-01-007-002)																				
Total Solids *	49.9		0.005	0.01	%	42.9		0.005	0.01	%	38.2		0.005	0.01	%	82.4		0.005	0.01	%
M=ES NONE																				
Sample Start Time *	1120				hr	1120				hr	1120				hr	920				hr
M=MT EPA 7471A (06-01-004-003)																				
Mercury, Total, CVAA	1.49	E	0.04	0.407	mg/Kg	1.19	E	0.047	0.459	mg/Kg	5.03	E	0.052	0.516	mg/Kg	0.742	E	0.023	0.234	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				
Aluminum, Total, ICP	12600		10	49.9	mg/Kg	12100		12	58.3	mg/Kg	12100		13	65.4	mg/Kg	9040		6.1	30.3	mg/Kg
Antimony, Total, ICP		<MDL,G	3	15	mg/Kg		<MDL,G	3.5	17.5	mg/Kg		<MDL,G	3.9	19.6	mg/Kg		<MDL,G	1.8	9.1	mg/Kg
Arsenic, Total, ICP	7.4	<RDL,L	5	25.1	mg/Kg	9.8	<RDL,L	5.8	29.1	mg/Kg	19	<RDL,L	6.5	32.7	mg/Kg	3.4	<RDL,L	3	15.2	mg/Kg
Beryllium, Total, ICP	0.2	<RDL,G	0.1	0.499	mg/Kg	0.2	<RDL,G	0.12	0.583	mg/Kg	0.21	<RDL,G	0.13	0.654	mg/Kg	0.13	<RDL,G	0.061	0.303	mg/Kg
Cadmium, Total, ICP	6.87		0.3	1.5	mg/Kg	2.42		0.35	1.75	mg/Kg	0.94	<RDL	0.39	1.96	mg/Kg	1.95		0.18	0.91	mg/Kg
Chromium, Total, ICP	49.5		0.5	2.51	mg/Kg	43.8		0.58	2.91	mg/Kg	42.1		0.65	3.27	mg/Kg	36.3		0.3	1.52	mg/Kg
Copper, Total, ICP	90	E	0.4	2	mg/Kg	89.5	E	0.47	2.33	mg/Kg	130	E	0.52	2.61	mg/Kg	63.6	E	0.24	1.21	mg/Kg
Iron, Total, ICP	20200		5	25.1	mg/Kg	19200		5.8	29.1	mg/Kg	21300		6.5	32.7	mg/Kg	16300		3	15.2	mg/Kg
Lead, Total, ICP	196		3	15	mg/Kg	141		3.5	17.5	mg/Kg	204		3.9	19.6	mg/Kg	226		1.8	9.1	mg/Kg
Manganese, Total, ICP	255		0.2	1	mg/Kg	228		0.23	1.17	mg/Kg	245		0.26	1.31	mg/Kg	176		0.12	0.607	mg/Kg
Nickel, Total, ICP	51.7		2	10	mg/Kg	50.6		2.3	11.7	mg/Kg	58.6		2.6	13.1	mg/Kg	41.5		1.2	6.07	mg/Kg
Selenium, Total, ICP		<MDL	5	25.1	mg/Kg		<MDL	5.8	29.1	mg/Kg		<MDL	6.5	32.7	mg/Kg		<MDL	3	15.2	mg/Kg
Silver, Total, ICP	9.26	G	0.4	2	mg/Kg	2.33	G	0.47	2.33	mg/Kg	2	<RDL,G	0.52	2.61	mg/Kg	5.98	G	0.24	1.21	mg/Kg
Thallium, Total, ICP		<MDL	20	100	mg/Kg		<MDL	23	117	mg/Kg		<MDL	26	131	mg/Kg		<MDL	12	60.7	mg/Kg
Zinc, Total, ICP	325		0.5	2.51	mg/Kg	303		0.58	2.91	mg/Kg	164		0.65	3.27	mg/Kg	140		0.3	1.52	mg/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL	5.4	10.7	ug/Kg		<MDL	6.3	12.4	ug/Kg		<MDL	0.71	1.4	ug/Kg		<MDL	3.3	6.47	ug/Kg

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PROJECT: 423368-80

Locator:	TEMP					Locator:	TEMP					Locator:	TEMP					Locator:	TEMP			
Descrip:	Temporary Locator					Descrip:	Temporary Locator					Descrip:	Temporary Locator					Descrip:	Temporary Locator			
Client Loc:	DW101-CDC					Client Loc:	DW101-CDD					Client Loc:	DW101-CDE					Client Loc:	DW102-CDC			
Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005			
Lab ID:	L36276-1					Lab ID:	L36276-2					Lab ID:	L36276-3					Lab ID:	L36276-4			
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED			
% Solids:	49.9					% Solids:	42.9					% Solids:	38.2					% Solids:	82.4			
Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
1,2-Dichlorobenzene		<MDL	5.4	10.7	ug/Kg		<MDL	6.3	12.4	ug/Kg		<MDL	0.71	1.4	ug/Kg		<MDL	3.3	6.47	ug/Kg
1,3-Dichlorobenzene		<MDL	5.4	10.7	ug/Kg		<MDL	6.3	12.4	ug/Kg		<MDL	0.71	1.4	ug/Kg		<MDL	3.3	6.47	ug/Kg
1,4-Dichlorobenzene	90		5.4	10.7	ug/Kg	64.3		6.3	12.4	ug/Kg	45.8		0.71	1.4	ug/Kg	72.6		3.3	6.47	ug/Kg
2,4-Dimethylphenol		<MDL	54	107	ug/Kg		<MDL	63	124	ug/Kg		<MDL	7.1	14	ug/Kg		<MDL	33	64.7	ug/Kg
2-Methylnaphthalene	1080		54	107	ug/Kg	266		63	124	ug/Kg	190		7.1	14	ug/Kg	75.4		33	64.7	ug/Kg
2-Methylphenol		<MDL	110	214	ug/Kg		<MDL	120	249	ug/Kg		<MDL	14	28	ug/Kg		<MDL	64	130	ug/Kg
4-Methylphenol		<MDL	110	214	ug/Kg		<MDL	120	249	ug/Kg		<MDL	14	28	ug/Kg		<MDL	64	130	ug/Kg
Acenaphthene	90	<RDL	54	107	ug/Kg	282		63	124	ug/Kg	227		7.1	14	ug/Kg	1050		33	64.7	ug/Kg
Acenaphthylene		<MDL	54	107	ug/Kg		<MDL	63	124	ug/Kg	59.4		7.1	14	ug/Kg		<MDL	33	64.7	ug/Kg
Anthracene	110		54	107	ug/Kg	266		63	124	ug/Kg	189		7.1	14	ug/Kg	1920		33	64.7	ug/Kg
Benzo(a)anthracene	299	E	54	107	ug/Kg	221	E	63	124	ug/Kg	534	E	7.1	14	ug/Kg	1010	E	33	64.7	ug/Kg
Benzo(a)pyrene	305	E	54	107	ug/Kg	177	E	63	124	ug/Kg	563	E	7.1	14	ug/Kg	556	E	33	64.7	ug/Kg
Benzo(b)fluoranthene	228	E	54	107	ug/Kg	135	E	63	124	ug/Kg	395	E	7.1	14	ug/Kg	534	E	33	64.7	ug/Kg
Benzo(g,h,i)perylene	174	E	54	107	ug/Kg	120	<RDL,E	63	124	ug/Kg	474	E	7.1	14	ug/Kg	262	E	33	64.7	ug/Kg
Benzo(k)fluoranthene	208	E	54	107	ug/Kg	132	E	63	124	ug/Kg	382	E	7.1	14	ug/Kg	505	E	33	64.7	ug/Kg
Benzoic Acid		<MDL,B	260	535	ug/Kg		<MDL,B	300	622	ug/Kg		<MDL,B	34	69.9	ug/Kg		<MDL,B	160	324	ug/Kg
Benzyl Alcohol		<MDL	110	214	ug/Kg		<MDL	120	249	ug/Kg		<MDL	14	28	ug/Kg		<MDL	64	130	ug/Kg
Benzyl Butyl Phthalate		<MDL	110	214	ug/Kg		<MDL	120	249	ug/Kg	372		14	28	ug/Kg	233		64	130	ug/Kg
Bis(2-Ethylhexyl)Phthalate	4010	X,E,TA	110	214	ug/Kg	8760	X,E,TA	120	249	ug/Kg	2020	X,E,TA	14	28	ug/Kg	2610	X,E,TA	64	130	ug/Kg
Caffeine		<MDL	54	107	ug/Kg		<MDL	63	124	ug/Kg		<MDL	7.1	14	ug/Kg		<MDL	33	64.7	ug/Kg
Carbazole		<MDL	54	107	ug/Kg		<MDL	63	124	ug/Kg	99.7		7.1	14	ug/Kg	100		33	64.7	ug/Kg
Chrysene	363		54	107	ug/Kg	247		63	124	ug/Kg	437		7.1	14	ug/Kg	933		33	64.7	ug/Kg
Coprostanol	10900		1100	214	ug/Kg	7720		1200	249	ug/Kg	1710		140	28	ug/Kg		<MDL	640	130	ug/Kg
Dibenzo(a,h)anthracene		<MDL	54	107	ug/Kg		<MDL	63	124	ug/Kg		<MDL	7.1	14	ug/Kg	67.1		33	64.7	ug/Kg
Dibenzofuran		<MDL	54	107	ug/Kg	157		63	124	ug/Kg	130		7.1	14	ug/Kg	136		33	64.7	ug/Kg
Diethyl Phthalate		<MDL	110	214	ug/Kg		<MDL	120	249	ug/Kg		<MDL	14	28	ug/Kg		<MDL	64	130	ug/Kg
Dimethyl Phthalate		<MDL	110	214	ug/Kg		<MDL	120	249	ug/Kg		<MDL	14	28	ug/Kg		<MDL	64	130	ug/Kg
Di-N-Butyl Phthalate		<MDL	110	214	ug/Kg		<MDL	120	249	ug/Kg		<MDL	14	28	ug/Kg	120	<RDL	64	130	ug/Kg
Di-N-Octyl Phthalate		<MDL	110	214	ug/Kg		<MDL	120	249	ug/Kg		<MDL	14	28	ug/Kg		<MDL	64	130	ug/Kg
Fluoranthene	806		54	107	ug/Kg	1370		63	124	ug/Kg	1520		7.1	14	ug/Kg	5750		33	64.7	ug/Kg
Fluorene	197		54	107	ug/Kg	385		63	124	ug/Kg	236		7.1	14	ug/Kg	1210		33	64.7	ug/Kg
Hexachlorobenzene		<MDL	11	21.4	ug/Kg		<MDL	12	24.9	ug/Kg		<MDL	1.4	2.8	ug/Kg		<MDL	6.4	13	ug/Kg
Hexachlorobutadiene		<MDL	26	53.5	ug/Kg		<MDL	30	62.2	ug/Kg		<MDL	3.4	6.99	ug/Kg		<MDL	16	32.4	ug/Kg
Indeno(1,2,3-Cd)Pyrene	145	E	54	107	ug/Kg	100	<RDL,E	63	124	ug/Kg	380	E	7.1	14	ug/Kg	242	E	33	64.7	ug/Kg
Naphthalene	1020		54	107	ug/Kg	347		63	124	ug/Kg	272		7.1	14	ug/Kg	94.5		33	64.7	ug/Kg
N-Nitrosodiphenylamine		<MDL	110	214	ug/Kg		<MDL	120	249	ug/Kg		<MDL	14	28	ug/Kg		<MDL	64	130	ug/Kg
Pentachlorophenol		<MDL	260	535	ug/Kg		<MDL	300	622	ug/Kg		<MDL	34	69.9	ug/Kg		<MDL	160	324	ug/Kg
Phenanthrene	613		54	107	ug/Kg	1590		63	124	ug/Kg	937		7.1	14	ug/Kg	510		33	64.7	ug/Kg
Phenol		<MDL	110	214	ug/Kg		<MDL	120	249	ug/Kg		<MDL	14	28	ug/Kg		<MDL	64	130	ug/Kg
Pyrene	768		54	107	ug/Kg	1110		63	124	ug/Kg	1390		7.1	14	ug/Kg	3830		33	64.7	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD	16.9		2	4.01	ug/Kg	28.4		2.3	4.66	ug/Kg	7.3		2.6	5.24	ug/Kg	29		1.2	2.43	ug/Kg
4,4'-DDE		<MDL	2	4.01	ug/Kg		<MDL	2.3	4.66	ug/Kg		<MDL	2.6	5.24	ug/Kg	9.95		1.2	2.43	ug/Kg
4,4'-DDT	6.29	L,E,TA	2	4.01	ug/Kg	3	<RDL,L,E	2.3	4.66	ug/Kg	3.4	<RDL,L,E	2.6	5.24	ug/Kg	6.54	L,E,TA	1.2	2.43	ug/Kg
Aldrin		<MDL	2	4.01	ug/Kg		<MDL	2.3	4.66	ug/Kg		<MDL	2.6	5.24	ug/Kg		<MDL	1.2	2.43	ug/Kg
Alpha-BHC		<MDL,E	1	2	ug/Kg		<MDL,E	1.2	2.33	ug/Kg	10.2	E	1.3	2.62	ug/Kg		<MDL,E	0.61	1.21	ug/Kg

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP					Locator:	TEMP					Locator:	TEMP					Locator:	TEMP				
Descrip:	Temporary Locator					Descrip:	Temporary Locator					Descrip:	Temporary Locator					Descrip:	Temporary Locator				
Client Loc:	DW101-CDC					Client Loc:	DW101-CDD					Client Loc:	DW101-CDE					Client Loc:	DW102-CDC				
Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005				
Lab ID:	L36276-1					Lab ID:	L36276-2					Lab ID:	L36276-3					Lab ID:	L36276-4				
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED				
% Solids:	49.9					% Solids:	42.9					% Solids:	38.2					% Solids:	82.4				
Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
Alpha-Chlordane		<MDL	1	2	ug/Kg		<MDL	1.2	2.33	ug/Kg		<MDL	1.3	2.62	ug/Kg	3.26		0.61	1.21	ug/Kg
Aroclor 1016		<MDL,TA	120	232	ug/Kg		<MDL,TA	120	240	ug/Kg		<MDL,TA	140	283	ug/Kg		<MDL,TA	150	299	ug/Kg
Aroclor 1221		<MDL	50	100	ug/Kg		<MDL	58	117	ug/Kg		<MDL	65	131	ug/Kg		<MDL	30	60.7	ug/Kg
Aroclor 1232		<MDL,TA	280	549	ug/Kg		<MDL,TA	300	592	ug/Kg		<MDL,TA	310	618	ug/Kg		<MDL,TA	330	657	ug/Kg
Aroclor 1242		<MDL,TA	260	505	ug/Kg		<MDL,TA	260	506	ug/Kg		<MDL,TA	310	631	ug/Kg		<MDL,TA	320	640	ug/Kg
Aroclor 1248	185	E	26	50.1	ug/Kg	173	E	30	58.3	ug/Kg	193	E	34	65.4	ug/Kg	234	E	16	30.3	ug/Kg
Aroclor 1254	371		26	50.1	ug/Kg	219		30	58.3	ug/Kg	184		34	65.4	ug/Kg	303		16	30.3	ug/Kg
Aroclor 1260	198		26	50.1	ug/Kg	104		30	58.3	ug/Kg	125		34	65.4	ug/Kg	123		16	30.3	ug/Kg
Beta-BHC		<MDL	1	2	ug/Kg		<MDL	1.2	2.33	ug/Kg		<MDL	1.3	2.62	ug/Kg		<MDL	0.61	1.21	ug/Kg
Delta-BHC		<MDL	1	2	ug/Kg		<MDL	1.2	2.33	ug/Kg		<MDL	1.3	2.62	ug/Kg		<MDL	0.61	1.21	ug/Kg
Dieldrin		<MDL	2	4.01	ug/Kg		<MDL	2.3	4.66	ug/Kg		<MDL	2.6	5.24	ug/Kg		<MDL	1.2	2.43	ug/Kg
Endosulfan I		<MDL	2	4.01	ug/Kg		<MDL	2.3	4.66	ug/Kg		<MDL	2.6	5.24	ug/Kg		<MDL	1.2	2.43	ug/Kg
Endosulfan II		<MDL	2	4.01	ug/Kg		<MDL	2.3	4.66	ug/Kg		<MDL	2.6	5.24	ug/Kg		<MDL	1.2	2.43	ug/Kg
Endosulfan Sulfate		<MDL	2	4.01	ug/Kg		<MDL	2.3	4.66	ug/Kg		<MDL	2.6	5.24	ug/Kg		<MDL	1.2	2.43	ug/Kg
Endrin		<MDL	2	4.01	ug/Kg		<MDL	2.3	4.66	ug/Kg		<MDL	2.6	5.24	ug/Kg		<MDL	1.2	2.43	ug/Kg
Endrin Aldehyde		<MDL,E,TA	4	8.02	ug/Kg		<MDL,E,TA	4.7	9.32	ug/Kg		<MDL,E,TA	5.2	10.5	ug/Kg		<MDL,E,TA	2.4	4.85	ug/Kg
Gamma-BHC (Lindane)		<MDL	1	2	ug/Kg		<MDL	1.2	2.33	ug/Kg		<MDL	1.3	2.62	ug/Kg		<MDL	0.61	1.21	ug/Kg
Gamma-Chlordane		<MDL	1	2	ug/Kg		<MDL	1.2	2.33	ug/Kg		<MDL	1.3	2.62	ug/Kg		<MDL	0.61	1.21	ug/Kg
Heptachlor		<MDL	1	2	ug/Kg		<MDL	1.2	2.33	ug/Kg		<MDL	1.3	2.62	ug/Kg		<MDL	0.61	1.21	ug/Kg
Heptachlor Epoxide		<MDL	1	2	ug/Kg		<MDL	1.2	2.33	ug/Kg		<MDL	1.3	2.62	ug/Kg		<MDL	0.61	1.21	ug/Kg
Methoxychlor		<MDL,E,TA	10	20	ug/Kg		<MDL,E,TA	12	23.3	ug/Kg		<MDL,E,TA	13	26.2	ug/Kg		<MDL,E,TA	6.1	12.1	ug/Kg
Toxaphene		<MDL	20	40.1	ug/Kg		<MDL	23	46.6	ug/Kg		<MDL	26	52.4	ug/Kg		<MDL	12	24.3	ug/Kg

* Not converted to dry weight basis for this parameter

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP	TEMP	TEMP	TEMP
Descrip:	Temporary Locator	Temporary Locator	Temporary Locator	Temporary Locator
Client Loc:	DW102-CDD	DW102-CDE	DW103-CDC	DW103-CDD
Sampled:	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005
Lab ID:	L36276-5	L36276-6	L36276-7	L36276-8
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	85.8	82.5	75.9	65.1

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
M=CV ASTM D422(03-02-005-001)																				
Gravel *	9.6	E	0.1	1	%	17.9	E	0.1	1	%	10.4	E	0.1	1	%	7.4	E	0.1	1	%
Sand *	85		0.1	1	%	76.9		0.1	1	%	74.6		0.1	1	%	48.3		0.1	1	%
Silt *	2.5		0.5	1	%	2.4		0.5	1	%	8.6		0.5	1	%	30.1		0.5	1	%
Clay *	1.2	E	0.5	1	%	1.2	E	0.5	1	%	2	E	0.5	1	%	5.4	E	0.5	1	%
p+0.00 *	5		0.1	1	%	4.6		0.1	1	%	4.6		0.1	1	%	3.4		0.1	1	%
p+1.00 *	10.3		0.1	1	%	9.1		0.1	1	%	7.4		0.1	1	%	3.1		0.1	1	%
p+10.0(equal/more than) *	0.6	<RDL	0.5	1	%	0.6	<RDL	0.5	1	%	1.3		0.5	1	%	3.9		0.5	1	%
p+2.00 *	35.1		0.1	1	%	31.8		0.1	1	%	15.9		0.1	1	%	6.4		0.1	1	%
p+3.00 *	28.2		0.1	1	%	26.1		0.1	1	%	28.4		0.1	1	%	15.5		0.1	1	%
p+4.00 *	6.4		0.1	1	%	5.4		0.1	1	%	18.2		0.1	1	%	19.9		0.1	1	%
p+5.00 *		<MDL	0.5	1	%	0.6	<RDL	0.5	1	%	4		0.5	1	%	13.9		0.5	1	%
p+6.00 *	0.6	<RDL	0.5	1	%	0.6	<RDL	0.5	1	%	1.3		0.5	1	%	7.7		0.5	1	%
p+7.00 *	0.6	<RDL	0.5	1	%		<MDL	0.5	1	%	1.3		0.5	1	%	6.2		0.5	1	%
p+8.00 *	1.2		0.5	1	%	1.2		0.5	1	%	2		0.5	1	%	2.3		0.5	1	%
p+9.00 *	0.6	<RDL	0.5	1	%	0.6	<RDL	0.5	1	%	0.7	<RDL	0.5	1	%	1.5		0.5	1	%
p-1.00 *	4		0.1	1	%	5.1		0.1	1	%	3.8		0.1	1	%	3.5		0.1	1	%
p-2.00 *	0.8	<RDL	0.1	1	%	0.8	<RDL	0.1	1	%	0.6	<RDL	0.1	1	%	1.6		0.1	1	%
p-2.00(less than) *	4.8		0.1	1	%	12.1		0.1	1	%	6		0.1	1	%	2.4		0.1	1	%
Fines *	3.7		0.5	1	%	3.6		0.5	1	%	10.6		0.5	1	%	35.5		0.5	1	%
M=CV EPA9060-PSEP96 (03-04-002-003)																				
Total Organic Carbon	6380		1100	2270	mg/Kg	3940		810	1640	mg/Kg	17400		1100	2250	mg/Kg	45500		3400	6790	mg/Kg
M=CV SM2540-G (03-01-007-002)																				
Total Solids *	85.8		0.005	0.01	%	82.5		0.005	0.01	%	75.9		0.005	0.01	%	65.1		0.005	0.01	%
M=ES NONE																				
Sample Start Time *	920				hr	920				hr	1535				hr	1535				hr
M=MT EPA 7471A (06-01-004-003)																				
Mercury, Total, CVAA	0.467	E	0.023	0.23	mg/Kg	0.295	E	0.023	0.233	mg/Kg	0.12	<RDL,E	0.028	0.27	mg/Kg	1	E,L	0.031	0.313	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				
Aluminum, Total, ICP	8590		5.8	29.1	mg/Kg	7560		6.1	30.3	mg/Kg	9050		6.6	32.9	mg/Kg	11100		7.7	38.4	mg/Kg
Antimony, Total, ICP		<MDL,G	1.7	8.74	mg/Kg		<MDL,G	1.8	9.09	mg/Kg		<MDL,G	2	9.88	mg/Kg		<MDL,G	2.3	11.5	mg/Kg
Arsenic, Total, ICP		<MDL,L	2.9	14.6	mg/Kg		<MDL,L	3	15.2	mg/Kg	3.4	<RDL,L	3.3	16.5	mg/Kg	5.7	<RDL,L	3.8	19.2	mg/Kg
Beryllium, Total, ICP	0.13	<RDL,G	0.058	0.291	mg/Kg	0.12	<RDL,G	0.061	0.303	mg/Kg	0.16	<RDL,G	0.066	0.329	mg/Kg	0.22	<RDL,G	0.077	0.384	mg/Kg
Cadmium, Total, ICP	1.11		0.17	0.874	mg/Kg	0.79	<RDL	0.18	0.909	mg/Kg	0.34	<RDL	0.2	0.988	mg/Kg	1.33		0.23	1.15	mg/Kg
Chromium, Total, ICP	26.1		0.29	1.46	mg/Kg	33		0.3	1.52	mg/Kg	25		0.33	1.65	mg/Kg	41.8		0.38	1.92	mg/Kg
Copper, Total, ICP	49.1	E	0.23	1.17	mg/Kg	43.3	E	0.24	1.21	mg/Kg	26.7	E	0.26	1.32	mg/Kg	64.7	E	0.31	1.54	mg/Kg
Iron, Total, ICP	15200		2.9	14.6	mg/Kg	13600		3	15.2	mg/Kg	13700		3.3	16.5	mg/Kg	18900		3.8	19.2	mg/Kg
Lead, Total, ICP	177		1.7	8.74	mg/Kg	97		1.8	9.09	mg/Kg	55.5		2	9.88	mg/Kg	175		2.3	11.5	mg/Kg
Manganese, Total, ICP	155		0.12	0.583	mg/Kg	160		0.12	0.606	mg/Kg	179		0.13	0.659	mg/Kg	184		0.15	0.768	mg/Kg
Nickel, Total, ICP	29.1		1.2	5.83	mg/Kg	34.1		1.2	6.06	mg/Kg	29.2		1.3	6.59	mg/Kg	44.5		1.5	7.68	mg/Kg
Selenium, Total, ICP		<MDL	2.9	14.6	mg/Kg		<MDL	3	15.2	mg/Kg		<MDL	3.3	16.5	mg/Kg		<MDL	3.8	19.2	mg/Kg
Silver, Total, ICP	3.22	G	0.23	1.17	mg/Kg	2.41	G	0.24	1.21	mg/Kg	0.84	<RDL,G	0.26	1.32	mg/Kg	11.7	G	0.31	1.54	mg/Kg
Thallium, Total, ICP		<MDL	12	58.3	mg/Kg		<MDL	12	60.6	mg/Kg		<MDL	13	65.9	mg/Kg		<MDL	15	76.8	mg/Kg
Zinc, Total, ICP	111		0.29	1.46	mg/Kg	96		0.3	1.52	mg/Kg	85.1		0.33	1.65	mg/Kg	194		0.38	1.92	mg/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL	3.1	6.21	ug/Kg		<MDL	3.3	6.46	ug/Kg		<MDL	3.6	7.02	ug/Kg		<MDL	4.1	8.19	ug/Kg

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP	TEMP	TEMP	TEMP
Descrip:	Temporary Locator	Temporary Locator	Temporary Locator	Temporary Locator
Client Loc:	DW102-CDD	DW102-CDE	DW103-CDC	DW103-CDD
Sampled:	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005
Lab ID:	L36276-5	L36276-6	L36276-7	L36276-8
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	85.8	82.5	75.9	65.1

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
1,2-Dichlorobenzene		<MDL	3.1	6.21	ug/Kg		<MDL	3.3	6.46	ug/Kg		<MDL	3.6	7.02	ug/Kg		<MDL	4.1	8.19	ug/Kg
1,3-Dichlorobenzene		<MDL	3.1	6.21	ug/Kg		<MDL	3.3	6.46	ug/Kg		<MDL	3.6	7.02	ug/Kg		<MDL	4.1	8.19	ug/Kg
1,4-Dichlorobenzene	41.7		3.1	6.21	ug/Kg	32		3.3	6.46	ug/Kg		<MDL	3.6	7.02	ug/Kg	34.4		4.1	8.19	ug/Kg
2,4-Dimethylphenol		<MDL	31	62.1	ug/Kg		<MDL	33	64.6	ug/Kg		<MDL	36	70.2	ug/Kg		<MDL	41	81.9	ug/Kg
2-Methylnaphthalene		<MDL	31	62.1	ug/Kg		<MDL	33	64.6	ug/Kg	36	<RDL	36	70.2	ug/Kg	1940		41	81.9	ug/Kg
2-Methylphenol		<MDL	62	125	ug/Kg		<MDL	64	130	ug/Kg		<MDL	70	141	ug/Kg		<MDL	81	164	ug/Kg
4-Methylphenol		<MDL	62	125	ug/Kg		<MDL	64	130	ug/Kg		<MDL	70	141	ug/Kg		<MDL	81	164	ug/Kg
Acenaphthene	206		31	62.1	ug/Kg	179		33	64.6	ug/Kg	63	<RDL	36	70.2	ug/Kg	2060		41	81.9	ug/Kg
Acenaphthylene		<MDL	31	62.1	ug/Kg		<MDL	33	64.6	ug/Kg		<MDL	36	70.2	ug/Kg		<MDL	41	81.9	ug/Kg
Anthracene	337		31	62.1	ug/Kg	270		33	64.6	ug/Kg	134		36	70.2	ug/Kg	1150		41	81.9	ug/Kg
Benzo(a)anthracene	312	E	31	62.1	ug/Kg	278	E	33	64.6	ug/Kg	303	E	36	70.2	ug/Kg	1530	E	41	81.9	ug/Kg
Benzo(a)pyrene	226	E	31	62.1	ug/Kg	217	E	33	64.6	ug/Kg	350	E	36	70.2	ug/Kg	1480	E	41	81.9	ug/Kg
Benzo(b)fluoranthene	177	E	31	62.1	ug/Kg	198	E	33	64.6	ug/Kg	273	E	36	70.2	ug/Kg	1070	E	41	81.9	ug/Kg
Benzo(g,h,i)perylene	113	E	31	62.1	ug/Kg	127	E	33	64.6	ug/Kg	213	E	36	70.2	ug/Kg	836	E	41	81.9	ug/Kg
Benzo(k)fluoranthene	167	E	31	62.1	ug/Kg	183	E	33	64.6	ug/Kg	260	E	36	70.2	ug/Kg	1090	E	41	81.9	ug/Kg
Benzoic Acid		<MDL,B	150	311	ug/Kg		<MDL,B	160	324	ug/Kg		<MDL,B	170	352	ug/Kg		<MDL,B	200	410	ug/Kg
Benzyl Alcohol		<MDL	62	125	ug/Kg		<MDL	64	130	ug/Kg		<MDL	70	141	ug/Kg		<MDL	81	164	ug/Kg
Benzyl Butyl Phthalate	89	<RDL	62	125	ug/Kg	74	<RDL	64	130	ug/Kg	87	<RDL	70	141	ug/Kg	171		81	164	ug/Kg
Bis(2-Ethylhexyl)Phthalate	900	X,E,TA	62	125	ug/Kg	1170	X,E,TA	64	130	ug/Kg	401	X,E,TA	70	141	ug/Kg	3890	X,E,TA	81	164	ug/Kg
Caffeine		<MDL	31	62.1	ug/Kg		<MDL	33	64.6	ug/Kg		<MDL	36	70.2	ug/Kg		<MDL	41	81.9	ug/Kg
Carbazole	36	<RDL	31	62.1	ug/Kg	39	<RDL	33	64.6	ug/Kg	38	<RDL	36	70.2	ug/Kg	207		41	81.9	ug/Kg
Chrysene	308		31	62.1	ug/Kg	288		33	64.6	ug/Kg	344		36	70.2	ug/Kg	1440		41	81.9	ug/Kg
Coprostanol		<MDL	620	125	ug/Kg		<MDL	640	130	ug/Kg		<MDL	700	141	ug/Kg	8730		810	164	ug/Kg
Dibenzo(a,h)anthracene	40	<RDL	31	62.1	ug/Kg	41	<RDL	33	64.6	ug/Kg	51	<RDL	36	70.2	ug/Kg	203		41	81.9	ug/Kg
Dibenzofuran	50	<RDL	31	62.1	ug/Kg	33	<RDL	33	64.6	ug/Kg	42	<RDL	36	70.2	ug/Kg	1310		41	81.9	ug/Kg
Diethyl Phthalate		<MDL	62	125	ug/Kg		<MDL	64	130	ug/Kg		<MDL	70	141	ug/Kg		<MDL	81	164	ug/Kg
Dimethyl Phthalate		<MDL	62	125	ug/Kg		<MDL	64	130	ug/Kg		<MDL	70	141	ug/Kg		<MDL	81	164	ug/Kg
Di-N-Butyl Phthalate		<MDL	62	125	ug/Kg		<MDL	64	130	ug/Kg		<MDL	70	141	ug/Kg		<MDL	81	164	ug/Kg
Di-N-Octyl Phthalate		<MDL	62	125	ug/Kg		<MDL	64	130	ug/Kg		<MDL	70	141	ug/Kg		<MDL	81	164	ug/Kg
Fluoranthene	1520		31	62.1	ug/Kg	1190		33	64.6	ug/Kg	775		36	70.2	ug/Kg	4450		41	81.9	ug/Kg
Fluorene	190		31	62.1	ug/Kg	130		33	64.6	ug/Kg	80		36	70.2	ug/Kg	2180		41	81.9	ug/Kg
Hexachlorobenzene		<MDL	6.2	12.5	ug/Kg		<MDL	6.4	13	ug/Kg		<MDL	7	14.1	ug/Kg		<MDL	8.1	16.4	ug/Kg
Hexachlorobutadiene		<MDL	15	31.1	ug/Kg		<MDL	16	32.4	ug/Kg		<MDL	17	35.2	ug/Kg		<MDL	20	41	ug/Kg
Indeno(1,2,3-Cd)Pyrene	107	E	31	62.1	ug/Kg	114	E	33	64.6	ug/Kg	178	E	36	70.2	ug/Kg	747	E	41	81.9	ug/Kg
Naphthalene		<MDL	31	62.1	ug/Kg		<MDL	33	64.6	ug/Kg	55	<RDL	36	70.2	ug/Kg	4590		41	81.9	ug/Kg
N-Nitrosodiphenylamine		<MDL	62	125	ug/Kg		<MDL	64	130	ug/Kg		<MDL	70	141	ug/Kg		<MDL	81	164	ug/Kg
Pentachlorophenol		<MDL	150	311	ug/Kg		<MDL	160	324	ug/Kg		<MDL	170	352	ug/Kg		<MDL	200	410	ug/Kg
Phenanthrene	217		31	62.1	ug/Kg	240		33	64.6	ug/Kg	423		36	70.2	ug/Kg	5930		41	81.9	ug/Kg
Phenol		<MDL	62	125	ug/Kg		<MDL	64	130	ug/Kg		<MDL	70	141	ug/Kg		<MDL	81	164	ug/Kg
Pyrene	1090		31	62.1	ug/Kg	939		33	64.6	ug/Kg	934		36	70.2	ug/Kg	3960		41	81.9	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD	15.3		1.2	2.33	ug/Kg	11.3		1.2	2.42	ug/Kg	67.5		1.3	2.64	ug/Kg	104		1.5	3.07	ug/Kg
4,4'-DDE	2.48		1.2	2.33	ug/Kg	2.3	<RDL	1.2	2.42	ug/Kg	3.31		1.3	2.64	ug/Kg	16.3		1.5	3.07	ug/Kg
4,4'-DDT	4.46	L,E,TA	1.2	2.33	ug/Kg	2.79	L,E,TA	1.2	2.42	ug/Kg	4.27	L,E,TA	1.3	2.64	ug/Kg	14.9	L,E,TA	1.5	3.07	ug/Kg
Aldrin		<MDL	1.2	2.33	ug/Kg		<MDL	1.2	2.42	ug/Kg		<MDL	1.3	2.64	ug/Kg		<MDL	1.5	3.07	ug/Kg
Alpha-BHC		<MDL,E	0.58	1.17	ug/Kg		<MDL,E	0.61	1.21	ug/Kg		<MDL,E	0.66	1.32	ug/Kg		<MDL,E	0.77	1.54	ug/Kg

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP					Locator:	TEMP					Locator:	TEMP					Locator:	TEMP			
Descrip:	Temporary Locator					Descrip:	Temporary Locator					Descrip:	Temporary Locator					Descrip:	Temporary Locator			
Client Loc:	DW102-CDD					Client Loc:	DW102-CDE					Client Loc:	DW103-CDC					Client Loc:	DW103-CDD			
Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005			
Lab ID:	L36276-5					Lab ID:	L36276-6					Lab ID:	L36276-7					Lab ID:	L36276-8			
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED			
% Solids:	85.8					% Solids:	82.5					% Solids:	75.9					% Solids:	65.1			
Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
Alpha-Chlordane	2.24		0.58	1.17	ug/Kg	2.4		0.61	1.21	ug/Kg	2.48		0.66	1.32	ug/Kg	4.99		0.77	1.54	ug/Kg
Aroclor 1016		<MDL,TA	75	148	ug/Kg		<MDL,TA	59	119	ug/Kg		<MDL,TA	86	170	ug/Kg		<MDL,TA	460	926	ug/Kg
Aroclor 1221		<MDL	29	58.3	ug/Kg		<MDL	30	60.6	ug/Kg		<MDL	33	65.9	ug/Kg		<MDL	38	76.8	ug/Kg
Aroclor 1232		<MDL,TA	160	336	ug/Kg		<MDL,TA	130	272	ug/Kg		<MDL,TA	220	460	ug/Kg		<MDL,TA	830	1640	ug/Kg
Aroclor 1242		<MDL,TA	210	420	ug/Kg		<MDL,TA	130	278	ug/Kg		<MDL,TA	200	386	ug/Kg		<MDL,TA	830	1660	ug/Kg
Aroclor 1248	181	E	15	29.1	ug/Kg	104	E	16	30.3	ug/Kg	123	E	17	32.9	ug/Kg	624	E	20	38.4	ug/Kg
Aroclor 1254	258		15	29.1	ug/Kg	156		16	30.3	ug/Kg	105		17	32.9	ug/Kg	641		20	38.4	ug/Kg
Aroclor 1260	79.4		15	29.1	ug/Kg	63.5		16	30.3	ug/Kg	39.4		17	32.9	ug/Kg	286		20	38.4	ug/Kg
Beta-BHC		<MDL	0.58	1.17	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.66	1.32	ug/Kg		<MDL	0.77	1.54	ug/Kg
Delta-BHC		<MDL	0.58	1.17	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.66	1.32	ug/Kg		<MDL	0.77	1.54	ug/Kg
Dieldrin		<MDL	1.2	2.33	ug/Kg		<MDL	1.2	2.42	ug/Kg		<MDL	1.3	2.64	ug/Kg		<MDL	1.5	3.07	ug/Kg
Endosulfan I		<MDL	1.2	2.33	ug/Kg		<MDL	1.2	2.42	ug/Kg		<MDL	1.3	2.64	ug/Kg		<MDL	1.5	3.07	ug/Kg
Endosulfan II		<MDL	1.2	2.33	ug/Kg		<MDL	1.2	2.42	ug/Kg		<MDL	1.3	2.64	ug/Kg		<MDL	1.5	3.07	ug/Kg
Endosulfan Sulfate		<MDL	1.2	2.33	ug/Kg		<MDL	1.2	2.42	ug/Kg		<MDL	1.3	2.64	ug/Kg		<MDL	1.5	3.07	ug/Kg
Endrin		<MDL	1.2	2.33	ug/Kg		<MDL	1.2	2.42	ug/Kg		<MDL	1.3	2.64	ug/Kg		<MDL	1.5	3.07	ug/Kg
Endrin Aldehyde		<MDL,E,TA	2.3	4.66	ug/Kg		<MDL,E,TA	2.4	4.85	ug/Kg		<MDL,E,TA	2.6	5.27	ug/Kg		<MDL,E,TA	3.1	6.14	ug/Kg
Gamma-BHC (Lindane)		<MDL	0.58	1.17	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.66	1.32	ug/Kg		<MDL	0.77	1.54	ug/Kg
Gamma-Chlordane		<MDL	0.58	1.17	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.66	1.32	ug/Kg		<MDL	0.77	1.54	ug/Kg
Heptachlor		<MDL	0.58	1.17	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.66	1.32	ug/Kg		<MDL	0.77	1.54	ug/Kg
Heptachlor Epoxide		<MDL	0.58	1.17	ug/Kg		<MDL	0.61	1.21	ug/Kg		<MDL	0.66	1.32	ug/Kg		<MDL	0.77	1.54	ug/Kg
Methoxychlor		<MDL	5.8	11.7	ug/Kg		<MDL	6.1	12.1	ug/Kg		<MDL	6.6	13.2	ug/Kg		<MDL	7.7	15.4	ug/Kg
Toxaphene		<MDL	12	23.3	ug/Kg		<MDL	12	24.2	ug/Kg		<MDL	13	26.4	ug/Kg		<MDL	15	30.7	ug/Kg

* Not converted to dry weight basis for this parameter

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP	TEMP	TEMP	TEMP
Descrip:	Temporary Locator	Temporary Locator	Temporary Locator	Temporary Locator
Client Loc:	DW103-CDE	DW104-CCB	DW105-CDC	DW105-CDD
Sampled:	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005
Lab ID:	L36276-9	L36276-10	L36276-11	L36276-12
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	76.7	77	68.6	65.8

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
M=CV ASTM D422(03-02-005-001)																				
Gravel *	25.2	E	0.1	1	%	12.2	E	0.1	1	%	10.9	E	0.1	1	%	3.2	E	0.1	1	%
Sand *	44.3		0.1	1	%	74.1		0.1	1	%	51.9		0.1	1	%	43.5		0.1	1	%
Silt *	23.2		0.5	1	%	8.4		0.5	1	%	26.4		0.5	1	%	32.5		0.5	1	%
Clay *	5.6	E	0.5	1	%	6.5	E	0.5	1	%	9.9	E	0.5	1	%	14.7	E	0.5	1	%
p+0.00 *	2.9		0.1	1	%	6.8		0.1	1	%	3.6		0.1	1	%	3.2		0.1	1	%
p+1.00 *	4		0.1	1	%	9.8		0.1	1	%	5.4		0.1	1	%	7.4		0.1	1	%
p+10.0(equal/more than) *	4.2		0.5	1	%	3.9		0.5	1	%	7.3		0.5	1	%	11.6		0.5	1	%
p+2.00 *	10		0.1	1	%	26.1		0.1	1	%	14.9		0.1	1	%	15.6		0.1	1	%
p+3.00 *	14.7		0.1	1	%	22.2		0.1	1	%	16.1		0.1	1	%	10.5		0.1	1	%
p+4.00 *	12.7		0.1	1	%	9.3		0.1	1	%	11.8		0.1	1	%	6.8		0.1	1	%
p+5.00 *	6.3		0.5	1	%	2.6		0.5	1	%	11.2		0.5	1	%	4.6		0.5	1	%
p+6.00 *	7		0.5	1	%	1.9		0.5	1	%	5.3		0.5	1	%	12.4		0.5	1	%
p+7.00 *	5.6		0.5	1	%	2.6		0.5	1	%	6.6		0.5	1	%	10.8		0.5	1	%
p+8.00 *	4.2		0.5	1	%	1.3		0.5	1	%	3.3		0.5	1	%	4.6		0.5	1	%
p+9.00 *	1.4		0.5	1	%	2.6		0.5	1	%	2.6		0.5	1	%	3.1		0.5	1	%
p-1.00 *	2.9		0.1	1	%	6.6		0.1	1	%	3.9		0.1	1	%	2.2		0.1	1	%
p-2.00 *	0.9	<RDL	0.1	1	%	1.9		0.1	1	%	1.1		0.1	1	%	0.4	<RDL	0.1	1	%
p-2.00(less than) *	21.4		0.1	1	%	3.8		0.1	1	%	5.9		0.1	1	%	0.6	<RDL	0.1	1	%
Fines *	28.8		0.5	1	%	14.9		0.5	1	%	36.3		0.5	1	%	47.2		0.5	1	%
M=CV EPA9060-PSEP96 (03-04-002-003)																				
Total Organic Carbon	19300		1700	3270	mg/Kg	17800		1900	3830	mg/Kg	17100		1900	3800	mg/Kg	34700		2100	4320	mg/Kg
M=CV SM2540-G (03-01-007-002)																				
Total Solids *	76.7		0.005	0.01	%	77		0.005	0.01	%	68.6		0.005	0.01	%	65.8		0.005	0.01	%
M=ES NONE																				
Sample Start Time *	1535				hr	1710				hr	1036				hr	1036				hr
M=MT EPA 7471A (06-01-004-003)																				
Mercury, Total, CVAA	0.768	E	0.025	0.25	mg/Kg	0.796	E	0.025	0.253	mg/Kg	1.09	E	0.029	0.294	mg/Kg	5.23	E	0.059	0.588	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				
Aluminum, Total, ICP	13700		6.5	32.6	mg/Kg	8290		6.5	32.5	mg/Kg	13300		7.3	36.4	mg/Kg	13500		7.6	38	mg/Kg
Antimony, Total, ICP		<MDL,G	2	9.77	mg/Kg		<MDL,G	1.9	9.74	mg/Kg		<MDL,G	2.2	10.9	mg/Kg	5.2	<RDL,G	2.3	11.4	mg/Kg
Arsenic, Total, ICP	5.2	<RDL,L	3.3	16.3	mg/Kg	3.5	<RDL,L	3.2	16.2	mg/Kg	4.7	<RDL,L	3.6	18.2	mg/Kg	7	<RDL,L	3.8	19	mg/Kg
Beryllium, Total, ICP	0.2	<RDL,G	0.065	0.326	mg/Kg	0.14	<RDL,G	0.065	0.325	mg/Kg	0.22	<RDL,G	0.073	0.364	mg/Kg	0.21	<RDL,G	0.076	0.38	mg/Kg
Cadmium, Total, ICP	1.15		0.2	0.977	mg/Kg	2.26		0.19	0.974	mg/Kg	0.7	<RDL	0.22	1.09	mg/Kg	6.31		0.23	1.14	mg/Kg
Chromium, Total, ICP	35.3		0.33	1.63	mg/Kg	52.7		0.32	1.62	mg/Kg	36		0.36	1.82	mg/Kg	69		0.38	1.9	mg/Kg
Copper, Total, ICP	78	E	0.26	1.3	mg/Kg	131	E	0.26	1.3	mg/Kg	52.5	E	0.29	1.46	mg/Kg	669	E	0.3	1.52	mg/Kg
Iron, Total, ICP	20300		3.3	16.3	mg/Kg	15100		3.2	16.2	mg/Kg	20000		3.6	18.2	mg/Kg	23900		3.8	19	mg/Kg
Lead, Total, ICP	125		2	9.77	mg/Kg	196		1.9	9.74	mg/Kg	96.8		2.2	10.9	mg/Kg	667		2.3	11.4	mg/Kg
Manganese, Total, ICP	224		0.13	0.651	mg/Kg	169		0.13	0.649	mg/Kg	255		0.15	0.729	mg/Kg	295		0.15	0.76	mg/Kg
Nickel, Total, ICP	40.4		1.3	6.51	mg/Kg	43.9		1.3	6.49	mg/Kg	40.2		1.5	7.29	mg/Kg	71.3		1.5	7.6	mg/Kg
Selenium, Total, ICP		<MDL	3.3	16.3	mg/Kg		<MDL	3.2	16.2	mg/Kg		<MDL	3.6	18.2	mg/Kg		<MDL	3.8	19	mg/Kg
Silver, Total, ICP	5.76	G	0.26	1.3	mg/Kg	6.53	G	0.26	1.3	mg/Kg	3.18	G	0.29	1.46	mg/Kg	16.1	G	0.3	1.52	mg/Kg
Thallium, Total, ICP		<MDL	13	65.1	mg/Kg		<MDL	13	64.9	mg/Kg		<MDL	15	72.9	mg/Kg		<MDL	15	76	mg/Kg
Zinc, Total, ICP	138		0.33	1.63	mg/Kg	195		0.32	1.62	mg/Kg	130		0.36	1.82	mg/Kg	663		0.38	1.9	mg/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL	3.5	6.95	ug/Kg		<MDL	3.5	6.92	ug/Kg		<MDL	3.9	7.77	ug/Kg		<MDL	4.1	8.1	ug/Kg

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP					TEMP					TEMP					TEMP				
Descrip:	Temporary Locator					Temporary Locator					Temporary Locator					Temporary Locator				
Client Loc:	DW103-CDE					DW104-CCB					DW105-CDC					DW105-CDD				
Sampled:	Jul 21, 2005					Jul 21, 2005					Jul 21, 2005					Jul 21, 2005				
Lab ID:	L36276-9					L36276-10					L36276-11					L36276-12				
Matrix:	SALTWTRSED					SALTWTRSED					SALTWTRSED					SALTWTRSED				
% Solids:	76.7					77					68.6					65.8				
Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
1,2-Dichlorobenzene		<MDL	3.5	6.95	ug/Kg		<MDL	3.5	6.92	ug/Kg		<MDL	3.9	7.77	ug/Kg		<MDL	4.1	8.1	ug/Kg
1,3-Dichlorobenzene		<MDL	3.5	6.95	ug/Kg		<MDL	3.5	6.92	ug/Kg		<MDL	3.9	7.77	ug/Kg		<MDL	4.1	8.1	ug/Kg
1,4-Dichlorobenzene	26.7		3.5	6.95	ug/Kg	323		3.5	6.92	ug/Kg	51.6		3.9	7.77	ug/Kg	828		4.1	8.1	ug/Kg
2,4-Dimethylphenol		<MDL	35	69.5	ug/Kg		<MDL	35	69.2	ug/Kg		<MDL	39	77.7	ug/Kg		<MDL	41	81	ug/Kg
2-Methylnaphthalene	894		35	69.5	ug/Kg	830		35	69.2	ug/Kg	325		39	77.7	ug/Kg	5910		41	81	ug/Kg
2-Methylphenol		<MDL	69	140	ug/Kg		<MDL	69	139	ug/Kg		<MDL	77	156	ug/Kg		<MDL	81	163	ug/Kg
4-Methylphenol		<MDL	69	140	ug/Kg		<MDL	69	139	ug/Kg		<MDL	77	156	ug/Kg		<MDL	81	163	ug/Kg
Acenaphthene	686		35	69.5	ug/Kg	206		35	69.2	ug/Kg		<MDL	39	77.7	ug/Kg	1660		41	81	ug/Kg
Acenaphthylene		<MDL	35	69.5	ug/Kg	43	<RDL	35	69.2	ug/Kg		<MDL	39	77.7	ug/Kg		<MDL	41	81	ug/Kg
Anthracene	514		35	69.5	ug/Kg	551		35	69.2	ug/Kg	131		39	77.7	ug/Kg	938		41	81	ug/Kg
Benzo(a)anthracene	495	E	35	69.5	ug/Kg	1040	E	35	69.2	ug/Kg	262	E	39	77.7	ug/Kg	843	E	41	81	ug/Kg
Benzo(a)pyrene	441	E	35	69.5	ug/Kg	743	E	35	69.2	ug/Kg	312	E	39	77.7	ug/Kg	307	E	41	81	ug/Kg
Benzo(b)fluoranthene	321	E	35	69.5	ug/Kg	565	E	35	69.2	ug/Kg	213	E	39	77.7	ug/Kg	383	E	41	81	ug/Kg
Benzo(g,h,i)perylene	243	E	35	69.5	ug/Kg	358	E	35	69.2	ug/Kg	179	E	39	77.7	ug/Kg	242	E	41	81	ug/Kg
Benzo(k)fluoranthene	327	E	35	69.5	ug/Kg	706	E	35	69.2	ug/Kg	235	E	39	77.7	ug/Kg	331	E	41	81	ug/Kg
Benzoic Acid		<MDL,B	170	348	ug/Kg		<MDL,B	170	347	ug/Kg		<MDL,B	190	389	ug/Kg		<MDL,B	200	406	ug/Kg
Benzyl Alcohol		<MDL	69	140	ug/Kg		<MDL	69	139	ug/Kg		<MDL	77	156	ug/Kg		<MDL	81	163	ug/Kg
Benzyl Butyl Phthalate	196		69	140	ug/Kg	432		69	139	ug/Kg		<MDL	77	156	ug/Kg	530		81	163	ug/Kg
Bis(2-Ethylhexyl)Phthalate	3780	X,E,TA	69	140	ug/Kg	13600	X,E,TA	69	139	ug/Kg	1850	X,E,TA	77	156	ug/Kg	13600	X,E,TA	81	163	ug/Kg
Caffeine		<MDL	35	69.5	ug/Kg		<MDL	35	69.2	ug/Kg		<MDL	39	77.7	ug/Kg		<MDL	41	81	ug/Kg
Carbazole	102		35	69.5	ug/Kg	122		35	69.2	ug/Kg		<MDL	39	77.7	ug/Kg	340		41	81	ug/Kg
Chrysene	528		35	69.5	ug/Kg	1140		35	69.2	ug/Kg	313		39	77.7	ug/Kg	745		41	81	ug/Kg
Coprostanol	8810		690	140	ug/Kg	8390		690	139	ug/Kg		<MDL	770	156	ug/Kg	12200		810	163	ug/Kg
Dibenzo(a,h)anthracene	79.5		35	69.5	ug/Kg	92.1		35	69.2	ug/Kg	50	<RDL	39	77.7	ug/Kg	61	<RDL	41	81	ug/Kg
Dibenzofuran	386		35	69.5	ug/Kg	127		35	69.2	ug/Kg	70	<RDL	39	77.7	ug/Kg	1350		41	81	ug/Kg
Diethyl Phthalate		<MDL	69	140	ug/Kg		<MDL	69	139	ug/Kg		<MDL	77	156	ug/Kg		<MDL	81	163	ug/Kg
Dimethyl Phthalate		<MDL	69	140	ug/Kg		<MDL	69	139	ug/Kg		<MDL	77	156	ug/Kg		<MDL	81	163	ug/Kg
Di-N-Butyl Phthalate	87	<RDL	69	140	ug/Kg	156		69	139	ug/Kg		<MDL	77	156	ug/Kg	179		81	163	ug/Kg
Di-N-Octyl Phthalate		<MDL	69	140	ug/Kg		<MDL	69	139	ug/Kg		<MDL	77	156	ug/Kg		<MDL	81	163	ug/Kg
Fluoranthene	1710		35	69.5	ug/Kg	4120		35	69.2	ug/Kg	746		39	77.7	ug/Kg	2980		41	81	ug/Kg
Fluorene	760		35	69.5	ug/Kg	303		35	69.2	ug/Kg	156		39	77.7	ug/Kg	2130		41	81	ug/Kg
Hexachlorobenzene		<MDL	6.9	14	ug/Kg		<MDL	6.9	13.9	ug/Kg		<MDL	7.7	15.6	ug/Kg		<MDL	8.1	16.3	ug/Kg
Hexachlorobutadiene		<MDL	17	34.8	ug/Kg		<MDL	17	34.7	ug/Kg		<MDL	19	38.9	ug/Kg		<MDL	20	40.6	ug/Kg
Indeno(1,2,3-Cd)Pyrene	213	E	35	69.5	ug/Kg	325	E	35	69.2	ug/Kg	150	E	39	77.7	ug/Kg	202	E	41	81	ug/Kg
Naphthalene	2030		35	69.5	ug/Kg	881		35	69.2	ug/Kg	242		39	77.7	ug/Kg	4600		41	81	ug/Kg
N-Nitrosodiphenylamine		<MDL	69	140	ug/Kg		<MDL	69	139	ug/Kg		<MDL	77	156	ug/Kg		<MDL	81	163	ug/Kg
Pentachlorophenol		<MDL	170	348	ug/Kg		<MDL	170	347	ug/Kg		<MDL	190	389	ug/Kg		<MDL	200	406	ug/Kg
Phenanthrene	1980		35	69.5	ug/Kg	1070		35	69.2	ug/Kg	500		39	77.7	ug/Kg	5180		41	81	ug/Kg
Phenol		<MDL	69	140	ug/Kg		<MDL	69	139	ug/Kg		<MDL	77	156	ug/Kg		<MDL	81	163	ug/Kg
Pyrene	1620		35	69.5	ug/Kg	4160		35	69.2	ug/Kg	666		39	77.7	ug/Kg	2290		41	81	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD	40.3		1.3	2.61	ug/Kg	53.8		1.3	2.6	ug/Kg	32.9		1.5	2.92	ug/Kg	113	TA	1.5	3.04	ug/Kg
4,4'-DDE	9.24		1.3	2.61	ug/Kg	9.61		1.3	2.6	ug/Kg	5.7		1.5	2.92	ug/Kg	81	TA	1.5	3.04	ug/Kg
4,4'-DDT	8.53	L,E,TA	1.3	2.61	ug/Kg	13	L,E,TA	1.3	2.6	ug/Kg	5.35	L,E,TA	1.5	2.92	ug/Kg	31.3	TA,L,E	1.5	3.04	ug/Kg
Aldrin		<MDL	1.3	2.61	ug/Kg		<MDL	1.3	2.6	ug/Kg		<MDL	1.5	2.92	ug/Kg		<MDL	1.5	3.04	ug/Kg
Alpha-BHC		<MDL,E	0.65	1.3	ug/Kg		<MDL,E	0.65	1.3	ug/Kg		<MDL,E	0.73	1.46	ug/Kg		<MDL,E	0.76	1.52	ug/Kg

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP					Locator:	TEMP					Locator:	TEMP					Locator:	TEMP				
Descrip:	Temporary Locator					Descrip:	Temporary Locator					Descrip:	Temporary Locator					Descrip:	Temporary Locator				
Client Loc:	DW103-CDE					Client Loc:	DW104-CCB					Client Loc:	DW105-CDC					Client Loc:	DW105-CDD				
Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005				
Lab ID:	L36276-9					Lab ID:	L36276-10					Lab ID:	L36276-11					Lab ID:	L36276-12				
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED				
% Solids:	76.7					% Solids:	77					% Solids:	68.6					% Solids:	65.8				
Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
Alpha-Chlordane	2.57		0.65	1.3	ug/Kg	6.91		0.65	1.3	ug/Kg	2.06		0.73	1.46	ug/Kg	8.84	TA	0.76	1.52	ug/Kg
Aroclor 1016		<MDL,TA	300	601	ug/Kg		<MDL,TA	180	368	ug/Kg		<MDL,TA	170	348	ug/Kg		<MDL,TA	730	1460	ug/Kg
Aroclor 1221		<MDL	33	65.2	ug/Kg		<MDL	32	64.9	ug/Kg		<MDL	36	72.9	ug/Kg		<MDL	38	76	ug/Kg
Aroclor 1232		<MDL,TA	680	1360	ug/Kg		<MDL,TA	420	823	ug/Kg		<MDL,TA	390	774	ug/Kg		<MDL,TA	1500	3180	ug/Kg
Aroclor 1242		<MDL,TA	470	936	ug/Kg		<MDL,TA	440	870	ug/Kg		<MDL,TA	310	622	ug/Kg		<MDL,TA	1200	2370	ug/Kg
Aroclor 1248	347	E	17	32.6	ug/Kg	327	E	17	32.5	ug/Kg	227	E	19	36.4	ug/Kg	1230	E	20	38	ug/Kg
Aroclor 1254	407		17	32.6	ug/Kg	588		17	32.5	ug/Kg	313		19	36.4	ug/Kg	2080		20	38	ug/Kg
Aroclor 1260	233		17	32.6	ug/Kg	190		17	32.5	ug/Kg	125		19	36.4	ug/Kg	676		20	38	ug/Kg
Beta-BHC		<MDL	0.65	1.3	ug/Kg		<MDL	0.65	1.3	ug/Kg		<MDL	0.73	1.46	ug/Kg		<MDL	0.76	1.52	ug/Kg
Delta-BHC		<MDL	0.65	1.3	ug/Kg		<MDL	0.65	1.3	ug/Kg		<MDL	0.73	1.46	ug/Kg		<MDL	0.76	1.52	ug/Kg
Dieldrin		<MDL	1.3	2.61	ug/Kg		<MDL	1.3	2.6	ug/Kg		<MDL	1.5	2.92	ug/Kg		<MDL	1.5	3.04	ug/Kg
Endosulfan I		<MDL	1.3	2.61	ug/Kg		<MDL	1.3	2.6	ug/Kg		<MDL	1.5	2.92	ug/Kg		<MDL	1.5	3.04	ug/Kg
Endosulfan II		<MDL	1.3	2.61	ug/Kg		<MDL	1.3	2.6	ug/Kg		<MDL	1.5	2.92	ug/Kg		<MDL	1.5	3.04	ug/Kg
Endosulfan Sulfate		<MDL	1.3	2.61	ug/Kg		<MDL	1.3	2.6	ug/Kg		<MDL	1.5	2.92	ug/Kg		<MDL	1.5	3.04	ug/Kg
Endrin	5.79		1.3	2.61	ug/Kg	7.34		1.3	2.6	ug/Kg	3.66		1.5	2.92	ug/Kg		<MDL	1.5	3.04	ug/Kg
Endrin Aldehyde		<MDL,E,TA	2.6	5.22	ug/Kg		<MDL,E,TA	2.6	5.19	ug/Kg		<MDL,E,TA	2.9	5.83	ug/Kg		<MDL,E,TA	3	6.08	ug/Kg
Gamma-BHC (Lindane)		<MDL	0.65	1.3	ug/Kg		<MDL	0.65	1.3	ug/Kg		<MDL	0.73	1.46	ug/Kg		<MDL	0.76	1.52	ug/Kg
Gamma-Chlordane		<MDL	0.65	1.3	ug/Kg		<MDL	0.65	1.3	ug/Kg		<MDL	0.73	1.46	ug/Kg		<MDL	0.76	1.52	ug/Kg
Heptachlor		<MDL	0.65	1.3	ug/Kg		<MDL	0.65	1.3	ug/Kg		<MDL	0.73	1.46	ug/Kg		<MDL	0.76	1.52	ug/Kg
Heptachlor Epoxide		<MDL	0.65	1.3	ug/Kg		<MDL	0.65	1.3	ug/Kg		<MDL	0.73	1.46	ug/Kg		<MDL	0.76	1.52	ug/Kg
Methoxychlor		<MDL	6.5	13	ug/Kg		<MDL	6.5	13	ug/Kg		<MDL	7.3	14.6	ug/Kg		<MDL	7.6	15.2	ug/Kg
Toxaphene		<MDL	13	26.1	ug/Kg		<MDL	13	26	ug/Kg		<MDL	15	29.2	ug/Kg		<MDL	15	30.4	ug/Kg

* Not converted to dry weight basis for this parameter

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP	TEMP	TEMP	TEMP
Descrip:	Temporary Locator	Temporary Locator	Temporary Locator	Temporary Locator
Client Loc:	DW105-CDE	DW105-CDF	DW105-CDG	DW105-CDH
Sampled:	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005
Lab ID:	L36276-13	L36276-14	L36276-15	L36276-16
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	62.7	64.6	45.9	38.9

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
M=CV ASTM D422(03-02-005-001)																				
Gravel *	2	E	0.1	1	%	0.4	<RDL,E	0.1	1	%	0.8	<RDL,E	0.1	1	%	1.1	E	0.1	1	%
Sand *	34.3		0.1	1	%	23.1		0.1	1	%	21		0.1	1	%	32.3		0.1	1	%
Silt *	40.4		0.5	1	%	46.8		0.5	1	%	51.9		0.5	1	%	45.8		0.5	1	%
Clay *	17.8	E	0.5	1	%	22.6	E	0.5	1	%	19	E	0.5	1	%	13.1	E	0.5	1	%
p+0.00 *	2.1		0.1	1	%	0.5	<RDL	0.1	1	%	0.6	<RDL	0.1	1	%	1.6		0.1	1	%
p+1.00 *	5.2		0.1	1	%	0.9	<RDL	0.1	1	%	1.4		0.1	1	%	3.3		0.1	1	%
p+10.0(equal/more than) *	14.5		0.5	1	%	17.2		0.5	1	%	15.2		0.5	1	%	10.5		0.5	1	%
p+2.00 *	15.8		0.1	1	%	11.5		0.1	1	%	5		0.1	1	%	12.6		0.1	1	%
p+3.00 *	6.9		0.1	1	%	8.5		0.1	1	%	8.2		0.1	1	%	10.1		0.1	1	%
p+4.00 *	4.2		0.1	1	%	1.6		0.1	1	%	5.7		0.1	1	%	4.7		0.1	1	%
p+5.00 *	5.7		0.5	1	%	3.1		0.5	1	%	20.2		0.5	1	%	18.3		0.5	1	%
p+6.00 *	17.8		0.5	1	%	18		0.5	1	%	8.9		0.5	1	%	7.9		0.5	1	%
p+7.00 *	11.3		0.5	1	%	18		0.5	1	%	13.9		0.5	1	%	13.1		0.5	1	%
p+8.00 *	5.7		0.5	1	%	7.8		0.5	1	%	8.9		0.5	1	%	6.5		0.5	1	%
p+9.00 *	3.2		0.5	1	%	5.5		0.5	1	%	3.8		0.5	1	%	2.6		0.5	1	%
p-1.00 *	1.4		0.1	1	%	0.3	<RDL	0.1	1	%	0.4	<RDL	0.1	1	%	0.8	<RDL	0.1	1	%
p-2.00 *	0.2	<RDL	0.1	1	%		<MDL	0.1	1	%		<MDL	0.1	1	%		<MDL	0.1	1	%
p-2.00(less than) *	0.4	<RDL	0.1	1	%	0.2	<RDL	0.1	1	%	0.3	<RDL	0.1	1	%	0.2	<RDL	0.1	1	%
Fines *	58.2		0.5	1	%	69.5		0.5	1	%	70.8		0.5	1	%	58.9		0.5	1	%
M=CV EPA9060-PSEP96 (03-04-002-003)																				
Total Organic Carbon	40500		2600	5150	mg/Kg	25200		2000	3980	mg/Kg	38600		2600	5100	mg/Kg	59100		5400	10600	mg/Kg
M=CV SM2540-G (03-01-007-002)																				
Total Solids *	62.7		0.005	0.01	%	64.6		0.005	0.01	%	45.9		0.005	0.01	%	38.9		0.005	0.01	%
M=ES NONE																				
Sample Start Time *	1036				hr	1036				hr	1036				hr	1036				hr
M=MT EPA 7471A (06-01-004-003)																				
Mercury, Total, CVAA	24.6	E	0.32	3.25	mg/Kg	2.48	E	0.062	0.622	mg/Kg	0.702	E	0.044	0.44	mg/Kg	3.7	E	0.051	0.517	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)																				
Aluminum, Total, ICP	14100		8	39.7	mg/Kg	17600		7.7	38.7	mg/Kg	12900		11	54.2	mg/Kg	17700		13	64.3	mg/Kg
Antimony, Total, ICP	7	<RDL,G	2.4	11.9	mg/Kg	4.2	<RDL,G	2.3	11.6	mg/Kg		<MDL,G	3.3	16.3	mg/Kg		<MDL,G	3.9	19.3	mg/Kg
Arsenic, Total, ICP	7.8	<RDL,L	4	19.9	mg/Kg	6.3	<RDL,L	3.9	19.3	mg/Kg	8.3	<RDL,L	5.4	27.2	mg/Kg	18	<RDL,L	6.4	32.1	mg/Kg
Beryllium, Total, ICP	0.22	<RDL,G	0.08	0.397	mg/Kg	0.26	<RDL,G	0.077	0.387	mg/Kg	0.21	<RDL,G	0.11	0.542	mg/Kg	0.26	<RDL,G	0.13	0.643	mg/Kg
Cadmium, Total, ICP	5.3		0.24	1.19	mg/Kg	2.83		0.23	1.16	mg/Kg	0.92	<RDL	0.33	1.63	mg/Kg	5.99		0.39	1.93	mg/Kg
Chromium, Total, ICP	65.4		0.4	1.99	mg/Kg	58.2		0.39	1.93	mg/Kg	41.8		0.54	2.72	mg/Kg	91		0.64	3.21	mg/Kg
Copper, Total, ICP	198	E	0.32	1.59	mg/Kg	82.4	E	0.31	1.55	mg/Kg	44.4	E	0.44	2.17	mg/Kg	156	E	0.51	2.57	mg/Kg
Iron, Total, ICP	25000		4	19.9	mg/Kg	28000		3.9	19.3	mg/Kg	19400		5.4	27.2	mg/Kg	28500		6.4	32.1	mg/Kg
Lead, Total, ICP	515		2.4	11.9	mg/Kg	175		2.3	11.6	mg/Kg	151		3.3	16.3	mg/Kg	378		3.9	19.3	mg/Kg
Manganese, Total, ICP	300		0.16	0.796	mg/Kg	328		0.15	0.774	mg/Kg	217		0.22	1.09	mg/Kg	319		0.26	1.29	mg/Kg
Nickel, Total, ICP	63.2		1.6	7.96	mg/Kg	58.8		1.5	7.74	mg/Kg	46.2		2.2	10.9	mg/Kg	68.9		2.6	12.9	mg/Kg
Selenium, Total, ICP		<MDL	4	19.9	mg/Kg		<MDL	3.9	19.3	mg/Kg		<MDL	5.4	27.2	mg/Kg		<MDL	6.4	32.1	mg/Kg
Silver, Total, ICP	24.2	G	0.32	1.59	mg/Kg	6.92	G	0.31	1.55	mg/Kg	3.2	G	0.44	2.17	mg/Kg	26.7	G	0.51	2.57	mg/Kg
Thallium, Total, ICP		<MDL	16	79.6	mg/Kg		<MDL	15	77.4	mg/Kg		<MDL	22	109	mg/Kg		<MDL	26	129	mg/Kg
Zinc, Total, ICP	491		0.4	1.99	mg/Kg	226		0.39	1.93	mg/Kg	329		0.54	2.72	mg/Kg	409		0.64	3.21	mg/Kg
M=OR EPA 3550B/8270C (7-3-01-004)																				
1,2,4-Trichlorobenzene		<MDL	4.3	8.5	ug/Kg		<MDL	4.2	8.25	ug/Kg		<MDL	5.9	11.6	ug/Kg		<MDL	6.9	13.7	ug/Kg

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP	TEMP	TEMP	TEMP
Descrip:	Temporary Locator	Temporary Locator	Temporary Locator	Temporary Locator
Client Loc:	DW105-CDE	DW105-CDF	DW105-CDG	DW105-CDH
Sampled:	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005	Jul 21, 2005
Lab ID:	L36276-13	L36276-14	L36276-15	L36276-16
Matrix:	SALTWTRSED	SALTWTRSED	SALTWTRSED	SALTWTRSED
% Solids:	62.7	64.6	45.9	38.9

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
1,2-Dichlorobenzene	193		4.3	8.5	ug/Kg	62.8		4.2	8.25	ug/Kg		<MDL	5.9	11.6	ug/Kg	71.2		6.9	13.7	ug/Kg
1,3-Dichlorobenzene		<MDL	4.3	8.5	ug/Kg		<MDL	4.2	8.25	ug/Kg		<MDL	5.9	11.6	ug/Kg		<MDL	6.9	13.7	ug/Kg
1,4-Dichlorobenzene	781		4.3	8.5	ug/Kg	203		4.2	8.25	ug/Kg	36.6		5.9	11.6	ug/Kg	398		6.9	13.7	ug/Kg
2,4-Dimethylphenol		<MDL	43	85	ug/Kg		<MDL	42	82.5	ug/Kg		<MDL	59	116	ug/Kg		<MDL	69	137	ug/Kg
2-Methylnaphthalene	7080		43	85	ug/Kg	3840		42	82.5	ug/Kg	586		59	116	ug/Kg	2700		69	137	ug/Kg
2-Methylphenol		<MDL	85	171	ug/Kg		<MDL	82	166	ug/Kg		<MDL	120	233	ug/Kg		<MDL	140	275	ug/Kg
4-Methylphenol		<MDL	85	171	ug/Kg		<MDL	82	166	ug/Kg		<MDL	120	233	ug/Kg		<MDL	140	275	ug/Kg
Acenaphthene	1470		43	85	ug/Kg		<MDL	42	82.5	ug/Kg	70	<RDL	59	116	ug/Kg		<MDL	69	137	ug/Kg
Acenaphthylene		<MDL	43	85	ug/Kg		<MDL	42	82.5	ug/Kg		<MDL	59	116	ug/Kg		<MDL	69	137	ug/Kg
Anthracene	1320		43	85	ug/Kg	136		42	82.5	ug/Kg	83	<RDL	59	116	ug/Kg	242		69	137	ug/Kg
Benzo(a)anthracene	710	E	43	85	ug/Kg	316	E	42	82.5	ug/Kg	197	E	59	116	ug/Kg	519	E	69	137	ug/Kg
Benzo(a)pyrene	380	E	43	85	ug/Kg	268	E	42	82.5	ug/Kg	229	E	59	116	ug/Kg	532	E	69	137	ug/Kg
Benzo(b)fluoranthene	373	E	43	85	ug/Kg	180	E	42	82.5	ug/Kg	141	E	59	116	ug/Kg	404	E	69	137	ug/Kg
Benzo(g,h,i)perylene	212	E	43	85	ug/Kg	161	E	42	82.5	ug/Kg	132	E	59	116	ug/Kg	298	E	69	137	ug/Kg
Benzo(k)fluoranthene	341	E	43	85	ug/Kg	197	E	42	82.5	ug/Kg	157	E	59	116	ug/Kg	398	E	69	137	ug/Kg
Benzoic Acid		<MDL,B	210	426	ug/Kg		<MDL,B	200	413	ug/Kg		<MDL,B	280	582	ug/Kg		<MDL,B	330	686	ug/Kg
Benzyl Alcohol		<MDL	85	171	ug/Kg		<MDL	82	166	ug/Kg		<MDL	120	233	ug/Kg		<MDL	140	275	ug/Kg
Benzyl Butyl Phthalate		<MDL	85	171	ug/Kg		<MDL	82	166	ug/Kg		<MDL	120	233	ug/Kg	200	<RDL	140	275	ug/Kg
Bis(2-Ethylhexyl)Phthalate	15400	X,E,TA	85	171	ug/Kg	7710	X,E,TA	82	166	ug/Kg	2640	X,E,TA	120	233	ug/Kg	6630	X,E,TA	140	275	ug/Kg
Caffeine		<MDL	43	85	ug/Kg		<MDL	42	82.5	ug/Kg		<MDL	59	116	ug/Kg		<MDL	69	137	ug/Kg
Carbazole	301		43	85	ug/Kg		<MDL	42	82.5	ug/Kg		<MDL	59	116	ug/Kg		<MDL	69	137	ug/Kg
Chrysene	781		43	85	ug/Kg	353		42	82.5	ug/Kg	233		59	116	ug/Kg	555		69	137	ug/Kg
Coprostanol	36200		850	171	ug/Kg	30300		820	166	ug/Kg	10100		1200	233	ug/Kg	26200		1400	275	ug/Kg
Dibenzo(a,h)anthracene	86.3		43	85	ug/Kg	45	<RDL	42	82.5	ug/Kg		<MDL	59	116	ug/Kg	100	<RDL	69	137	ug/Kg
Dibenzofuran	1340		43	85	ug/Kg		<MDL	42	82.5	ug/Kg		<MDL	59	116	ug/Kg		<MDL	69	137	ug/Kg
Diethyl Phthalate		<MDL	85	171	ug/Kg		<MDL	82	166	ug/Kg		<MDL	120	233	ug/Kg		<MDL	140	275	ug/Kg
Dimethyl Phthalate		<MDL	85	171	ug/Kg		<MDL	82	166	ug/Kg		<MDL	120	233	ug/Kg		<MDL	140	275	ug/Kg
Di-N-Butyl Phthalate	183		85	171	ug/Kg	93	<RDL	82	166	ug/Kg		<MDL	120	233	ug/Kg	190	<RDL	140	275	ug/Kg
Di-N-Octyl Phthalate		<MDL	85	171	ug/Kg		<MDL	82	166	ug/Kg		<MDL	120	233	ug/Kg		<MDL	140	275	ug/Kg
Fluoranthene	4580		43	85	ug/Kg	712		42	82.5	ug/Kg	468		59	116	ug/Kg	1140		69	137	ug/Kg
Fluorene	2540		43	85	ug/Kg	354		42	82.5	ug/Kg	136		59	116	ug/Kg	342		69	137	ug/Kg
Hexachlorobenzene		<MDL	8.5	17.1	ug/Kg		<MDL	8.2	16.6	ug/Kg		<MDL	12	23.3	ug/Kg		<MDL	14	27.5	ug/Kg
Hexachlorobutadiene		<MDL	21	42.6	ug/Kg		<MDL	20	41.3	ug/Kg		<MDL	28	58.2	ug/Kg		<MDL	33	68.6	ug/Kg
Indeno(1,2,3-Cd)Pyrene	228	E	43	85	ug/Kg	136	E	42	82.5	ug/Kg	110	<RDL,E	59	116	ug/Kg	290	E	69	137	ug/Kg
Naphthalene	5500		43	85	ug/Kg	2960		42	82.5	ug/Kg	495		59	116	ug/Kg	3320		69	137	ug/Kg
N-Nitrosodiphenylamine		<MDL	85	171	ug/Kg		<MDL	82	166	ug/Kg		<MDL	120	233	ug/Kg		<MDL	140	275	ug/Kg
Pentachlorophenol		<MDL	210	426	ug/Kg		<MDL	200	413	ug/Kg		<MDL	280	582	ug/Kg		<MDL	330	686	ug/Kg
Phenanthrene	8070		43	85	ug/Kg	864		42	82.5	ug/Kg	370		59	116	ug/Kg	954		69	137	ug/Kg
Phenol		<MDL	85	171	ug/Kg		<MDL	82	166	ug/Kg		<MDL	120	233	ug/Kg		<MDL	140	275	ug/Kg
Pyrene	3330		43	85	ug/Kg	681		42	82.5	ug/Kg	499		59	116	ug/Kg	1090		69	137	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)																				
4,4'-DDD	195	TA	1.6	3.19	ug/Kg	70.6		1.5	3.1	ug/Kg	10.7		2.2	4.36	ug/Kg	184		2.6	5.14	ug/Kg
4,4'-DDE	116	TA	1.6	3.19	ug/Kg	22.4		1.5	3.1	ug/Kg	4.1	<RDL	2.2	4.36	ug/Kg	22		2.6	5.14	ug/Kg
4,4'-DDT	45	TA,L,E	1.6	3.19	ug/Kg	19.3	L,E,TA	1.5	3.1	ug/Kg	3.7	<RDL,L,E	2.2	4.36	ug/Kg	15.5	L,E,TA	2.6	5.14	ug/Kg
Aldrin		<MDL	1.6	3.19	ug/Kg		<MDL	1.5	3.1	ug/Kg		<MDL	2.2	4.36	ug/Kg		<MDL	2.6	5.14	ug/Kg
Alpha-BHC		<MDL,E	0.8	1.59	ug/Kg		<MDL,E	0.77	1.55	ug/Kg	7.36	E	1.1	2.18	ug/Kg		<MDL,E	1.3	2.57	ug/Kg

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP					Locator:	TEMP					Locator:	TEMP					Locator:	TEMP				
Descrip:	Temporary Locator					Descrip:	Temporary Locator					Descrip:	Temporary Locator					Descrip:	Temporary Locator				
Client Loc:	DW105-CDE					Client Loc:	DW105-CDF					Client Loc:	DW105-CDG					Client Loc:	DW105-CDH				
Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005					Sampled:	Jul 21, 2005				
Lab ID:	L36276-13					Lab ID:	L36276-14					Lab ID:	L36276-15					Lab ID:	L36276-16				
Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED					Matrix:	SALTWTRSED				
% Solids:	62.7					% Solids:	64.6					% Solids:	45.9					% Solids:	38.9				
Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis					- Dry Weight Basis		
COMBINED LABS																				
Alpha-Chlordane	17.5	TA	0.8	1.59	ug/Kg	6.28		0.77	1.55	ug/Kg		<MDL	1.1	2.18	ug/Kg	7.76		1.3	2.57	ug/Kg
Aroclor 1016		<MDL,TA	940	1880	ug/Kg		<MDL,TA	290	579	ug/Kg		<MDL,TA	74	146	ug/Kg		<MDL,TA	410	815	ug/Kg
Aroclor 1221		<MDL	40	79.7	ug/Kg		<MDL	39	77.4	ug/Kg		<MDL	54	109	ug/Kg		<MDL	64	129	ug/Kg
Aroclor 1232		<MDL,TA	2100	4160	ug/Kg		<MDL,TA	620	1250	ug/Kg		<MDL,TA	170	344	ug/Kg		<MDL,TA	930	1870	ug/Kg
Aroclor 1242		<MDL,TA	1500	2980	ug/Kg		<MDL,TA	600	1200	ug/Kg		<MDL,TA	190	379	ug/Kg		<MDL,TA	690	1370	ug/Kg
Aroclor 1248	1520	E	21	39.9	ug/Kg	475	E	20	38.7	ug/Kg	94.3	E	28	54.5	ug/Kg	584	E	33	64.3	ug/Kg
Aroclor 1254	2650		21	39.9	ug/Kg	751		20	38.7	ug/Kg	163		28	54.5	ug/Kg	982		33	64.3	ug/Kg
Aroclor 1260	1170		21	39.9	ug/Kg	477		20	38.7	ug/Kg	253		28	54.5	ug/Kg	362		33	64.3	ug/Kg
Beta-BHC		<MDL	0.8	1.59	ug/Kg		<MDL	0.77	1.55	ug/Kg		<MDL	1.1	2.18	ug/Kg		<MDL	1.3	2.57	ug/Kg
Delta-BHC		<MDL	0.8	1.59	ug/Kg		<MDL	0.77	1.55	ug/Kg		<MDL	1.1	2.18	ug/Kg		<MDL	1.3	2.57	ug/Kg
Dieldrin		<MDL	1.6	3.19	ug/Kg		<MDL	1.5	3.1	ug/Kg		<MDL	2.2	4.36	ug/Kg		<MDL	2.6	5.14	ug/Kg
Endosulfan I		<MDL	1.6	3.19	ug/Kg		<MDL	1.5	3.1	ug/Kg		<MDL	2.2	4.36	ug/Kg		<MDL	2.6	5.14	ug/Kg
Endosulfan II		<MDL	1.6	3.19	ug/Kg		<MDL	1.5	3.1	ug/Kg		<MDL	2.2	4.36	ug/Kg		<MDL	2.6	5.14	ug/Kg
Endosulfan Sulfate		<MDL	1.6	3.19	ug/Kg		<MDL	1.5	3.1	ug/Kg		<MDL	2.2	4.36	ug/Kg		<MDL	2.6	5.14	ug/Kg
Endrin		<MDL	1.6	3.19	ug/Kg		<MDL	1.5	3.1	ug/Kg	6.34		2.2	4.36	ug/Kg	10.4		2.6	5.14	ug/Kg
Endrin Aldehyde		<MDL,E,TA	3.2	6.38	ug/Kg		<MDL,E,TA	3.1	6.19	ug/Kg		<MDL,E,TA	4.4	8.71	ug/Kg		<MDL,E,TA	5.1	10.3	ug/Kg
Gamma-BHC (Lindane)		<MDL	0.8	1.59	ug/Kg		<MDL	0.77	1.55	ug/Kg		<MDL	1.1	2.18	ug/Kg		<MDL	1.3	2.57	ug/Kg
Gamma-Chlordane		<MDL	0.8	1.59	ug/Kg		<MDL	0.77	1.55	ug/Kg		<MDL	1.1	2.18	ug/Kg		<MDL	1.3	2.57	ug/Kg
Heptachlor		<MDL	0.8	1.59	ug/Kg		<MDL	0.77	1.55	ug/Kg		<MDL	1.1	2.18	ug/Kg		<MDL	1.3	2.57	ug/Kg
Heptachlor Epoxide		<MDL	0.8	1.59	ug/Kg		<MDL	0.77	1.55	ug/Kg		<MDL	1.1	2.18	ug/Kg		<MDL	1.3	2.57	ug/Kg
Methoxychlor		<MDL	8	15.9	ug/Kg		<MDL	7.7	15.5	ug/Kg		<MDL	11	21.8	ug/Kg		<MDL	13	25.7	ug/Kg
Toxaphene		<MDL	16	31.9	ug/Kg		<MDL	15	31	ug/Kg		<MDL	22	43.6	ug/Kg		<MDL	26	51.4	ug/Kg

* Not converted to dry weight basis for this parameter

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator: TEMP
Descrip: Temporary Locator
Client Loc: DW104-CSB
Sampled: Jul 21, 2005
Lab ID: L36276-17
Matrix: SALTWTRSED
% Solids: 75.2

Parameters	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis		
COMBINED LABS					
M=CV ASTM D422(03-02-005-001)					
Gravel *	17.6	E	0.1	1	%
Sand *	67.2		0.1	1	%
Silt *	7.4		0.5	1	%
Clay *	3.1	E	0.5	1	%
p+0.00 *	5.8		0.1	1	%
p+1.00 *	9.3		0.1	1	%
p+10.0(equal/more than) *	3.1		0.5	1	%
p+2.00 *	22.2		0.1	1	%
p+3.00 *	22.2		0.1	1	%
p+4.00 *	7.8		0.1	1	%
p+5.00 *	3.7		0.5	1	%
p+6.00 *	1.2		0.5	1	%
p+7.00 *	1.2		0.5	1	%
p+8.00 *	1.2		0.5	1	%
p+9.00 *		<MDL	0.5	1	%
p-1.00 *	6		0.1	1	%
p-2.00 *	1.7		0.1	1	%
p-2.00(less than) *	9.9		0.1	1	%
Fines *	10.5		0.5	1	%
M=CV EPA9060-PSEP96 (03-04-002-003)					
Total Organic Carbon	15700		2000	3910	mg/Kg
M=CV SM2540-G (03-01-007-002)					
Total Solids *	75.2		0.005	0.01	%
M=ES NONE					
Sample Start Time *	1710				hr
M=MT EPA 7471A (06-01-004-003)					
Mercury, Total, CVAA	1.65	E	0.027	0.269	mg/Kg
M=MT EPA3050A/6010B (06-02-004-002)					
Aluminum, Total, ICP	9470		6.6	33.2	mg/Kg
Antimony, Total, ICP		<MDL,G	2	9.96	mg/Kg
Arsenic, Total, ICP	3.6	<RDL,L	3.3	16.6	mg/Kg
Beryllium, Total, ICP	0.15	<RDL,G	0.066	0.332	mg/Kg
Cadmium, Total, ICP	1.64		0.2	0.996	mg/Kg
Chromium, Total, ICP	74.5		0.33	1.66	mg/Kg
Copper, Total, ICP	242	E	0.27	1.33	mg/Kg
Iron, Total, ICP	16600		3.3	16.6	mg/Kg
Lead, Total, ICP	199		2	9.96	mg/Kg
Manganese, Total, ICP	190		0.13	0.664	mg/Kg
Nickel, Total, ICP	106		1.3	6.64	mg/Kg
Selenium, Total, ICP		<MDL	3.3	16.6	mg/Kg
Silver, Total, ICP	5.17	G	0.27	1.33	mg/Kg
Thallium, Total, ICP		<MDL	13	66.4	mg/Kg
Zinc, Total, ICP	181		0.33	1.66	mg/Kg
M=OR EPA 3550B/8270C (7-3-01-004)					
1,2,4-Trichlorobenzene		<MDL	3.6	7.09	ug/Kg

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator: TEMP
Descrip: Temporary Locator
Client Loc: DW104-CSB
Sampled: Jul 21, 2005
Lab ID: L36276-17
Matrix: SALTWTRSED
% Solids: 75.2

Parameters	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis		
COMBINED LABS					
1,2-Dichlorobenzene		<MDL	3.6	7.09	ug/Kg
1,3-Dichlorobenzene		<MDL	3.6	7.09	ug/Kg
1,4-Dichlorobenzene	266		3.6	7.09	ug/Kg
2,4-Dimethylphenol		<MDL	36	70.9	ug/Kg
2-Methylnaphthalene	594		36	70.9	ug/Kg
2-Methylphenol		<MDL	70	142	ug/Kg
4-Methylphenol		<MDL	70	142	ug/Kg
Acenaphthene	213		36	70.9	ug/Kg
Acenaphthylene		<MDL	36	70.9	ug/Kg
Anthracene	1380		36	70.9	ug/Kg
Benzo(a)anthracene	1030	E	36	70.9	ug/Kg
Benzo(a)pyrene	747	E	36	70.9	ug/Kg
Benzo(b)fluoranthene	710	E	36	70.9	ug/Kg
Benzo(g,h,i)perylene	347	E	36	70.9	ug/Kg
Benzo(k)fluoranthene	680	E	36	70.9	ug/Kg
Benzoic Acid		<MDL,B	170	355	ug/Kg
Benzyl Alcohol		<MDL	70	142	ug/Kg
Benzyl Butyl Phthalate	165		70	142	ug/Kg
Bis(2-Ethylhexyl)Phthalate	3620	X,E,TA	70	142	ug/Kg
Caffeine		<MDL	36	70.9	ug/Kg
Carbazole	118		36	70.9	ug/Kg
Chrysene	1180		36	70.9	ug/Kg
Coprostanol	6610		700	142	ug/Kg
Dibenzo(a,h)anthracene	81.9		36	70.9	ug/Kg
Dibenzofuran	93.9		36	70.9	ug/Kg
Diethyl Phthalate		<MDL	70	142	ug/Kg
Dimethyl Phthalate		<MDL	70	142	ug/Kg
Di-N-Butyl Phthalate	94	<RDL	70	142	ug/Kg
Di-N-Octyl Phthalate		<MDL	70	142	ug/Kg
Fluoranthene	4950		36	70.9	ug/Kg
Fluorene	330		36	70.9	ug/Kg
Hexachlorobenzene		<MDL	7	14.2	ug/Kg
Hexachlorobutadiene		<MDL	17	35.5	ug/Kg
Indeno(1,2,3-Cd)Pyrene	335	E	36	70.9	ug/Kg
Naphthalene	648		36	70.9	ug/Kg
N-Nitrosodiphenylamine		<MDL	70	142	ug/Kg
Pentachlorophenol		<MDL	170	355	ug/Kg
Phenanthrene	940		36	70.9	ug/Kg
Phenol		<MDL	70	142	ug/Kg
Pyrene	4080		36	70.9	ug/Kg
M=OR EPA 8081A/8082 (7-3-03-002)					
4,4'-DDD	47.3		1.3	2.66	ug/Kg
4,4'-DDE	9.15		1.3	2.66	ug/Kg
4,4'-DDT	12.2	L	1.3	2.66	ug/Kg
Aldrin		<MDL	1.3	2.66	ug/Kg
Alpha-BHC		<MDL,E	0.66	1.33	ug/Kg

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	TEMP
Descrip:	Temporary Locator
Client Loc:	DW104-CSB
Sampled:	Jul 21, 2005
Lab ID:	L36276-17
Matrix:	SALTWTRSED
% Solids:	75.2

Parameters	Value	Qual	MDL	RDL	Units
			- Dry Weight Basis		
COMBINED LABS					
Alpha-Chlordane	6.57		0.66	1.33	ug/Kg
Aroclor 1016		<MDL,TA	200	395	ug/Kg
Aroclor 1221		<MDL	33	66.5	ug/Kg
Aroclor 1232		<MDL,TA	470	918	ug/Kg
Aroclor 1242		<MDL,TA	480	965	ug/Kg
Aroclor 1248	354	E	17	33.2	ug/Kg
Aroclor 1254	640		17	33.2	ug/Kg
Aroclor 1260	223		17	33.2	ug/Kg
Beta-BHC		<MDL	0.66	1.33	ug/Kg
Delta-BHC		<MDL	0.66	1.33	ug/Kg
Dieldrin		<MDL	1.3	2.66	ug/Kg
Endosulfan I		<MDL	1.3	2.66	ug/Kg
Endosulfan II		<MDL	1.3	2.66	ug/Kg
Endosulfan Sulfate		<MDL	1.3	2.66	ug/Kg
Endrin		<MDL	1.3	2.66	ug/Kg
Endrin Aldehyde		<MDL,E,TA	2.7	5.32	ug/Kg
Gamma-BHC (Lindane)		<MDL	0.66	1.33	ug/Kg
Gamma-Chlordane		<MDL	0.66	1.33	ug/Kg
Heptachlor		<MDL	0.66	1.33	ug/Kg
Heptachlor Epoxide		<MDL	0.66	1.33	ug/Kg
Methoxychlor		<MDL	6.6	13.3	ug/Kg
Toxaphene		<MDL	13	26.6	ug/Kg

* Not converted to dry weight basis for this parameter

APPENDIX D

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) AND DREDGE ELUTRIATE TEST (DRET) RESULTS AND QA/QC DATA

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	NONE	NONE
Descrip:	UNKNOWN LOCATOR	UNKNOWN LOCATOR
Client Loc:	DW104-TCLP	
Sampled:	Jul 21, 2005	Jul 21, 2005
Lab ID:	L36275-1	L36275-1
Matrix:	TCLP LEACH	SALTWTRSED
% Solids:		

Parameters	Value	Qual	MDL	RDL	Units	Value	Qual	MDL	RDL	Units
		-Wet Weight Basis					-Wet Weight Basis			
COMBINED LABS										
M=ES NONE										
Sample Start Time						1710				hr
M=MT EPA 1311/200.7 (06-02-004-002)										
Arsenic, Total, ICP		<MDL	50	250	ug/L					
Barium, Total, ICP	251	B	1	5	ug/L					
Cadmium, Total, ICP		<MDL	3	15	ug/L					
Chromium, Total, ICP		<MDL	5	25	ug/L					
Copper, Total, ICP		<MDL	4	20	ug/L					
Lead, Total, ICP	739		30	150	ug/L					
Nickel, Total, ICP	80	<RDL	20	100	ug/L					
Selenium, Total, ICP		<MDL	50	250	ug/L					
Silver, Total, ICP		<MDL	4	20	ug/L					
Zinc, Total, ICP	1060		5	25	ug/L					
M=MT EPA 1311/245.2 (06-01-004-003)										
Mercury, Total, CVAA		<MDL	0.05	0.15	ug/L					

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	NONE
Descrip:	UNKNOWN LOCATOR
Client Loc:	DW104-DRET-050721
Sampled:	Jul 26, 2005
Lab ID:	L36319-1
Matrix:	SALT WTR
% Solids:	

Parameters	Value	Qual	MDL	RDL	Units
			-Wet Weight Basis		
COMBINED LABS					
M=MT EPA 245.1 (06-01-004-003)					
Mercury, Total, CVAA	1.3		0.05	0.15	ug/L
M=OR EPA 3520C/8270C (7-3-01-004)					
1,2,4-Trichlorobenzene		<MDL	0.0094	0.0189	ug/L
1,2-Dichlorobenzene		<MDL	0.048	0.0952	ug/L
1,2-Diphenylhydrazine		<MDL	0.36	0.714	ug/L
1,3-Dichlorobenzene		<MDL	0.048	0.0952	ug/L
1,4-Dichlorobenzene	0.165		0.048	0.0952	ug/L
2,4,5-Trichlorophenol		<MDL	0.43	0.857	ug/L
2,4,6-Trichlorophenol		<MDL	0.46	0.929	ug/L
2,4-Dichlorophenol		<MDL	0.57	1.14	ug/L
2,4-Dimethylphenol		<MDL	0.25	0.5	ug/L
2,4-Dinitrophenol		<MDL	0.48	0.952	ug/L
2,4-Dinitrotoluene		<MDL	0.11	0.214	ug/L
2,6-Dinitrotoluene		<MDL	0.36	0.714	ug/L
2-Chloronaphthalene		<MDL	0.57	1.14	ug/L
2-Chlorophenol		<MDL	0.29	0.571	ug/L
2-Methylnaphthalene		<MDL	0.5	1	ug/L
2-Methylphenol		<MDL	0.68	1.36	ug/L
2-Nitroaniline		<MDL	0.24	0.476	ug/L
2-Nitrophenol		<MDL	0.54	1.07	ug/L
3,3'-Dichlorobenzidine		<MDL	0.095	0.19	ug/L
3-Methylphenol		<MDL	0.095	0.19	ug/L
3-Nitroaniline		<MDL	0.24	0.476	ug/L
4,6-Dinitro-O-Cresol		<MDL	0.48	0.952	ug/L
4-Bromophenyl Phenyl Ether		<MDL	0.32	0.643	ug/L
4-Chloro-3-Methylphenol		<MDL	0.095	0.19	ug/L
4-Chloroaniline		<MDL	0.095	0.19	ug/L
4-Chlorophenyl Phenyl Ether		<MDL	0.46	0.929	ug/L
4-Methylphenol		<MDL	0.57	1.14	ug/L
4-Nitroaniline		<MDL	0.48	0.952	ug/L
4-Nitrophenol		<MDL	0.48	0.952	ug/L
Acenaphthene	0.25	<RDL	0.25	0.5	ug/L
Acenaphthylene		<MDL	0.54	1.07	ug/L
Aniline		<MDL	0.68	1.36	ug/L
Anthracene	0.306		0.14	0.286	ug/L
Benzo(a)anthracene	0.203		0.071	0.143	ug/L
Benzo(a)pyrene		<MDL	0.11	0.214	ug/L
Benzo(b)fluoranthene		<MDL	0.11	0.214	ug/L
Benzo(g,h,i)perylene		<MDL	0.29	0.571	ug/L
Benzo(k)fluoranthene	0.13	<RDL	0.11	0.214	ug/L
Benzoic Acid		<MDL	0.21	0.429	ug/L
Benzyl Alcohol		<MDL	0.21	0.429	ug/L
Benzyl Butyl Phthalate		<MDL	0.48	0.952	ug/L

King County Environmental Lab Analytical Report

PROJECT: 423368-80

Locator:	NONE
Descrip:	UNKNOWN LOCATOR
Client Loc:	DW104-DRET-050721
Sampled:	Jul 26, 2005
Lab ID:	L36319-1
Matrix:	SALT WTR
% Solids:	

Parameters	Value	Qual	MDL	RDL	Units
		-Wet Weight Basis			
COMBINED LABS					
Bis(2-Chloroethoxy)Methane		<MDL	0.61	1.21	ug/L
Bis(2-Chloroethyl)Ether		<MDL	0.54	1.07	ug/L
Bis(2-Chloroisopropyl)Ether		<MDL	0.54	1.07	ug/L
Bis(2-Ethylhexyl)Phthalate	2.71	B	0.048	0.952	ug/L
Caffeine		<MDL	0.21	0.429	ug/L
Carbazole		<MDL	0.25	0.5	ug/L
Chrysene	0.21	<RDL	0.14	0.286	ug/L
Coprostanol	9.52		0.5	1	ug/L
Dibenzo(a,h)anthracene		<MDL	0.25	0.5	ug/L
Dibenzofuran		<MDL	0.5	1	ug/L
Diethyl Phthalate		<MDL	0.48	0.952	ug/L
Dimethyl Phthalate		<MDL	0.48	0.952	ug/L
Di-N-Butyl Phthalate		<MDL	0.48	0.952	ug/L
Di-N-Octyl Phthalate		<MDL	0.48	0.952	ug/L
Fluoranthene	1.44		0.29	0.571	ug/L
Fluorene		<MDL	0.46	0.929	ug/L
Hexachlorobenzene		<MDL	0.024	0.0475	ug/L
Hexachlorobutadiene		<MDL	0.027	0.0536	ug/L
Hexachlorocyclopentadiene		<MDL	0.24	0.476	ug/L
Hexachloroethane		<MDL	0.54	1.07	ug/L
Indeno(1,2,3-Cd)Pyrene		<MDL	0.32	0.643	ug/L
Isophorone		<MDL	0.68	1.36	ug/L
Naphthalene		<MDL	0.5	1	ug/L
Nitrobenzene		<MDL	0.57	1.14	ug/L
N-Nitrosodimethylamine		<MDL	0.71	1.43	ug/L
N-Nitrosodi-N-Propylamine		<MDL	0.32	0.643	ug/L
N-Nitrosodiphenylamine		<MDL	0.71	1.43	ug/L
Pentachlorophenol		<MDL	0.18	0.357	ug/L
Phenanthrene	0.388		0.14	0.286	ug/L
Phenol		<MDL	0.32	0.643	ug/L
Pyrene	1.21		0.14	0.286	ug/L
Pyridine		<MDL	0.95	1.9	ug/L

Analytical Resources, Incorporated
Analytical Chemists and Consultants

July 29, 2005

Mr. Bruce McDonald
Anchor Environmental, Inc.
1423 Third Avenue
Seattle, WA 98101

Subject: Denny Way CSO
ARI Project No.: II12

Dear Mr. McDonald;

The elutriate test you requested has been completed and the resulting water samples have been forwarded to King County Environmental Laboratory, as you requested. The elutriate test was run according to the Corps of Engineers guidance, with 10 g/liter solids, 5 minutes mixing, 60 minutes aeration, and 60 minutes of settling. The water above the settled solids was dark, with some woody organic material floating in it. The remaining sediment sample will be frozen for archival. Please call me to discuss any questions you may have on the project.

Best Regards,
Analytical Resources, Incorporated

Harold Benny
Geotechnical Division Manager
206-695-6246
haroldb@arilabs.com

Enclosures

cc: File II12

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested:
ARI Client Company: Anchor Environmental	Phone: 287 9130
Client Contact: Bruce McDonald	
Client Project Name: Denny Way CSO	
Client Project #: 020067-01	Samplers: BMcDonald, A. Wick, B. Patterson

Page: 1 of 1

Date: 7/21/05 Ice Present? Y

No. of Coolers: 1 Cooler Temps: 6.5°

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	DRET								Notes/Comments
site Water	7/21		Water	5	✓								
site Sediment DW104	7/21	1710	Sed	2	✓								

Analysis Requested

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature): Bruce McDonald	(Signature) Bob Congleton	(Signature)	(Signature)
	Printed Name: Bruce McDonald	Printed Name: BOB CONGLETON	Printed Name:	Printed Name:
	Company: Anchor Env	Company: ARI	Company:	Company:
	Date & Time: 7/22/05 9:20	Date & Time: 7/22/05 9:20	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release 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 Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

ANALYTICAL RESOURCES INCORPORATED

ELUTRIATE WORKSHEET

Job Number: II12

Sample Identification: DW104

Date: 7/26/05

Technicians: HB

Standard [ ] Modified [ ] DRET [X]

Sediment	1:4	150 g/L	10 g/L
Mixing Time	30 min	5 min	5 min
Aeration Time	NA	60 min	60 min
Settling Time	1 hr	60 min	60 min

Sediment Description:

Sediment Moisture Content	
Tare Number	DRET
Tare Weight	10.44
Wet Weight + Tare	76.59
Dry Weight + Tare	60.55
Moisture Content	0.320

Analyte	Type		Volume
Metals	Total		1000
	Dissolved		
SVOA	Total		
	Dissolved		
PCBs	Total		
	Dissolved		
PAH	Total		
	Dissolved		
TSS	Total		
	Dissolved		
Phthalate	Total		2500
	Dissolved		
Total Volume Required			3500

Test Volume = Total Volume X 1.5 = 5

Standard Elutirate Sediment Volume = 1.25 L

Modified Elutirate Sediment Weight = 990.0718 g

DRET Elutirate Sediment Weight = 66.00479 g

Mixing (5)		Aeration (60)		Settling (60)		Sampling	
Start Time	1840	Start Time	1846	Start Time	1946	Start Time	2046
Stop Time	1845	Stop Time	1946	Stop Time	2046	Stop Time	2100

Notes:

ANALYTICAL RESOURCES INCORPORATED

MOISTURE CONTENT DETERMINATION – ASTM D-2216

Client: Anchor
Project: Denny Way CSO

Tested by: HB
Set-up Date: 7/25/05

Client Sample ID	ARI Sample Number	Depth (ft)	Tare #	Wt. Tare (g)	Wt. Wet Soil + Tare (g)	Wt. Dry Soil + Tare (g)	Wt. Moisture (g)	Wt. Dry Soil (g)	**Moisture Content (%)**
Site Sed	A		DRET	10.44	76.59	60.55			

1103F
Rev. 0

LIMSView Batch Report - run on 08/27/07, 01:03 pm

WG81480 (DENNY WAY SEDIMENT POST C) Department: 6 - Metals, Trace Move Date: 09-AUG-05

Sample	Project	Project Description	List Type	Matrix	Col. Date	Prep Date	Anal Date	QC Association	Comments
L36275-1	423368-80	Denny Way Sediment, Post Construction Monitoring	MTHG-TCLP	TCLP LEACH	7/21/2005 17:10	3-Aug-05	4-Aug-05	WG81480-1, -2, -3, -6, -4, -5	
WG81480-1	SRM		MTHG-TCLP	BLANK WTR		3-Aug-05	4-Aug-05	WG81480-1, -2, -3, -6, -4, -5	1641D
WG81480-2	MB		MTHG-TCLP	BLANK WTR		3-Aug-05	4-Aug-05	WG81480-1, -2, -3, -6, -4, -5	METHOD
WG81480-3	SB		MTHG-TCLP	BLANK WTR		3-Aug-05	4-Aug-05	WG81480-1, -2, -3, -6, -4, -5	WG81480-2
WG81480-4	LD		MTHG-TCLP	TCLP LEACH		3-Aug-05	4-Aug-05	WG81480-1, -2, -3, -6, -4, -5	L36275-1
WG81480-5	MS		MTHG-TCLP	TCLP LEACH		3-Aug-05	4-Aug-05	WG81480-1, -2, -3, -6, -4, -5	L36275-1
WG81480-6	MB		MTHG-TCLP	BLANK WTR		3-Aug-05	4-Aug-05	WG81480-1, -2, -3, -6, -4, -5	TCLP

WG81465 (ICP 8/1/05) Department: 6 - Metals, Trace Move Date: 08-AUG-05

Sample	Project	Project Description	List Type	Matrix	Col. Date	Prep Date	Anal Date	QC Association	Comments
L36275-1	423368-80	Denny Way Sediment, Post Construction Monitoring	MTICP-TCLP	TCLP LEACH	7/21/2005 17:10	1-Aug-05	1-Aug-05	WG81465-1, -2, -3, -4, -5, -6	
WG81465-1	SB		MTICP-TCLP	BLANK WTR		1-Aug-05	1-Aug-05	WG81465-1, -2, -3, -4, -5, -6	WG81465-3
WG81465-2	LCS		MTICP-TCLP	BLANK WTR		1-Aug-05	1-Aug-05	WG81465-1, -2, -3, -4, -5, -6	QCLCS
WG81465-3	MB		MTICP-TCLP	BLANK WTR		1-Aug-05	1-Aug-05	WG81465-1, -2, -3, -4, -5, -6	DIGESTED
WG81465-4	MB		MTICP-TCLP	TCLP LEACH		1-Aug-05	1-Aug-05	WG81465-1, -2, -3, -4, -5, -6	TCLP
WG81465-5	LD		MTICP-TCLP	TCLP LEACH		1-Aug-05	1-Aug-05	WG81465-1, -2, -3, -4, -5, -6	L36019-1
WG81465-6	MS		MTICP-TCLP	TCLP LEACH		1-Aug-05	1-Aug-05	WG81465-1, -2, -3, -4, -5, -6	L36019-1

LIMSView Analytical QC Report - run on 08/27/07 01:03 pm

Workgroup: WG81480 (DENNY WAY SEDIMENT POST C) Run ID: R108792

SRM:WG81480-1 Matrix: BLANK WTR Listtype: MTHG-TCLP Method: EPA 1311/245.2 (06-01-004-003) Project: NONE Pkey: STD
(Std Reference Material)

Parameter	MDL	RDL	Units	TrueValue	SRM Value	% Rec.	Qual	LabLimit
Mercury, Total, CVAA	0.05	0.15	ug/L	1.59	1.58	99		80--120

MB:WG81480-2 Matrix: BLANK WTR Listtype: MTHG-TCLP Method: EPA 1311/245.2 (06-01-004-003) Project: Pkey: STD
(Method Blank)

Parameter	MDL	RDL	Units	MB Value	Qual
Mercury, Total, CVAA	0.05	0.15	ug/L	<MDL	

SB:WG81480-3 MB:WG81480-2 Matrix: BLANK WTR Listtype: MTHG-TCLP Method: EPA 1311/245.2 (06-01-004-003) Project: NONE Pkey: STD
(Spike Blank, Method Blank)

Parameter	MDL	RDL	Units	MB Value	TrueValue	SB Value	% Rec.	Qual	LabLimit
Mercury, Total, CVAA	0.05	0.15	ug/L	<MDL	5	5.05	101		85--115

LD:WG81480-4 L36275-1 Matrix: TCLP LEACH Listtype: MTHG-TCLP Method: EPA 1311/245.2 (06-01-004-003) Project: 423368-80 Pkey: STD
(Lab Duplicate)

Parameter	MDL	RDL	Units	SampValue	LD Value	RPD^	Qual	LabLimit
Mercury, Total, CVAA	0.05	0.15	ug/L	<MDL	<MDL			20

MS:WG81480-5 L36275-1 Matrix: TCLP LEACH Listtype: MTHG-TCLP Method: EPA 1311/245.2 (06-01-004-003) Project: 423368-80 Pkey: STD
(Matrix Spike)

Parameter	MDL	RDL	Units	SampValue	TrueValue	MS Value	% Rec.	Qual	LabLimit
Mercury, Total, CVAA	0.05	0.15	ug/L	<MDL	5	4.65	93		70--130

MB:WG81480-6 Matrix: BLANK WTR Listtype: MTHG-TCLP Method: EPA 1311/245.2 (06-01-004-003) Project: Pkey: STD
(Method Blank)

Parameter	MDL	RDL	Units	MB Value	Qual
Mercury, Total, CVAA	0.05	0.15	ug/L	<MDL	

Workgroup: WG81465 (ICP 8/1/05) Run ID: R108736

SB:WG81465-1 MB:WG81465-3 Matrix: BLANK WTR Listtype: MTICP-TCLP Method: EPA 1311/200.7 (06-02-004-002) Project: NONE Pkey: SED
(Spike Blank, Method Blank)

Parameter	MDL	RDL	Units	MB Value	TrueValue	SB Value	% Rec.	Qual	LabLimit
Arsenic, Total, ICP	50	250	ug/L	<MDL	1000	1020	102		85--115
Barium, Total, ICP	1	5	ug/L	<MDL	1000	1020	102		85--115
Cadmium, Total, ICP	3	15	ug/L	<MDL	1000	1020	102		85--115
Chromium, Total, ICP	5	25	ug/L	<MDL	1000	1000	100		85--115
Copper, Total, ICP	4	20	ug/L	<MDL	1000	1030	103		85--115
Lead, Total, ICP	30	150	ug/L	<MDL	1000	1020	102		85--115
Nickel, Total, ICP	20	100	ug/L	<MDL	1000	1010	101		85--115
Selenium, Total, ICP	50	250	ug/L	<MDL	1000	1030	103		85--115
Silver, Total, ICP	4	20	ug/L	<MDL	1000	1020	102		85--115
Zinc, Total, ICP	5	25	ug/L	<MDL	1000	1010	101		85--115

LCS:WG81465-2 Matrix: BLANK WTR Listtype: MTICP-TCLP Method: EPA 1311/200.7 (06-02-004-002) Project: NONE Pkey: SED
(Lab Control Sample)

Parameter	MDL	RDL	Units	TrueValue	LCS Value	% Rec.	Qual	LabLimit
Arsenic, Total, ICP	50	250	ug/L	500	515	103		80--120
Barium, Total, ICP	1	5	ug/L	500	500	100		80--120
Cadmium, Total, ICP	3	15	ug/L	500	509	102		80--120
Chromium, Total, ICP	5	25	ug/L	500	493	99		80--120
Copper, Total, ICP	4	20	ug/L	500	509	102		80--120
Lead, Total, ICP	30	150	ug/L	500	502	100		80--120
Nickel, Total, ICP	20	100	ug/L	500	499	100		80--120
Selenium, Total, ICP	50	250	ug/L	500	511	102		80--120
Silver, Total, ICP	4	20	ug/L	500	495	99		80--120
Zinc, Total, ICP	5	25	ug/L	500	498	100		80--120

MB:WG81465-3 Matrix: BLANK WTR Listtype: MTICP-TCLP Method: EPA 1311/200.7 (06-02-004-002) Project: Pkey: SED
(Method Blank)

Parameter	MDL	RDL	Units	MB Value	Qual
Arsenic, Total, ICP	50	250	ug/L	<MDL	
Barium, Total, ICP	1	5	ug/L	<MDL	
Cadmium, Total, ICP	3	15	ug/L	<MDL	
Chromium, Total, ICP	5	25	ug/L	<MDL	
Copper, Total, ICP	4	20	ug/L	<MDL	
Lead, Total, ICP	30	150	ug/L	<MDL	
Nickel, Total, ICP	20	100	ug/L	<MDL	
Selenium, Total, ICP	50	250	ug/L	<MDL	
Silver, Total, ICP	4	20	ug/L	<MDL	
Zinc, Total, ICP	5	25	ug/L	<MDL	

MB:WG81465-4 Matrix: TCLP LEACH Listtype: MTICP-TCLP Method: EPA 1311/200.7 (06-02-004-002) Project: Pkey: SED
(Method Blank)

Parameter	MDL	RDL	Units	MB Value	Qual
Arsenic, Total, ICP	50	250	ug/L	<MDL	
Barium, Total, ICP	1	5	ug/L	40.2	B
Cadmium, Total, ICP	3	15	ug/L	<MDL	
Chromium, Total, ICP	5	25	ug/L	<MDL	
Copper, Total, ICP	4	20	ug/L	<MDL	
Lead, Total, ICP	30	150	ug/L	<MDL	
Nickel, Total, ICP	20	100	ug/L	<MDL	
Selenium, Total, ICP	50	250	ug/L	<MDL	
Silver, Total, ICP	4	20	ug/L	<MDL	
Zinc, Total, ICP	5	25	ug/L	21	B

LD:WG81465-5 L36275-1 Matrix: TCLP LEACH Listtype: MTICP-TCLP Method: EPA 1311/200.7 (06-02-004-002) Project: 423368-80 Pkey: SED
(Lab Duplicate)

Parameter	MDL	RDL	Units	SampValue	LD Value	RPD^	Qual	LabLimit
Arsenic, Total, ICP	50	250	ug/L	<MDL	<MDL			20
Barium, Total, ICP	1	5	ug/L	251	281	11		20
Cadmium, Total, ICP	3	15	ug/L	<MDL	4.3			20
Chromium, Total, ICP	5	25	ug/L	<MDL	<MDL			20
Copper, Total, ICP	4	20	ug/L	<MDL	<MDL			20
Lead, Total, ICP	30	150	ug/L	739	663	11		20
Nickel, Total, ICP	20	100	ug/L	80	84			20
Selenium, Total, ICP	50	250	ug/L	<MDL	<MDL			20
Silver, Total, ICP	4	20	ug/L	<MDL	<MDL			20
Zinc, Total, ICP	5	25	ug/L	1060	1200	13		20

MS:WG81465-6 L36275-1 Matrix: TCLP LEACH Listtype: MTICP-TCLP Method: EPA 1311/200.7 (06-02-004-002) Project: 423368-80 Pkey: SED
(Matrix Spike)

Parameter	MDL	RDL	Units	SampValue	TrueValue	MS Value	% Rec.	Qual	LabLimit
Arsenic, Total, ICP	50	250	ug/L	<MDL	1000	1180	118		70--130
Barium, Total, ICP	1	5	ug/L	251	1000	1270	102		70--130
Cadmium, Total, ICP	3	15	ug/L	<MDL	1000	1110	111		70--130
Chromium, Total, ICP	5	25	ug/L	<MDL	1000	1010	101		70--130
Copper, Total, ICP	4	20	ug/L	<MDL	1000	1110	111		70--130
Lead, Total, ICP	30	150	ug/L	739	1000	1730	99		70--130
Nickel, Total, ICP	20	100	ug/L	80	1000	1050	97		70--130
Selenium, Total, ICP	50	250	ug/L	<MDL	1000	1280	128		70--130
Silver, Total, ICP	4	20	ug/L	<MDL	1000	943	94		70--130
Zinc, Total, ICP	5	25	ug/L	1060	1000	2100	104		70--130

LIMSView Batch Report - run on 08/27/07, 01:04 pm

WG81479 (OCS PORT ORCHARD, DENNY W) Department: 6 - Metals, Trace Move Date: 05-AUG-05

Sample	Project	Project Description	List Type	Matrix	Col. Date	Prep Date	Anal Date	QC Association	Comments
L36319-1	423368-80	Denny Way Sediment, Post Construction Monitoring	MTHG-MID	SALT WTR	7/26/2005 0:00	3-Aug-05	4-Aug-05	WG81479-1, -2, -3, -4, -5	
WG81479-1	SRM		MTHG-MID	BLANK WTR		3-Aug-05	4-Aug-05	WG81479-1, -2, -3, -4, -5	1641D-M
WG81479-2	MB		MTHG-MID	BLANK WTR		3-Aug-05	4-Aug-05	WG81479-1, -2, -3, -4, -5	METHOD
WG81479-3	SB		MTHG-MID	BLANK WTR		3-Aug-05	4-Aug-05	WG81479-1, -2, -3, -4, -5	WG81479-2
WG81479-4	MS		MTHG-MID	EFFLUENT		3-Aug-05	4-Aug-05	WG81479-1, -2, -3, -4, -5	L36141-1
WG81479-5	MSD		MTHG-MID	EFFLUENT		3-Aug-05	4-Aug-05	WG81479-1, -2, -3, -4, -5	WG81479-4

WG81470 (bl#601 bnallfull) Department: 7 - Organics, Trace Move Date: 17-AUG-05

Sample	Project	Project Description	List Type	Matrix	Col. Date	Prep Date	Anal Date	QC Association	Comments
L36319-1	423368-80	Denny Way Sediment, Post Construction Monitoring	ORBNALLFULL	SALT WTR	7/26/2005 0:00	1-Aug-05	15-Aug-05	WG81470-1, -2, -3, -4	
WG81470-1	MB		ORBNALLFULL	BLANK WTR		1-Aug-05	15-Aug-05	WG81470-1, -2, -3, -4	MB050801
WG81470-2	SB		ORBNALLFULL	BLANK WTR		1-Aug-05	15-Aug-05	WG81470-1, -2, -3, -4	WG81470-1
WG81470-3	MS		ORBNALLFULL	SALT WTR		1-Aug-05	15-Aug-05	WG81470-1, -2, -3, -4	L36319-1
WG81470-4	MSD		ORBNALLFULL	SALT WTR		1-Aug-05	15-Aug-05	WG81470-1, -2, -3, -4	WG81470-3

LIMSView Analytical QC Report - run on 08/27/07 01:04 pm

Workgroup: WG81479 (OCS PORT ORCHARD, DENNY W) Run ID: R108784

SRM:WG81479-1 Matrix: BLANK WTR Listtype: MTHG-MID Method: EPA 245.1 (06-01-004-003) Project: NONE Pkey: STD
(Std Reference Material)

Parameter	MDL	RDL	Units	TrueValue	SRM Value	% Rec.	Qual	LabLimit
Mercury, Total, CVAA	0.05	0.15	ug/L	1.59	1.51	95		80--120

MB:WG81479-2 Matrix: BLANK WTR Listtype: MTHG-MID Method: EPA 245.1 (06-01-004-003) Project: Pkey: STD
(Method Blank)

Parameter	MDL	RDL	Units	MB Value	Qual
Mercury, Total, CVAA	0.05	0.15	ug/L	<MDL	

SB:WG81479-3 MB:WG81479-2 Matrix: BLANK WTR Listtype: MTHG-MID Method: EPA 245.1 (06-01-004-003) Project: NONE Pkey: STD
(Spike Blank, Method Blank)

Parameter	MDL	RDL	Units	MB Value	TrueValue	SB Value	% Rec.	Qual	LabLimit
Mercury, Total, CVAA	0.05	0.15	ug/L	<MDL	1	0.98	98		85--115

MSD:WG81479-5 MS:WG81479-4 L36141-1 Matrix: EFFLUENT Listtype: MTHG-MID Method: EPA 245.1 (06-01-004-003) Project: 421184PO Pkey: STD
(Matrix Spike Duplicate, Matrix Spike)

Parameter	MDL	RDL	Units	SampValue	TrueValue	MS Value	% Rec.	Qual	LabLimit	TrueValue	MSD Value	% Rec.	Qual	RPD	Qual	LabLimit
Mercury, Total, CVAA	0.05	0.15	ug/L	<MDL	1	1.03	103		70--130	1	1.03	103		0		20

Workgroup: WG81470 (bl#601 bnallfull) Run ID: R108919

MB:WG81470-1 Matrix: BLANK WTR Listtype: ORBNALLFULL Method: EPA 3520C/8270C (7-3-01-004) Project: 423368-80 Pkey: STD
(Method Blank)

Parameter	MDL	RDL	Units	MB Value	Qual
1,2,4-Trichlorobenzene	0.0099	0.0199	ug/L	<MDL	
1,2-Dichlorobenzene	0.05	0.1	ug/L	<MDL	
1,2-Diphenylhydrazine	0.38	0.75	ug/L	<MDL	
1,3-Dichlorobenzene	0.05	0.1	ug/L	<MDL	
1,4-Dichlorobenzene	0.05	0.1	ug/L	<MDL	
2,4,5-Trichlorophenol	0.45	0.9	ug/L	<MDL	
2,4,6-Trichlorophenol	0.49	0.975	ug/L	<MDL	
2,4-Dichlorophenol	0.6	1.2	ug/L	<MDL	
2,4-Dimethylphenol	0.26	0.525	ug/L	<MDL	
2,4-Dinitrophenol	0.5	1	ug/L	<MDL	
2,4-Dinitrotoluene	0.11	0.225	ug/L	<MDL	
2,6-Dinitrotoluene	0.38	0.75	ug/L	<MDL	
2-Chloronaphthalene	0.6	1.2	ug/L	<MDL	
2-Chlorophenol	0.3	0.6	ug/L	<MDL	
2-Methylnaphthalene	0.53	1.05	ug/L	<MDL	
2-Methylphenol	0.71	1.43	ug/L	<MDL	
2-Nitroaniline	0.25	0.5	ug/L	<MDL	
2-Nitrophenol	0.56	1.13	ug/L	<MDL	
3,3'-Dichlorobenzidine	0.1	0.2	ug/L	<MDL	
3-Methylphenol	0.1	0.2	ug/L	<MDL	
3-Nitroaniline	0.25	0.5	ug/L	<MDL	
4,6-Dinitro-O-Cresol	0.5	1	ug/L	<MDL	
4-Bromophenyl Phenyl Ether	0.34	0.675	ug/L	<MDL	
4-Chloro-3-Methylphenol	0.1	0.2	ug/L	<MDL	
4-Chloroaniline	0.1	0.2	ug/L	<MDL	
4-Chlorophenyl Phenyl Ether	0.49	0.975	ug/L	<MDL	
4-Methylphenol	0.6	1.2	ug/L	<MDL	
4-Nitroaniline	0.5	1	ug/L	<MDL	
4-Nitrophenol	0.5	1	ug/L	<MDL	
Acenaphthene	0.26	0.525	ug/L	<MDL	
Acenaphthylene	0.56	1.13	ug/L	<MDL	
Aniline	0.71	1.43	ug/L	<MDL	
Anthracene	0.15	0.3	ug/L	<MDL	
Benzo(a)anthracene	0.075	0.15	ug/L	<MDL	
Benzo(a)pyrene	0.11	0.225	ug/L	<MDL	
Benzo(b)fluoranthene	0.11	0.225	ug/L	<MDL	

Benzo(g,h,i)perylene	0.3	0.6	ug/L	<MDL	
Benzo(k)fluoranthene	0.11	0.225	ug/L	<MDL	
Benzoic Acid	0.23	0.45	ug/L	<MDL	
Benzyl Alcohol	0.23	0.45	ug/L	<MDL	
Benzyl Butyl Phthalate	0.5	1	ug/L	<MDL	
Bis(2-Chloroethoxy)Methane	0.64	1.28	ug/L	<MDL	
Bis(2-Chloroethyl)Ether	0.56	1.13	ug/L	<MDL	
Bis(2-Chloroisopropyl)Ether	0.56	1.13	ug/L	<MDL	
Bis(2-Ethylhexyl)Phthalate	0.05	1	ug/L	1.57	B
Caffeine	0.23	0.45	ug/L	<MDL	
Carbazole	0.26	0.525	ug/L	<MDL	
Chrysene	0.15	0.3	ug/L	<MDL	
Coprostanol	0.53	1.05	ug/L	<MDL	
Di-N-Butyl Phthalate	0.5	1	ug/L	<MDL	
Di-N-Octyl Phthalate	0.5	1	ug/L	<MDL	
Dibenzo(a,h)anthracene	0.26	0.525	ug/L	<MDL	
Dibenzofuran	0.53	1.05	ug/L	<MDL	
Diethyl Phthalate	0.5	1	ug/L	<MDL	
Dimethyl Phthalate	0.5	1	ug/L	<MDL	
Fluoranthene	0.3	0.6	ug/L	<MDL	
Fluorene	0.49	0.975	ug/L	<MDL	
Hexachlorobenzene	0.025	0.0499	ug/L	<MDL	
Hexachlorobutadiene	0.028	0.0563	ug/L	<MDL	
Hexachlorocyclopentadiene	0.25	0.5	ug/L	<MDL	
Hexachloroethane	0.56	1.13	ug/L	<MDL	
Indeno(1,2,3-Cd)Pyrene	0.34	0.675	ug/L	<MDL	
Isophorone	0.71	1.43	ug/L	<MDL	
N-Nitrosodi-N-Propylamine	0.34	0.675	ug/L	<MDL	
N-Nitrosodimethylamine	0.75	1.5	ug/L	<MDL	
N-Nitrosodiphenylamine	0.75	1.5	ug/L	<MDL	
Naphthalene	0.53	1.05	ug/L	<MDL	
Nitrobenzene	0.6	1.2	ug/L	<MDL	
Pentachlorophenol	0.19	0.375	ug/L	<MDL	
Phenanthrene	0.15	0.3	ug/L	<MDL	
Phenol	0.34	0.675	ug/L	<MDL	
Pyrene	0.15	0.3	ug/L	<MDL	
Pyridine	1	2	ug/L	<MDL	

SB:WG81470-2 MB:WG81470-1 Matrix: BLANK WTR Listtype: ORBNALLFULL Method: EPA 3520C/8270C (7-3-01-004) Project: 423368-80 Pkey: STD
(Spike Blank, Method Blank)

Parameter	MDL	RDL	Units	MB Value	TrueValue	SB Value	% Rec.	Qual	LabLimit
1,2,4-Trichlorobenzene	0.0099	0.0199	ug/L	<MDL	2	1.04	52		50--150
1,2-Dichlorobenzene	0.05	0.1	ug/L	<MDL	2	0.763	38	*	50--150
1,2-Diphenylhydrazine	0.38	0.75	ug/L	<MDL	2	1.3	65		50--150
1,3-Dichlorobenzene	0.05	0.1	ug/L	<MDL	2	0.674	34	*	50--150
1,4-Dichlorobenzene	0.05	0.1	ug/L	<MDL	2	0.722	36	*	50--150
2,4,5-Trichlorophenol	0.45	0.9	ug/L	<MDL	2	1.67	84		50--150
2,4,6-Trichlorophenol	0.49	0.975	ug/L	<MDL	2	1.65	83		50--150
2,4-Dichlorophenol	0.6	1.2	ug/L	<MDL	2	1.43	72		50--150
2,4-Dimethylphenol	0.26	0.525	ug/L	<MDL	2	0.769	38	*	50--150
2,4-Dinitrophenol	0.5	1	ug/L	<MDL	2	1.57	78		50--150
2,4-Dinitrotoluene	0.11	0.225	ug/L	<MDL	2	1.72	86		50--150
2,6-Dinitrotoluene	0.38	0.75	ug/L	<MDL	2	1.94	97		50--150
2-Chloronaphthalene	0.6	1.2	ug/L	<MDL	2	1.46	73		50--150
2-Chlorophenol	0.3	0.6	ug/L	<MDL	2	1.4	70		50--150
2-Methylnaphthalene	0.53	1.05	ug/L	<MDL	2	1.33	67		50--150
2-Methylphenol	0.71	1.43	ug/L	<MDL	2	1.3	67		50--150
2-Nitroaniline	0.25	0.5	ug/L	<MDL	2	1.42	71		50--150
2-Nitrophenol	0.56	1.13	ug/L	<MDL	2	1.51	76		50--150
3,3'-Dichlorobenzidine	0.1	0.2	ug/L	<MDL	2	1.43	72		50--150
3-Methylphenol	0.1	0.2	ug/L	<MDL	2	1.33	66		50--150
3-Nitroaniline	0.25	0.5	ug/L	<MDL	2	0.771	39	*	50--150
4,6-Dinitro-O-Cresol	0.5	1	ug/L	<MDL	2	1.44	72		50--150
4-Bromophenyl Phenyl Ether	0.34	0.675	ug/L	<MDL	2	1.62	81		50--150
4-Chloro-3-Methylphenol	0.1	0.2	ug/L	<MDL	2	1.63	82		50--150
4-Chloroaniline	0.1	0.2	ug/L	<MDL	2	0.408	20	*	50--150
4-Chlorophenyl Phenyl Ether	0.49	0.975	ug/L	<MDL	2	1.85	92		50--150

4-Methylphenol	0.6	1.2	ug/L	<MDL	2	1.33	66		50--150
4-Nitroaniline	0.5	1	ug/L	<MDL	2	1.57	78		50--150
4-Nitrophenol	0.5	1	ug/L	<MDL	2	1.82	91		50--150
Acenaphthene	0.26	0.525	ug/L	<MDL	2	1.36	68		50--150
Acenaphthylene	0.56	1.13	ug/L	<MDL	2	1.61	80		50--150
Aniline	0.71	1.43	ug/L	<MDL	2	1.4	69		50--150
Anthracene	0.15	0.3	ug/L	<MDL	2	1.46	73		50--150
Benzo(a)anthracene	0.075	0.15	ug/L	<MDL	2	1.77	88		50--150
Benzo(a)pyrene	0.11	0.225	ug/L	<MDL	2	1.71	86		50--150
Benzo(b)fluoranthene	0.11	0.225	ug/L	<MDL	2	1.76	88		50--150
Benzo(g,h,i)perylene	0.3	0.6	ug/L	<MDL	2	1.66	83		50--150
Benzo(k)fluoranthene	0.11	0.225	ug/L	<MDL	2	1.71	86		50--150
Benzoic Acid	0.23	0.45	ug/L	<MDL	2	<MDL	0	*	50--150
Benzyl Alcohol	0.23	0.45	ug/L	<MDL	2	1.23	62		50--150
Benzyl Butyl Phthalate	0.5	1	ug/L	<MDL	2	1.92	96		50--150
Bis(2-Chloroethoxy)Methane	0.64	1.28	ug/L	<MDL	2	1.64	82		50--150
Bis(2-Chloroethyl)Ether	0.56	1.13	ug/L	<MDL	2	1.14	57		50--150
Bis(2-Chloroisopropyl)Ether	0.56	1.13	ug/L	<MDL	2	1.5	75		50--150
Bis(2-Ethylhexyl)Phthalate	0.05	1	ug/L	1.57	2	2.06	25	*	50--150
Caffeine	0.23	0.45	ug/L	<MDL	2	1.65	83		50--150
Carbazole	0.26	0.525	ug/L	<MDL	2	1.78	89		50--150
Chrysene	0.15	0.3	ug/L	<MDL	2	1.64	82		50--150
Coprostanol	0.53	1.05	ug/L	<MDL	20	14	70		50--150
Di-N-Butyl Phthalate	0.5	1	ug/L	<MDL	2	1.87	93		50--150
Di-N-Octyl Phthalate	0.5	1	ug/L	<MDL	2	1.75	88		50--150
Dibenzo(a,h)anthracene	0.26	0.525	ug/L	<MDL	2	1.74	87		50--150
Dibenzofuran	0.53	1.05	ug/L	<MDL	2	1.74	87		50--150
Diethyl Phthalate	0.5	1	ug/L	<MDL	2	2.11	106		50--150
Dimethyl Phthalate	0.5	1	ug/L	<MDL	2	1.78	89		50--150
Fluoranthene	0.3	0.6	ug/L	<MDL	2	1.86	93		50--150
Fluorene	0.49	0.975	ug/L	<MDL	2	1.73	86		50--150
Hexachlorobenzene	0.025	0.0499	ug/L	<MDL	2	1.68	84		50--150
Hexachlorobutadiene	0.028	0.0563	ug/L	<MDL	2	0.869	43	*	50--150
Hexachlorocyclopentadiene	0.25	0.5	ug/L	<MDL	2	<MDL	0	*	50--150
Hexachloroethane	0.56	1.13	ug/L	<MDL	2	0.61	31	*	50--150
Indeno(1,2,3-Cd)Pyrene	0.34	0.675	ug/L	<MDL	2	1.72	86		50--150
Isophorone	0.71	1.43	ug/L	<MDL	2	0.96	48	*	50--150
N-Nitrosodi-N-Propylamine	0.34	0.675	ug/L	<MDL	2	1.56	78		50--150
N-Nitrosodimethylamine	0.75	1.5	ug/L	<MDL	2	1.4	70		50--150
N-Nitrosodiphenylamine	0.75	1.5	ug/L	<MDL	2	1.71	86		50--150
Naphthalene	0.53	1.05	ug/L	<MDL	2	1.08	54		50--150
Nitrobenzene	0.6	1.2	ug/L	<MDL	2	1.53	77		50--150
Pentachlorophenol	0.19	0.375	ug/L	<MDL	2	1.19	59		50--150
Phenanthrene	0.15	0.3	ug/L	<MDL	2	1.47	74		50--150
Phenol	0.34	0.675	ug/L	<MDL	2	1.51	76		50--150
Pyrene	0.15	0.3	ug/L	<MDL	2	1.83	92		50--150
Pyridine	1	2	ug/L	<MDL	2	<MDL	0	*	50--150

MSD:WG81470-4 MS:WG81470-3 L36319-1 Matrix: SALT WTR Listtype: ORBNALLFULL Method: EPA 3520C/8270C (7-3-01-004) Project: 423368-80 Pkey: STD
(Matrix Spike Duplicate, Matrix Spike)

Parameter	MDL	RDL	Units	SampValue	TrueValue	MS Value	% Rec.	Qual	LabLimit	TrueValue	MSD Value	% Rec.	Qual	RPD	Qual	LabLimit
1,2,4-Trichlorobenzene	0.011	0.0218	ug/L	<MDL	2.2	1.57	72		50--150	2.2	1.39	63		13		100
1,2-Dichlorobenzene	0.055	0.11	ug/L	<MDL	2.2	1.08	49	*	50--150	2.2	0.938	43	*	13		100
1,2-Diphenylhydrazine	0.41	0.824	ug/L	<MDL	2.2	1.66	76		50--150	2.2	1.48	67		13		100
1,3-Dichlorobenzene	0.055	0.11	ug/L	<MDL	2.2	0.9	41	*	50--150	2.2	0.785	36	*	13		100
1,4-Dichlorobenzene	0.055	0.11	ug/L	0.165	2.2	1.15	45	*	50--150	2.2	1.01	39	*	14		100
2,4,5-Trichlorophenol	0.49	0.989	ug/L	<MDL	2.2	2.06	94		50--150	2.2	2.14	98		4		100
2,4,6-Trichlorophenol	0.54	1.07	ug/L	<MDL	2.2	2.3	104		50--150	2.2	2.16	98		6		100
2,4-Dichlorophenol	0.66	1.32	ug/L	<MDL	2.2	2.01	91		50--150	2.2	1.77	81		12		100
2,4-Dimethylphenol	0.29	0.577	ug/L	<MDL	2.2	1.18	53		50--150	2.2	0.74	34	*	44		100
2,4-Dinitrophenol	0.55	1.1	ug/L	<MDL	2.2	2.49	113		50--150	2.2	2.32	106		6		100
2,4-Dinitrotoluene	0.12	0.247	ug/L	<MDL	2.2	2.24	102		50--150	2.2	2.13	97		5		100
2,6-Dinitrotoluene	0.41	0.824	ug/L	<MDL	2.2	2.21	100		50--150	2.2	2.11	96		4		100
2-Chloronaphthalene	0.66	1.32	ug/L	<MDL	2.2	1.88	86		50--150	2.2	1.7	77		11		100
2-Chlorophenol	0.33	0.659	ug/L	<MDL	2.2	1.65	75		50--150	2.2	1.5	68		10		100
2-Methylnaphthalene	0.58	1.15	ug/L	<MDL	2.2	1.98	90		50--150	2.2	1.72	78		14		100
2-Methylphenol	0.78	1.57	ug/L	<MDL	2.2	1.65	75		50--150	2.2	1.4	64		16		100

2-Nitroaniline	0.27	0.549	ug/L	<MDL	2.2	1.59	72		50--150	2.2	1.49	68		6	100
2-Nitrophenol	0.62	1.24	ug/L	<MDL	2.2	2.11	96		50--150	2.2	1.94	88		9	100
3,3'-Dichlorobenzidine	0.11	0.22	ug/L	<MDL	2.2	<MDL	0	*	50--150	2.2	<MDL	0	*		100
3-Methylphenol	0.11	0.22	ug/L	<MDL	2.2	1.74	79		50--150	2.2	1.39	63		23	100
3-Nitroaniline	0.27	0.549	ug/L	<MDL	2.2	<MDL	0	*	50--150	2.2	<MDL	0	*		100
4,6-Dinitro-O-Cresol	0.55	1.1	ug/L	<MDL	2.2	1.99	91		50--150	2.2	1.96	89		2	100
4-Bromophenyl Phenyl Ether	0.37	0.742	ug/L	<MDL	2.2	2.18	99		50--150	2.2	2.09	95		4	100
4-Chloro-3-Methylphenol	0.11	0.22	ug/L	<MDL	2.2	2.18	99		50--150	2.2	1.99	90		10	100
4-Chloroaniline	0.11	0.22	ug/L	<MDL	2.2	<MDL	0	*	50--150	2.2	<MDL	0	*		100
4-Chlorophenyl Phenyl Ether	0.54	1.07	ug/L	<MDL	2.2	2.38	108		50--150	2.2	2.33	106		2	100
4-Methylphenol	0.66	1.32	ug/L	<MDL	2.2	1.74	79		50--150	2.2	1.39	63		23	100
4-Nitroaniline	0.55	1.1	ug/L	<MDL	2.2	<MDL	0	*	50--150	2.2	<MDL	0	*		100
4-Nitrophenol	0.55	1.1	ug/L	<MDL	2.2	2.06	94		50--150	2.2	2.06	94		0	100
Acenaphthene	0.29	0.577	ug/L	0.25	2.2	2.03	81		50--150	2.2	1.85	73		10	100
Acenaphthylene	0.62	1.24	ug/L	<MDL	2.2	2.02	92		50--150	2.2	1.87	85		8	100
Aniline	0.78	1.57	ug/L	<MDL	2.2	1.59	72		50--150	2.2	1.4	63		13	100
Anthracene	0.16	0.33	ug/L	0.306	2.2	2.21	87		50--150	2.2	2.07	80		8	100
Benzo(a)anthracene	0.082	0.165	ug/L	0.203	2.2	2.41	100		50--150	2.2	2.25	93		7	100
Benzo(a)pyrene	0.12	0.247	ug/L	<MDL	2.2	2.2	100		50--150	2.2	2.05	93		7	100
Benzo(b)fluoranthene	0.12	0.247	ug/L	<MDL	2.2	2.28	104		50--150	2.2	2.11	96		8	100
Benzo(g,h,i)perylene	0.33	0.659	ug/L	<MDL	2.2	2.09	95		50--150	2.2	1.96	89		7	100
Benzo(k)fluoranthene	0.12	0.247	ug/L	0.13	2.2	2.29	98		50--150	2.2	2.04	87		12	100
Benzoic Acid	0.25	0.495	ug/L	<MDL	2.2	3.51	160	*	50--150	2.2	3.21	146		9	100
Benzyl Alcohol	0.25	0.495	ug/L	<MDL	2.2	1.39	63		50--150	2.2	1.35	61		3	100
Benzyl Butyl Phthalate	0.55	1.1	ug/L	<MDL	2.2	2.46	112		50--150	2.2	2.29	104		7	100
Bis(2-Chloroethoxy)Methane	0.7	1.4	ug/L	<MDL	2.2	1.93	88		50--150	2.2	1.68	76		15	100
Bis(2-Chloroethyl)Ether	0.62	1.24	ug/L	<MDL	2.2	1.32	60		50--150	2.2	1.2	53		12	100
Bis(2-Chloroisopropyl)Ether	0.62	1.24	ug/L	<MDL	2.2	1.1	50		50--150	2.2	1.52	69		32	100
Bis(2-Ethylhexyl)Phthalate	0.055	1.1	ug/L	2.71	2.2	6.67	180	*	50--150	2.2	5.31	119		41	100
Caffeine	0.25	0.495	ug/L	<MDL	2.2	1.91	87		50--150	2.2	1.76	80		8	100
Carbazole	0.29	0.577	ug/L	<MDL	2.2	2.21	100		50--150	2.2	2.06	94		6	100
Chrysene	0.16	0.33	ug/L	0.21	2.2	2.24	92		50--150	2.2	2.1	86		7	100
Coprostanol	0.58	1.15	ug/L	9.52	22	12.2	12	*	50--150	22	13	16	*	29	100
Di-N-Butyl Phthalate	0.55	1.1	ug/L	<MDL	2.2	2.44	111		50--150	2.2	2.28	104		7	100
Di-N-Octyl Phthalate	0.55	1.1	ug/L	<MDL	2.2	2.3	105		50--150	2.2	2.2	100		5	100
Dibenzo(a,h)anthracene	0.29	0.577	ug/L	<MDL	2.2	2.14	97		50--150	2.2	1.95	89		9	100
Dibenzofuran	0.58	1.15	ug/L	<MDL	2.2	2.31	105		50--150	2.2	2.17	99		6	100
Diethyl Phthalate	0.55	1.1	ug/L	<MDL	2.2	2.81	128		50--150	2.2	2.68	122		5	100
Dimethyl Phthalate	0.55	1.1	ug/L	<MDL	2.2	2.24	102		50--150	2.2	2.11	96		6	100
Fluoranthene	0.33	0.659	ug/L	1.44	2.2	4.08	120		50--150	2.2	3.81	108		11	100
Fluorene	0.54	1.07	ug/L	<MDL	2.2	2.57	117		50--150	2.2	2.4	109		7	100
Hexachlorobenzene	0.027	0.0548	ug/L	<MDL	2.2	2.13	97		50--150	2.2	2.08	95		2	100
Hexachlorobutadiene	0.031	0.0618	ug/L	<MDL	2.2	1.51	69		50--150	2.2	1.4	64		8	100
Hexachlorocyclopentadiene	0.27	0.549	ug/L	<MDL	2.2	<MDL	0	*	50--150	2.2	<MDL	0	*		100
Hexachloroethane	0.62	1.24	ug/L	<MDL	2.2	1	47	*	50--150	2.2	0.85	39	*	19	100
Indeno(1,2,3-Cd)Pyrene	0.37	0.742	ug/L	<MDL	2.2	2.16	98		50--150	2.2	2	91		7	100
Isophorone	0.78	1.57	ug/L	<MDL	2.2	1.2	56		50--150	2.2	1.1	52		7	100
N-Nitrosodi-N-Propylamine	0.37	0.742	ug/L	<MDL	2.2	2.28	104		50--150	2.2	1.92	87		18	100
N-Nitrosodimethylamine	0.82	1.65	ug/L	<MDL	2.2	1.6	73		50--150	2.2	1.5	66		10	100
N-Nitrosodiphenylamine	0.82	1.65	ug/L	<MDL	2.2	2.05	93		50--150	2.2	1.91	87		7	100
Naphthalene	0.58	1.15	ug/L	<MDL	2.2	1.59	72		50--150	2.2	1.44	66		9	100
Nitrobenzene	0.66	1.32	ug/L	<MDL	2.2	1.92	88		50--150	2.2	1.8	82		7	100
Pentachlorophenol	0.21	0.412	ug/L	<MDL	2.2	1.97	89		50--150	2.2	1.88	86		3	100
Phenanthrene	0.16	0.33	ug/L	0.388	2.2	2.22	84		50--150	2.2	2.07	77		9	100
Phenol	0.37	0.742	ug/L	<MDL	2.2	1.85	84		50--150	2.2	1.64	75		11	100
Pyrene	0.16	0.33	ug/L	1.21	2.2	3.54	106		50--150	2.2	3.36	98		8	100
Pyridine	1.1	2.2	ug/L	<MDL	2.2	<MDL	0	*	50--150	2.2	<MDL	0	*		100

Surrogate:	2,4,6-Tribromophenol	2-Fluorobiphenyl	2-Fluorophenol	d14-Terphenyl	d4-1,2-Dichlorobenzene	d4-2-Chlorophenol	d5-Nitrobenzene	d5-Phenol
(Lab Limits)	10--123	43--116	21--110	33--141	16--110	33--110	35--114	10--110
L36319-1	104	85	61	90	54	76	89	64
WG81470-1	76	63	60	93	41	73	78	66
WG81470-2	72	79	62	95	41	71	82	68
WG81470-3	93	91	63	99	51	75	93	74
WG81470-4	88	81	60	97	43	69	89	65